

2022

## Childhood Food Insecurity: A Program Impact and Evaluation Study of the Meals on Wheels for Kids Program

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Childhood Food Insecurity: A Program Impact and Evaluation Study of the  
Meals on Wheels for Kids Program

by

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DCN DISSERTATION PROPOSAL

Submitted in partial fulfillment of the requirements for the degree of  
Doctorate of Clinical Nutrition  
University of North Florida

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## **Acknowledgments**

It is with sincere gratitude that I thank Dr. Lauri Wright and Dr. Andrea Arikawa. These two individuals provided me with a high level of leadership and courage that is rarely seen among professionals. Their morals, character, and unyielding support have allowed me the privilege of this life-altering education.

Thank you to the Tampa Bay Network to End Hunger- the Meals on Wheels for Kids staff are true heroes. Fighting for hungry children and families every day with no cape.

I am grateful to my dissertation committee members. Their patience and guidance helped me to always keep moving forward with grace and a sense of humor.

To my DCN cohorts, thank you for the support regardless of the time of day. I never felt alone once. You each have a special place in my heart and I will continue these friendships for years to come. Anything is possible if you have the right people to support you.

To my sister, Lee- my constant cheerleader. Just knowing you are by my side is a gift.

Because the most important people should be saved for last, my husband and son easily slide into this spot. Gavin- your calming presence and strong soul helped me persevere. May your thirst for learning never cease at any age. Gerry- my champion. Your respect, devotion, and love provided me with energy and strength. Your unselfish ability to embrace this uncaged bird allows me the freedom to fly.

In the end, I did this for me.

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## **Abstract**

In America, millions of families and children face hunger and food insecurity every day. According to the United States Department of Agriculture, more than thirty-eight million people experienced hunger in 2020. As many as 13 million children in the United States live in food-insecure homes. Many households that experience food insecurity do not qualify for federal nutrition programs. While valuable, barriers to these programs can block food-insecure households with children and prevent access to healthy food. The impact of adverse health and nutritional consequences, of a food-insecure household, will continue to plague our communities until efficient programming connects to those in need. Household and child food insecurity has greatly changed. Since the pandemic, our respect for food systems, food availability, and food security has greatly intensified. The actual numbers of food insecurity within these past two years are yet to be realized. While the above statistics are alarming, the concern is that food insecurity data will greatly worsen, specifically in families with children. The COVID-19 pandemic has made us all aware that, as a nation, we need to develop many programs to assure everyone has a place at the table. This proposed study will collaborate with a community pilot program that is trying to fill that gap. The program provides home-delivered meals and serves children in need of healthy foods. An evaluation and impact study for program recipients will analyze the impact of nutrition security and perceived benefits from the participation of the nutrition-focused, home delivery meal program.

## Introduction

Child hunger and childhood food insecurity are ever-present and unfortunate facts in the United States (U.S.). While food insecurity has the potential to be harmful at any age, it can be especially devastating to children.<sup>1</sup> According to the latest estimates, as many as thirteen million children in the U.S. live in food-insecure homes.<sup>2</sup> The USDA defines food insecurity as a lack of consistent access to enough food for an active, healthy life.<sup>3</sup> Hunger refers to the personal, physical sensation of discomfort, while food insecurity refers to a lack of available financial resources for food at the household level.<sup>3</sup> The United States Department of Agriculture (USDA) estimates that one in six children may not have consistent access to enough food for an active, healthy life.<sup>1</sup> In all fifty states and Washington D.C., the estimated rate of child food insecurity is higher than the rate of overall food insecurity.<sup>4</sup>

There is a broad base of literature that has linked food insecurity with poor child health and lower academic achievement. Children in food-insecure homes are much more likely to suffer from asthma, more frequent colds, and iron deficiency anemia when compared to food-secure peers.<sup>3,5,6</sup> Food insecure children are at an increased risk, academically, of lower cognitive and behavioral functioning.<sup>3,5-8</sup> Food insecurity in children has been connected to lower reading and mathematics scores and behavioral problems in the classroom, such as aggression, and anxiety.<sup>3,5,7-10</sup> Lastly, childhood food insecurity can carry the paradox of obesity, weight management, social, and mental health issues.<sup>3,5,6,11-16</sup> These serious conditions can start early in life and continue throughout adulthood in the form of chronic diseases.<sup>3,5,6,11-16</sup>

Childhood food insecurity is a priority for public health stakeholders, given its negative impact on economic, education, and public health concerns. Many strategies exist in Florida and



in the nation to mitigate child hunger and improve food insecurity for families with children. Some of the strategies include Florida's universally free School Breakfast Program (SBP) and the National School Lunch Program (NSLP)- in which both programs provide free and reduced pricing for students.<sup>1,9,17,18</sup> However, barriers within our communities exist preventing many families from accessing healthy food programs.<sup>19-22</sup> Furthering the concern, households that are food insecure and bills to pay will resort to sacrificing monies.<sup>23-25</sup> These families must trade-off each week which medical or housing bills will get paid first. Afterward, having the affordability to feed everyone in the home is a struggle, and many times only a few people in the home are fed while others go hungry.<sup>23-25</sup>

As a consequence of childhood food insecurity, community organizations examine data to improve and reduce household food insecurity within their state and local regions. One of these organizations is the Tampa Bay Network to End Hunger. In March 2020, due to the pandemic, the Tampa Bay Network to End Hunger (TBNEH), a local food security organization, began Meals on Wheels for Kids (MOW4Kids). This home-delivery meal program began serving children who were learning remotely when schools were closed. MOW4Kids began a pilot program, within the Tampa Bay tri-county area. It is a community-driven, alternative option for families with children who are unable to pick up food from meal distribution sites or food pantries due to transportation issues. These families are also participating in the free and reduced SBP and NSLP. For state and local demographics, there are 2,768,480 people in Florida struggling with hunger, and 819,370 of them are children.<sup>9</sup> Currently, across the state of Florida, one in five children struggles with hunger.<sup>9</sup> Specifically, in the Tampa Bay area of Hillsborough County, 12.2 % of the residents are considered food insecure; Pinellas County is 13%; and Pasco County, 13.8%.<sup>18</sup> However, since the pandemic, these numbers are expected to worsen since the

economic crisis has not been evenly experienced across the state.<sup>18</sup> Therein lies the reason for this study. The primary aim of the study is to evaluate and measure the impact on the families that have participated, or are currently participating, in the MOW4Kids home delivery food program.

During the study, sociological theories will be used to make connections between program benefits and perceived values. These theories give the researcher a different lens through which to look at the complicated problem of childhood food insecurity. For this project, a mix of theories will be blended. First is the Family Stress model, which is based on the study of what makes families develop psychosocially and how they connect to their world.<sup>26–28</sup> Second, the Protection Motivation Theory describes how individuals are motivated to react in a self-protective way towards a perceived health threat or concern.<sup>29–31</sup> The Family Stress Model and the Protection Motivation Theory will be used to help evaluate and analyze how programs can reduce or improve childhood food insecurity.

In summary, the study will be a mixed-methods study implemented in two parts. Quantitative surveys will be measuring childhood/household food security levels, parenting stress levels, and nutritional assessments of children whose families are participating in the program. Secondly, qualitative, one-on-one interviews will be conducted with family members participating in the MOW4Kids program. The interviews will be designed to capture information regarding the impact, healthfulness, and potential reduction of financial tradeoffs families experience while on the program. Analysis from quantitative and qualitative surveys could reveal significant associations between a home-delivery food program for food-insecure families and the importance of state/federal funding for such programs.

## **Chapter 1: Literature Review**

### **Food Insecure Children and Families: Demographics and Disruptions**

In the U.S., an estimated 15 million households (11.8%) experienced food insecurity at some point during the fiscal year 2019, despite national spending of \$96.1 billion on domestic food assistance overall.<sup>32</sup> However, food insecurity does not affect all households equally. Food insecurity is significantly higher than average in households with children and households headed by non-Hispanic Black or Hispanic individuals.<sup>32–35</sup> The U.S. has implemented social safety net programs such as Supplemental Nutrition Assistance Program (SNAP), the Earned Income Tax Credit (EITC), and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).<sup>32</sup> Nearly half (44%) of all SNAP participants are children and 31% of U.S. children aged 4 years and younger participate in SNAP.<sup>32</sup> Although SNAP participation is associated with lower odds of food insecurity, more than half of households receiving SNAP benefits are still food insecure.<sup>32</sup>

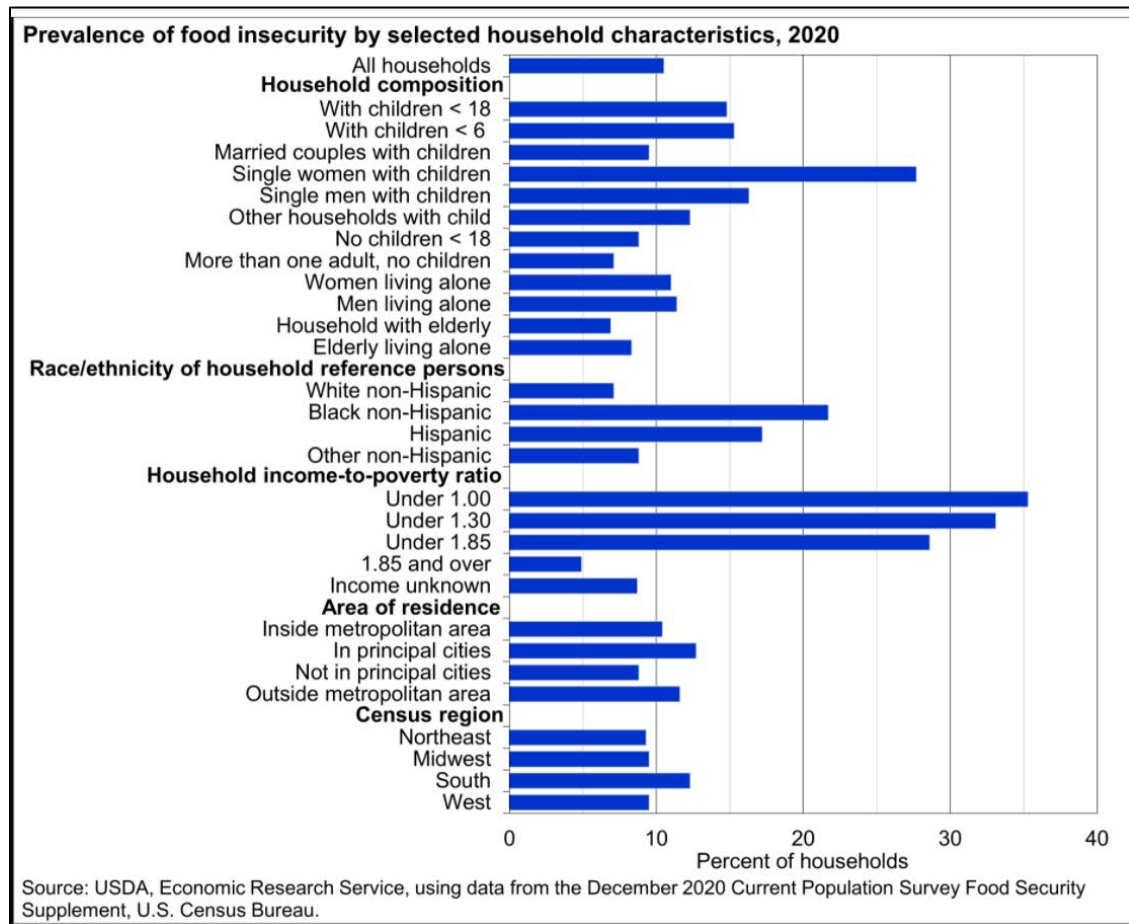
Food insecurity is a complicated problem, and food insecurity measured at the level of children is the most severe.<sup>32,36</sup> One of the most obvious facts is that American family life has become more complex. Research in the area of food insecurity among children has been driven by economics, such as parent job loss and/or families with an unstable income. It is well known that insufficient financial resources are tied to food insecurity but other factors are equally important. Children increasingly experience single parenthood, divorce, cohabitation, and re-partnering.<sup>36</sup> Roughly 40% of U.S. children are expected to reside in a cohabiting family by age twelve.<sup>36</sup> The cohabitation involves and revolves around the relationships between stepfamilies, grandparents, cousins, aunts, uncles, etc. These facts are important because the structure of the

family results in patterns of food insecurity in which there is evidence that household resources are allocated to children differently based on the family type.<sup>36</sup>

The USDA reports the highest rates of food insecurity are among households with children that are single-parent families or households.<sup>36–38</sup> The second highest is cohabiting-parent families, and the last is married-parent families, having the lowest risk of food insecurity.<sup>36</sup> This type of reporting is relying on the union status of the household head, which misses many varieties of complex families, such as cohabiting stepfamilies.<sup>36</sup> Studies may not be capturing child food insecurity differences between biological, stepfamilies, and cohabiting families. By limiting the definition in surveys on family structure, for children in the household, the federal system could be understating the complexity and true statistics of child food security in the U.S.

Lastly, food insecurity prevalence is reported higher than the national average for households with incomes near or below the Federal Poverty Level (FPL), African-American and Hispanic- headed households, and households with children headed by single women or single men.<sup>39,40</sup> Many families living in poverty often rely on unstable, low-paying jobs with little employer-provided benefits and with limited access to affordable and reliable transportation to work.<sup>39</sup> These job opportunities are also constrained by low educational levels and limited work experience, impacting the socioeconomic status.<sup>39</sup> Food insecurity is more common in large cities and rural areas than in suburban and exurban areas.<sup>39</sup> The families that are impacted by poverty, experience unstable housing situations such as living in temporary housing, shelters, or not being able to pay rent or utility bills.<sup>39</sup> Overall, it is crucial to identify and understand these factors to determine interventions for childhood food insecurity.

**Figure 1.** Horizontal Bar Graph with Prevalence of Food Insecurity by Selected Households Characteristics, 2020.<sup>41</sup>



Research has shown that families with children receiving public assistance experience multiple challenges, including long waits at welfare offices, institutionalized stigma, and humiliation.<sup>39</sup> Many studies document the relationship between food insecurity and access to public assistance. Families with children experiencing food insecurity are more likely to participate in free lunch programs and receive earned income tax credits.<sup>39</sup> Participating in SNAP has supported families' socioeconomic well-being while those that have been excluded from SNAP have an increased likelihood of food insecurity.<sup>39</sup> The U.S. consistently spends less on children than other countries, despite the great returns that these investments provide.<sup>32,39</sup> Currently, with or without SNAP, many low-income families still struggle to meet their basic needs.<sup>32</sup>

## **Psychosocial and Mental Health of Household Food Insecurity in the Parent and Child**

Food insecurity affects the emotional climate of the home for the child, and the parent or caregiver.<sup>42–46</sup> Child and maternal behaviors are intertwined from early stages in life and therefore are difficult to separate. Specifically, in the area of mental health, maternal depression is a risk factor for the development of behavioral problems in children.<sup>42</sup> Research studies linked to child food insecurity and mental health are also interconnected to maternal mental health.<sup>5,42,47</sup> Recently, a cross-sectional study was conducted by Gill et al<sup>43</sup> on the food security and emotional environment of WIC participants through the USDA Household Food Security Survey (USDA HFSS) along with a home emotional environment survey. The study revealed that one-third of the families were considered to have low or very low food security despite being participants of WIC.<sup>43</sup> Gill et al<sup>43</sup> found that food insecurity is associated with psychological stress among both mothers and children. This can influence the child to misbehave, while additionally impacting the mother's perception of effective methods of parenting.<sup>43</sup> It is exceptionally challenging to address behavioral problems in the context of other socioeconomic and environmental stressors.<sup>43</sup> The study found that children growing up in food-insecure households have worse caregiver-related health, increased odds of being hospitalized, and more frequent stomach aches, headaches, and colds.<sup>43</sup> More importantly, food-insecure children display higher levels of aggression and withdrawn behaviors.<sup>43</sup> Realizing the psychosocial stress, Gill et al<sup>43</sup> found that the pressure from food insecurity could influence the child to misbehave but it could also impact the mother's perception of and methods for addressing child behavior in the context of other stressors. Also, there is a direct correlation between food insecurity contributing to internalizing and externalizing problems in adolescents.<sup>44</sup> This psychological maladjustment of internalizing results in a child having depression and anxiety yet externalizing

with behaviors such as aggression and conduct problems.<sup>45</sup> Other studies done by Althoff et al<sup>46</sup> found that children reporting food insecurity had higher odds of experiencing emotional symptoms including feeling low, irritable, or nervous.

Food insecurity can affect a child's ability to maternally bond in that there is an insecure attachment operating indirectly through maternal depression and parenting.<sup>46</sup> There are high rates of maternal and child mental illness in families with food insecurity, which focuses on a critical mechanism through which food insecurity relates to the child's mental health.<sup>46</sup> Often parents bear more of the food security and mental health burden than the children, in vulnerable homes.<sup>46</sup> Because parental mental health is a key predictor of child mental health, Althoff et al<sup>46</sup> found that food insecurity was shown to be related to the mothers' overall burden of mental health problems and domestic violence. Unfortunately, the cycle continues because higher levels of depressive symptoms lead to increased child food insecurity.<sup>46</sup> Reesor-Oyer et al<sup>48</sup> completed studies on food insecurity and maternal depression and reported lasting consequences on children. These included delayed language development, hyperactivity, and emotional difficulties.<sup>48</sup> However, the maternal depression impact of experiencing chronic economic deprivation or poor mental health does not differ from experiencing disaster; in both situations, vulnerability arises from limited or lack of social and economic resources.<sup>48</sup> The social vulnerability perspective suggests that a mother's circumstantial situation can be influenced by socioeconomic factors that are uncontrollable on her behalf; including, but not limited to food insecurity.<sup>48</sup> A lack of confidence in a reliable food source can exacerbate health problems such as depression.<sup>48</sup> In a recent study by Guerrero et al,<sup>42</sup> the Fragile Families and Child Well Being study was a longitudinal study of children born to unmarried mothers at high risk due to economically disadvantaged conditions. Researchers collected data from the children's records

from birth to age nine.<sup>42</sup> The study measured food security with the USDA HFSS module, a housing stability survey, and the mother's mental and physical health records.<sup>42</sup> The purpose of the study was to determine whether food insecurity and housing instability are mediators and/or moderators between maternal depression and their children's behavioral problems.<sup>42</sup> The study revealed that the relationship between maternal depression and children's behavioral problems was from a framework that was best defined by social ecology.<sup>42</sup> This meant that the children's behavior(s) were centrally influenced by their home environment.<sup>42</sup> The researchers found that when mothers' depression was measured at year three in the study, there was a direct connection to food insecurity and housing instability in the household by the fifth year of the study.<sup>42</sup> By year nine of the study, child behavioral problems surfaced.<sup>42</sup> The study was able to correlate that food insecurity and housing instability in the fifth year was the mediator for children exhibiting "externalizing" behavior problems by year nine.<sup>42</sup> The externalizing behavior problems presented themselves in the form of outward displays of aggression and conduct problems.<sup>42</sup>

Lastly, studies show that preschool-aged children in food-insecure households demonstrate higher rates of behavioral problems and developmental delays, whereas school-aged children who are food insecure tend to show higher rates of depression, anxiety, externalizing disorders, and poorer academic outcomes.<sup>45</sup> Among adolescents, a study completed by Hatem et al<sup>44</sup> found that experiencing food insecurity, with or without any other economic hardship, placed children at greater risk of experiencing depressive and anxiety symptoms along with behavioral problems and higher rates of suicidal ideation and behavior.<sup>45</sup> By and large, with public health attention and funding of programs improving and/or reducing childhood food insecurity, it is possible to promote both mental health and metabolic health for generations to come.<sup>46</sup>



**Table 1.** Child behavior problems experienced with maternal depression

<b><u>Child Behavior Problems</u></b>	
<b><u>Internalizing Behaviors</u></b>	<b><u>Externalizing Behaviors</u></b>
Anxious/Depressed	Rule-Breaking behavior
Withdrawn/Depressed	Aggressive behavior

## **The Impact of Food Insecurity on the Child**

### *Diet Quality of Food Insecure Children*

Low diet quality, unhealthy weight control practices, and childhood obesity are all associated with household and child food insecurity.<sup>12,13,49</sup> Recent studies have tried to identify problems concerning the food habits and nutritional decisions made in households with child food insecurity. Studies by Landry et al<sup>49</sup> utilized the Healthy Eating Index- 2015 to compare food secure children to food-insecure children, third through fifth grade in Texas elementary schools. Landry et al<sup>49</sup> found a significant association between the added sugar component and food insecurity.<sup>49</sup> Food insecure children had higher intakes of sugar compared to food-secure children.<sup>49</sup> The study revealed that food-insecure children were consuming up to eight (8) grams of added sugar per day when compared to food-secure children.<sup>49</sup> Food secure children had greater intakes of dark leafy green vegetables, dried beans/peas/legumes, seafood, and plant proteins.<sup>49</sup> The studies of Landry et al<sup>49</sup> highlights a larger issue suggesting that dietary habits and patterns established during childhood may persist into adulthood.<sup>49</sup> Experiencing food insecurity during critical times in a child's development may put them at increased risk of chronic diseases.<sup>49</sup> During this one study alone, children who were food insecure, strayed from

the current national dairy recommendations.<sup>49</sup> Lee et al<sup>14</sup> did a recent secondary analysis using baseline data from two community-based, randomized controlled trials in metropolitan Minnesota. While children that are food insecure may benefit from school nutrition programs during the school year, Lee et al<sup>14</sup> chose to conduct a study to better understand the diet quality of food insecure children during the summer months. The study revealed that during the summer months, children from food-insecure households consumed fewer whole fruits but more sugar-sweetened beverages for every 1,000 calories consumed when compared to children from food-secure households.<sup>14</sup> The difference is meaningful at the population level, given that an increase of 0.15 servings of whole fruits per day can lower the risk for type 2 diabetes by three percent. Each additional 12-ounce sugar-sweetened beverage consumed over one year can increase BMI by 0.06 units.<sup>14</sup>

In the end, healthy foods may cost more than less healthy food and beverage options. Diet quality may be linked to food shopping frequency yet households in the U.S. with annual incomes of less than \$20,000 reported shopping at grocery stores less frequently than those with households incomes higher than \$20,000.<sup>21</sup> As a result, families with limited transportation and mobility, such as food-insecure households with children, may be more likely to shop for food at dollar or convenience stores in which diet quality may be compromised.<sup>21</sup>

### *Obesity and Weight Management Concerns of the Food Insecure Child*

Food insecurity can increase the odds of childhood obesity and unhealthy weight control practices through several possible pathways.<sup>12–16</sup> First, limited financial resources and lack of access to healthy foods can prevent families from food-insecure households to purchase

nutritious foods.<sup>15</sup> Healthy foods are often more expensive and more perishable, while less expensive foods, such as refined grains, added sugars, and fats are inexpensive and readily available in low-income communities.<sup>15</sup> Low-income neighborhoods often lack access to full-service grocery stores and farmers' markets.<sup>15</sup> Within these low-income neighborhoods, fresh fruits and vegetables, whole grains, and low-fat dairy products are rarely available.<sup>15</sup>

Additionally, food insecurity can be accompanied by cycles of "feast and famine," which lead to eating less and/or skipping meals, to stretch the food dollars.<sup>15</sup> Cycles of deprivation and overeating can also contribute to future weight gain.<sup>15</sup> Childhood obesity and food insecurity are associated with each other since there is a connection between unhealthy eating patterns with long-term lifestyle practices.<sup>12-16</sup> Household food insecurity has been overtly linked with eating behaviors that can contribute to childhood obesity, such as increased consumption of calorically dense food.<sup>12-16</sup> Kral et al<sup>15</sup> completed a cross-sectional, secondary analysis, with a laboratory-based feeding study, at the University of Pennsylvania. The researchers compared many factors on children aged eight through ten years. They compared the basal metabolic rate (BMI), a parent and child feeding questionnaire, the USDA HFSS, and an assessment measuring the absence of hunger.<sup>15</sup> The study showed that the odds of being obese were five times higher for children from food-insecure households when compared with children from food-secure households.<sup>15</sup> Children from food-insecure households exhibited significantly higher levels of food intake past satiation and in the absence of hunger.<sup>15</sup> Snacking patterns showed an increase in calories as well.<sup>15</sup> Upon comparison, children in food-secure households consumed three to four snacks diurnally, while food-insecure children consumed five or more snacks per day.<sup>15</sup> Mothers from food-insecure households, showed significantly higher levels of concern about their child's weight when compared with mothers from food-secure households.<sup>15</sup> As parents

reported weight concerns, mothers from food-insecure households engaged in restricting their child's access to food or eating versus mothers from food-secure households.<sup>15</sup> These findings suggest that children from food-insecure households can be at risk for obesity, due to repeated food intake ranging from deprivation to desperately overeating.<sup>15</sup>

With a lack of consistent groceries in the pantry or refrigerator, children from food-insecure households can acquire unhealthy eating habits. A recent study completed by Masler et al<sup>12</sup> found that children, ages eight through fifteen years, in very low food secure households, had higher odds of reporting unhealthy weight practices than children in food-secure households. The data revealed that children living with very low food security are likely to report attempting weight loss, even if they have a healthy weight, within the past year compared to children living in all other levels of food security.<sup>12</sup> Masler et al<sup>12</sup> found this was associated with children using weight loss attempts as a coping mechanism for having inconsistent access to food or due to potential pressure from parents to “eat less.” Older children and adolescents are often aware of household food insecurity and may see skipping meals and starving as both a way to lose weight and assist the family in conserving limited food resources.<sup>12</sup> In a study completed by Lee et al,<sup>13</sup> many factors influence food insecurity and diet quality. Lower levels of parental education, reduced time to prepare food due to job hours, minority status, and parental disabilities, all increase the risk of food insecurity and decreased diet quality.<sup>13</sup> Lee et al<sup>13</sup> found that households of first graders, that were low food security status, were independently correlated with the increased basal metabolic rate (BMI) z-score and obesity risk. These findings also support the theory that food insecurity can independently influence behaviors and health outcomes.<sup>13</sup> Prior to Lee et al,<sup>13</sup> several studies demonstrated an association between obesity and food insecurity in older children but not in kindergarten or first graders. Lee et al<sup>13</sup> found that there was an

increased obesity prevalence among food insecure children regardless of age. One hypothesis is that overeating behaviors in children, with increased exposure to calorically dense foods, require time for habits to form and eventually influence weight.<sup>13</sup> In a study completed by Kaur et al,<sup>16</sup> researchers examined the association between obesity and child food insecurity. Kaur et al<sup>16</sup> utilized the National Health and Nutrition Examination Survey (NHANES) of 2001-2010, for children aged two through eleven years, and the USDA HFSS module. The study revealed that in a nationally representative cohort of children, obesity was significantly associated with food insecurity for children ages six to eleven years.<sup>16</sup> Understanding the potential for obesity in food insecure children at this age creates the exigency for better programs designed for this school-aged category of children.<sup>16</sup>

Ultimately, food insecurity can lead to overcompensation when food is available; studies found that food expenditure and energy intake increase dramatically after food stamps are received.<sup>50</sup> Finally, there are many ways in which childhood food insecurity and obesity are linked. First, cyclical food restriction is associated with an increase in body fat, a decrease in lean body muscle mass, and quicker weight gain.<sup>50</sup> Second, weight cycling due to food insecurity can increase body fat storage in response to food shortage.<sup>50</sup> Third and most importantly, food insecurity is associated with negative psychological consequences, such as anxiety and depression which may also be cyclical to obesity.<sup>50</sup>

### **The Impact of Transportation Difficulties and the Food Insecure Child**

Complications intensify when those, living in a household that is food insecure, do not have access to food sources. One of these areas of concern is transportation. A key disadvantage to households that lack reliable transportation, is the potential increase in household food

insecurity.<sup>19-22</sup> Transportation accessibility is related to food accessibility. Carroll et al<sup>19</sup> completed a study concerning food availability and accessibility in racially and ethnically diverse, low-income neighborhoods of New Haven, Connecticut. The study revealed that transportation was the main barrier for families to access food from any available resources, including local grocers, corner stores, and emergency food pantries.<sup>19</sup> Most food-insecure household members stated that the location of food programs relative to their home and their limited transportation was their biggest barrier.<sup>19</sup> Parents, who did not have access to a car but took the bus to local food sources stated that the ability to pay for bus tickets was a barrier.<sup>19</sup> Others stated that when transportation was unavailable, walking to local food pantries was necessary. Unfortunately, a reduced amount of groceries were viably available to families because they had to manually carry them back home.<sup>19</sup> Parents trying to find transportation to food programs on account of their work obligations and childcare needs, were already constrained by their daily schedules.<sup>19</sup>

In a study completed in 2020, by Kaiser et al,<sup>20</sup> researchers found a direct relationship between food-insecure households and food deserts. The study results found that parents of food-insecure households were forced to utilize local convenient stores or corner stores for food shopping due to reduced access and availability to reliable and consistent transportation.<sup>20</sup> When food audits were conducted in the food dessert neighborhoods, only four percent of stores carried the full Thrifty Food Plan (TFP).<sup>20</sup> The TFP is the basis for Supplemental Nutrition Assistance Program (SNAP) allotments for a nutritious household diet. Household heads of food-insecure household heads stated that to follow the TFP, they would need to shop at multiple outlets, requiring additional consideration for transportation and travel time.<sup>20</sup> Even though the

nutritional value of fresh fruits and vegetables was important for the food insecure households, they stated their convenience and corner stores were less likely to carry healthy food items.<sup>20</sup>

Because food insecurity can exacerbate diet-related disease, Lyonnais et al<sup>21</sup> did a follow-up study after Kaiser and colleagues<sup>20</sup> to determine shopping patterns for improvements to the accessibility of healthy foods. The study results found that food-insecure families were more likely to use convenience stores and dollar stores for grocery shopping compared to those that were food secure.<sup>21</sup> Food insecure families were also less likely to own or have personal transportation.<sup>21</sup> A study, done by DeWit et al,<sup>22</sup> investigated parent views of eating healthy while food-insecure.<sup>22</sup> The interviews revealed that parents and caregivers of children living in households that are food insecure are concerned with diet quality.<sup>22</sup> The parents and caregivers described a conundrum of affordability, desirability, and accessibility.<sup>22</sup> Parents stated they cannot afford to buy fresh fruits and vegetables, desire to feed their children healthy foods with their food assistance dollars, and simultaneously lack transportation to access nutritious foods.<sup>22</sup> The parents stated they had envisioned food programs that had strong ties to better healthcare systems to ensure their children benefit from a healthy diet.<sup>22</sup> Carroll et al<sup>19</sup> described the need for creative solutions such as food deliveries to food-insecure homes to address transportation and time barriers while increasing distribution and access to healthy foods.

At last, affordable, nutritious food is important to the health and welfare of childhood development. In urban areas, families may not have funds for taxis or public transit to reach full-service supermarkets, while rural areas may lack public transportation. Inevitably, transportation plays a vital role in equitable access to nutritious foods and meals assuring childhood food security.

## **Financial Coping Strategies of Households Living with Child Food Insecurity**

Food security and financial security are intrinsically connected. This means that families with children that are food insecure are likely to use financial trade-offs. Financial trade-offs are forced choices of paying for a basic necessity, like food, while simultaneously allowing financial responsibilities to deteriorate. Many individuals utilize strategies to help cut food costs in the household, but food-insecure families are more likely up against tougher life decisions. A study done by Burke et al<sup>23</sup> identified how food-insecure families stretched the food dollar. The researchers found that food-insecure households with children used several tactics of financial coping strategies.<sup>23</sup> The families relied on emergency food banks, buying discounted foods, shopping at low-cost stores, leaning on friends/family/neighbors, eating less food overall, and moving household financial responsibilities around.<sup>23</sup> Parents in the study reported that the food group most commonly decreased, when money was scarce, was protein, specifically meat.<sup>23</sup> Following a reduction in meat, fresh fruits and vegetables were second.<sup>23</sup> Foods that families bought the most frequently when coping with household food insecurity, were refined grains and starches (mostly noodles), and low-cost, low-nutrient protein foods, specifically hot dogs.<sup>23</sup>

Bartfeld et al<sup>24</sup> found that food-insecure households with children experienced volatility in financial capabilities. These families were more likely to suffer from income shocks, such as loss of a job, unemployment, lack of savings, lack of assets, and lack of homeownership.<sup>24</sup> Each of these is a risk factor for a combination of poverty and food insecurity.<sup>24</sup> Bartfeld et al<sup>24</sup> reported that families with children experiencing food insecurity utilized seven financial coping strategies: (1) spending savings to cover simple routine expenses, (2) borrowing from family or friends to cover household expenses or emergencies, (3) using payday loans, (4) using pawn



loans, (5) working overtime or extra hours to make ends meet, (6) paying less than the full balance on credit cards, and (7) paying late fees on bills.<sup>24</sup>

The effects of financial trade-offs between food and necessities are oftentimes, daily decisions that parents with children face during food insecurity.<sup>22–24</sup> Knowles et al<sup>25</sup> utilized the phrase “toxic stress.” “Toxic stress” indicates overwhelming stress associated with economic deprivation and other forms of adversity, such as abuse, neglect, exposure to violence, and household instability.<sup>25</sup> Knowles et al<sup>25</sup> stated that this type of lifestyle can cause long-lasting physical and emotional damage.<sup>25</sup> There is growing evidence that food insecurity can and should be a form of acknowledged “toxic stress.”<sup>25</sup> Knowles et al<sup>25</sup> conducted semi-structured audio-recorded interviews with parents that were classified by the USDA HFSS module as having low food security and very low food security. The study described financial insecurity as a cause of stress with deep impacts on their self-worth and capabilities.<sup>25</sup> Trade-offs were characterized as potentially compromising the parents’ and/or the child’s health.<sup>25</sup> Depression, worry, fear, and anxiety were common emotions described by the parents.<sup>25</sup> Despite their best effort to disguise the truth, parents recognized their children were deeply affected by the financial and emotional hardship.<sup>25</sup> One parent described an emergency room visit for her child’s asthma crisis. The hospital would not let her leave without purchasing the nebulizer so she used her food money to buy the health product asking the child, “Do you want to breathe or eat?”<sup>25</sup> Food insecurity, with its associated trade-offs and mental health consequences, creates a cluster of hardships corresponding to toxic stress for children and adults.<sup>25</sup> Parent descriptions of family hardships from their stress of being food insecure, suggest recognition of how deeply adverse experiences affect their children, even when parents try hard to protect them.<sup>25</sup>

With this in mind, food insecurity creates a financial hardship for parents in which their worry progresses from anxiety to meet food needs, cutting back on quality and variety, to eventually reducing the quantity of food available for children.<sup>24</sup> With little research available on how different severities of food insecurity are associated with different strategies for coping with a financial shortfall, it would not be surprising if households exhibit a predictable sequence of similar strategies.<sup>24</sup> However, understanding the order of preferences in how households flesh out financial coping strategies might help predict resources and needs to improve childhood food insecurity.

### **Child Food Insecurity and the Impact on Educational Development**

Education is a key aspect of our societal progression. The process of attending school and receiving an education allows individuals to foster the healthy development of academic success. Our educational system has been created to help children develop problem-solving skills, secure an income, and create equal opportunities for all students. However, studies have revealed that food insecurity during childhood is associated with having a detrimental impact on healthy development.<sup>7</sup> Academic success in childhood can be adversely affected allowing poverty and consequently food insecurity to persist into subsequent generations.<sup>7</sup> Faught et al<sup>7</sup> completed research on fifth graders, ages ten and eleven, by using the Harvard food frequency questionnaire, the USDA HFSS module, and the children's academic records from Canadian standardized tests. The study results showed that very low food security in fifth grade is negatively associated with achievement on standardized exams.<sup>7</sup> Faught et al<sup>7</sup> compared them to studies done in the U.S in which children, aged six through eleven, who were experiencing food insecurity in the household, had decreased scores in both reading and arithmetic.<sup>7</sup> These students

were also more likely to repeat a grade.<sup>7</sup> Previous studies have shown that the presence of food insecurity resulted in impaired performance in reading and mathematics, and continued delays in reading ability throughout the schooling trajectory.<sup>7</sup> Studies have shown that children experiencing household food insecurity are at risk for behavioral and emotional issues, including their ability to be engaged in school.<sup>7</sup> Children from food-insecure households are less likely to get along with peers, are at higher risk of hyperactivity, and are more likely to see a psychologist during their formative years.<sup>7</sup> Food insecure children are also more likely to have high rates of absenteeism and tardiness.<sup>7</sup> Parents of food-insecure households are more likely to experience high levels of stress and adverse mental health which can influence their ability to care for and support the child in their academic pursuits.<sup>7</sup>

In a recent study done by Coughenour et al<sup>8</sup> in Clark County, Nevada schools, absenteeism rates were combined with food insecurity rates from each of the school catchment areas. Coughenour et al<sup>8</sup> chose Clark county on account that the food insecure families were urban, racially, and ethnically diverse.<sup>8</sup> The study findings revealed that the average daily attendance rate was significantly lower when food insecurity rates were at their highest; establishing a link between the two factors.<sup>8</sup> Coughenour et al<sup>8</sup> stated that food security and school attendance are both critical for childhood health, education, and well-being.<sup>8</sup> The study findings were similar to those of Murphy<sup>51</sup> and colleagues who found that “hungry” children were more likely to be absent.<sup>8</sup> Preventing absenteeism has always been a goal of the National School Lunch Program (NSLP), but if food insecurity prevents children from going to school, it undermines two important goals of the school meal program.<sup>8</sup> One, to improve attendance by feeding children healthy, nutritious meals, and two, reduce absenteeism.<sup>8</sup> Parents and caregivers try to shield their children from experiencing the effects of food insecurity, but the stress and

distress associated with the difficulty to provide basic food needs may influence their ability to foster healthy school-related behaviors, including the simplicity of school attendance.<sup>8</sup>

In general, there are multiple mechanisms through which childhood food insecurity at home may be associated with learning. The channel of hunger has adverse effects on cognition, working memory, fatigue, and distraction.<sup>52</sup> Hunger and nutrient deficiencies may impair cognition well before undernutrition appears to show in a child's height or weight.<sup>52</sup> This important feature is imperative when highlighting the value of focusing on food insecurity at the household level rather than exclusively looking at nutritional outcomes.<sup>52</sup>

### **School-Based Meal Programs for Food Insecure Children**

Child food insecurity is a nutrition and public health concern. Food insecurity is associated with lower fruit and vegetable consumption, iron-deficient anemia, decreased learning and social development, and increased mental health disorders among children.<sup>53</sup> School meals are the cornerstone of nutrition and food security among low-income children. The NSLP provides students access to healthy school lunches and is offered to low-income students either free of charge or at a reduced price.<sup>53</sup> In an average month in the fiscal year 2018, 29.7 million children participated in NSLP, of which 74% received free or reduced-price meals.<sup>53</sup> The school breakfast program (SBP) provides access to healthy school breakfast meals and is offered before the school day. It too is either free of charge or a reduced price for low-income students. In an average month, in the fiscal year 2018, 2.4 million children participated in SBP, of which 85% received free and reduced-price meals.<sup>53</sup> To increase access and participation in SBP, alternative delivery models are offering “grab ‘n’ go” breakfast, including breakfast in the classroom rather

than the cafeteria.<sup>53</sup> While the SBP and NSLP help serve the needs of food-insecure children during the school day, a persistent problem is a lack of school feeding programs over the weekends, extended school breaks, and holidays. To help reduce child food insecurity, many school districts have turned to backpack feeding programs. School districts are utilizing local food pantries and USDA ready-made foods and placing them in backpacks of food-insecure children. The child is then able to take extra food items home, in place of the meals they would normally be receiving at school. Laquatra et al<sup>54</sup> conducted an evaluation and survey in the Indiana school district regarding the nutritional value and cost of the backpack meals along with the food preferences of participating families. The study revealed that the cost-benefit needs to be considered so that foods included in the backpack are not easily damaged or discarded.<sup>54</sup> Packaging of food items must be scrutinized to avoid including items in the backpack that are easily crumbled or crushed.<sup>54</sup> Some of the results included serious consideration being given to the types of foods that can be included in the backpack. While fresh fruits and vegetables are suggested by parents and nutritionists, perishability, crushing, and bruising are major disadvantages of including fresh produce.<sup>54</sup> Canned vegetables or fruits provide high nutrient content, but this can result in a heavier backpack posing a serious concern for an elementary student.<sup>54</sup> The backpack study found that families scored juices, milk, cereal, and canned tuna high on the likability index; however, canned chicken breast, canned ravioli, raisins, toaster pastries, and sweetened applesauce scored lower.<sup>54</sup> Many of these foods, liked by the families or not, are purchased for backpack programs due to the program's affordability, nutrient density, and packability.<sup>54</sup> However, sixty percent of the families surveyed, stated that foods not preferred from the backpack were donated to another food pantry, or discarded because they were crumbled or crushed.<sup>54</sup>

A randomized controlled trial was completed by Burke et al<sup>53</sup> on school meals and weekend food backpacks. The study tested the impact of a food backpack program for food-insecure students attending low-income schools in Virginia.<sup>53</sup> Students participating in the program were classified as food insecure, as measured by the USDA Household Food Security Survey Model.<sup>53</sup> The researchers designated the schools as food hubs where children had access to free breakfast, lunch, and dinner on school days and a food backpack on weekends and school breaks.<sup>53</sup> The goal was to improve child food insecurity in the low and very low households as compared to the control participants with equal socioeconomic variables, household size, and racial/ethnic factors.<sup>53</sup> The study revealed that the project was unsuccessful in reducing child food insecurity in low food security households.<sup>53</sup> Counter to the hypothesis, the program increased food insecurity by two percentage points.<sup>53</sup> The study did not meet its primary goal to reduce child food insecurity because it is assumed that providing food directly to households will reduce food insecurity.<sup>53</sup> However, the study revealed, that in the treatment households, parents stated they abstained from using the items from the backpack for fear they would be classified as a food-insecure household.<sup>53</sup> Therefore, the additional food received by the treatment household could have worsened food insecurity by creating a perception that the food given was low cost, when in fact, the parent wanted to afford more for their child.<sup>53</sup> During the study, free food at breakfast, lunch, and dinner, were offered to eligible children and prepackaged foods were sent home for the children's weekends and holiday consumption.<sup>55</sup> The additional food was provided regardless of whether there were indications that the family needed it. This intervention sent strong implicit messages to parents that school staff thought their child needed more food than parents were providing.<sup>55</sup> Providing free food becomes a social influence, moving the goal post on appraising food insecurity so that parents perceive a gap, not enlightening them about the

difference between what they have and what they need.<sup>55</sup> The study sent a powerful message communicating a difference between what they have and what others (including experts and trusted school staff) think they should have to adequately feed their child.<sup>55</sup> Poverty carries a stigma in the U.S. and having school staff doubt a family's ability to provide sufficient food might have caused embarrassment, stress, and shame about the food situation at home.<sup>55</sup> The study and its impact shed light on how schools themselves change when they are transformed into food hubs, taking the responsibility for feeding children even beyond the confines of the school day.<sup>55</sup> Teachers and administrators expressed satisfaction at being able to teach parents that nutrition is as important as education, but the evaluation of the intervention specialists suggested that there may be other ways to promote children's health, well-being, and academic development.<sup>55</sup> Lastly, utilizing backpack meal programs as the main source to fill the gaps for childhood food insecurity carries the risk of disruption or failure. During the pandemic school closures, many of these programs were shut down overnight leaving families without food security. A recently completed study by Steimle et al<sup>56</sup> investigated the social and economic hardships during the pandemic. The study demonstrated that school closures severely disrupted the backpack food program, not only increasing food insecurity but causing psychological distress in both parent and child.<sup>56</sup>

Overall, it can be said that the damaging effects of childhood food insecurity are immense. Food insecurity has multiple components including hunger, amount of food available, quality of food available, feelings of deprivation, and psychosocial impacts. When looking at the future and how to address childhood food insecurity, it is obvious that food program interruptions exist. School-based food distribution programs have now shown their ability to be compromised. This has made us acutely aware that the at-risk population food programs are

supposed to serve requires an adaptable, structured, responsible food delivery system. Currently, to our knowledge, there is a gap in research and public health information on the need and impact of a home-delivery, food program that specifically targets childhood food insecurity at the household level. Therefore, through the mixed-methods study of the MOW4Kids program, we will be analyzing data in which a food security intervention will potentially elucidate how to improve/reduce childhood food insecurity in Tampa Bay communities.



## **Chapter 2: Theoretical Framework**

### **Application of a Theoretical Foundation**

Understanding structures that guide the events surrounding childhood food insecurity can very well facilitate programs that help remove, improve and/or prevent the occurrence.<sup>57</sup> The effects of childhood food insecurity can permeate into critical elements of human development. Childhood environment and experiences early in life, shape brain architecture and assist in how developmental instructions are carried throughout our biological system.<sup>58</sup> Throughout life, our ability to thrive is affected by our relationships, experiences, and interactions with our physical and built environment, including access to nutritious foods.<sup>58</sup> The degree to which these environments are health-promoting, supportive, and responsive, affects child well-being and family life.<sup>58</sup> To state that childhood food insecurity is a stressful, psychosocial, public health issue is an understatement. Research is establishing advancement in the fact that childhood food insecurity is linked to obesity,<sup>12–16</sup> reduced academic achievement,<sup>7</sup> increased school absenteeism,<sup>8</sup> childhood anxiety,<sup>44</sup> and behavioral problems in adolescents.<sup>39,42,43</sup> Connecting those overwhelming, detrimental repercussions with parental stress, childhood food insecurity is further complicated. Research has formed direct linkages of childhood food insecurity to family housing instability,<sup>44</sup> reduced community connections for assistance,<sup>19–22</sup> and increased maternal depression.<sup>43,45,48</sup> Within the sociology of human behavior, theoretical structures can serve to benefit health professionals, stakeholders, and policy-makers in analyzing and improving childhood food insecurity within modern society. The guiding purpose of the following theories is to attempt to understand social order and how to create social change.

## Family Stress Model

The first theoretical framework is based on the study of what makes families develop psychosocially and how they connect to their world, this theory is called the Family Stress Model (FSM).<sup>59</sup> The FSM states there is an ordered set of beliefs about the social world and how the family is connected.<sup>59</sup> The FSM believes that when families respond and interact with their social world, this can either help or hinder their problem-solving abilities.<sup>59</sup> Evidence suggests these paradigms are generally built-in and regulate transactions with the family's social environment.<sup>59</sup> However, under stress, a family may alter its paradigm as a result of transactions with the environment.<sup>59</sup> The FSM defines and explores the periodic, acute stressors that happen to families. When these stressors become frequent or if the family lacks the support of significant relationships, it can lead to a family crisis.<sup>59</sup> Lack of support within the FSM must also consider parental self-efficacy and the family's perceived social support.<sup>60</sup> Both of these factors play important roles in disrupting the negative effects of stress.<sup>60</sup> The family stress model helps define when poverty and economic pressure affect the quality of interparental relationships which can negatively impact child outcomes.<sup>61</sup> Longitudinal evidence shows that poverty, or economic pressure, impacts parents' mental health; this pressure can cause parental conflict and difficulties with parenting.<sup>61</sup> Specifically, examples of the negative impact on child outcomes include, but are not limited to, externalizing and internalizing problems, reduced academic achievement, physical health difficulties, and social and interpersonal relationship problems.<sup>61</sup>

The FSM was developed by Reuben Hill in 1949 when he studied the impact and crises of separations and reunions that occurred within families after World War II.<sup>59</sup> Hill referred to the components of crises as the ABCX formula.<sup>62</sup> In the formula, "A" represents a "stressor/event" for which a family has little or no prior preparation, and therefore it is viewed as

a “problem.”<sup>62</sup> The stressor, represented by “A,” can be a life event causing a change in the family’s equilibrium.<sup>63</sup> Factor “B” represents the resources used to help families deal with the “stressor/event.”<sup>62</sup> The factor “C” represents family members’ perception of the event.<sup>62,63</sup> Lastly, the “X” factor represents the outcome of the stress or crises.<sup>62,63</sup> The FSM can be applied to this study by understanding that “A” represents the lack of money in the household for bills and food. During this time, families could be low in funds due to recent job loss, emergency illness, many bills due at once, or a pandemic. Second, “B” represents family resources- community programs, family, and churches, or lack thereof. Many times, food-insecure families are in isolation with very few resources. Next, “C” represents the type of decisions/perception of what to do, where and how the low funds will be spent, or who can help them. During this time, families may decide that medicine for the emergency illness is most important, allowing rent or food dollars to recede. Lastly, the crisis hits home, “X”. With potential job loss, leading to transportation loss, a sick child, low family support, and the rent due, it is easy to see how families are overwhelmed. At this point, “what’s for dinner?” is a crucial question with potentially, no answer.

The FSM offers a way to conceptualize linkages between household food insecurity, parental outcomes, and children’s behavioral outcomes.<sup>26</sup> The psychological distress caused by these kinds of economic pressures triggers relationship problems between parents which can then lead to suboptimal parenting practices.<sup>26</sup> When parents think that they are going through a crisis, this perspective will affect all aspects of their normal life.<sup>63</sup> On the emotional level, parents that feel overwhelmed by the pressure of dealing with a crisis may feel depressed.<sup>63</sup> In turn, parents’ performance in the community and workplace will also be impacted by their poor mental status.<sup>63</sup> On the behavioral level, when parents are experiencing a high level of stress, they may

be more likely to vent their negative emotions through improper behavior.<sup>63</sup> Based on the FSM, the hardship of food insecurity can be a source of economic pressure for families.<sup>26</sup> Acquiring nutritious foods poses a significant challenge and strain.<sup>26</sup>

The FSM posits that families with children and few economic resources, need to make difficult choices regularly regarding the daily needs of food, housing, health care, and personal energy.<sup>26,27,29,45,64</sup> The ABC-X and double ABC-X models have enabled a vast research literature on family stress, coping, crisis, and adaptation and have provided useful concepts for family counseling practices.<sup>28</sup> Using this theory and based on the USDA HFSS and the PSS, the researcher will be able to investigate if there is a possible connection between personal economics, household food insecurity, and parental stress.

**Figure 2.** FSM ABCX Model progression

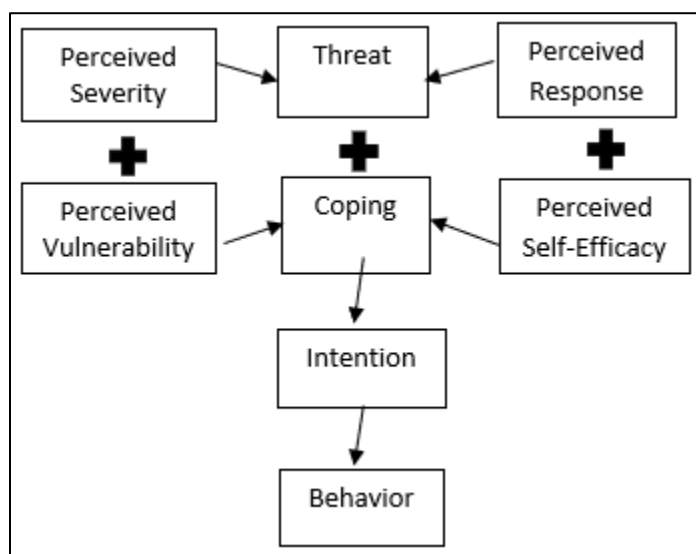
ABCX Model				
"A" Stressor				
Life Event	"B" Resources			
	Support from family or community	"C" Perception		
		How the family perceives the stress	Outcome of A, B, & C =	
				"X" CRISIS

## Protection Motivation Theory

Protection motivation theory (PMT) was developed by Rogers in 1975 for health promotion and disease prevention.<sup>29</sup> The PMT describes how individuals are motivated to react in a self-protective way towards a perceived health threat. In the last two decades, PMT has expanded beyond the realm of self-protection into other health sectors such as the parent-child unit.<sup>31</sup> More recently, the PMT has been successful in predicting health-related intentions and

behaviors in the area of nutrition.<sup>30</sup> Protection Motivation Theory can be applied to any threat for which there is an effective recommended response that can be carried out by the individual.<sup>31</sup> The PMT proposes that becoming aware of the severity of a threat that one is susceptible to will initiate protection motivation.<sup>30</sup> This theory has also been advantageous in understanding how Americans reacted to the pandemic and how families chose to protect themselves.

**Figure 3.** PMT Model



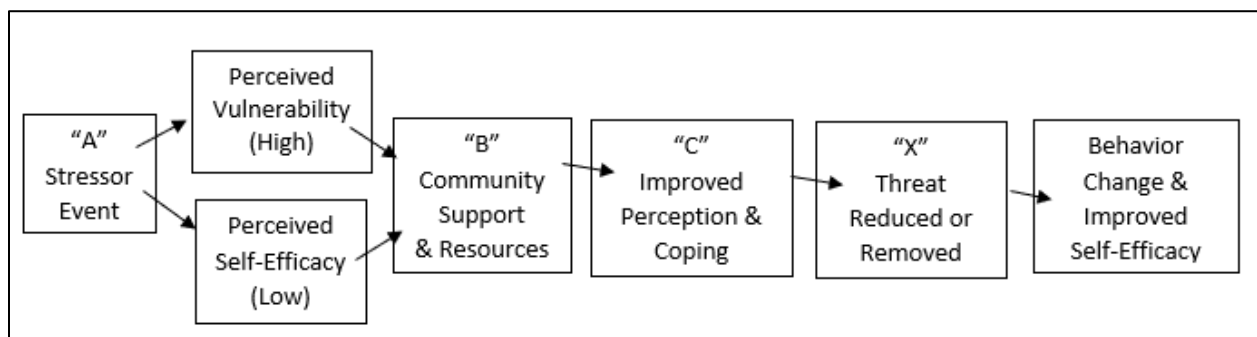
Within the PMT, Maddux et al<sup>65</sup> found self-efficacy to be the most powerful predictor of behavioral intentions. The research completed by Maddux et al<sup>65</sup> in the area of PMT, revealed that individuals with robust self-efficacy are more likely to take protective action against a health threat or concern. Individuals with strong self-efficacy are also more likely to be receptive to new information regarding problem-solving and respond within an effective timeframe.<sup>65</sup> According to protection motivation theory, a health threat can initiate two cognitive processes: threat appraisal and coping appraisal.<sup>29</sup> The threat-appraisal process, evaluates the factors

associated with the response that evokes danger and one's vulnerability to it.<sup>29</sup> The coping-appraisal process evaluates one's ability to cope with and avoid danger.<sup>29</sup> Two of the major variables in this process are first, how the person or family will respond to a threatening event, and second, their ability to be successful with their response.<sup>29</sup> Studies have found that, in general, these threats and coping abilities interact.<sup>29-31,65</sup> If self-efficacy is high, the threat, and one's vulnerability to it will result in a stronger ability to change and adapt.<sup>29-31,65</sup> If self-efficacy was low, vulnerability weakened intentions.<sup>29-31,65</sup>

By combining these two sociological theories, it is clear that self-efficacy is a key pillar in both theories. While childhood food insecurity is a concern for daily living, global emergencies can compound the problem. The COVID-19 quarantine had a huge impact and caused a considerable psychological strain.<sup>66</sup> Studies have emphasized that quarantined families had a high prevalence of psychological symptomatology, including post-traumatic and depressive symptoms, stress, and anxiety.<sup>66</sup> Regardless of income, nothing could have prepared society for a pandemic. Financial hardships caused by the COVID-19 pandemic hit hard for families of all types but specifically, low-income families.<sup>67</sup> Job losses left families struggling to pay for necessities like food, housing, and medical care.<sup>67</sup> According to the American Academy of Pediatrics (AAP), the COVID-19 crisis has caused significant disruption to children's daily lives and has posed risks to children's health, well-being, and development.<sup>67</sup> So far the AAP has researched and reported that during the pandemic quarantine(s), one-quarter of families experienced food insecurity, including more than one-third of low-income, black and Hispanic families.<sup>67</sup> According to statistics from Georgetown University child development and research, since the pandemic hit, nearly 50% of responding parents in a new study of low-income families said they had lost their jobs or had decreased work hours and experienced food

insecurity.<sup>68</sup> Concerned about child hunger, Harvard T.H. Chan School of Public Health investigated how the COVID-19 pandemic affected food access for children.<sup>69</sup> The FSM and the PMT can be combined as the backbone for nutrition security programs. Application of the FSM and PMT frameworks can help model future programs for the reduction of household and childhood food insecurity.

**Figure 4.** FSM and PMT Models Combined



As a final observation, it may be concluded that self-sufficiency is the cornerstone of both frameworks and a powerful predictor of behavior change. A family's ability to be resilient in the face of normative or significant stressors is related to their internal relational processes and risks within the social systems.<sup>70</sup> Understanding this may evoke programs that can be created and connected to reduce a crisis lifestyle and improve food and nutrition security.

## Chapter 3: Methodology

### Study Aims

The primary aim of the mixed methods research, the MOW4Kids program impact and evaluation study (MOW4Kids PIE), was to evaluate and measure the benefits of participating in the MOW4Kids, a nutrition-focused, home delivery food program for food-insecure families with children. Quantitative surveys were used to measure childhood/household food security levels, parenting stress levels, and nutritional assessments of children whose families participated in the program. Secondly, qualitative, one-on-one, semi-structured interviews were completed by family members participating in the MOW4Kids program to assess program benefits. The interview questions were designed to capture information regarding the family impact, healthfulness, and potential reduction of financial tradeoffs that the families experienced while on the program. The analysis from the quantitative and qualitative surveys revealed strong associations between a home-delivery food program for food-insecure families with children and the critical importance of mandatory state and/or federal funding.

### *Research Questions*

The following research questions are proposed:

1. Did the MOW4Kids program improve food security, parent stress, and nutrient intake of children for participating families?
2. What was the perception of program benefits for the families participating in the MOW4Kids?



### *Hypothesis*

1. The MOW4Kids program will improve childhood/household food security while participating in the program. (Quantitative)
2. The MOW4Kids program will decrease parents' stress levels while participating in the program. (Quantitative)
3. The MOW4Kids program will improve the nutrient intake of the child whose family is participating in the program. (Quantitative)
4. There will be a positive, program-level benefit from participating in the MOW4Kids program. (Qualitative)

### *Null Hypothesis*

1. The MOW4Kids program will not improve childhood/household food security while participating in the program. (Quantitative)
2. The MOW4Kids program will not decrease parents' stress levels while participating in the program. (Quantitative)
3. The MOW4Kids program will not improve the nutrient intake of the child whose family is participating in the program. (Quantitative)
4. There will not be a positive, program-level impact from MOW4Kids for the families that are participating. (Qualitative)

### **Study Design**

The MOW4Kids PIE study was a mixed-methods study designed to test the aforementioned hypotheses. Both qualitative and quantitative methods were employed in two separate phases of the study. An advantage of a mixed-methods study is that the researcher can

collect comprehensive data that reflect participants' points of view and experiences.<sup>71</sup> Also, this type of study design provides methodological flexibility that can elucidate more information than quantitative research alone.<sup>71</sup> By using mixed methods, the MOW4Kids PIE study was able to better evaluate and assess the benefits and impact of the MOW4Kids home delivery program.

In phase one of the study, quantitative methods included the use of three surveys, (1) USDA Household Food Security Survey (USDA HFSS) (2) Parental Stress Scale (PSS), and (3) Automated Self-Administered 24-hour nutritional assessment (ASA24) of a child, aged six through eleven, in the home of a family participating in the MOW4Kids program. The quantitative surveys were administered to the families twice, via telephone interview, by the researcher. The first or pre-set of surveys were completed before receiving meal deliveries from the program. This was achieved because of a waiting period of one week before approved families received the home-delivered meals. Program administrative responsibilities such as mapping delivery routes and confirmation of a matching delivery system were necessary before services began. This time allowed the researcher to conduct the first set of surveys. The second or post-set of surveys was completed after the family had received at least two months of the meal delivery program. The purpose of the surveys was to measure household food security, parenting stress, and nutritive changes in children's meals and snacks. These measurements also aligned with the main constructs of the MOW4Kids program. Program constructs included but were not limited to, reducing food insecurity and parental stress with home-delivered, healthy meals to families with transportation deficits. A comparison of the pre-and post-surveys allowed the researcher to measure program changes and/or impacts at the household level.

In phase two, qualitative methods of data collection included one-on-one, semi-structured interviews of the parent or caregiver whose family participated in the MOW4Kids home delivery

program. The interviews were semi-structured in design. This format allowed a consistent set of questions to be asked of each participant along with probing questions for clarification when necessary. The interviews, conducted by the researcher, were accomplished with a telephonic, online platform in which the interviews were recorded and transcribed. Themes, generated from the qualitative data, were utilized for analysis. Thematic analysis is an interpretive process in which data are systematically searched for patterns to provide illuminating descriptions.<sup>72</sup> This resulted in the development of meaningful themes while providing insight into complex phenomena that were applied across a range of theoretical and epistemological approaches.<sup>72</sup>

The strengths of the study were the combination of both quantitative and qualitative data. This mixed-methods study represented a combination of inductive and deductive perspectives, both of which enabled the researcher to generate potential theories and hypotheses testing. The integration of linking the methods of data collection and analysis represented the multifaceted and complex circumstance of childhood food insecurity.<sup>73</sup> The qualitative data assisted the researcher to understand the contextual factors that affected the outcome and/or explained results after the study was complete.<sup>73</sup> Participants of the study, in both the quantitative and qualitative portions, received a gift card to a big-box store as a token of appreciation.

The overarching goal of the study was to assess and evaluate the benefits and impact of the MOW4Kids food home delivery program as a preventative tool for childhood food insecurity. Currently, MOW4Kids operates as an emergency pilot program. Many, if not most, of the MOW4Kids program operations, function similar to the well-known and powerful nutritional program, Meals on Wheels for seniors. Data and information gleaned from this study demonstrated that the MOW4Kids is a valuable and effective program deserving of being fully funded at the state/federal level.

## **Study Participants, Setting, and Inclusion Criteria**

The MOW4Kids program was set in Hillsborough, Pasco, and Pinellas counties in the state of Florida. The main cities in which the pilot program was operating within these counties were Tampa, Wimauma, St. Petersburg, Clearwater, Dade City, and New Port Richey. Therefore, the target population was individuals that were active participants in the MOW4Kids program and resided within those counties. The MOW4Kids program delivered a box of meal and pantry items that were donated from area food pantries or purchased with donated monies. Examples of the supplemental foods provided were dried pasta, rice, dried beans, and jarred tomato sauce. The boxes also contained a few fresh vegetables or fruit such as apples, oranges, potatoes, and onions. Refrigerated foods were those from the public school, and summer feeding programs, and these were gallons of milk, ready-to-eat breakfast/lunch items, cereal, granola bars, and prepackaged fruit cups. The amount of food received was directly related to how many children were living in the home and the food was delivered to residences by volunteers once a week. Participation required families to have at least one parent or caregiver over the age of eighteen years in the home, transportation deficient, present when the food box arrived, and at least one child living at home who participated in free and reduced SBP and NSLP within the Florida school system. Therefore, the inclusion criteria for the study targeted families that were actively participating in the MOW4Kids program and had at least one child, between the ages of five to eleven, living in the home with an adult parent or caregiver that was over the age of eighteen. For the study, the children's age group, of five to eleven years, was chosen because this age group had shifted to a normal adult diet. Selecting this age group also allowed parents to be easily involved when the child's twenty-four-hour dietary recall needed to be collected and analyzed.

## *Selection of Study Participants and Sampling*

### *Phase One*

The study participants in phase one were the source of quantitative data and were selected based on the following criteria. First, new families that enrolled in the MOW4Kids program, between the dates of June 1, 2021, through July 30, 2021, were asked by the MOW4Kids program administrator if they were interested in participating in the MOW4Kids PIE study. Second, interested families, then allowed the program administrator to share their first name and contact information with the researcher. Lastly, the researcher followed with a call to the families and confirmed their interest. Considering that the study had both a pre-and a post-survey, families that agreed to participate in the study understood that there was a commitment to being contacted by the researcher more than once.

### *Phase Two*

The study participants in phase two were the source of qualitative data. The qualitative data was in the form of one-on-one interviews of a parent or caregiver that was eighteen years of age or older. The condition necessary for study participants to be selected in phase two was that the parent or caregiver was registered and participating in the MOW4Kids program during the summer months of 2021.

The type of sampling that was utilized for the MOW4Kids PIE study was non-probability sampling. Within non-probability sampling, convenience sampling was the most appropriate. Convenience sampling was applicable for this study due to its speed and cost-effectiveness. Since the MOW4Kids program was a pilot program for a short period of time, recruiting

participants quickly was vital. Convenience sampling had the advantage that participants were chosen from the target population based on the researcher's ability to contact and ask them to volunteer for the study.<sup>74</sup>

### *Study Instruments*

To produce effective, measurable data for the MOW4Kids PIE study, three different surveys were researched and chosen to best represent the impact of program participation. Three of the surveys were quantitative and the fourth was qualitative. The first quantitative survey was the USDA Household Food Security Survey. This valid, reliable survey is the most assessable resource guide that measures household food security.<sup>3</sup> It was a three-stage, eighteen-item survey which had been written and tested so the respondent would have minimal questions and maximum reliability.<sup>3</sup> The USDA HFSS is the current authoritative guide when coding and scoring food security in the U.S.<sup>3</sup> However, the USDA HFSS is written with the ability to separate food security inquiries for different members of the household, depending on who is living within the home.<sup>3</sup> If the household has adults only, such as in the case to measure senior citizen food security, the survey has fewer questions. This six or ten-item survey has been modified slightly to avoid asking questions about children living in the same household.<sup>3</sup> The USDA HFSS also can measure food security for individuals in the home who are twelve years and older.<sup>3</sup> This abbreviated, nine-item survey, however, did not contain vital responses necessary to capture children, ages eleven and under, eating adult-style meals and snacks.<sup>3</sup> Therefore, the MOW4Kids PIE study chose the most comprehensive and complete, eighteen-item questionnaire to assure that family members, living together in the household, were assessed and accounted for food security. The eighteen-item survey or questionnaire is also

called the “core module” by the USDA.<sup>10</sup> The USDA core module covers the full range of both severity and prevalence of food insecurity and hunger.<sup>10</sup>

The second survey in the MOW4Kids PIE study was the Parental Stress Scale (PSS). This eighteen-item survey, created in 1995, focuses on parents’ perception of their role as a parent, the PSS has been validated and evaluated with psychometric properties by Berry and Jones.<sup>75</sup> It is a reliable instrument that is widely used in research to assess stress, pleasure, and strains associated with parenthood.<sup>75</sup> An important characteristic of the scale is that it was designed to be used with any kind of parent irrespective of marital, financial, or other life stress.<sup>76</sup> Berry et al,<sup>76</sup> the inventors of the PSS, viewed parenting stress as stemming from an interaction between parents or caregivers and the children.<sup>76</sup> The bidirectional and interactional approach is empirically supported so the scale supports many types of family composition including, single parenthood, blended families, and grandparenting.<sup>76</sup> The PSS is utilized cross-culturally, as well as, with parents whose children are developing normally and children with behavioral/emotional problems.<sup>76</sup> Since 2016, the scale has been translated into many languages and is currently being used in forty-two countries.<sup>76</sup> The PSS uses a five-point Likert-type scale to compute parental stress, with the scoring range of eighteen, equaling low stress, to ninety equaling high stress.<sup>76</sup> The PSS was chosen due to the relationship between parental stress and food insecurity. Much of the most recent research being done, on household food insecurity, is examining how this woeful circumstance impacts parents and caregivers. With its universal design and the ability to be utilized with many cultures, family types, and financial backgrounds, the PSS was an excellent tool that provided valuable data to the MOW4Kids PIE study.

The third and last quantitative survey was the twenty-four-hour dietary assessment of a child in the home whose family participated in the MOW4Kids program. During the interview

process, a twenty-four-hour dietary recall of a child, aged five to eleven, was transcribed by the researcher and coded into the Automated Self-Administered twenty-four-hour (ASA24) program written by the National Institute of Health (NIH). The ASA24 is a freely available, web-based tool that collects food records for epidemiologic, interventional, behavioral, or clinical research.<sup>77</sup> The ASA24 enabled coding of each twenty-four-hour dietary recall so the researcher could manage and obtain nutritional data analyses of food intake from the study participants.<sup>78</sup> The ASA24 has the capability to work directly with the Healthy Eating Index (HEI) to further analyze dietary intake.

The final study instrument/tool was an interview guide for the one-on-one, semi-structured interviews that were collected for qualitative data. The goal of the interviews was to draw out the family's perception regarding the benefits of participating in the MOW4Kids home delivery program. The questions for the interview were designed from the data and information gleaned from the literature review and theoretical framework. The interview guide was developed and administered by the researcher. The final tool was refined after the quantitative data were analyzed.

## **Data Collection**

Data collection of the quantitative and qualitative surveys involved human subjects in the MOW4Kids PIE study. Data collection commenced upon immediate approval of the Institutional Review Board (IRB) application. Once the IRB was approved, the researcher contacted the MOW4Kids program administrator and began recruitment of participants beginning June 1, 2021. As the school released students for the summer, potential participation in the MOW4Kids



program was communicated to parents so the MOW4Kids program administrator received daily calls wanting to learn more about potential acceptance into the home delivery food program. During the telephone interview and acceptance into the MOW4Kids program, the administrator asked families to volunteer for the study based on a prepared script describing the study and asking if the families were willing to participate. If yes, parents or caregivers provided permission for their names and contact number to be shared with the researcher. Each week, between the dates of June 1, 2021, and July 30, 2021, the MOW4Kids program administrator emailed the researcher names and phone numbers so the researcher could contact the family.

The quantitative surveys, including the USDA HFSS and PSS, were uploaded into Qualtrics before the first phone call to study participants. Qualtrics, a web-based, survey tool was used to conduct the survey during the study and it provided the researcher the capability to score survey responses. In phase one, the researcher contacted study participants twice. The first phone call was made when the study participant had been approved to participate in the MOW4Kids program but had not begun receiving meal deliveries to the home. The second phone call was made after the study participant had received delivery of meals for at least two, not to exceed three months. This timetable matched the MOW4Kids pilot program length. During both phone calls in phase one, the researcher completed the USDA HFSS and the PSS surveys in Qualtrics and then inquired the parent/caregiver regarding a detailed list of foods eaten by the child in the last twenty-four hours. The researcher provided a non-identifying number, in place of the client's name, when completing the Qualtrics surveys and the ASA24.

Qualitative data was collected during phase two. The one-on-one, semi-structured interviews, were conducted with parents and caregivers who were on or participated in, the MOW4Kids program during the summer months of 2021. Working as the liaison once again, the

MOW4Kids program administrator emailed names and numbers of interested families to the researcher. The setting for the one-on-one interviews was conducted via telephone while the participants are in the privacy of their own homes. The Zoom call was a non-video, online recording program so that the transcript of the interview was available for transcription. All recordings were kept secure on the researcher's computer, then destroyed upon transcription and/or within three months of the date of the interview. To determine the sample size for phase two, saturation was the guiding principle. Reaching code saturation captures the breadth of issues and has been frequently thought of as the guarantee of qualitative rigor.<sup>79</sup> Saturation was reached after the eighth interview.

#### *Quantitative Data Preparation for Analysis*

For the mixed methods study design, there was a merging of both quantitative and qualitative data sets. The premise of the methodology was that the integration permits a more complete, synergistic utilization and analysis of data, than studies done with separate quantitative or qualitative data sets.<sup>71</sup> Mixing the methods for the MOW4Kids PIE study offered a more comprehensive analysis within a single investigation. Rather than a convergent design, or a comparison of the findings in the quantitative and qualitative data, an explanatory sequential design fit best with this study. The explanatory sequential design involved two phases, which was similar to the MOW4Kids PIE study. First, there was an initial quantitative instrument phase, followed by a qualitative data collection phase. In the second phase, the qualitative phase was built directly from the results of the quantitative phase.<sup>71</sup> This will allowed the quantitative results to be explained in more detail through the qualitative data.

Data preparation and analysis occurred following each phase completion. In phase one, the quantitative data occurred sequentially. For the first quantitative analysis, the USDA HFSS data allowed the researcher to obtain information on a variety of conditions, experiences, and behaviors within food insecurity. The information that was found served as indicators for degrees of severity.<sup>10</sup> The full range of food insecurity and hunger cannot be captured by a single indicator.<sup>10</sup> The core module of the USDA HFSS is measuring if the household has enough food or money to meet its basic food needs. However, the core module also analyzed questions for answering other elements such as food safety, the nutritional quality of diet, and the social acceptability of food sources.<sup>10</sup> The core survey module was combined with an overall measure called the food security scale.<sup>10</sup> This produced a continuous, linear scale that measured the degree of severity of food insecurity and hunger experienced by a household.<sup>10</sup> Each household was represented by a single numerical value that reflected the food security status.<sup>10</sup> The unit of measure that was chosen for the full range of severity for the scale was expressed by numerical values ranging from zero to eighteen.<sup>10</sup> The statistical procedure that helped analyze and determine a household's scale depended on the number of increasingly severe indications of food insecurity that the household was experiencing. It was indicated by affirmative (yes/true) responses to increasingly severe food insecurity experiences in the household.<sup>10</sup> There are four categories of analysis for the USDA HFSS core module:

- Food secure- households show no or minimal evidence of food insecurity.<sup>10</sup>
- Food insecure without hunger- food insecurity is evident in household members' concerns about the adequacy of the household food supply and adjustments to household food management, including reduced quality of food and increased unusual coping patterns. Little or no reduction in members' food intake is reported.<sup>10</sup>

- Food insecure with hunger (moderate)- food intake for adults in the household has been reduced to an extent that implies that adults have repeatedly experienced the physical sensation of hunger. In most, but not all, food-insecure households with children, such reductions are not observed at this stage for children.<sup>10</sup>
- Food insecure with hunger (severe)- at this level, all households with children have reduced the children's food intake to an extent indicating that the children have experienced hunger. Some other households with and without children have repeatedly experienced more extensive reductions in food intake.<sup>10</sup>

**Table 2.** The representation of measuring food insecurity conditions with the USDA HFSS

<b>Experiences/Conditions/Behaviors Indicative of Food Insecurity and Hunger</b>				
No such indications: Presumed food secure	One or two indications: At-risk	Multiple Indications: Few or no hunger indicators	More and more severe indications: Multiple indicators of adult hunger	Many indications, including: Child hunger indicators and more severe adult hunger indicators.

**Table 3.** USDA HFSS Food Security Score for households with one or more children

<b>Raw Score</b>	<b>Food Security Status</b>
Zero	High food security
1-2	Marginal food security
3-7	Low food security
8-18	Very low food security

**Table 4.** Household Food Security Status on a categorical measure without or with hunger

Food Secure	Food Insecure:		
	Food Insecure without Hunger	Food Insecure with Hunger:	
		Moderate- less severe	Severe- more severe
	(2.32) *	(4.56)*	(6.53)*

\*Located at the midpoint between the two adjacent household-scale values.

Each household, participating in the study, had a pre-and post-USDA HFSS core module completed by the researcher via telephone with the parent or caregiver. This was placed in Qualtrics; the number of affirmative responses was calculated and the food security measure was determined. Each family was analyzed so that two forms of measurement emerged, both the scale value and the status level as shown above in tables two through four.

For the second quantitative analysis, the PSS is an eighteen-item questionnaire assessing parents' feelings about their role as a parent, both positive and negative. Each question had five potential answers that were scored on a Likert-type scale so the outcome could be analyzed by the researcher. The Likert-type responses scored for analysis are as follows:

- Strongly disagree = 1
- Disagree = 2
- Undecided = 3
- Agree = 4
- Strongly agree = 5

To compute the parental stress score, items 1, 2, 5, 6, 7, 8, 17, and 18 were reversed for scoring.

They will be scored as follows:

- 1 = 5
- 2 = 4
- 3 = 3
- 4 = 2
- 5 = 1

After completion of the survey, all eighteen items were added together ranging from eighteen (low stress) to ninety (high stress). The lower scores indicated lower levels of parental stress.

The third and last quantitative survey was in the form of a twenty-four-hour dietary recall. The dietary recall was foods eaten by a child (aged 5-11) in the participating household, as stated by the parent or caregiver to the researcher. The pre-and post- dietary recall was placed into the computerized dietary program, ASA24, by the researcher and analyzed for nutritive value. The researcher assessed the diet based on the Healthy Eating Index (HEI) of 2015. The child's intake before the MOW4Kids program was compared to the intake after the household has received MOW4Kids meal deliveries for at least two months. The HEI interpretation that was utilized during the study was obtained by the National Institute of Health, and National Cancer Institute interpretation of HEI scores and grading. A graded approach can be used to aid the interpretation of the HEI scores since a letter grade should not be reported alone, it should only be reported in combination with the numerical score.<sup>80</sup>

**Table 5.** Healthy Index Scoring Table

Overall HEI Score	HEI Grade Score
90-100	A
80-89	B
70-70	C
60-69	D
0-59	F

The multidisciplinary approach to food security, parental stress, and nutritional intake made up the quantitative data for the MOW4Kids PIE study. These three quantitative data were combined and analyzed. The fusion of the data addressed the first research question of the study, regarding improvement in these crucial areas of program participants' lives.

#### *Qualitative Data Preparation for Analysis*

The final data preparation and analysis were the qualitative surveys from the one-on-one interviews. Once the interviews were completed and recorded, there were several processes before the final result developed. Converting and transcribing the audio data into text data was accomplished after each interview. Timeliness with this step encouraged the ability of the researcher to recall information in the conversation without loss of meaningful purpose. Consistency and formatting were key during the data review. Next, the data were analyzed using the coding process. Coding was performed on each transcript by the researcher. The code was a word or short phrase symbolically assigned to the transcript that captured an essence or evoked an attribute. The data underwent three phases of coding, one, being the initial stage of reading and labeling each transcript.<sup>74</sup> Two, the development of a codebook or code list that was compiled with descriptions and examples. The third and final step was further coding and

refinement of codes. The key to coding during this study was, memoing; this was a crucial component of data analysis.<sup>74</sup> Manual memoing and notetaking were applied due to their flexibility and hands-on approach. Reviewing the codes, and the data between codes allowed the researcher to make connections and create evidence of supporting topics. The outcome of this process produced a thematic analysis of the body of work. The researcher engaged the collaboration of one other independent researcher in which the qualitative data was shared and reviewed for accuracy. That individual followed the same process of coding for the MOW4Kids PIE study participants. This collaboration helped the primary investigator gain a broad perspective of the data, allowing depth and gaps in the research to be seen and fulfilled. When the researcher concluded there was no longer new information being amassed from the interviews, saturation was reached. At this point, additional study participants were no longer necessary. Between the two researchers, a combination of strategies was utilized to determine the accuracy and credibility of the findings to maintain the trustworthiness and rigor of the data.

Upon completion of the descriptive data, the results were analyzed to answer the second research question of the study regarding the perception of the program benefits for families participating in the MOW4Kids. The combination of both the descriptive data and the quantitative data addressed the aim of the study related to gaps in research and public health information on the need for a fully-funded home delivery, a food program that specifically targets childhood food insecurity at the household level.

### **Statistical Analysis**

Statistical analysis was performed using the IBM program Statistical Package for the Social Sciences or SPSS. The most current program that was operating at the time of analysis was SPSS-28. The quantitative data for phase one of the MOW4Kids PIE study was a small



sample size. Being that the MOW4Kids program was a pilot program with grassroots in only three counties in the state of Florida, a lower number of participants was anticipated. Within the descriptive statistics of the smaller data set, non-parametric tests were conducted. The Wilcoxon Signed-Rank was used with the USDA HFSS and the PSS. Once the statistic was computed, the associated p-value was compared with alpha to decide whether to reject or not reject the null hypothesis. The results would be statistically significant at  $\alpha = .05$ ; there were no assumptions of normal distribution.

### *Missing Data*

In preparing the data for analysis, there was no missing data for the USDA HFSS or the PSS for the reason that the researcher was using Qualtrics. The researcher asked the questions telephonically while ticking the questionnaire box as each question was answered by the study participant. The surveys were uploaded into Qualtrics which assures any blank questions were not allowed upon submission. The ASA24 was completed by the researcher, therefore no missing data occurred.

### **Conclusion**

This chapter has outlined methodological approaches for the quantitative and qualitative surveys that will be utilized to study childhood food insecurity at the household level. The main research questions for the MOW4Kids PIE study were presented and details outlined on how data collected can potentially help create and shape food security programming. Principally, ethical considerations were addressed as well as ways the researcher sought to establish rigor and trustworthiness for the study.

## **Results**

### **Study Sample**

At the beginning of this mixed-methods study for the MOW4Kids program, seventy-six (76) families agreed to be contacted for possible participation from the over 400 families that were enrolled in the MOW4Kids program during the summer of 2021. However, only thirty (30) families of the seventy-six (76) or 39% of the population were willing to participate. For the quantitative portion of the study, a total of twenty-seven (27) respondents began the surveys; however, twenty-two (22) respondents completed both the pre-and post-quantitative surveys in order to fulfill the requirements of the study. Because the MOW4Kids pilot program operated in the Tampa Bay tri-county area, all participating respondents lived in either Hillsborough, Pinellas, or Pasco County Florida. The participants that responded to the quantitative surveys and the qualitative interview were 100% females over the age of eighteen (18), who were either the parent or grandparent of the child in which the information was gathered. One male parent/respondent was originally in the study but failed to complete the pre-and post-surveys necessary to continue participation. Participation in the MOW4Kids study required the family to participate in the MOW4Kids home-delivery program during the summer of 2021. Completion of the quantitative portion required the family to complete three (3) pre-and post-surveys, or six (6) total surveys; with one of the surveys being a 24-hour dietary recall. The ASA-24-hour recall was collected from the parent of a child in the home that was between the ages of five (5) to eleven (11) years of age. The average age of a child from the 24-hour dietary recall in this study was eight (8) years.

## Quantitative Survey Results

### *Validation and Reliability of Instruments*

There were three (3) quantitative surveys utilized for the MOW4Kids PIE study; all three surveys chosen were validated and reliable surveys. First, the eighteen (18) question, USDA HFSS survey to measure food security in the United States for families with children is validated and sponsored by the Economic Research Services.<sup>41</sup> The USDA HFSS has been utilized to measure household food security since 1995.<sup>81</sup> Scoring within the validated instrument ranges from 0-to 18 possible points and the points are formed by the respondent answering questions directly related to the availability of food in the home regardless of age, gender, race, religion, or culture.<sup>41</sup> Scores below 2.32 are considered food secure, scores 2.32- 4.56 are food insecure without hunger, and a score of 4.57 or higher is considered food insecure with hunger.<sup>41</sup>

The second quantitative survey was the PSS, measuring the balance between the demands and rewards of parenting. The PSS is a much-used instrument in both research and clinical practice for two decades in the area of parental satisfaction and stress.<sup>75</sup> Overall possible scores on the scale range from 18-90 points.<sup>76</sup> The higher the score, the higher the measured level of parental stress.<sup>76</sup>

The third and last quantitative survey was a 24-hour dietary recall of a child whose family participated in the MOW4Kids program during the summer of 2021. The ASA-24 electronic dietary program was utilized to calculate macro and micronutrients from a 24-hour diet recall of a child aged five to eleven, then the measurement of the Healthy Eating Index (HEI) was applied to the individual child's intake. The ASA-24 is evaluated and validated by the National Institute of Health (NIH), Division of Cancer Control and Population Sciences.<sup>77</sup> The

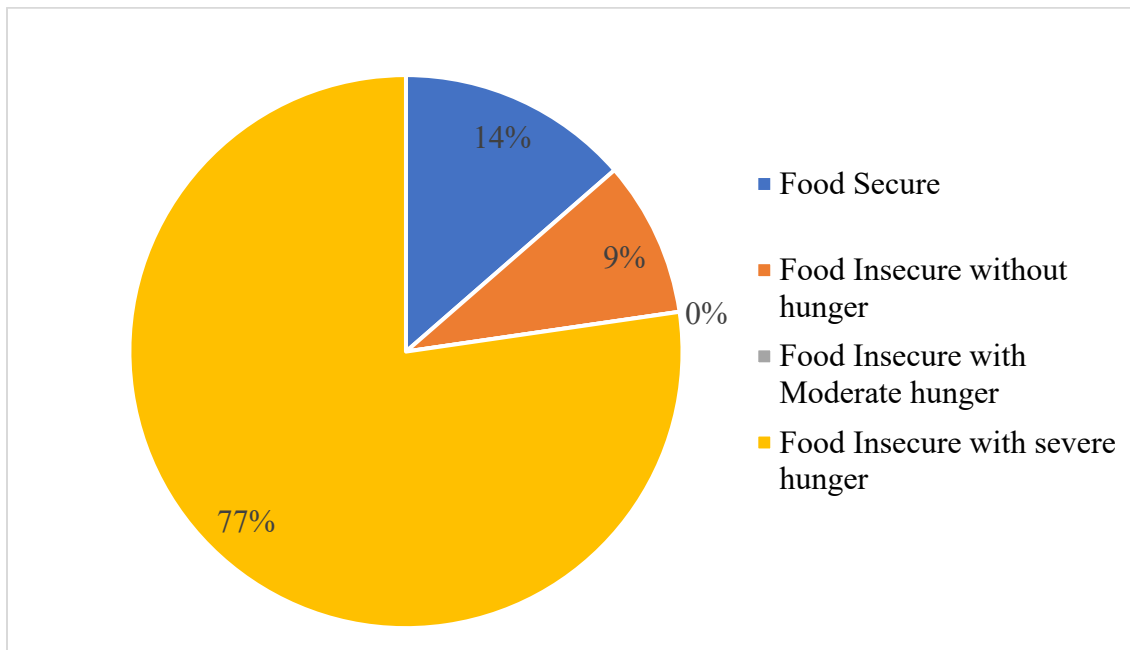
HEI was released by the United States Department of Agriculture's (USDA) Center for Nutrition Policy and Promotion in 1995.<sup>82</sup> The HEI is a scoring metric that can be used to determine overall diet quality as well as the quality of several diet components.<sup>82</sup> The HEI scores used in this study are from individual dietary intake. The HEI- 2015 contains thirteen (13) components that sum to a total maximum score of 100 points.<sup>82</sup> Since the HEI-2015 is the most recent iteration currently published at the time of this research study, the ASA24 24-hour dietary recall was compared to the HEI-2015.

### *Descriptive Statistics and Analysis of Quantitative Surveys*

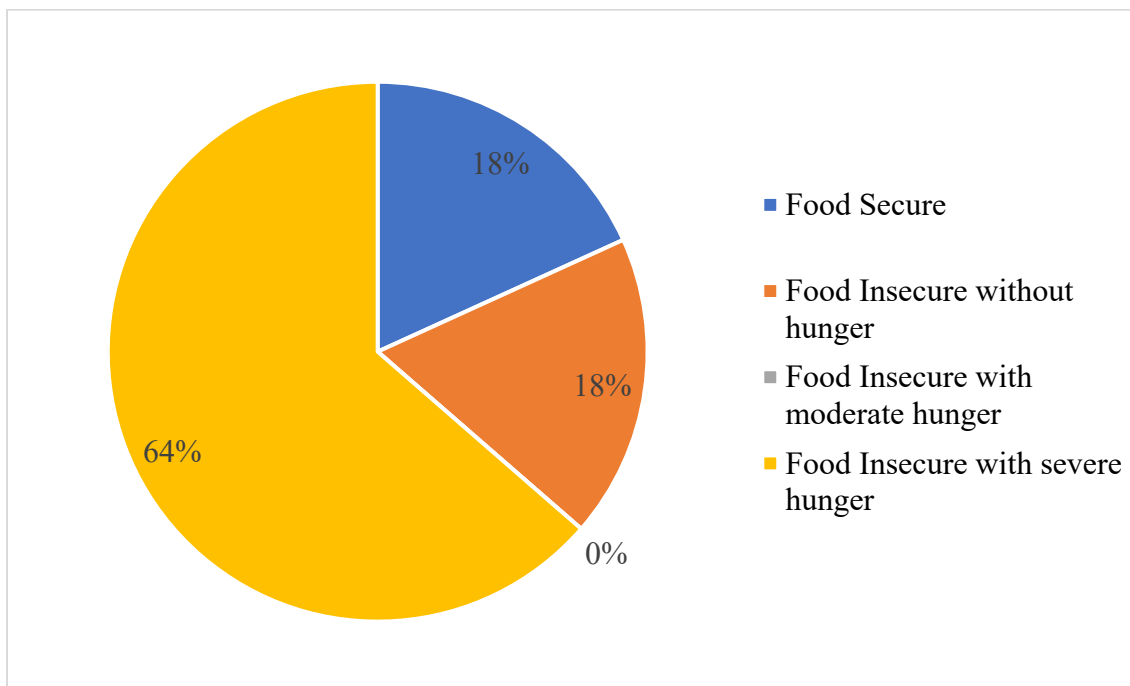
The quantitative surveys had two points of measurement for household food security, parental stress, and a 24-hour dietary recall of a child within the family. Responses were collected over an eight (8) week timeframe. The first point of measurement was before receiving the MOW4Kids home-delivery meal program in June 2021; the second measurement was after the families had been receiving the MOW4Kids meals (August 2021) but before the school system re-opened for the Fall session of 2021.

The USDA HFSS survey, an eighteen (18)- item tool in which the median score among twenty-two ( $n = 22$ ) respondents was completed with a pre-and post- food security score. In order to evaluate if any changes occurred in the area of household food security during the two-month intervention, a Wilcoxon signed-rank test revealed that household/childhood food security scores did not significantly change or improve after the intervention ( $Md = 8.00$ ,  $IQR = 9.00$ ,  $n = 22$ ) compared to before ( $Md = 9.00$ ,  $IQR = 8.50$ ,  $n = 22$ ),  $z = -.486$ ,  $p = .627$ , with extremely small effect size,  $r = .07$ . While many families experienced lower food insecurity during the intervention, others had an increase in food insecurity as seen in Figures 5 and 6.

**Figure 5.** Food Security Status Pre-MOW4Kids



**Figure 6.** Food Security Status Post-MOW4Kids



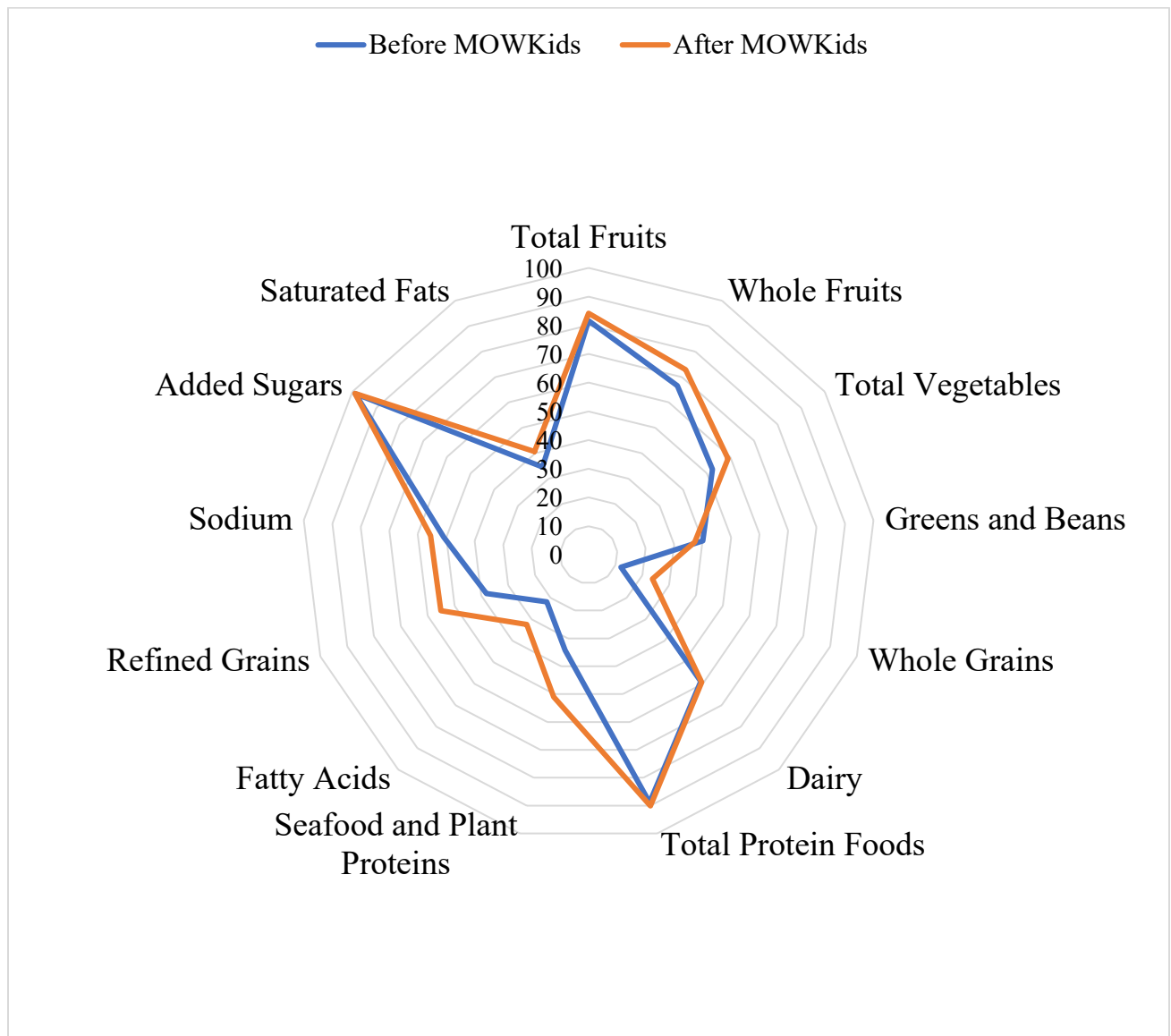
The PSS, an eighteen (18)- item survey in which the median score among twenty-two respondents was completed with a pre-and post- parental stress scale score. In order to evaluate any changes that occurred in the area of parental stress during the two-month intervention, a Wilcoxon signed-rank test revealed that parental stress did not significantly change or decrease after the intervention ( $Md = 42.50$ ,  $IQR = 7.50$ ,  $n = 22$ ) compared to before ( $Md = 42.50$ ,  $IQR = 11.25$ ,  $n = 22$ ),  $z = .520$ ,  $p = .603$ , with extremely small effect size,  $r = .08$ . The group means of both before and after the intervention was close to the same score.

The ASA24- hour dietary recall was utilized to calculate the HEI diet score factoring thirteen (13) dietary components. The HEI average score was comprised of 22 respondents for both pre-and post-intervention. In order to evaluate any changes that occurred in the area of healthy eating, a Wilcoxon signed-rank test revealed that HEI scores did not significantly change or improve after the intervention ( $Md = 59.70$ ,  $IQR = 18.95$ ,  $n = 22$ ) compared to before ( $Md = 52.78$ ,  $IQR = 15.33$ ,  $n = 22$ ),  $z = 1.93$ ,  $p = .053$ , with medium effect size,  $r = .3$ . The thirteen food and nutrient components calculated for the HEI pre-and post-treatment showed a slight improvement, though not statistically significant as seen in Table 5 and Figure 7.

**Table 6.** Respondents' HEI Pre- and Post-Scores with Mean

<b>Food/Nutrient Component</b>	<b>Group Mean HEI Pre-MOW4Kids (a)</b>	<b>Group Mean HEI Post-MOW4Kids (b)</b>
Total Fruit	81.58	84.17
Whole Fruit	66.52	72.85
Total Vegetables	52.45	59.03
Greens and Beans	40.09	37.25
Whole Grains	12.03	23.80
Dairy Foods	59.00	59.37
Total Protein Foods	88.92	90.11
Seafood and Plant Proteins	34.26	50.98
Fatty Acids	21.92	32.46
Refined Grains	38.13	55.02
Sodium	50.87	55.51
Added Sugars	98.83	98.96
Saturated Fats	34.53	40.66
<b>MEAN SCORE:</b>	<b>52.24</b>	<b>58.47</b>

**Figure 7.** Radar Plot of HEI Pre- and Post-MOW4Kids

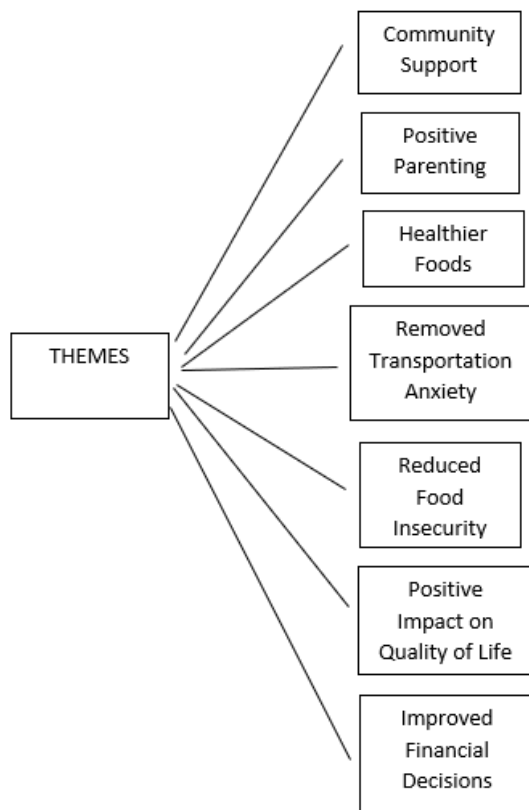




## **Qualitative Data**

The MOW4Kids study explored the benefits of the home-delivery meal program as perceived by the participants. Qualitative, semi-structured interviews were conducted with participants to produce a thematic analysis of their experiences. The interviews for the qualitative data reached saturation after conducting eight (8) interviews ( $n = 8$ ). The qualitative data was analyzed from the text of the interview transcripts. The qualitative analysis was dependent on how the researcher utilized personal knowledge of the social context of how the data was collected. Codes and themes were identified regarding the perception of the MOW4Kids program, along with a second researcher reviewing the same text from the interviews. Once each was completed the individual compared notes to identify any discrepancies in codes or themes until both researchers agreed. Results were organized into seven major themes related to the benefits of the MOW4Kids program. The themes that developed were, (1) community support; (2) positive parenting; (3) healthier food intake; (4) removed transportation anxiety; (5) reduced food insecurity; (6) positive program impact on quality of life; and (7) improved financial decisions. Themes ascertained are supported using quotes from participants in Table 6 (a-g).

**Figure 8.** Themes from Qualitative Interviews



### *Community Support*

Households without immediate family living in the nearby area may need to rely on an alternative support system and for the study participants, it was their community. The MOW4Kids participants that were interviewed, needed support from the MOW4Kids weekly home-delivery program. The support was specifically necessary while schools were closed both during the pandemic, as well as, during the summer or holiday months. MOW4Kids participants reported the food box was a symbol of genuine family support provided by a caring community and the food delivery made them feel supported by their neighbors. Quoted responses illustrating each theme are provided in Table 7 (a-g).

### *Positive Parenting*

Having a more positive parenting experience was seen as a benefit while participating in the MOW4Kids because parents had confidence, that they were meeting their child's food needs. Many parents expressed that their children had feelings of excitement and happiness knowing that the box of food would arrive weekly. Most participants stated that their children knew the exact day of the delivery and began discussing family meal planning and how the foods were going to be utilized. Parents stated that the boxes of food were used as quality time to talk with their children about nutrition; many participants also reported a happier home knowing food was in the pantry.

### *Healthier Food Intake*

The interviewed participants had an overwhelming response that the foods brought into their homes from the MOW4Kids home-delivery meal program were healthier foods. Most of the parents reported that the MOW4Kids foods reduced the cheaper, junk food that would normally be in the home due to their lower cost. The most common theme for a healthier intake was the increase in the total number of vegetables and fruits eaten by the family weekly. Parents noted that the MOW4Kids foods positively influenced their child's intake.

### *Removed Transportation Anxiety*

The MOW4Kids meal-delivery program was established for families that were not only food insecure but transportation insecure as well. Therefore, the families interviewed stated great appreciation for not having to worry about how they were going to get to a grocery store or who would care for the children while they were food shopping. Many of the program participants utilize public transportation which increases the concern of traveling with food or being able to

carry enough groceries needed for the family. Participants interviewed stated that relying on friends, neighbors or public transportation to grocery shop is a barrier to having food in the home. Participants described the reduced burden of stress trying to find transportation to the grocery.

### *Reduced Food Insecurity and Positive Program Benefits on Quality of Life*

All eight participants stated that they felt a reduction of worry because the food was available in the home. The participants of the MOW4Kids unanimously expressed that having the meal delivery program meant that their family members were not going to have to skip a meal. More importantly, participants stated their children would be able to eat all three meals and several described their children as having more energy to last the day because of the extra food. Others were happy that the meals brought a diversity of foods into their homes, allowing children to try new, healthier foods. Parents conveyed that the lifting of this burden was a blessing to them.

### *Improved Financial Decisions*

The perception of every participant interviewed was that the program allowed them the financial ability/choice to pay important “quality of life” bills. The interviewed participants stated that being able to pay the electric and water bills was the most beneficial, impactful financial decision. Every participant interviewed stated that cutting off or removal of these services would render their daily life extremely difficult with children, and very expensive to resume those utilities. Parents reported their ability to finally budget their monies so that bills and food could be maintained at the same time.

**Table 7. (a-g).** Major themes and representative quotes

Code	Theme	Quote
Support (a)	Community Support	“Times have changed since the pandemic- I have gratitude because it meant a lot that there are people out there that care. People care that you have a child that needs a meal and that meant a lot to us.” “Gratitude, it really meant a lot there are people out there that care and that children have a meal.”
Parenting (b)	Positive Parenting	“The program gave me that bit of confidence- that I was able to provide a meal to feed my children.” “It helped my parenting because it was a teaching product- my child was able to organize meals with me and learn how to put things away for planning.”
Healthy Foods (c)	Healthier Food Intake	“My kids weren’t big on vegetables until the MOW4Kids program and now they’ve learned to like them.” “It brought diversity as far as the food because there were things in the box that I could not afford to buy.”
Transportation (d)	Removed Transportation Anxiety	“We don’t have a car and I wouldn’t have been able to get the food otherwise.” “We are a family of six and I couldn’t load all of the kids in the car and shop nor could I ever find anyone to watch them.”
Food Insecurity (e)	Reduced Food Insecurity	“It’s a big relief off of my shoulders being a single

		parent with one income and no other state benefits- when she delivered the box of food, my child would be excited knowing she could get a snack she could enjoy.” “It means the world knowing you’re going to be able to feed your children- I appreciate it in every way.”
Program Impact (f)	Positive Program Benefits on QoL	“It helped tremendously knowing that I don’t have to worry or stress or stretch money for the kids to have a meal.” “It meant we were going to have food, a meal and that is a blessing.”
Financial Decisions (g)	Improved Financial Decisions	“Knowing that I can pay the light bill and the kids don’t have to skip a meal that day or that I can pay the water bill.” “I’m down to a single income, it meant I didn’t have to get a payday loan or count my pennies.”

### *Summary*

The quantitative research analysis of food security demonstrated a slight, non-statistically significant, improvement in the child’s food insecurity. The median score of food security was nine (9) before the MOW4Kids food program and eight (8) after the food program. However, the result of the USDA HFSS survey revealed that both before and after the MOW4Kids program, families scored within the definition of “very low food security” by the USDA HFSS scoring system. A 13% improvement occurred while on the MOW4Kids program, which meant fewer children were classified as food insecure, 64% down from 77%; however, the families were still experiencing “Food insecurity with severe hunger,” as measured by the USDA HFSS while

receiving the MOW4Kids food delivery. For the PSS surveys, the score for parental stress scores was approximately equal at 42.50 for both before and after the MOW4Kids supplemental food deliveries. No significant change occurred between the pre-and post-survey score. The HEI of the children's intake improved moderately but not statistically significant, 58.47 up from 52.24. However, the overall nutritional score/grade of the children participating in the study was poor. When the HEI was complete, the radar plot showed the nutritional scores of the children that were participating in the study were roughly 58, which is the equivalent of the letter grade "F." According to the NIH National Institute of Cancer, both the number and the letter scores are important when interpreting and reporting HEI.<sup>80</sup> The quantitative surveys performed during the study addressed one of the research questions regarding the improvement of food security, parent stress, and nutrient intake of children for families participating in the MOW4Kids home-delivery program.

To summarize the qualitative data, the MOW4Kids benefits, as stated by the interviewed participants, were indicators demonstrating the program produced and promoted strong benefits in the area of improving household/childhood food insecurity. Specifically, the program provided confidence in parenting, community support, and much other quality of life rewards as attested by the comments of the participants (Table 7. a-g). This qualitative research directly addresses the second research question which is the perception of benefits of participating in the MOW4Kids program.

## Discussion

The MOW4Kids PIE study makes important contributions, despite non-statistical significance, by creating a framework that provides quantitative and qualitative data in the area of childhood food insecurity. To our knowledge, this is the first study that has focused on quantitative and qualitative data that measured the before and after effects of participating in a home-delivered, supplemental food program for transportation insecure families. The MOW4Kids study was able to measure childhood food insecurity at the household level while families were participating in a pilot program that delivered food to their homes. The mixed-methods study, along with pre- and post-surveys, likely provided a more accurate account of the severity of childhood food insecurity and the programming needed to support food-insecure families. More importantly, the MOW4Kids study provided the groundwork for organizations to plan food security programs based on what level of food security families are experiencing. This study helps to understand that families may be classified into a range of food security levels, by applying the USDA HFSS score, and therefore, connected to a food security program that will have an impact on their individual food needs. Families enduring a more severe level of hunger may need more than a supplemental food delivery program while other families might benefit greatly.

While other studies found that a supplemental food program benefitted childhood food insecurity, their results were not comparable to the MOW4Kids study. Gall et al<sup>83</sup> conducted a mixed methods study during an evaluation of a home-delivered backpack program, while Smith et al<sup>84</sup> discussed the implementation of a home-delivery food program utilizing school bus drivers to deliver children's meals to their neighborhoods. Comparing these studies to the MOW4Kids study, both programs reported improvements and/or a reduction in childhood food



insecurity at the household level. However, neither study reported which validated tools were used to assess these differences. Data gleaned from the MOW4Kids study can potentially be expanded into further studies in which the severity of childhood food insecurity will determine how families will qualify for supplemental versus a fully-funded meal program.

## **Limitations**

There were several limitations to this study. First, there was a limited amount of time to complete the study due to a funding collapse within the MOW4Kids program. The MOW4Kids program originated from the need that children, who were participating in the free and reduced meal programs at school, were unable to access nutritional school meals once COVID-19 forced home-schooling. At this point, the MOW4Kids program received approval for school foods, plus privately funded foods, to be delivered via trained volunteers within the community. However, once school resumed, the MOW4Kids program collapsed because the donated foods from the public school system were removed. This program collapse created an urgent timeline for the study to be completed in order to fulfill participant surveys and analysis. Secondly, a low response rate from at-risk families limited the sample size. The program administrator was able to recruit seventy-six (76) families from 400 families that were enrolled in the MOW4Kids program during the time of the study. However, only thirty (30) families of the seventy-six (76) or 39% of the population were willing to participate. While this response rate is reflective of the difficulty in defining and studying families in need of food security programs, this research shed light proving that childhood food insecurity still exists at a severe level in our communities regardless of the difficulty in contacting these families. Lastly, the MOW4Kids home-delivery program was a pilot program that relied on the foods and monies from private

individuals/corporations or donations from school food systems in order to create the weekly food boxes. Therefore, the boxes varied weekly in food amount and types of food received in order to create a helpful resource for food-insecure children. This lack of funding created fluctuation of healthful foods available for planning the food boxes for participating families.

### **Implications for Practice, Policy, Research**

This research provides a greater understanding of how childhood food insecurity can and should be measured at the household level. Many RDNs are employed in diverse roles in which the USDA HFSS could be administered more frequently. Public health and community-based RDNs are often the first lines of action for discussing food security in the home. However, outpatient or clinical RDNs also have the opportunity to make a difference by simply asking patients if there is enough food in the home to feed the family. The nutritional well-being of one patient upon a dietary assessment in an outpatient clinic could potentially affect an entire family.

RDNs are the food and nutrition experts and therefore should be willing to consider interprofessional training from WIC/SNAP specialists to better understand how these food security programs operate in the U.S. Regardless of the setting, clients, and patients being seen by RDNs for medical nutritional management, may also be participating in federal food programs. Understanding how individuals qualify, receive, or get removed from these programs is an important aspect of educating our population on how to increase food dollars which could affect the nutritional status of children in the home. It benefits RDNs to be aware of how federal food programs are managed so that nutrition education will maximize the entire family's nutritional intake.

Childhood food insecurity programming is in need of state and federal funding. Nutrition professionals need to advocate and be the voice within our state governments for hungry children in the U.S. Unfortunately, local funding for small programs might be a temporary solution for a long-term problem. Larger, organized programming with permanent funding can greatly impact and reduce childhood hunger at the household level, not just when children are in school.

Lastly, future research by RDNs, regarding childhood food insecurity, should include assessments in which transportation, cohabitation, and the number of children in the home year-round, are all taken into consideration. Many families experience changes and re-homing during the year; therefore, these measurements need to be completed on a continuum to improve household food security. Having evidence-based information such as the USDA HFSS, nutritional assessments, and utilizing pre- and post-analyses will demonstrate the need for programming with stable funding and nutrition education.

## **Conclusion**

The MOW4Kids PIE study demonstrated that funding is key for programming to change the unfortunate reality of childhood food insecurity. Local programming and/or private funding can be inconsistent and difficult due to financial support promises that alter and can eventually disappear. However, household food security has the greatest impact on children living in the home. Evidence-based studies that provide quantitative and qualitative assessments in order to measure childhood food insecurity at the household level are the start of reducing child hunger. These measurements can lead to nutritional programming that improves/reduces childhood food insecurity that goes beyond the SBP and NSLP.

The quantitative results of the MOW4Kids study revealed that a supplemental, home-delivery food program was not enough to significantly remove participants from food insecurity, nor improve the nutritional intake of children. These two critical findings are part of a larger picture of how millions of children are going hungry in America and how their health and welfare from an unhealthy diet could negatively impact the salubrity of their future. The study also uncovers the important factor of measuring family and child food security prior to program placement in order to effectively evaluate the impact and well-being of the family, as well as, the potential funding of the program.

As stated by parents and caregivers, the qualitative data produced an increase in self-efficacy, improved perception of coping, and an increased feeling of community support. These perceived benefits aligned with the combination of the Family Stress Model (FSM) and Protection Motivation Theory (PMT), both of which were the theoretical framework of the research. Self-sufficiency is the cornerstone of both the FSM and the PMT. Food security programs established to improve, reduce, or remove childhood food insecurity can also promote self-sufficiency through a food delivery system that fosters meal planning, and cooking for a healthy lifestyle.

In closing, there are many school and community programs that are organized, funded, and working hard year to year to feed hungry children; however, a state or national food program with nutritional management and accountability is what is necessary for children to grow healthfully. Future research in the field of childhood food insecurity, studies can improve outcomes for program funding by, (1) identifying how many children are living in the home year-round not just during the school year, (2) measuring food security at the household level, not the just the school level, and (3) measure and include year-round transportation security

when measuring food security. Modeling a program for children, similar to Meals on Wheels for seniors, can assure a fully funded home delivery or a congregate nutrition program will be provided with the guidance of nutritional assessments, nutrition education, and nutritional screenings that are age-appropriate. Feeding and taking care of children at the basic level of providing healthy food for a prosperous nation is an indispensable necessity that can remove childhood food insecurity in the United States.

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## Appendix A

UNIVERSITY OF  
FLORIDA

### Attachment A - Study Details

**Please note:** This attachment is required for all submission packages involving research with human participants.

#### 1. Participants

##### a. Number of Participants

How many participants will be enrolled? Please phrase your response as a range of participants required for your study including a minimum and maximum number required. Please differentiate between the anticipated number of participants you will contact for recruitment and the anticipated number of participants required for enrollment. For example, although you might recruit from an anticipated pool of 1000 individuals, only 150-200 participants are required for your study. If you are enrolling more than one population describe the anticipated total enrollment for each.

250 -500 participants.

15-20 participants will be recruited for Zoom interviews so the goal of 10-15 interviews is reached.

##### b. Participant Population(s)

Describe the participant population(s) including gender, ethnicity, and age range. If any population will be specifically targeted (e.g., UNF students, minors, prisoners, UNF employees) please state as such.

The target population for this study is adult parents/caregivers whose children will be ages 5-11 years participating in the Meals on Wheels for Kids home delivery program from the Tampa Bay Network to End Hunger.

#### 2. Justification of Sample Size/Data Analysis

Explain how the data will be analyzed or studied. In your response please indicate which statistical tests you anticipate use in your analyses if any. Describe how the proposed sample size is appropriate for achieving the anticipated results.

This is a program evaluation study on food insecure families. We are expecting to recruit at least 250 participants; families enrolling during the month of June 2021 will be the target audience.

#### 3. Study Background

Outline any background information that may be relevant to your study. For example, list the research questions you are attempting to answer with this study, indicate whether there has been other research on the topic of interest, and if other research has been conducted on this topic, describe any unexpected problems involving risk or adverse events that occurred with that research. Please include any relevant background details that may be relevant to your proposed study.

Child hunger and food insecurity in households with children is an ever present and unfortunate fact in the United States, and more importantly a growing problem in the state of Florida. The United States Department of Agriculture (USDA) defines food insecurity as a lack of consistent access to enough food for an active, healthy life. Hunger refers to personal, physical sensation of discomfort, while food insecurity refers to a lack of available financial resources for food at the household level. Within the United States, as many as 13 million children live in "food insecure" homes and with the coronavirus, these families have been impacted further. In Florida, 2,768,480 people are struggling with hunger and 819,370 of them are children. Overall, Florida is ranked 10<sup>th</sup> in food insecurity and 8<sup>th</sup> in child food insecurity. Currently across the state of Florida, 1 in 5 children struggles with hunger. In Hillsborough county, Florida 12.3 percent of the residents were considered food insecure, in Pinellas county 12.9, and in Pasco county it is 13.8. However, since the pandemic, these numbers are expected to worsen since the economic crisis has not been evenly experienced across the state. Many people who have been impacted were food insecure or at risk of food insecurity before COVID and are facing further hardship as COVID

continues.

While food insecurity affects many different types of households, some are more affected than others. In general, women that are single parents are at a higher risk for food insecurity at 30% compared to 11% of married women with children. Households with children with a single mother had a food insecurity rate of 28.7% in 2019. The pandemic has further increased the hardship. Since the start of the pandemic, 57.1% of black women reported a loss of income as recorded by the National Women's Law Center. According to the study, the financial impact has left more than 16% of black and Hispanic women facing food insecurity in 2020 and beyond. In Florida, over 40% of children live in a single parent household.

Food insecurity is a priority for public health stakeholders, given its negative impact from both economic, education, and public health concerns. Food insecurity and hunger may impact a child's school performance. Research demonstrates that children from families who are not sure where their next meal may come from are more likely to have lower math scores and repeat a grade. Studies show that children from homes that lack a consistent food source are more likely to experience developmental impairments in the areas of language, motor skills, and behavior.

Many strategies exist to mitigate child hunger and improve food security for families with children. Some of the strategies include the Florida universal free breakfast program, National School Lunch Program (NSLP) providing free and reduced pricing, and the summer feeding program, in which any child in Florida ages 4-18 years is offered a free lunch at participating schools Monday through Friday. However, in the Hillsborough, Pasco, and Pinellas county areas, these programs have resulted in only a 20% participation rate. As of March 2020, at the beginning of the pandemic, the Tampa Bay Network to End Hunger (TBNEH) began the Meals on Wheels for Kids (MOW4Kids). This home-delivery meal program, serves children who are learning remotely when schools are closed. The program serves children who usually receive breakfast and/or lunch meals at school through the free and reduced NSLP and the universal free breakfast program. MOW4Kids is an alternative option for kids who are unable to access food from meal distribution sites or food pantries due to transportation issues and/or a disabled parent without transportation.

It is clear that child hunger and food insecurity is a complex issue in which a collaborative approach is necessary to help reduce and resolve the issue for Florida's children. Therefore, a collective approach can effectively evaluate the current program of MOW4Kids so the program may be funded, adopted and utilized through out the state of Florida.

This project proposes to conduct an evaluation/assessment of the MOW4Kids program in Hillsborough, Pasco, and Pinellas counties. The aim of the MOW4Kids Program Evaluation is as follows: 1) Conduct an assessment of food security at the individual/household level; 2) Conduct a parental stress assessment at the individual/household level; 3) Evaluate the impact MOW4Kids program for food security and nutritional/dietary intake.

#### 4. Study Design

Describe your study design (e.g., longitudinal, cross-sectional, mixed-methods) and type of data to be collected (e.g., archival/secondary data, public observation, survey, interview, focus group). In your response please also describe variables of interest for your research.

This is a mixed-methods study. A pre-post quasi-experimental study will be used to answer the following research questions: 1) What is the prevalence of food insecurity among MOW4Kids family participants? 2) What level of parental stress is experienced by the parents of the children that participate of the MOW4Kids program? 3) What is the impact of the MOW4Kids impact for food security and the nutritional intake of the child? A convenience sampling of MOW4Kids participants will be surveyed using the USDA Household Food Security Survey Module which is an 18- question survey that directly relates to children in the household and that captures food security level of MOW4Kids participants; the Parental Stress Scale, a validated inventory that focuses on 3 major domains of parenting with situational/demographic life stress; and the ASA24, a 24-recall of the child's dietary intake.

Semi-structured interviews will also be conducted. The interview guide, included in the submission packet, include open-ended questions to elicit insight from MOW4Kids program participants related to: 1) the impact of receiving home delivered meals from the MOW4Kids program, 2) changes to the nutritional quality of meals in the home, and 3) the impact of parenting stress related to healthfulness of home meals. Interviews will be conducted via Zoom. The interviews will be recorded for accuracy, and parents/caregivers will be able to choose audio and video options for the Zoom call. No identifying information will be included in the recording and it will be destroyed immediately after transcription or within

#### 4. Study Design

Describe your study design (e.g., longitudinal, cross-sectional, mixed-methods) and type of data to be collected (e.g., archival/secondary data, public observation, survey, interview, focus group). In your response please also describe variables of interest for your research.

This is a mixed-methods study. A pre-post quasi-experimental study will be used to answer the following research questions: 1) What is the prevalence of food insecurity among MOW4Kids family participants? 2) What level of parental stress is experienced by the parents of the children that participate of the MOW4Kids program? 3) What is the impact of the MOW4Kids impact for food security and the nutritional intake of the child? A convenience sampling of MOW4Kids participants will be surveyed using the USDA Household Food Security Survey Module which is an 18- question survey that directly relates to children in the household and that captures food security level of MOW4Kids participants; the Parental Stress Scale, a validated inventory that focuses on 3 major domains of parenting with situational/demographic life stress; and the ASA24, a 24-recall of the child's dietary intake.

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#### 5. Study Procedures

Describe the proposed study procedures, including the sequence and timing of all activities. In your response please also describe the data collection setting (e.g., in person, one-on-one, small groups, large groups, electric/online) and location of data collection (e.g., research lab, place of participant choosing, controlled facility). If the research involves study of existing samples/records, describe how authorization to access samples/records will be obtained.

As families are enrolled in the MOW4Kids summer program, the MOW4Kids staff members will describe the study to new participants using the recruitment script listed below, and if the potential participant agrees to participate, the first name and phone number will be collected then given to the study PI. The PI will contact potential participants to explain the study in detail and read/review the informed consent. Participants will be given up to a week to decide whether to participate in the study or not. Those who agree to participate will be administered the USDA Food Security Survey Module, Parental Stress Scale survey, and the ASA24 24-recall for the child, by telephone, twice during the study: at enrollment into the MOW4Kids summer program and at the end of the summer program. Participants will be informed by the PI that at any time during the surveys, the interview may be stopped and/or questions can be asked. The data collection period will start June 1, 2021 through August 30, 2021. After collection of the initial study data, the PI will schedule a date and time for a second phone call to collect the end of program surveys. The same surveys administered at the beginning of the summer program will be administered at the end. Parents/caregivers will be repeatedly ensured that participating or not participating in the study will have no impact on their participation in the MOW4Kids program.

The MOW4Kids staff member(s) will recruit parents/caregivers for the Zoom interview via email or telephone to obtain verbal consent immediately prior to the interview. If consent is granted, the study PI will schedule an interview with the participant; all interviews will be conducted via Zoom. If a participant is not interested in participating in the Zoom interview, they will be assured that it will have no impact on MOW4Kids program participation or benefits. The audio/video of the interviews will be recorded and transcribed verbatim and promptly destroyed after transcription (see 9b for details). All participants will be made aware that the interviews will be recorded through the consent process. Two coders will systematically analyze interview transcripts and develop themes.

#### 6. Study Materials



## 6. Study Materials

List all study materials (e.g., survey questions, interview questions, educational materials) that will or may be used in your study. It will be necessary to submit a copy of all study materials to the UNF IRB for review and approval. Please identify material by title and submit as an independent appendix document when possible. If you plan to utilize copyrighted information, permission from copyright owner may be necessary.

We will use the following :

- 1) Letter of Support from the MOW4Kids organization
- 2) Informed Consent for study participants
- 3) Recruitment Script (MOW4Kids staff)
- 4) PI script
- 5) USDA Household Food Security Module
- 6) Parental Stress Scale
- 7) ASA24 a 24-hour diet recall
- 8) Interview guide for participant Zoom interview
- 9) Zoom recruitment script for MOW4Kids staff

## 7. Debriefing

If any form of deception is to be used, it will be necessary to justify your reasons for including that deception. In your response please describe your proposed debriefing procedures. It will also be necessary to submit a copy of debriefing materials that will be utilized. If you will not debrief participants, please state as such in the space below.

No deception will be used so no debriefing is planned as the survey does not contain deception or education.

## 8. Benefits, Compensation, and Risk

### a. Participant Benefits

Describe anticipated benefits (e.g., health screening, increased knowledge as a result of an intervention) to research participants. If participants will not benefit directly, state so here.

No direct benefits is anticipated. Participants will contribute to the assessment of the MOW4Kids program that

will be evaluated for state-wide funding for future families to be assisted in the area of child hunger and food insecurity.

### b. Societal Benefits

Describe anticipated benefits to society (e.g., added knowledge to the field of study) or a specific class of individuals (e.g., athletes or autistic children).

The results of the MOW4Kids program evaluation can be used to identify needs and gaps in services so that the program can meet the needs of families in Florida. The results can be utilized to secure funding for a state-wide MOW4Kids program. Finally, the assessment will be instrumental in designing policies that address food injustices identified in the Tampa Bay area and potentially beyond.

### c. Compensation

Describe compensation (e.g., extra credit toward course grade, reimbursement for travel expenses) to research participants. If participants will not be compensated, state so here. \*Please note that monetary compensation may require collection of name, social security number, and address be reported to UNF controller's office.

Compensation will be given to study participants after the post survey in the form of a \$20 gift card to Walmart.

### d. Potential Risks to Participants

Describe the potential risks to participants and steps taken to minimize risks. Types of risks to consider include

Compensation will be given to study participants after the post survey in the form of a \$20 gift card to Walmart.

**d. Potential Risks to Participants**

Describe the potential risks to participants and steps taken to minimize risks. Types of risks to consider include physical, psychological, social, legal, employment, and financial.

There is no physical, psychological, social, legal, or financial risks anticipated. The surveys will be conducted at the participants private home. Clients will be reassured that neither participating or stopping participation will not impact services received in the MOW4Kids program.

**e. Potential Costs to Participants**

Describe the potential costs to participants (e.g., invasion of privacy, time, travel) In your response please also outline how you will attempt to minimize potential costs to participants.

There are not potential monetary, travel, or privacy costs to participants. The only potential cost is the estimated 30-40 minutes to complete the survey but we will minimize this time by conducting surveys while participants are able to watch and care for their children within their own home while answering survey questions.

**f. Risk/Benefit Analysis**

Describe the ratio of risks to benefits. Risks to research participants should be justified by the anticipated benefit to the participants, the researcher's discipline, or society.

Since minimal to no risks are involved, only benefits are anticipated by conducting this survey.

**9. Data and Safety Monitoring**

**a. Confidentiality**

Describe procedures for protecting confidentiality of data collected and stored. Be sure to state whether any limit to confidentiality exist and identify any external agencies (e.g. study sponsor) that will have access to the data.

Surveys will be conducted via telephone while participants are in the privacy of their own home. The USDA Food Security survey and the Parental Stress Scale will be entered into the computer-generated Qualtrics system, in which the study team members will input non-identifying information directly into the Qualtrics program; no paper surveys will be necessary. The ASA24 24-recall diet form will be paper. No confidential information will be collected. The paper surveys will be stored in a locked file cabinet in the principal investigator's office. There will be one spread sheet in which participant's ID numbers are matched with their first name, this spread sheet will be separated from all other paper work. This spread sheet will be stored in a password protected computer.

For the Zoom interviews, the PI will have access to participants names and email address for the sole purpose of the Zoom interview. Zoom recordings will only include participants' names or email address but this information will not be transcribed and recordings will be destroyed after transcription or within 3 months of the date of the interview, whichever comes first.

**b. Data Storage, Security, and Monitoring**

Describe your plan for securely storing any and all data. Be sure to identify where data will be stored, the security of this location, and how data will be monitored. *\*Any breach in data safety and all unexpected problems involving risk must be reported to UNF's IRB immediately (within 3 business days or as soon as practicable).*

No confidential information will be collected on the surveys. Any breach of data will be reported immediately to UNF's IRB. All survey data will be retained for a minimum of 5 years after the close of the study.

**b. Data Storage, Security, and Monitoring**

Describe your plan for securely storing any and all data. Be sure to identify where data will be stored, the security of this location, and how data will be monitored. *\*Any breach in data safety and all unexpected problems involving risk must be reported to UNF's IRB immediately (within 3 business days or as soon as practicable).*

No confidential information will be collected on the surveys. Any breach of data will be reported immediately to UNF's IRB. All survey data will be retained for a minimum of 5 years after the close of the study. The interview transcriptions will be stored in a shared OneDrive file to which only the personnel listed in this application will have access. All audio or video recordings from the Zoom interviews will be transcribed and immediately be destroyed within 3 months of the interview date or after transcription, whichever comes first. Zoom recordings will only include participants' names or email addresses but this information will not be transcribed and recordings will be destroyed after transcription or within 3 months, whichever comes first.

**c. Safety Monitoring:**

Describe your plan for monitoring your participants and identifying any adverse effects they may experience during and (if necessary) after data collection. *\*Any unexpected problems involving risk must be reported to UNF's IRB immediately (within 3 business days or as soon as practicable).*

We do not anticipate any adverse effects from completing the survey but participants will be monitored for any adverse effects. Participants will be provided the contact information of several crisis and help hot-lines if they feel distressed while completing the survey or Zoom interview.

## Appendix B

May 10, 2021

Claudia Rivero, M.S., RDN/LDN  
University of North Florida  
1 UNF Drive  
Jacksonville, FL 32224

Dear Ms. Rivero,

Tampa Bay Network to End Hunger offers this letter of support for the “Meals on Wheels for Kids (MOW4Kids) Program Evaluation” study. Tampa Bay Network to End Hunger supports the proposed research activity and we are willing for the research team to survey our clients.

We are fully committed to provide the following:

- Advertise the research opportunity to our families. If interested, they will contact the research team to participate to be interviewed on food security, parental stress index, and 24-recall.
- Offering expertise to help ensure the success of the project.

We share your confidence that nutrition is key to improving the health of the families that participate in the MOW4Kids program. Thank you for the opportunity to partner in this worthwhile endeavor.

Sincerely,

Lauren Vance MPH  
Director of Programs and Communication



## Appendix C



May 11, 2021

Claudia Rivero, M.S., RDN/LDN  
University of North Florida  
1 UNF Drive  
Jacksonville, FL 32224

Dear Ms. Rivero,


Tampa Bay Network to End Hunger offers this letter of support for the "Meals on Wheels for Kids (MOW4Kids) Program Evaluation" study. Tampa Bay Network to End Hunger supports the proposed research activity and we are willing for the research team to survey our recipients.

We are fully committed to provide the following:

- Advertise the research opportunity to our families. If interested, they will contact the research team to participate to be interviewed on food security, parental stress index, and 24-recall.
- Offering expertise to help ensure the success of the project.

We share your confidence that nutrition is key to improving the health of the families that participate in the MOW4Kids program. Thank you for the opportunity to partner in this worthwhile endeavor.

Sincerely,

  
Lauren Vance MPH  
Director of Programs and Communication

## Appendix D

### Informed Consent for Study Participants

Hi, my name is Claudia Rivero and I am a doctoral student in Nutrition & Dietetics at the University of North Florida. We are conducting a research study on the Meals on Wheels for Kids program. Specifically, we will be surveying families about their ability to access food, parental stress, and a 24-recall.

If you take part in my project, you will be asked to complete these interviews. We expect that approximately 30-40 minutes of your time will be needed. The interview will be conducted by phone by a member of the UNF research team. Your responses will be confidential. No information will be collected that will identify you. All research materials will be stored in a locked cabinet in the locked research room.

There are no foreseeable risks for taking part in this project while others may benefit from the information we learn from the results of this study. Participation is voluntary and there are no penalties for deciding not to participate, skipping questions, or withdrawing your participation. Choosing not to participate in the interviews will not negatively impact your relationship with Meals on Wheels for Kids. If you choose to participate, you will receive a \$20 gift card to Walmart once the post surveys are complete.

If you have any questions about your rights as a research participant or if you would like to contact someone about a research-related injury, please contact the chair of the UNF International Review Board by calling (904) 620-2498, or emailing [irb@unf.edu](mailto:irb@unf.edu).

Thank You for your consideration.

Sincerely,

Claudia Rivero

Phone:

Email:

\_\_\_\_\_, (Print Name) verbally attested that She/He is at least 18 years of age and agrees to take part in this research study.

Researcher Printed Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Rivero. Meals on Wheels for Kids program evaluation study. Version 1. 5/10/2021

## Appendix E

### MOW4Kids Script for Advertising Study

The University of North Florida is doing a research project to evaluate the Meals on Wheels for Kids program to better assess nutrition health and access to food for families in Florida. Tampa Bay Network to End Hunger is working with the University to help find families that would be willing to be interviewed by the researchers. The researcher will ask questions about food, nutrition, food access, and parental stress. The interview should take about 30-40 minutes. You can choose to participate or not and if you say yes, you can still change your mind. Whether you choose to participate or not, it will not affect your services with Meals on Wheels for Kids. If you choose to participate in the study, a \$20 gift card to Walmart will be given at the end of the post survey. If you would like to participate, we will take your first name and phone number so that a research team member can call you.

## Appendix F

### MOW4Kids Study Team Members Script

Hello, \_\_\_\_\_, my name is Claudia Rivero and I am a member of the research team that is conducted the survey to evaluate the MOW4Kids program.

I understand that you are willing to participate in the surveys that will help us evaluate the program, is it O.K. with you if we continue the phone call and complete the surveys?

(If yes, continue; if the timing is not convenient- ask the participant for a better time to return the phone call. If the client chooses to not participate, thank the client and remind them their meals and services for the MOW4Kids program will not be affected)

If yes:

Thank you again for participating. I would like to read the consent form before we begin the surveys (read consent form) I would also like for you to know that this could take 30-40 minutes to complete. If at any time you have any questions or would like to stop the interview, please do not hesitate to let me know so that we can stop and either reschedule the interview or stop it all together.

Just remember that participating or not participating in the interview will not in any way affect your meals and services with the MOW4Kids program.

## Appendix G

Which of these statements best describes the food eaten in your household in the last 12 months: —enough of the kinds of food (I/we) want to eat; —enough, but not always the kinds of food (I/we) want; —sometimes not enough to eat; or, —often not enough to eat?

- [1] Enough of the kinds of food we want to eat
- [2] Enough but not always the kinds of food we want
- [3] Sometimes not enough to eat
- [4] Often not enough to eat
- [ ] DK or Refused

**Household Stage 1: Questions HH2-HH4 (asked of all households; begin scale items).**

[IF SINGLE ADULT IN HOUSEHOLD, USE "I," "MY," AND "YOU" IN PARENTHETICALS; OTHERWISE, USE "WE," "OUR," AND "YOUR HOUSEHOLD."]

HH2. Now I'm going to read you several statements that people have made about their food situation. For these statements, please tell me whether the statement was often true, sometimes true, or never true for (you/your household) in the last 12 months—that is, since last (name of current month).

The first statement is "(I/We) worried whether (my/our) food would run out before (I/we) got money to buy more." Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true
- ☐ DK or Refused

HH3. "The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true
- ☐ DK or Refused

HH4. "(I/we) couldn't afford to eat balanced meals." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true
- ☐ DK or Refused

**Screener for Stage 2 Adult-Referenced Questions:** If affirmative response (i.e., "often true" or "sometimes true") to one or more of Questions HH2-HH4, OR, response [3] or [4] to question HH1 (if administered), then continue to **Adult Stage 2**; otherwise, if children under age 18 are present in the household, skip to **Child Stage 1**, otherwise skip to **End of Food Security Module**.

**NOTE:** In a sample similar to that of the general U.S. population, about 20 percent of households (45 percent of households with incomes less than 185 percent of poverty line) will pass this screen and continue to Adult Stage 2.

**Adult Stage 2: Questions AD1-AD4** (asked of households passing the screener for Stage 2 adult-referenced questions).

AD1. In the last 12 months, since last (name of current month), did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?

- ☐ Yes
- ☐ No (Skip AD1a)
- ☐ DK (Skip AD1a)

AD1a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

- ☐ Almost every month
- ☐ Some months but not every month
- ☐ Only 1 or 2 months
- ☐ DK

AD2. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

- ☐ Yes
- ☐ No
- ☐ DK

AD3. In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food?

- ☐ Yes
- ☐ No
- ☐ DK

AD4. In the last 12 months, did you lose weight because there wasn't enough money for food?

- ☐ Yes
- ☐ No
- ☐ DK



**Screener for Stage 3 Adult-Referenced Questions:** If affirmative response to one or more of questions AD1 through AD4, then continue to *Adult Stage 3*; otherwise, if children under age 18 are present in the household, skip to *Child Stage 1*, otherwise skip to *End of Food Security Module*.

**NOTE:** In a sample similar to that of the general U.S. population, about 8 percent of households (20 percent of households with incomes less than 185 percent of poverty line) will pass this screen and continue to Adult Stage 3.

**Adult Stage 3: Questions AD5-AD5a** (asked of households passing screener for Stage 3 adult-referenced questions).

AD5. In the last 12 months, did (you/you or other adults in your household) ever not eat for a whole day because there wasn't enough money for food?

- ☐ Yes
- ☐ No (Skip AD5a)
- ☐ DK (Skip AD5a)

AD5a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

- ☐ Almost every month
- ☐ Some months but not every month
- ☐ Only 1 or 2 months
- ☐ DK

**Child Stage 1: Questions CH1-CH3 (Transitions and questions CH1 and CH2 are administered to all households with children under age 18)** Households with no child under age 18, skip to *End of Food Security Module*.

SELECT APPROPRIATE FILLS DEPENDING ON NUMBER OF ADULTS AND NUMBER OF CHILDREN IN THE HOUSEHOLD.

**Transition into Child-Referenced Questions:**

Now I'm going to read you several statements that people have made about the food situation of their children. For these statements, please tell me whether the statement was OFTEN true, SOMETIMES true, or NEVER true in the last 12 months for (your child/children living in the household who are under 18 years old).

CH1. "(I/we) relied on only a few kinds of low-cost food to feed (my/our) child/the children) because (I was/we were) running out of money to buy food." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true
- ☐ DK or Refused

CH2. "(I/We) couldn't feed (my/our) child/the children) a balanced meal, because (I/we) couldn't afford that." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true
- ☐ DK or Refused

CH3. "(My/Our child was/The children were) not eating enough because (I/we) just couldn't afford enough food." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true
- ☐ DK or Refused

**Screeners for Stage 2 Child Referenced Questions:** If affirmative response (i.e., "often true" or "sometimes true") to one or more of questions CH1-CH3, then continue to ***Child Stage 2;*** otherwise skip to ***End of Food Security Module.***

**NOTE:** In a sample similar to that of the general U.S. population, about 16 percent of households with children (35 percent of households with children with incomes less than 185 percent of poverty line) will pass this screen and continue to Child Stage 2.

**Child Stage 2: Questions CH4-CH7** (asked of households passing the screener for stage 2 child-referenced questions).

**NOTE:** In Current Population Survey Food Security Supplements, question CH6 precedes question CH5.

CH4. In the last 12 months, since (current month) of last year, did you ever cut the size of (your child's/any of the children's) meals because there wasn't enough money for food?

- ☐ Yes
- ☐ No
- ☐ DK

CH5. In the last 12 months, did (CHILD'S NAME/any of the children) ever skip meals because there wasn't enough money for food?

- ☐ Yes
- ☐ No (Skip CH5a)
- ☐ DK (Skip CH5a)

CH5a. [IF YES ABOVE ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

- ☐ Almost every month
- ☐ Some months but not every month
- ☐ Only 1 or 2 months
- ☐ DK

CH6. In the last 12 months, (was your child/were the children) ever hungry but you just couldn't afford more food?

- ☐ Yes
- ☐ No
- ☐ DK

CH7. In the last 12 months, did (your child/any of the children) ever not eat for a whole day because there wasn't enough money for food?

- ☐ Yes
- ☐ No
- ☐ DK

## Appendix H

### Parental Stress Scale

The following statements describe feelings and perceptions about the experience of being a parent. Think of each of the items in terms of how your relationship with your child or children typically is. Please indicate the degree to which you agree or disagree with the following items by placing the appropriate number in the space provided.

1 = Strongly disagree 2 = Disagree 3 = Undecided 4 = Agree 5 = Strongly agree

1	I am happy in my role as a parent	
2	There is little or nothing I wouldn't do for my child(ren) if it was necessary.	
3	Caring for my child(ren) sometimes takes more time and energy than I have to give.	
4	I sometimes worry whether I am doing enough for my child(ren).	
5	I feel close to my child(ren).	
6	I enjoy spending time with my child(ren).	
7	My child(ren) is an important source of affection for me.	
8	. Having child(ren) gives me a more certain and optimistic view for the future.	
9	The major source of stress in my life is my child(ren).	
10	Having child(ren) leaves little time and flexibility in my life.	
11	Having child(ren) has been a financial burden.	
12	. It is difficult to balance different responsibilities because of my child(ren).	
13	The behaviour of my child(ren) is often embarrassing or stressful to me.	

14	. If I had it to do over again, I might decide not to have child(ren).	
15	I feel overwhelmed by the responsibility of being a parent.	
16	Having child(ren) has meant having too few choices and too little control over my life.	
17	I am satisfied as a parent	
18	I find my child(ren) enjoyable	

## Appendix I

### MOW4Kids Staff Script for Advertising Zoom Interviewing

The University of North Florida is doing a research project to evaluate the Meals on Wheels for Kids program to better assess nutrition health, access to food for families in Florida, and the impact of receiving home delivered meals. Tampa Bay Network to End Hunger is working with the University of North Florida to help find families that would be willing to be interviewed by the researchers.

These interviews will be done with the Zoom program. The interviews will be recorded for accuracy, and you will be able to choose audio and video options for the Zoom call. No identifying information will be included in the recording and it will be destroyed immediately after transcription or within three (3) months of the date of the interview, whichever comes first. Permission to record the interviews will be obtained from you, the parent/caregiver, at the beginning of the interview and if you do not consent to the recording, you may leave the meeting. The interview will last approximately 30-40 minutes. Whether the interview is conducted or not, it will not in any way affect your services or benefits with Meals on Wheels for Kids.

You can choose to participate or not and if you say yes, you can still change your mind. Whether you choose to participate or not, it will not affect your services with Meals on Wheels for Kids. If you choose to participate in the study, a \$20 gift card to Walmart will be given to you and your family.

If you would like to participate, we will take your first name and phone number so that a research team member can call you.

## Appendix J

### Meals on Wheels for Kids (MOW4Kids) Program Evaluation Study

#### Zoom Interview Guide

- 1) What have the MOW4Kids program meals meant to you?
- 2) What impact has the MOW4Kids program had on parenting your child or children?
- 3) What type of changes has the MOW4Kids program brought to the healthfulness of meals brought into your home?
- 4) How has the “home-delivered” meal impacted your family versus going to go get the food yourself?
- 5) How has the MOW4Kids impacted the worry of feeding your child or children?
- 6) How has the MOW4Kids program impacted food availability in your home?
- 7) How has the MOW4Kids program impacted trade-off strategies of financial or personal decisions, such as paying bills, reducing food portions or skipping meals, when deciding how food dollars are spent in your home?