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FOOD FOR THOUGHT:
FOOD INSECURITY AND ACADEMIC PERFORMANCE

by

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B.A. UNIVERSITY OF FLORIDA, 2017

A thesis submitted in partial fulfillment of the requirements
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in the College of Sciences
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ABSTRACT

Objective: In 2018, 11.1% of American households were food insecure at least once. Annual reports on food insecurity conducted by the United States Department of Agriculture study the prevalence of household food insecurity; however, they fail to conceptualize the consequences that are associated with being food insecure. The objective of this study is to analyze the impacts of food insecurity on academic performance of children currently enrolled in an Orange County, Florida, K-12 public school. **Methods:** One focus group and 10 one-on-one interviews were conducted with parents who have at least one child currently enrolled in a K-12 public school in Orange County, Florida, to capture the concerns that they have regarding food and their children's academic performance. In addition to this qualitative approach, a quantitative survey was administered to the respondents to measure the extent to which they are food insecure. **Results:** The data from this study show that food insecurity can impact a child's ability to perform to their fullest potential in school. Mainly parents reported that their household's access to food impacts their children's ability to concentrate in school. Further, more salient findings emerged, such as the costs of living in Orange County, a need for greater government assistance, reliance on outside sources of food to feed their children, transportation issues, and health issues. **Conclusion:** Sociodemographic factors are known to have an effect on a child's academic performance. The findings represented in this paper suggest that social factors related to poverty disadvantage children in their pursuit of succeeding academically.

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CHAPTER I: INTRODUCTION

Orange County, Florida, is a county that is expected to see a population boom of 29.8% over the next 11 years, making it one of the largest metropolitan areas in the United States (Orlando Economic Partnership 2019). With over 211,000 children enrolled in K-12, the Orange County Public School system is the fourth largest in Florida and the ninth largest in the United States (OCPS Pocket Guide, 18-19). Due to the high number of children currently enrolled in the Orange County school district, as well as the anticipated increase in the number of students over the next decade, research on social factors such as food insecurity is necessary to mitigate any inequities that are present for students.

Food insecurity, as defined by the United States Department of Agriculture (USDA), is the "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (USDA.gov). In 2018, 11.1% of households in the United States faced food insecurity at least once during the year (USDA.gov). The food security status of a household lies on a spectrum that ranges from high food security to very low food security. Food insecurity can lead to a range of adverse outcomes on children; particularly, on their academic performance, ability to attend school regularly, and participation in school-related activities (Ashiabi 2005; Jyoti, Frongillo, and Jones 2005; Shankar, Chung, and Frank 2017).

Government programs, such as the School Breakfast Program (SBP) and the National School Lunch Program (NSLP) provide children with adequate meals during school hours. While effective to an extent, the SBP and NSLP cannot eradicate food insecurity among children, as these programs are only effective during school hours. Moreover, President Donald

Trump has proposed three cuts to the Supplemental Nutrition Assistance Program (SNAP) since taking office, while the Obama administration executed \$8.7 billion in cuts to SNAP. Cuts to social safety net programs is not a partisan issue, but rather a symptom of a neoliberal ideology that reduces government spending on social programs that aim to reduce poverty. Continued cuts to SNAP will affect millions of Americans who rely on government assistance to provide their households with food. In 2018, 56% of food-insecure households received benefits through one or more Federal food and nutrition assistance programs that include SNAP, the Special Supplemental Nutrition Program for Women, Infants, and Children, and the NSLP (Coleman-Jensen, Rabbitt, Gregory, Singh 2019).

The purpose of this study is to interview parents who have at least one child currently enrolled in an Orange County Public School to see if and how food insecurity impacts their children's performance in school. Surveys, one focus group, and ten one-on-one interviews, were employed to collect data for this study. The main research question that this study intended to answer was: "How does food insecurity influence the academic performance of children in Orange County, Florida?". Based on existing literature, it is hypothesized that food insecurity will have adverse academic outcomes for their children of the respondents (Ashiabi 2005; Jyoti, Frongillo, and Jones 2005; Shankar, Chung, and Frank 2017).

CHAPTER II: LITERATURE REVIEW

Understanding Food Insecurity

The number of American households with insufficient resources to purchase enough food has remained a persistent challenge in the United States. Until the 1980's, the United States failed to have an official measure of hunger among households, creating a challenge in assessing the extent of Americans who suffer from food insecurity (Bickel et al. 2000). However, in 1984, the President's Task Force on Food Assistance acknowledged a need for such measures, and as a result, Congress legislated the National Nutrition Monitoring and Related Research Act of 1990 (Bickel et al. 2000). The Act of 1990 aimed to conceptualize nutrition and food insecurity among American households (Bickel et al. 2000).

Ultimately, the Act led to the emergence of the Core Food Security Module (CFSM), which consists of an 18-question survey to assess the prevalence of food insecurity in U.S. households (Bickel et al. 2000). The first ten questions of the survey measure the consequences that financial constraints have on the amount of food members of a household can purchase, as well as the reduction in the frequency or size of meals. The remaining 8-questions are geared towards households with one or more children under the age of 18 present and are designed to assess how a household's financial situation impacts the children's diet.

Responses of "yes," "often," "sometimes," "almost every month," and "some months but not every month" are coded as affirmative answers. For example, an answer of "Often," or "Sometimes," to the first question in the module of "In the last 12 months, we worried whether our food would run out before we got money to buy more," is coded as affirmative response and assessed one point. A raw score of zero indicates high food security; a raw score of 1-2 indicates

marginal food security; a raw score of 3-7 represents low food security, and a raw score of 8-18 represents very low food security (USDA.gov)

In 2019, the USDA reported that 11.1% (14.3 million) of American households were food insecure at least once in 2018, with 4.3% of households reporting very low food security (Coleman-Jensen, Rabbitt, Gregory, Singh 2019). Moreover, 7.1% (2.7 million) of households with children were food insecure in 2018 (Coleman-Jensen, Rabbitt, Gregory, Singh 2019). In .6% (220,000) of households with children, caregivers reported that due to the severity of food insecurity, their children were hungry, skipped a meal, or did not eat for an entire day because of financial constraints in purchasing food. A household with food insecurity among children is one that has at least one child under the age of 18 and at times, were unable to provide adequate meals for their children.

Furthermore, the number of Black and Hispanic households that are food insecure compared to their White counterparts is disproportionate, at 21.2%, 16.2%, and 8.1%, respectively (Coleman-Jensen, Rabbitt, Gregory, Singh 2019). The difference in those impacted contributes to the reproduction of a racialized system in the United States that continues to perpetuate adverse outcomes on racial minorities. While the USDA's annual reports explore trends in food insecurity, it fails to analyze the impacts that food insecurity has on households.

Food Insecurity and Academic Outcomes

Numerous studies highlight a relationship between food insecurity and academic performance among children and adolescents (Alaimo, Olson, Frongillo 2001; Howard 2008; Jyoti, Frongillo, and Jones 2005; Shankar, Chung, and Frank 2017). Children in food-insecure households perform worse in math, reading, and science; have lower engagement in school-

related activities, and are more likely to miss school days because of a reported illness (Ashiabi 2005; Kimbro and Denny 2015; Shankar, Chung, and Frank 2017). Furthermore, school-aged children whose caregivers reported them as "hungry" had increased rates of repeating a grade, as well as using special education services compared to their counterparts who were "at-risk-for-hunger" or "non-hungry" (Kleinman et al. 1998). Children between kindergarten and third grade from marginally food insecure households also scored lower in math and reading (Jyoti, Frongillo, and Jones 2005). The role that food insecurity has on a child's academic performance is evident, as children coming from homes that changed from food secure to food-insecure households exhibited worse reading performance (Jyoti, Frongillo, and Jones 2005).

The impacts of food insecurity on academic performance are linked to malnutrition. A lack of macro- and micro-nutrients over a continuous period is related to a myriad of learning and behavioral outcomes, such as impairment in academic performance, linguistic development, social development, and self-regulation (Shonkoff 2003; Shankar, Chung, and Frank 2017). One consequence of malnutrition that can have a significant impact on a child's ability to perform at a high academic level is iron deficiency. Compared to developing countries, rates of iron deficiency in the U.S. is lower; however, nearly 1 in 10 U.S. children between the ages of 12 and 36 months are iron-deficient, with one-third developing anemia (Anemia, ID).

Anemia, which is a condition that leads to lower-than-normal amounts of red blood cells in the body, has symptoms of tiredness and weakness, as well as shortness of breath, headaches, or an irregular heartbeat (National Heart Lung Blood Institute). Even with treatment, iron deficiency with anemia during the first two years of life can severely impact cognitive, mental, and psychomotor development, which can lead to poorer academic performance throughout a child's life course (Lopez et al. 2016).

Infants with iron deficiencies have reported worse academic outcomes, attentiveness, and motor-development skills as they age into children (Lozoff, Jimenez, Wolf 1991). Due to fatigue being a symptom of low iron levels, children with iron deficiencies have a harder time focusing in the classroom, leading to lower academic performance (Pollitt, Golub, Gorman, et al. 1996). Furthermore, Le (2016) noted that compared to Whites, Black and Hispanics are at higher risk of developing anemia, with Blacks being most at-risk. The difference in racial groups affected by food insecurity and, consequently, poorer academic outcomes, represents a broken system that disadvantages already vulnerable populations.

Poverty and Food Insecurity in Orange County

In Orange County, Florida, 15.6% of households lived in poverty in 2018 (Office of Economic and Demographic Research 2019). What is more striking, however, is the percent of people under 18 years old that live in poverty, which was 22.8% (Office of Economic and Demographic Research 2019). Further, the percent of related children between the ages of 5 and 17 in families who live in poverty was 21.8% (Office of Economic and Demographic Research 2019). All three of these statistics are above the average for the state of Florida, which is 13.7%, 20%, and 18.8%, respectively (Office of Economic and Demographic Research 2019).

In 2018, 20.8% of Blacks, 17.6% of Hispanics, and 8.1% of Whites found themselves living in poverty in the United States, which is consistent with the racial makeup in the USDA's 2018 annual report on household food insecurity of 21.2%, 16.2%, and 8.1%, respectively (Semega, Kollar, Creamer, and Mohanty 2019). While not everyone who lives in poverty is food insecure, living in poverty is associated with an increased likelihood of household food insecurity (Dharmasena and Bessler 2018). Furthermore, there is a causal relationship between

children living in poverty and poorer educational outcomes, regardless of their racial or ethnic identity (Bergeson 2006; Chaudry and Wimer 2016).

With a correlation between socioeconomic standing, household food insecurity, and academic performance, this is a macro-level issue that can lead to a generational cycle of poverty (Mazur, Marquis, Jensen 2003). Understanding the relationship between poverty and food insecurity, as well as the impacts that food insecurity can have on a child's academic performance is essential in creating effective social policy geared towards mitigating this issue. Focusing attention on the next generation of people is vital in reducing future costs in aiding those affected by poverty.

CHAPTER III: THEORETICAL FRAMEWORK

A Rights-Based Approach

Chilton and Rose (2009) discuss ways to reduce the impacts of food insecurity in the United States by adopting a rights-based approach. The rights-based framework is "a system of ideas based on the Universal Declaration of Human Rights, adopted by the United Nations in 1948, and its associated treaties and legal covenants" (Chilton and Rose 2009). The authors argue that this framework provides a tool for the general public to hold the U.S. government accountable for ending food insecurity; increase public participation by clarifying terminology; addressing vulnerability and discrimination and acknowledging a link of policies to outcomes (Chilton and Rose 2009).

Holding the government accountable in reducing food insecurity is essential, as it is a macro-level issue that affects a diverse group of Americans. Each year since 1995, the USDA has published a report on food insecurity showing the changes in the percent of food-insecure households (Chilton and Rose 2009). While the government reports data on food insecurity, the reports continuously fail to provide a plan on how they can successfully address ending food insecurity in America (Chilton and Rose 2009). Therefore, establishing an interagency effort to monitor; set reference goals; inform and educate the public, and guide food-related and poverty-related social policy is essential in eradicating the rates of food insecure households (Chilton and Rose 2009).

The second element of this framework is to increase public participation by clarifying confusing terminology. By using easy-to-understand language that clearly defines food insecurity, public involvement is more likely (Chilton and Rose 2009). Therefore, by increasing transparency and broadly accepted definitions, the public can better hold the government

accountable for addressing the issue of food insecurity. By withholding information and failing to educate the public on food insecurity, public engagement to fixing this issue is reduced.

Furthermore, addressing vulnerability and discrimination against people of different races and socioeconomic statuses is essential when discussing a human-rights approach (Chilton and Rose 2009). This element of the approach would analyze how social policy and assistance programs can produce or reproduce vulnerability for some groups. By doing so, addressing vulnerability and discrimination would aim to increase equitability and reduce the adverse effects on well-being and education (Chilton and Rose 2009). Highlighting trends in racial disparities, as well as educating the public on these trends, can aid in holding the government accountable to enact social policy to diminish food insecurity.

Lastly, the authors posit a link of policy to outcomes. Analyzing how proposed social policies implemented to reduce food insecurity materialize into successful strategies is vital for eradicating the issue moving forward. The authors provide an example of the changes that the government made to the Supplemental Nutrition Program for Women, Infants, and Children (WIC). By making food packages more consistent with updated nutritional guidelines, the government reduced the rates of overweight and obesity among low-income children and adults (Chilton and Rose 2009). Through linking policies to outcomes, government agencies can make positive impacts on reducing the rates of food insecurity.

With a human rights-based system, further research can analyze the impacts of food insecurity on health and academic achievement. In 2018, the federal government spent \$96.1 billion for the USDA's 15 food and nutrition assistance programs (USDA.gov). Costs associated with food insecurity include an increase in medical care and lost educational attainment, as well as investments in the emergency food system (Brown, Shepard, Martin, and Orwat 2007). The

amount spent is down three percent from the previous fiscal year and nearly 12% from 2013, in which a historic \$109.2 billion was spent (USDA.gov). While the rate of food-insecure households has dropped from 14.3% (2013) to 11.1% (2019), there are still millions of Americans living without access to adequate food (Coleman-Jensen, Gregory, Singh 2014; Coleman-Jensen, Rabbitt, Gregory, Singh 2019). A human-based framework can lead to government accountability, an increase in public participation, aiding vulnerable and discriminated populations, and a link of policy to outcomes.

The Rights-Based approach by Chilton and Rose (2009) provides a framework to eradicate food insecurity and its impacts in the United States. Due to the above-mentioned research on the adverse relationship between food insecurity, even in its mildest form, and academic performance, the use of this theoretical framework is justified. A Rights-Based approach provides a potential answer to eliminating household food insecurity, which can have a positive impact on children and their ability to perform in school.

Government (Non) Action

The first aspect of the framework provided by Chilton and Rose (2009) is to hold the government accountable in mitigating and, ultimately, eradicating food insecurity in the United States. Currently, SNAP provides free food assistance to nearly 40 million Americans, which equates to about 12% of the United States population (Polansek and Pamuk 2019). However, the current White House administration has proposed multiple cuts to the SNAP. In July 2019, President Donald Trump's administration proposed budget cuts to SNAP, that if approved,

would cut roughly 3.1 million people from receiving assistance, saving the federal government about \$2.5 billion annually (Polansek and Pamuk 2019).

Moreover, in September 2019, the Trump administration unveiled more cuts to SNAP, with a new proposal that would remove \$4.5 billion from the program over a 5-year-span (Fadulu 2019). The new proposal would reduce monthly benefits by nearly \$75 for one in five families who receive SNAP benefits (Fadulu 2019). This proposal would reduce the earned benefits for 19% of households that receive SNAP, with nearly 8,000 households losing its benefits entirely (Fadulu 2019). In December 2019, the Trump administration tightened work requirements for SNAP recipients, a move that eliminates assistance for roughly 688,000 adults (Fessler and Treisman 2019). The newly implemented rule makes it more challenging for states to waive a requirement that able-bodied adults without dependents (ABAWD) must work a minimum of 20 hours weekly, or else they lose their benefits (Fessler and Treisman 2019).

The December 2019 proposal is the third time in less than a year that the Trump administration has sought to reduce funds for SNAP. Proposed and successful budget cuts to SNAP are not unique to this current administration, however, as they have regularly occurred since the 1980s, regardless of partisanship (USDA.gov). The Obama administration successfully made over \$8 billion in cuts to SNAP.

When compared to other developed countries, the United States already allocates fewer resources to programs geared towards assisting economically vulnerable populations (Rank, Yoon, and Hirschl 2003; Smeeding and Thévenot 2016). Countries such as Canada, Finland, France, Germany, Netherlands, Norway, Sweden, and the United Kingdom allocate more resources to social programs that keep households from falling into poverty (Rank, Yoon, and Hirschl 2003). These social safety net programs include higher unemployment assistance and

universal health care (Rank, Yoon, and Hirschl 2003). Social policy substantially reduces rates of poverty in these nations; meanwhile, U.S. policy has had minimal impacts on reducing poverty (Rank, Yoon, and Hirschl 2003; Smeeding and Thévenot 2016).

A reason for lack of appropriate spending for a social safety net in the United States is a shift in the political mindset that occurred in the 1970s to neoliberal ideology. Neoliberal policies include free trade agreements and decreases in government spending to increase engagement among the private sector of the economy (Boas and Gans-Morse 2009; World Health Organization 2004). As an ideology, neoliberalism focuses on competition and a comparative advantage among people (Boas and Gans-Morse 2009). The disinvestment in public institutions makes it particularly hard for low-income and minority communities, as they may lack the necessary resources to live in an economically competitive environment (Asen 2017). Furthermore, neoliberal ideology moves away from increasing the social safety net, which exacerbates contemporary inequality among vulnerable populations and increases the risk of generational poverty.

Continuing to propose cuts to programs such as SNAP is aligned with neoliberal ideology, and it can harm families and children in the United States. With the U.S. already spending less on government assistance programs to reduce poverty, the continuous proposed cuts to SNAP are a step in the wrong direction of eradicating food insecurity. The United States has the economic resources to implement positive changes in their social safety net. Food insecurity is merely a consequence of a more significant issue, which is that of those living in poverty in the United States due to a broken political system. It is vital to increase expenditures, rather than continue to propose cuts, on government assistance programs to help alleviate the burden for those living in poverty.

CHAPTER IV: METHODOLOGY

Study Design

This study employed a mixed-methods approach to explore this topic through multiple lenses. First, respondents completed a survey on their household's food security status. The questionnaire was taken from the USDA's annual household food security survey. After answering a series of questions to determine the household's food security status, a demographic survey was administered to capture the makeup of the respondent's household. The demographics survey included but not limited to, questions on the respondents' racial/ethnic background, gender, household size, income, and SNAP participation,

Due to the nature of this study, a qualitative approach was used to better understand the issues associated with household food insecurity in Orange County, Florida. Furthermore, using a qualitative approach allowed the researcher to capture the concerns that residents faced in the context of their food security status. Originally, the study planned to employ focus groups to collect data; however, only one focus group was completed, as confirmed respondents did not participate in the remaining three. As a result, semi-structured, one-on-one interviews were used to collect the remaining data.

The use of a mixed-method design allows the research question to be analyzed from multiple perspectives. Primarily, the researcher gains subjective insights on the issue of food insecurity from the qualitative inquiry while also acquiring data through quantitative research (Regnault, Willgoss, and Barbic 2018). Combining quantitative data with qualitative data allows for the respective pros and cons of each method to supplement one another (Regnault, Willgoss, and Barbic 2018).

Recruitment

The researcher used purposive sampling to recruit parents from Orange County, Florida, to examine the effects of food insecurity on their children. Eligible parents for this study had to have a child currently enrolled in an Orange County, K-12 Public School. Interested respondents for the focus groups provided their contact information and selected a timeslot for a focus group discussion. Respondents were then contacted 24-hours before the group to confirm, as well as sent a courtesy call and text message the day of the focus group. A similar recruitment technique was used for the one-on-one interviews; however, the interviews were conducted on the spot with eligible respondents. Each respondent received a \$5 gift voucher, redeemable at the United Against Poverty Member Share Grocery Program.

Focus Groups and Interviews

After Institutional Review Board approved this study in January 2020, the focus group and interviews were completed in February 2020. The focus group lasted 63 minutes, while the interviews ranged from 6 to 29 minutes in length. The focus group and interviews were conducted at the United Against Poverty campus in Orlando, Florida, and a total of 13 people participated in this study.

The researcher served as the lead moderator during the focus group and each interview. The focus group and interview script broached the topics of living in Orange County and any household limitations to consistently purchasing healthy groceries. Furthermore, the script explored how these limitations affect their children's diet, academic performance, and health, as well as a discussion on government assistance, and any additional social factors that influence

their children in school. The focus group and each one-on-one interview were audio-recorded using the Otter application.

Initially, the data for this study was going to be collected through the use of focus groups. Focus groups were selected as the primary method of data collection due to the ability to collect qualitative data through the use of open-ended questions among a homogenous group of respondents (Schutt 2019). Conducting focus groups can provide the respondents with a unique way of thinking about a particular topic in a way that they did not previously consider (Donley and Grauerholz 2012). As a result, a fruitful discussion can ensue within the focus group, creating a group dynamic that highlights why people possess their views on a particular topic (Donley and Grauerholz 2012). However, after confirming 4-7 respondents for four different focus groups, respondents were only present for one group. A typical pitfall in qualitative research is the reliance on respondents to show up, despite confirmation (Morgan 1995).

Due to the lack of respondents who were present for the focus groups, only one focus group discussion out of the desired four was completed. The researcher then employed another method of data collection – on the spot, one-on-one, semi-structured interviews. In addition to collecting data in a timely manner, the use of one-on-one semi-structured interviews was chosen due to the ability of the respondent to express their own opinions and feelings on this particular topic, (Berg 2007). Table 1 represents the form of data collection, whether a focus group or interview; the name of the respondents, and the length (in minutes) of the discussion.

Table 1. Data Collection Details

Form of Data Collection	Name of Respondents	Length
Focus Group	Samantha	65 minutes
Focus Group	Rosa	65 minutes
Focus Group	Anna	65 minutes
Interview	Silvia	29 minutes
Interview	Dana	12 minutes

Interview	Sydney	6 minutes
Interview	Mark	8 minutes
Interview	Marisol	14 minutes
Interview	Jessica	11 minutes
Interview	Jordan	13 minutes
Interview	Elizabeth	13 minutes
Interview	Natalie	16 minutes
Interview	Bianca	9 minutes

Analysis

Data from the food security module and demographic questionnaires were analyzed using SPSS. Specifically, the use of a descriptive analysis allowed the researcher to understand the frequency of answers provided by the respondents. In doing so, the researcher was able to examine the relationships among the different variables to further explore the existing themes that came up during the qualitative portion of the study. While the quantitative portion provided background information of the respondent, the core of the data for this study stemmed from the qualitative section.

The researcher employed a multi-step comparative analysis among the focus group and interviews. First, the researcher transcribed the focus group and interviews into a Microsoft Word document, which was then printed into a hard copy. The researcher then analyzed the focus group and each interview to determine any themes that emerged. Specific themes were categorized using different color highlighters. After hand-coding, each document was uploaded to NVivo, which is a qualitative data analysis software. Once in NVivo, the researcher coded the documents again, narrowing down the themes that emerged during the initial analysis.

After initial analyzation, ten main themes emerged: ‘ high cost of living,’ ‘inability to pay bills,’ ‘reliance on food banks to feed their children,’ ‘reliance on schools to food their children,’

‘inability to perform in school,’ ‘effects on peer relations in school,’ ‘transportation issues,’ ‘weight issues,’ ‘sickness from food,’ and ‘the need for more government assistance.’ Further analysis led to the grouping of ‘high cost of living’ and ‘inability to pay bills’ due to the parallel in how the respondent used these concepts. ‘Reliance on food banks’ and ‘reliance on schools to feed their children’ were also grouped, as respondent interchangeably described these as outside sources to feed their children. ‘Inability to perform in school’ and ‘effects on peer relations in school’ were grouped, as they both describe how food insecurity impacts children in school. Lastly, ‘weight issues’ and ‘sickness from food’ were grouped, as they both highlight the health impacts that stem from food insecurity. Further analysis led to the conceptualization of five main themes: ‘costs of living in Orange County,’ ‘the need for more government assistance,’ ‘transportation issues,’ ‘impacts on academic life,’ and ‘health issues.’

CHAPTER V: RESULTS

The USDA measures the range of food security in a household with one or more children by providing a raw score to the 18-question module. Table 1 represents the descriptive statistics from the food insecurity module.

Table 2. Food Security Status of Respondents

Food Security Status	Frequency	Percent
High Food Security	1	7.7
Marginal Food Security	4	30.8
Low Food Security	4	30.8
Very Low Food Security	4	30.8

Out of the 13 total respondents, one was from a high food-secure household, while four were from marginal food-secure households. The remaining eight respondents live in either low food-secure or very low food-secure households. The responses suggest that a majority of the respondents have faced a limited or uncertain availability to nutritious and safe food in their households. As research highlights, children coming from even marginal food secure households face roadblocks in their academic achievement, scoring lower in math and reading classes (Jyoti, Frongillo, and Jones 2005).

As shown in Table 2, of those who participated in this study, 4 (30.8%) were White, 6 (46.2%) were Black or African American, 2 (15.4%) were Hispanic, and 1 (7.7%) identified as multiracial/ethnic. Furthermore, of the 13 respondents, 12 (92.3%) identified as female, while 1 (7.7%) identified as male. Lastly, the annual household income of the respondents before taxes are represented as followed: 5 (38.5%) respondents reported their annual household income before taxes as under \$10,000; 2 (15.4%) reported an income between \$10,000-\$19,999; 4 (30.8%) reported an income between \$20,000-\$29,999; 1 reported an income between \$30,000-\$39,999, and 1 reported an income between \$50,000-\$59,999.

Table 3. Demographics of Respondents

Demographics	Frequency	Percent
Race		
White	4	30.8
Black or African American	6	46.2
Hispanic	2	15.4
Multi-Racial/Ethnic	1	7.7
Household Income		
Under \$10,000	5	38.5
\$10,000-\$19,999	2	15.4
\$20,000-\$29,999	4	30.8
\$30,000-\$39,999	1	7.7
\$40,000 or higher	1	7.7
Gender		
Female	12	92.3
Male	1	7.7

Table 3 represents SNAP (EBT) participation among the respondents. Seven (53.8%) of the respondents expressed that they have received SNAP benefits in the last 12 months. One respondent who expressed that they receive SNAP failed to answer the next question of ‘on average, how much do you receive per month in benefits?’ However, of six that did provide an answer, the average amount of benefits received per month was \$292, with a range of \$80-\$645.

Table 4. SNAP Participation Among Respondents

Received SNAP	Frequency	Percent
Yes	7	53.8
No	6	46.2

Focus Groups/Interviews

The purpose of the focus group discussion and the one-on-one interviews was to gain insight into how food insecurity affects households; and particularly, the children of households in Orange County, Florida. The researcher found that food access, and ultimately, food

insecurity, does have an impact on children's ability to perform in school. These impacts come in the inability to concentrate while in school or during homework time, effects on math tests, and effects on peer relationships within the school setting.

However, while the main research question focused on the impacts that food access and food insecurity have on children's academic performance, respondents expressed the importance of other factors that can impact their children. The additional themes are the cost of living in Orange County, a need for more government assistance, transportation, and health impediments. The emergence of these themes highlights that the impacts of food insecurity on their children's academic performance is not the most important issue they face. The themes are discussed in detail below.

Impacts on Academics

The respondents in the focus group and interviews discussed how household limitations in purchasing groceries and the impact that has on their children's schoolwork. Although analyzing the impacts of food insecurity and academic performance was the main research question, respondents did not feel that it is the main reason their children struggle in school. Of those who did discuss the importance of food insecurity and academic performance, the inability to concentrate during school activities and during homework time because they are hungry was most impacted. Parents often described them as "sluggish," "sleepy," and "lagging behind."

During the focus group, Rosa discussed how being hungry impacts her child's ability in school.

"My kids are always complaining that even though I gave them a light breakfast before they go to school, they always complain that the lunches are so far out that by the time it's the middle of the day, they're sluggish. They're hungry. My son, his teacher calls me all the time, she calls me

and is like, “does he eat?” I’m like, yeah, I feed him in the morning. He falls asleep because he says he’s so hungry that he can’t concentrate, so he just closes his eyes and falls asleep.”

During the focus group, Anna mentioned that her child loses focus during school, mostly due in part because of food. Anna stated that her child’s lunch schedule in school effects how much he eats, which influences his energy levels during the remainder of the day. “My 11-year-old... he loses focus in the afternoon because he’s had his lunch so early, he hardly eats what they give... he does lose a lot of focus; by the time he gets home, he’s crashed.”

During an interview, Silvia expressed how her child’s hunger affects his academic performance both within and outside of the school walls. Silvia expressed that her child’s ability to concentrate in school, and even at home while he is doing homework, is severely impacted by how much food he eats.

“You want them to come home and do their homework, but he’s hungry, you know what I’m saying? He can’t focus... That’s the first thing a teacher will tell you, try to make sure they get something in them because if not, then they are lagging all day until lunchtime, which is most of the day and part of their morning, when they get instruction.”

Dana expressed that her child struggles during his math class, and she believes a lack of a nutritious diet is the reason why. “You cannot concentrate when you’re hungry. You cannot concentrate when you’re hungry; you cannot form thoughts or processes... Math, especially, since it’s more processing – it’s difficult.” Consistent with established research, the findings from the interview with Dana corroborated literature that shows food insecurity affects children’s ability to perform at a high level during their math classes (Jyoti, Frongillo, and Jones 2005).

In addition to children having trouble concentrating on their schoolwork, Mark described the impact that food insecurity has on his children’s peer relationships. During an interview, Mark described how his children’s hunger affects how he acts around others.

“It tends to put them in a mood where they don’t want to be bothered or they are embarrassed that they’re still hungry, so they don’t want to tell nobody... They are embarrassed and act different around the other students when they’re still hungry... It does affect their relationships with their peers.”

Existing literature shows a connection between peer relationships and their impacts on academic performance. Specifically, children with positive peer relationships are more engaged and excel at academic tasks when compared to children who have peer relationship problems (Finn 1989; Libbey, 2004; Nasir et al. 2011; Wentzel 2017).

Cost of Living

The most prevalent theme throughout the data collection process was the associated costs of living in Orange County. Throughout the focus group and interviews, all 13 respondents discussed how the cost of living in Orange County is most detrimental in providing their children with a thorough, nutritious diet. As Jordan¹ stated in an interview:

“It can get really expensive because, you know, fresh vegetables and things like that tend to cost more versus buying a can off the shelf...Right now, we do live paycheck to paycheck, you know. It seems like every time we go to the grocery store something is more expensive, so we try to stretch what we can.”

While Jordan said that they usually purchase canned fruits and vegetables, other respondents such as Dana expressed the desire to purchase healthy foods for her children; however, due to budget constraints, she cannot always do so. “I think if we had more money, I’d probably be buying more whole foods all the time, organic, you know. Things like that.”

¹ All names used are pseudonyms.

The impact of the high costs associated with living in Orange County also impacts Mark's ability to run his household to the fullest potential. During our interview, Mark expressed that to make sure his children have food, he often falls behind on his bills.

“We have to find resources that have good food but at a cheaper price to make sure my kids get the food they need, like vitamins and fruits, to keep them healthy so it won't affect them as much. There are times where I have to not pay a bill so I can get groceries for my kids. You have to rob Peter to pay Paul, as people like to say; you have to take from this bill to get food, so you make sure you have a decent meal for your kids.”

In an interview, Natalie conveyed how the increasing cost of living in Orange County is impacting her ability to not only put food on the table but to pay her necessary bills.

“There have been some months where I have to choose whether or not I want to buy food, or do I want to pay the light bill late... But there are, like I said, there have been days where I've had to either decide whether or not I want to do fresh fruits and vegetables or, you know, it's just cheaper than canned items.”

Need for Government Assistance

Another prevalent theme was the need for more government assistance; particularly, regarding the SNAP program. Furthermore, respondents expressed a need for a changed system, as they believe that they should qualify for assistance, even though the government says that they do not qualify because of their income. Sydney, for example, expressed that she does not receive enough SNAP benefits to cover food expenses for her and her children. “I need more food stamps, parents with kids,” she said.

Sydney was not the only one to express the need for more SNAP benefits. Marisol mentioned that “sometimes the amount of food stamps change(s)... you can only get so much meat with it because you have to average everything out and then the dairy products and things like that, it's so much, and I'm not getting enough.” For Marisol, the lack of SNAP benefits has

hindered her ability to provide her children with vegetables consistently throughout the month. “Towards the end, that’s when the food stamps run out and we don’t have much,” she said.

Rosa also expressed that her food stamps do not last. “Food stamps would only last me – it was supposed to last me a month but it only lasted 2 weeks.” Rosa added that it is vital for the government to increase their participation in assisting those who need help. “I feel like if they knew what type of resources we need, if they heard us more, if they listen to us more, then they can be like, we can actually cater.” When asked whom she means by “they,” she elaborated, “Orange County, Orlando, the whole state of Florida because it’s everywhere.”

Natalie also mentioned the need for more government assistance and accountability.

“I just really feel like it’s easier for the bigger wigs in the political party to, you know, pass all these different laws but because they’re not affected by it firsthand, it’s not an issue. It’s not something that’s a major concern because it’s not, it’s not a problem [to them].”

Jessica and Mark both displayed their frustration with a system that tells them they do not qualify for SNAP enrollment, despite their continuous financial struggles. During an interview, Jessica rolled her eyes when she brought up her SNAP rejection because she makes too much money. When I asked her about her eye roll, she said this:

“I don’t make enough money. I’m a single mom, like, their dad does pay child support when he feels like it, but I make too much for government assistance. If it wasn’t for places like United Against Poverty or the food bank, then I would be, then it would be an issue as far as how would I feed my kids and I would be skipping meals for myself.”

Jessica says that she relies on low-cost grocery stores and food banks to provide food for her kids.

Mark, on the other hand, believes that the system needs to be changed.

“I think they need to look into this thing where they say people make too much. The cost of living in Orange County is high, so to say someone made too much, I believe they need to try to work on that and try to fix that system because it doesn’t work.”

Reliance on Outside Sources of Food

Another finding that was consistent throughout the interviews was the reliance on outside sources, such as schools and food banks, to help provide food for their children. Many parents expressed the use of food banks because they cannot always afford to purchase groceries. More consistent among the respondents, was the reliance on schools to feed their children breakfast and lunch because they cannot afford to. During the focus group, Samantha, Anna, and Rosa all expressed the reliance on schools to provide their children with meals.

Anna expressed how difficult the summertime is because her children are not getting meals from school.

“Last summer was... last summer was extremely difficult. Extremely difficult. They were home and its breakfast, lunch, and dinner. While you don’t have the extra income to be out of the house where they will eat less, they were eating the house away and I felt like I wasn’t able to keep up.”

Moreover, Silvia stated the importance of her children’s schools in assisting with meals. “If I had to pay for school lunch, my kids would probably be hungry, or they would just be eating the bare minimum, peanut butter and jelly.” Furthermore, when her children aren’t in school during breaks, Silvia said that her children have to sometimes miss meals.

“Now, it’s school time, they get to eat, you know, breakfast. But during the summertime is when it really gets bad for parents, single parents, you know what I mean? We got to provide breakfast, lunch, dinner, and a snack you know, for the kids. They might have to skip lunch because there’s not enough food because you got to make sure to get a full course breakfast to get going through the day.”

Silvia added to this, saying “summertime is kind of a big issue, you know what I’m saying? Especially me. I got five kids and I got three boys. So, it’s hard, you know what I mean?”

Transportation

Another theme that was prevalent was the issue of transportation and its impact on the children's ability to get to school. A concurrent theme among the respondents was their child or children missing school because of transportation. Anna, Rosa, Silvia, Marisol, Jordan, and Elizabeth all said that their children had missed school days because of transportation.

When speaking on the impact that transportation had on her child's education, Silvia had this say:

“I actually had to teach my nine-year-old how to catch the city bus because they [were] not providing a school bus to him. So it was, I guess, two miles or whatever. So, he had to walk from Colonial and Ferguson, cross over 50, which is the busiest street; he had to cross the street by himself. I don't even think they had a crossing guard there at the time, and walk all the way to 10th avenue, in the third grade.”

When asked to elaborate on how it affected her child, Silvia said this.

“If it was raining, he couldn't go to school because I had to be to work before it was time for him to leave... So, it was a lot of days that he just didn't go to school because of transportation because I have to go to work or I'm going to be late, you know? It's like, either I'm going to lose my job trying to take him back and forth to school.”

Marisol also spoke on the effect that transportation has had on her son. “I just had to turn my car in because I wasn't able to afford the insurance. Also, sometimes in our neighborhood, there's just no room for him on the school bus... I'm not able to bring him to and from school and a lot of the times the school bus in our area is too crowded,” she said.

While not all respondents faced transportation issues at the moment, Dana, an elementary-school teacher, said she could foresee it becoming an issue. When asked if her child has missed days because of transportation, she replied by saying, “No. He rides with me, and he goes to my school because I teach there. Otherwise, possibly yes.” Dana elaborated and said that

it would be an issue in the future when her child enters middle school, as they might have to send their child to a school with fewer resources.

“There are a few schools that he can go to for middle school but because we don’t live in the area, it’s a free choice school, so there is a lottery to get in. But if we don’t have a way to get him there, and we don’t, because of our jobs, were stuck and forced to use the bus to go to a different school where there’s not as much opportunities.”

Impacts on Children’s Health

While none of the respondents said that a lack of access to nutritious food caused health complications for their children, many did discuss how household limitations in purchasing healthy food exacerbated pre-existing health conditions. Regarding health impacts, a prevalent topic was the effect that these limitations have on the weight of their children – whether they were underweight or overweight. Bianca stated that “my son, he’s a little bit overweight... when he went to the doctor, they said you need to lose some, a little bit of weight.” While Bianca is aware of the impacts her child’s diet has on his weight, she said that the doctors told her to feed him “a balanced diet and to eat more healthier.” However, like the other 12 respondents, Bianca expressed the inability to do so because she cannot always afford to purchase healthy foods such as fresh fruits and vegetables for her child.

Bianca was not the only respondent that discussed her child being overweight. Dana also stated that the limitations her household had in purchasing healthy foods had made an impact on her child’s obesity. “My oldest son, I feel like is more overweight than he should be, and maybe it is because of the fillers, like the rice and the bread, and the cheaper things.” Dana conveyed that she adds additional carbs, such as rice, to her children’s soup to stretch their meals.

A review by Franklin et al. (2012) shows that the relationship between food insecurity and obesity are both strongly and positively associated. The why between the relationship is more nuanced; however, theories on the subject link overeating and reduced quality of food to explain the phenomena (Kempson et al. 2002; Mello et al. 2010; Wilde and Ranney 2000). Particularly, when food insecure household gain access to plentiful foods (when SNAP benefits become available), they tend to overeat. This period of overeating is then followed by a period of involuntary food restriction (when waiting for new SNAP benefits), which is then followed again by overeating (Wilde and Ranney 2000).

Marisol and Sydney spoke of how their household limitations have caused their children to lose weight. Sydney believes her child has “lost a little weight” due to her inability to have fresh food in the house. Marisol, on the other hand, discussed that her household limitations in purchasing groceries had left her son “a little anemic.” However, Marisol admitted that she is not entirely sure of the relationship between her ability to purchase groceries and her son’s weight issue.

In addition to weight issues, multiple respondents expressed that pre-existing conditions, such as digestive issues, impact what their child can eat. These respondents also stated that due to financial constraints, they cannot always provide the necessary meals to keep their children from getting sick. Natalie described that her limitations in purchasing fresh groceries had impacted the health of her child. While Natalie understands that her child needs to eat specific foods, financial limitations hinder her ability to purchase fresh food.

“He can’t eat a lot of different things like spicy foods, or too much processed. So, if he does, it has made him [sick from eating processed food], let’s say I decided instead of baking a chicken, I decided to get the Banquet Salisbury steaks, which is processed. On an occasion like that, he has gotten sick from eating processed foods or something he’s not supposed to be eating.”

Rosa also described how cheap, processed foods have caused her children to become sick; specifically, from meals that the school provides her child. “There’s a lot of preservatives, they give a lot of food from the can, which has a lot of preservatives. A lot of the stuff is already precooked, and they have to preheat it, so they get sick.” Rosa went onto explain how “the first time my kids tried that (school lunch), they were sick for like, almost a week, trying to get rid of all of that out of their system.”

CHAPTER VI: DISCUSSION

The purpose of this study was to examine the relationship between food insecurity and the academic performance of children. One focus group session and ten one-on-one interviews were conducted to gain a qualitative understanding of how food insecurity impacts children in Orange County, Florida. Respondents discussed the impacts that food insecurity and other social factors have on their children's ability to perform in school. Furthermore, a survey was administered to the respondents to gain a quantitative understanding of the prevalence of food insecurity within their household and the demographics of those impacted.

Insights from the qualitative and quantitative sections of this study created an interesting profile of the current issue's households in Orange County face how it impacts children. The researcher hypothesized that household food insecurity would create adverse effects on the academic performance of children. Based on the discussions from the focus group and interviews, limited access to quality, healthy foods can have harmful consequences on a child's performance in school, although it is not conclusive due to the sample size. The respondents discussed how a lack of a nutritious diet negatively impacts their children's ability to focus in class, at home while doing homework, and the ability to develop strong peer relationships.

It is important to note that while food insecurity did impact the respondent's children in school, it was not the most important topic discussed. Additional themes, such as cost of living, need for increased government assistance, reliance on outside sources of food, transportation, and health impacts were more important to the respondents. These effects come in children missing school days due to transportation and health impediments, as well as high costs of living and little government assistance, which impacts what parents can afford for their children.

Furthermore, the reliance on outside sources such as food banks and schools to feed their children impacts their diets, as they are more likely to eat processed foods, which can have negative health consequences. The emergence of these additional themes highlights the impact that poverty has on households and families in Orange County, Florida.

With increasing costs of living and barriers in transportation, further efforts must be made to aid those who struggle to keep up in a fiscally competitive environment. Improving and increasing access to transportation for children to get to school is essential, as missing school days can severely hinder the academic success of a student. Due to the heavy reliance on outside sources of food, efforts must be made to improve the quality, not just the quantity, of this food at an affordable price. Improving the affordability and quality of food will address the dietary limitations that people face. To accomplish these goals, civic engagement must increase to address these public concerns and hold those in government accountable for making change.

While increases to the social safety net is necessary, ideologies aligned with neoliberal politics serves as a roadblock for change. Disinvestments in public institutions makes political engagement particularly hard for low-income and minority communities. As discussed by Chilton and Rose (2009), increasing public engagement is key in holding the government accountable for change. Regardless of individual traits such as income, age, gender, and education; creating a community among groups of people exert significant effects on the internal and external efficacy, along with increasing personal and political trust (Finkel 1985; Anderson 2010). Furthermore, increasing civic engagement programs is vital, as it can build long-term gains in political self-efficacy, which subsequently leads to increased participation and engagement in politics (Pasek, Feldman, Romer, & Jamieson 2007). To increase participation, it is important that more community meetings are held and that more members of the community

have a platform to express their needs to policymakers. Furthering research on the impacts that these variables have on the academic performance of children in Orange County is imperative, as it can help mitigate inequities that are present in public schools.

Implications of this research illustrate the need to aid households and children in maintaining a nutritious lifestyle. Whether in school or at home, there is an obligation of the local and federal government to afford each child an equal opportunity to have access to nutritious food and to succeed academically. Sociodemographic factors, such as income and class, are known to affect a child's academic performance, and this paper shows the effects that living in poverty can have on a child's ability to succeed academically. Research shows that the SNAP program is the most effective anti-poverty program in the United States (Gregory, Rabbitt, Ribar 2013; Bartfeld, Gunderson, Smeeding, and Ziliak 2015). Therefore, furthering cuts to social safety net programs such a SNAP can hinder the ability to lift people out of poverty and level the playing field for students in public schools.

Moreover, the data collection portion of this study was conducted just weeks prior to the emergence of COVID-19, also known as the Coronavirus. As COVID-19 spread throughout the United States, millions of households were impacted financially, medically, and emotionally. Due to the impacts of COVID-19 and the near 17-million people filing for unemployment (Zaroli and Schneider 2020), furthering this research to include this pandemic and the impact it has on food insecurity, children's academic performance, and poverty in general, is imperative.

Limitations

A limitation of this study is the sample size. The sample size is 13 and is representative of itself. Because it is a local sample, it cannot be generalized to a larger population and

respondents in different geographic regions may elicit different replies. Furthermore, the purpose of this study was to analyze how food insecurity impacts children's academic performance in public schools. While the respondents did provide affirmative responses to this question, a majority did not believe that food insecurity is a pressing issue. The study was set up to provide a narrative on the relationship between food insecurity and academic performance and it ended with a different account, which is the main limitation of this study.

Conclusion

This research set out to explore the relationship between food insecurity and academic performance of children in K-12 public schools. The study included 13 parents who have a child currently enrolled in a K-12 public school in Orange County, Florida. The findings represent that while food insecurity is an important factor, other social factors such as transportation, health, and cost of living, not only disadvantage children in their pursuit of succeeding academically but are more salient among the respondents. Going forward, it is crucial that these areas are explored more to collect insight on the issues that parents and children face in Orange County, Florida. Furthermore, increasing public engagement is a necessary step in helping to hold the government accountable to reduce the inequities that are salient in Orange County public schools.

APPENDIX A
IRB APPROVAL



UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board

FWA00000351
IRB00001138
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

EXEMPTION DETERMINATION

January 7, 2020

Dear Justen Rosenberg:

On 1/7/2020, the IRB determined the following submission to be human subjects research that is exempt from regulation:

Type of Review:	Initial Study, Exempt Category
Title:	Hungry for a Better Education: Food Insecurity and Academic Performance
Investigator:	Justen Rosenberg
IRB ID:	STUDY00000905
Funding:	None
Grant ID:	None

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Kamille Birkbeck
Designated Reviewer

APPENDIX B
QUESTIONNAIRE

1. Explain what it is like living in Orange County, Florida, and provide any pros and cons of living here.
2. If any, over the last 12 months, what are the limitations your household faced in purchasing groceries?
3. If your household faced limitations in purchasing groceries, how did this affect your child or children's diet?
4. If your child's diet is affected, how has it affected them in school?
 - a. If yes, probe to ask about specific impact on coursework.
 - b. If yes, probe to ask about specific impact on homework.
5. If any, how has the issue of food availability affected the health of your child?
6. In December of 2019, the Trump administration proposed its third cuts to the SNAP program. Under the Obama administration, cuts to SNAP were not only proposed but approved. If more cuts to SNAP occur, how would this affect your household and the ability to purchase groceries?
7. Aside from food-related concerns, what are some social factors you believe impact your child's academic performance? (Can include employment, housing, transportation, experiences based on race/ethnicity, etc.)
8. Is there anything else you'd like to discuss that you believe will be beneficial for this study?

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