

8-2019

The Impact of Healthy Living Education on Parents When Selecting Snacks for their Children

Daphnea Lou Sutherland
Grand Valley State University

Follow this and additional works at: <https://scholarworks.gvsu.edu/theses>



Part of the [Early Childhood Education Commons](#)

ScholarWorks Citation

Sutherland, Daphnea Lou, "The Impact of Healthy Living Education on Parents When Selecting Snacks for their Children" (2019).
Masters Theses. 956.
<https://scholarworks.gvsu.edu/theses/956>

This Thesis is brought to you for free and open access by the Graduate Research and Creative Practice at ScholarWorks@GVSU. It has been accepted for inclusion in Masters Theses by an authorized administrator of ScholarWorks@GVSU. For more information, please contact scholarworks@gvsu.edu.

The Impact of Healthy Living Education on Parents
When Selecting Snacks for their Children

Daphnea Lou Sutherland

A Thesis Submitted to the Graduate Faculty of

GRAND VALLEY STATE UNIVERSITY

In

Partial Fulfillment of the Requirements

For the Degree of

Master of Education in Instruction and Curriculum- Early Childhood Education

College of Education

August 2019

Dedication

The Impact of Healthy Living Education on Parents When Selecting Snacks for their Children

I would like to dedicate my work on behalf of my family and the support that they have always provided me. First and foremost, without faith in my heavenly father, the opportunity for the thesis, my strength, motivation, and much more would not have been possible. I live strongly in my faith and am so thankful for it.

This thesis would not have become, if not for on the behalf of the memory of my father. In completion of my master's program I had originally planned on completing a project rather than a thesis. It was after the death of my father a little over a year ago, that I decided that I wanted to push myself for more. The death of my father brought about a lot of pain, trials, and ultimately growth. Despite the pain of loss, I decided that I wanted more and wanted to push myself to greater depths. Thus the thesis became my eventual decision. I never wanted to look back and regret not completing a thesis. I wanted to do the thesis to honor the memory of my father and the strength that he had in life. I have learned a lot in this season of life and find myself stronger today than ever before.

I also dedicate this to my mother who has never left my side and supports me in all I do, without her constant pestering, I may never have finished. Also, to my dear daughter who is the most wonderful young lady. I have acquired the most amazing friend in her. My daughter is the reason I push myself harder and harder every day to be more. She deserves all that I can offer her.

Then to the rest of my family, a wonderfully supportive grandmother, an aunt, a dear brother and his sweet family. My family means the world to me and without them none of this would have been possible. Thank you to them!

Acknowledgments

The Impact of Healthy Living Education on Parents When Selecting Snacks for their Children

This work could never have been completed without the support, understanding, and patience of my committee. Thank you to Dr. Linda Pickett, Dr. Steve Glass, and Dr. Tess Armstrong. Thank you for your patience and support in this process. Thank you, Linda, for your guidance, your wisdom, for your ever-calming presence and your constant reminder to breathe. Thank you, Tess, for being willing to brainstorm with me on multiple occasions, your wisdom and passion for health, and for checking in and continuously encouraging me. Thank you to Steve for your research expertise and guidance in completing the work. I have learned a lot in this process and thank you all for the part you had in helping me be successful.

Thank you to colleagues and friends who constantly checked in with me to provide the positive and uplifting messages, encouraging me to keep moving forward in this process. Also, for their patience and support as I spent countless hours and time in the process.

I am thankful to have been blessed by many people who have provided wonderful support, guidance, and learning through this process.

Preface

The Impact of Healthy Living Education on Parents When Selecting Snacks for their Children

I began my college experience with the desire to teach. I spent my first couple years of college working on an elementary education degree. At the end of my second year, I decided to take a break from college. When returning a couple years later to Grand Valley State University, I decided to change my degree to exercise science as I had grown a passion in my time off for health and wanted to be a part of impacting the lives around me with the passion that I had.

Towards the end of my degree I decided that I still wanted to work with children but also wanted to use my exercise science education, the goal was to merge the two passions together in some capacity. I completed my internship at Helen Devos Children's Hospital and worked with the Healthy Weight Center. It was there, that I saw I especially enjoyed working with children and healthy living. Life is so much more fulfilling when our bodies and minds are in good health. I love teaching and working with children and my passion is to be a part of a change that can teach and encourage families and children to a love for healthy living. The direction of this thesis study was the result of my passion for teaching, children, and healthy living.

Abstract

The Impact of Healthy Living Education on Parents When Selecting Snacks for their Children

The increasing prevalence of childhood obesity has become a major health concern in the United States and other countries. Obese children are now acquiring what is considered adult diseases, at a young age. This will have detrimental effects on their health as a child and even more so as an adult, resulting in poor quality of life and a shorter lifespan. An obese child also faces delays and shortages in meeting developmental standards, such as physical development, psychosocial, emotional development, cognitive, and so forth. When obese, children will have a harder time concentrating on learning materials and will struggle in school. Parents are responsible to supply and meet the basic needs of the child including food. Children model and learn from experience and what they know. It is important to teach parents about proper nutrition so that parents are knowledgeable in how to help their child to succeed. Programs need to be placed in early childhood environments to help encourage parents to enforce healthy living, which will result in children having a better ability to learn and meet the appropriate developmental standards and overall live a healthier and happier life. The purpose of this study was to assess the snacking habits, current knowledge, and the effect of an educational intervention on the parents of young children who attend a Midwestern university preschool. Results depict a small sample of parents who do want to provide healthy foods to their children and found the intervention of information to be valuable because it will help guide them when considering and providing snacking habits and foods for their children.

Table of Contents

Title Page.....	1
Approval Page.....	2
Dedication.....	3
Acknowledgments.....	5
Preface.....	6
Abstract.....	7
Table of Contents.....	8
List of Tables	11
List of Appendices.....	12
Chapter 1.....	13
Introduction.....	13
Fast Paced Culture.....	14
Parenting Style Impact.....	16
Overweight and Obesity Prevention Education.....	17
Purpose.....	18
Scope.....	18
Assumptions.....	19
Significance.....	19
Study Questions.....	20
Definitions.....	21
Chapter 2 Review of Literature.....	23

Introduction.....	23
Child Obesity.....	24
Increasing Rates of Obesity.....	24
Why is Obesity Detrimental to the Health and Life of a Child.....	24
Some Factors Impacting Childhood Obesity.....	26
Socio Economic Status.....	26
Parenting Impact.....	27
Lack of Proper Prevention Education.....	31
Summary.....	34
Chapter 3 Methodology.....	35
Introduction.....	35
Targeted Population.....	36
Participant Recruitment.....	36
Participant Involvement.....	37
Researcher Conflict of Interest, Financial Cost, and Benefits.....	40
Instrumentation.....	40
Data Collection and Analysis.....	41
Dates, Times, and Location.....	41
Data Analysis.....	41
Summary.....	41
Chapter 4 Results.....	43
Introduction.....	43

Context.....	43
Findings.....	43
Summary.....	50
Chapter 5- Discussion and Conclusion.....	52
Introduction.....	52
Future Study Opportunities.....	53
Appendices	56
References	79

List of Figures

Snacking Habits Established in Pre- Survey

Figure 1- Healthy and Non-Healthy Snack Display with Attached Baggies Pre-Filled with Amount of Sugar.....	37
Figure 2- Healthy and Non-Healthy Drink Display with Attached Baggies Pre-Filled with Amount of Sugar.....	38
Figure 3- Healthy and Non-Healthy Drink Display with Attached Baggies Pre-Filled with Amount of Sugar.....	38
Figure 4- Local Fast Food Restaurant and Specialty Beverage Establishment’s Nutritional Facts on Many Popular Food Items and Drinks.....	38
Figure 5- Hands on Display Table.....	39
Figure 6- What do the Terms Snacks, Snacking, and Snack Foods, mean to Parents?.....	44
Figure 7- What Factors are Considered when Purchasing and Providing Snacks for Children.....	45
Figure 3-Drink/ Beverages Provided to Child/ Children.....	45
Figure 9- Snack Foods Provided to Child/ Children.....	46

Parent Reported Self Knowledge Level of Providing Healthy Snacks and Snacking Habits

Figure 10- Parent Reported Level of Knowledge of Nutritional Value When Purchasing Snacks Pre and Post Intervention.....	47
--	----

Do Parents Find Nutrition Information Valuable in making Informed Snacking Decisions

Table 11- How Valuable do Parents find the Nutrition Intervention Information.....	48
--	----

Snacking Habits Change from Pre to Post Intervention

Figure 12- How Likely Parents are to Read Nutrition Labels Pre and Post Intervention...	49
Figure 13- Parent Provided Beverages to Child/ Children Pre and Post Intervention.....	49

Figure 14- Parents Response Post Nutrition Intervention and Their Intent to Change Snacking Habits.....	50
---	----

List of Appendices

Appendix A- Parent Consent Letter.....	56
Appendix B- Pre-Survey.....	57
Appendix C- Post Survey.....	64
Appendix D- Data Table 1.....	72
Appendix E- Data Table 2.....	72
Appendix F- Data Table 3.....	73
Appendix G- Data Table 4.....	73
Appendix H- Data Table 5.....	74
Appendix I- Data Table 6.....	74
Appendix J- Data Table 7.....	75
Appendix K- Data Table 8.....	76
Appendix L- Data Table 9.....	77
Appendix M- Data Table 10.....	77
Appendix N- Data Table 11.....	78

Chapter 1

Introduction

Health is a vital component of a child's life and is a primary goal of many parents and caregivers. Parents desire for their child to be healthy and typically do their best to protect their child from harm to allow the best environment for growth. However, it is hard for parents to prevent something when they are unaware of the risk and the characteristics to be aware of. Disease is something that a parent would absolutely want to protect their child from if they could. Obesity is a disease and unfortunately, child obesity has become a very serious health concern and is increasing at an alarming rate. In the year 2013, the World Health Organization (2015) shares that 6.3% of children across the world were considered overweight. That is a total of about 42 million children. Hales, Carroll, Fryar, and Ogden (2017) found that, in the United States in 2015- 2016 obesity among youth was at a percentage of 18.5% for children and youth ages 2-19 which affected 13.7 million children.

Child development is impacted negatively when a child is overweight or obese. Levels of negative impact, vary upon severity of obesity. Must and Strauss (1999) share how obesity effects children's emotional development, they wrote that, "Few problems in childhood may have as significant impact on childhood emotional development as obesity" (p. S4). Health is also impacted physically. Must and Strauss continue, "In fact there are few organ systems that obesity does not affect in childhood" (p. S2). It also effects social development, confidence, and self-esteem which in turn impacts how a child interacts with the world around them, obesity can cause children to have poor self-esteem, an obsessive concern with body image, social withdrawal, and rejection (Monello & Mayer, 1962). On the surface children who are

overweight or obese face discrimination, victimization, and teasing by peers and those around them (Must & Strauss, 1999). In addition, if not dealt with appropriately, severe obesity can encourage the growth and susceptibility of other life-threatening diseases. Obesity increases the risk of children acquiring adult onset diseases such as; sleep apnea, hypertension, type 2 diabetes, heart disease, liver disease, and so forth (Greydanus et al., 2018; Kumar & Kelly, 2017). Obesity at a young age also increases the risk of the child being obese as an adult.

There are several factors that can contribute to child obesity, however, a few stand out from the rest as primary impactors of childhood obesity rates.

Fast- Paced Culture

The American culture, for many, is lived at a fast pace. Overall, our society is busy and impatient. We feel the need to get from one place to another quickly and do not often have the time to wait and prepare healthier meals or snacks. Society has supported this, by helping make “fast” popular. Meals and snacks eaten at home are declining while meals eaten out are seen to be increasing (Cotunga & Vickery, 2007). There are fast food restaurants all over the world and pre-made and packaged meals at the grocery store, which provide a meal or snack of convenience. These foods are well advertised for cheaper, faster, and for providing enjoyable satiety. What people gain for a fast and easy snack, they lose in the amount of nutritional value that it includes. Fast food meals and snacks do not typically hold much, if any nutritional value. Instead, they are very unhealthy and include high amounts of unhealthy fats and additives, contributing to childhood obesity.

During the early childhood stage, children are considered to be at the most vital period of brain development and healthy brain development supports peak cognitive development

(Carson et al., 2016). “Children under 5 years have a greater demand for nutrients and energy to support the body’s requirements for growth and development than at any other time throughout their life cycle” (Taylor, Gallagher & McCullough, 2004). Proper nutrition is very important to brain and cognitive development. Deficiencies in zinc, iron, iodine, vitamin B12, and other nutrients, play a direct role in a child’s cognitive ability and functioning. The brain needs these nutrients among others to help attention, psychological behavior, motor development, and more. Nutrition can modify gene structure and plays a direct role in brain growth and development (Bryan et al., 2004; Rosales, Reznick, Zeisel, 2009). The choice of foods offered to children are important due to their nutritional value,

A pre- school child requires a greater demand for nutrients and energy in order to support the physical demands of its body for linear growth and brain development, rapid recovery following infection as well for general movement. Hence pre- school children are particularly vulnerable to nutritional deficiency and so it is vital that parents are informed about appropriate diets for their children (Taylor, 2004).

Food and drinks are available pretty much everywhere you go; supermarkets, restaurants, gas stations, convenience stores, schools, and most public buildings have drink and food machines for people to purchase from. In the United States in the year 2002, Savage, Fisher, and Birch (2007) noted that the United States Census Bureau said there were 514,085 places that provided food such as restaurant establishments. An additional 152,582 stores that sell food and drinks like grocery stores and gas stations (Savage et al., 2007) Not only is food readily available, children are being exposed to a variety of food and drink choices. A 2004 study confirmed that children under the age of 2 are already consuming a large variety of drinks

(Skinner et al., 2004). Children are being offered milk, juice, fruit drinks, sport drinks, water, and more. Many of these beverage options contain large amounts of sugar. For children who are already at risk of being overweight, sweet beverages consumed even as little as 1 to 2 times a day increase the odds of becoming overweight by 60% (Welsh et al., 2005).

With a fast pace culture and environment that supports unhealthy foods for a lower cost and higher convenience, it can be hard for families to take the concern of obesity and nutrient deficiencies seriously at the time, but they are very important.

Parenting Style Impact

As a parent, there is a priority to provide for the child's basic needs including food to insure proper growth and health (Anzman, Rollins, & Birch, 2010). Parents play a very large role in shaping a child's early environment, their meal patterns, and what foods a child finds comfortable or may enjoy.

Parent involvement, parent- child engagement, parent behaviors, and parent monitoring are factors that play a role in childhood obesity. Routines, consistency such as mealtimes, and parent eating habits and modeling, are very important factors in whether a child may or may not become obese (Ward, Swindle, Kyzer, & Whiteside-Mansell, 2015). Vittrup & McClure (2018) present the idea that parents are often unaware that their child's overall health status. The child may appear to be healthy but the effects of poor nutrition and its effects on the body extend over a period of time. The concept of healthy living is one that most everyone has heard of but the details of what it means, looks like, and how to do it, includes so much more information and education than many parents know or understand (Vittrup & McClure, 2018).

Parents are highly responsible for ensuring their child's well-being, as well as providing guidance to shape, and guide a child into their future. Scaglioni et al. (2018) writes that, "Food preferences are important determinants of children's intakes. Parental feeding behaviors have a significant influence on the development of children's preferences" (p. 4). Parenting feeding behaviors may include restricting certain foods, rewarding with food, or punishing with foods. Parents can be more authoritarian and demand certain food intake outcomes or they can be passive and allow the child to consume freely (Savage, Fisher, & Birch, 2007; Scaglioni et al., 2018). There is some research on parent feeding styles and what style works best to insure proper health and as a parent it takes some thought as to how to approach it effectively. With the goal of encouraging healthy eating and shaping of a child there are a lot of things for a parent to be knowledgeable about and consider. Savage et al. (2007) writes that "The challenge will be providing parents with information that will alter their concerns and perceptions regarding overweight as a threat to child health, and with guidance on alternative feeding strategies, which can be effective in promoting healthy weight in an environment that encourages excessive consumption" (p. 12).

Overweight and Obesity Prevention Education

The third factor and what can be considered the root cause of childhood obesity is a lack of adequate knowledge of prevention. There is not a large enough priority placed on prevention of or the fighting of childhood obesity (Vittrup & McClure, 2018). Parents need to know what the conditions of overweight and obesity are, what causes it, and that it is a real concern of every child. Families need to be taught and supported in how to eat, cook, and live a healthy

lifestyle. Research has shown that childhood obesity is very detrimental to the health of a child and the rates of occurrence are increasing (Kumar & Kelly, 2017).

Obesity is a real threat to every child and one of the first steps in prevention is to help parents understand by providing them information, and also educating those about the concerns that the threat of obesity poses to their child (Savage et al., 2007).

Purpose

The purpose of this study was to assess the snacking habits, current knowledge, and the effect of an educational intervention on the parents of young children who attend a Midwestern university preschool. The intervention presented information about nutrition that will help parents make informed choices about the snacks that they provide to their children. Data was gathered to determine the knowledge base and snacking habits of the families, information about nutrition of common snacks and beverages was provided, and families completed a pre and post survey. Data was analyzed to determine whether the information provided was effective in increasing knowledge and guiding food choices.

Scope

This study was conducted at a preschool on a Midwestern Michigan university campus. The participants were parents of enrolled preschoolers at the center. Parents completed a pre-survey providing insight into their child's current snacking habits. The survey asked a few basic nutritional information questions to create a baseline of knowledge from which to measure growth. Parents then participated in a drop-in style hands on intervention where they were offered the opportunity to view many different displays showing common and popular snacks

and beverages and their pre-measured sugar content. They were able to compare the different amounts of sugar that were in each item and picked up the sugar bags and felt the weight of sugar found in different items. In addition, parents had the ability to participate in a hands-on activity located at a different table. On the table were, buckets of sugar, measuring utensils, and information on how to calculate teaspoons of sugar. Participants, were able to personally read nutrition labels, calculate how many teaspoons of sugar the items included, and then measure and fill the empty food and drink containers accordingly. This hands-on experience allowed participants to visually see how full the containers were of sugar.

Assumptions

Many families have a beginning knowledge and understanding of the term healthy living but the concepts of nutrition, child development, and healthy living are vast (Vittrup & McClure, 2018). Based on the literature parents may not be properly educated on how to appropriately provide healthy eating habits and foods to their children to allow for child development. I expected that with this study that parents will be shocked and surprised with the amount of sugar that is found in some of the foods that they offer their child. I am also expecting that some parents, depending on current snack habits, will want to make changes to further encourage and provide their child with healthier snacks and beverages.

Significance

A person's overall quality of life can be attributed to their own personal health. The better their overall health is, the better their quality of life will be. The foundation of health begins early on in life (Izumi et al., 2015; Hardy et al., 2010). Beginning at infancy, children are

already starting to reach developmental milestones that are essential for proper growth. A child, who is at a healthy weight, is more apt to be nutritiously fed, well supported, and overall will have a better quality of life in aspects of health. A healthy child is also more likely to develop appropriately; physically, mentally, socially, emotionally, and so forth (Must & Strauss, 1999). Sahoo (2015) notes that “Childhood obesity can profoundly affect children’s physical health, social, and emotional well-being, and self-esteem. Many co- morbid conditions like metabolic, cardiovascular, orthopedic, neurological, hepatic, pulmonary, and renal disorders are also seen in association with childhood obesity” (p. 1). Children are likely to stay obese and run the risk of acquiring adult onset diseases such as; sleep apnea, hypertension, type 2 diabetes, cardiovascular disease, liver disease, and so forth (Greydanus et al., 2018; Kumar & Kelly, 2017; Sahoo et al., 2015). The nutrition provided to children is very important and there is great significance in making sure parents are adequately prepared and knowledgeable to best provide for their child and the child’s future health habits.

Study Questions

1. What are the snacking habits of early childhood children at a Midwestern preschool center?
2. Do parents of an early childhood center feel like they are knowledgeable on providing their children healthy snacks and snacking habits?
3. Do parents of an early childhood center think that healthy living education is helpful in making informed snacking decisions?
4. Will the factors that families use to make snack choices for their children change, as a result of receiving information about nutritious snacks and the harmful effects of sugar?

Definitions

Overweight- excess or extra weight above a weight considered normal or desirable;

According to the Center for Disease Control and Prevention (CDC), overweight is a BMI at or above the 85th percentile; caused when caloric or energy intake exceeds energy expenditure

Childhood Obesity- grossly excess or extra weight above a weight considered normal or desirable; according to the Center for Disease Control and Prevention (CDC), is a BMI at or above the 95th percentile; caused when caloric or energy intake exceeds energy expenditure

Early Childhood Education- education provided to children birth to five years old

Cardiometabolic- refers to the chance of developing diabetes, heart disease, or stroke

Cardiovascular disease- heart and blood vessel disease, also called heart disease

Endocrine disease- a hormone disorder where the body does not respond to hormones the way it is supposed to, can impact growth and development, mood, metabolism, etc.

Pulmonary- refers to health conditions of the lung such as; asthma, sleep disorders, decreased exercise tolerance

Orthopedic- refers to the chance of bone related concerns such as; unfused growth plates, softer bones, etc.

Neurological- disease of the brain, usually presents with headaches, vomiting, and blurred vision

Gastrointestinal- refers to health complications such as fatty liver, increased likelihood of gallstones, etc.

Musculoskeletal- concerns related to muscles, bones, joints, ligaments, etc.

Social- emotional- refers to challenges associated with childhood emotional development, obesity may cause feelings of low self-esteem, not belonging, embarrassment, bullying, etc.

Cognitive Development-development of the brain; ability to do things such as think, engage, information processing, and language learning

Physical Development- a process that starts in infancy and continues into late adolescence; growth of large and small motor ability, coordination, and ability of movement

Chapter 2- Literature Review

Introduction

Even more concerning than adult obesity, in the year 2013, the World Health Organization (WHO) shared that 6.3% of children across the world were considered overweight which totals about 42 million children (World Health Organization, 2015). In the United States in 2015- 2016 obesity among youth was at a percentage of 18.5% for children and youth ages 2-19 which affected 13.7 million children (Hales et al., 2017)

“Pediatric obesity now represents one of the most pressing nutritional problems facing children in the United States today” (Must & Strauss, 1999; p1). The literature supports the strong concern that obesity is becoming more and more common in the life of a child and with it comes intermediate and potentially long-term consequence and concerns.

This review of literature will focus on the increasing concern of child obesity, causes factors, and why obesity is detrimental to the health and proper growth of a child. The review will also focus on what is being done today to combat child obesity, the importance of proper parent education, and why it is important to implement healthy living education into an early childhood environment, beginning with the parents. Although there are many contributors to obesity, this literature review will be focusing on one part, it will look at the aspect of snacks and snacking habits and how nutrition plays a role in obesity. The review will break down snacks and the importance of purchasing and consuming with health and nutrition in mind. The review of literature will end by again highlighting the importance of parent education and the impact it has on a child’s life.

Child Obesity

Increasing Rates of Obesity

Anderson and Butcher (2006) examine the change of obesity in the United States and internationally by looking at the information that the World Health Organization (WHO) provides. In the United States during the time frame of 1971-1974, 5% of children ages 2-19 were considered obese. In the time frame of 1976-1980, prevalence increased slightly and then from 1988-1994 rates almost doubled. By 2002, almost 15% of children ages 2-19 were considered obese.

In the United States in 2015- 2016 obesity among youth was at 18.5% for children and youth ages 2-19 which affects 13.7 million children. Preschool children of ages 2-5 were at a 13.9% prevalence rate of obesity (Hales et al., 2017). Obesity rates are found to be slightly higher among certain populations and of lower economic status.

By reviewing the literature shared above a steady increase in childhood obesity rates can be seen over the past 48 years from 1971-2016.

Why Obesity is Detrimental to the Health and Life of a Child

The effects obesity can have on a person of any age is broad, and very concerning to the health and life of an individual. Of even more concern is the effects obesity has on a child. As they grow, children are constantly developing; socially, emotionally, cognitively, physically, and more. In the *International Journal of Obesity*, the article, *Risks and Consequences of childhood and adolescent obesity*, Must and Strauss (1999) discuss the impact obesity can have on the social- emotional well-being and growth of a child. "Few problems in childhood may have as significant impact on childhood emotional development as obesity" (p. S4). Obesity can cause

children to have poor self-esteem, an obsessive concern with body image, social withdrawal, and rejection. (Monello, 1962) On the surface children who are overweight or obese face discrimination, victimization, and teasing by peers and those around them. (Must & Strauss, 1999)

Must and Strauss (1999) also write about many physical complications and diseases that can impact a child who is obese. They write, “In fact there are few organ systems that obesity does not affect in childhood” (p. S2). They go on to write about some immediate consequences that can affect a child with obesity such as; orthopedic, neurological, pulmonary, gastroenterological, endocrine, and cardiovascular disease. Kumar and Kelly (2017) list similar health concerns not mentioned in the article of Must and Strauss such as: negative effects on the musculoskeletal systems, type 2 diabetes, dyslipidemia, obstructive sleep apnea, and cardio metabolic concerns like elevated blood pressure. Kumar and Kelly discuss the effects on a child’s social- emotional wellbeing. In addition, they mention that obese children are at a higher risk for anxiety and bullying.

When looking at both articles of Must and Strauss (1999) and Kumar and Kelly (2017), the list of health concerns that can occur due to child obesity is vast and detrimental to a child’s health and development and it can greatly impact and diminish quality of life. Obesity beginning at a young age not only drastically impacts the life of a child but most often the child remains obese as an adult. Being obese as a child can intensify obesity related disease and sicknesses as an adult.

Some Factors Impacting Childhood Obesity

Socio Economic Status

There are so many factors that can play a part in causing childhood obesity. Ward et al. (2015), found risk factors associated with low vegetable and fruit consumption. One of the risk factors they identified was low socio-economic status (SES) and its impact on childhood obesity. Families of low SES have less of an ability to purchase healthier foods such as fruit and vegetables due to fewer financial resources. In addition to not having adequate funds families of low SES are less likely to have access to healthier food items (Ward et al., 2015). In a study Wells et al. examined changes in obesity over time from childhood to the life of a young adult. They examined if early experiences with poverty influenced obesity. They were able to show that early childhood poverty did have an impact on the trajectory of BMI found in young adults. In addition, they identified additional risk factors such as family violence and turmoil as risk factors for obesity. Child separation and housing quality were also risk factors. "Poorer children become overweight adults, at least in part, because they are confronted with a greater array of risk factors over their life course" (Wells, 2010; p. 2510).

Parenting Impact

Child obesity can be the cause of many different factors and those factors can play off each other. For example; family demographics, parent beliefs, and practices, amount of physical activity, diet, parenting styles, and so forth (Gable & Lutz, 2019). Ultimately a child has no control of many of the factors that play a part in their health and wellbeing. Gable and Lutz (2019) present the idea that in order to fight childhood obesity, efforts should be focused on parent knowledge of appropriate child nutrition.

Ward et al. (2015) identifies parent involvement, parent- child engagement, parent behaviors, and parent monitoring as factors that play a role in childhood obesity. Routines, consistency such as mealtimes, and parent eating habits and modeling, are very important factors in whether a child may or may not become obese. Parents hold a very high responsibility in providing for a child's well-being, shaping, and guiding a child into their future. Scaglioni et al. (2018) writes that, "Food preferences are important determinants of children's intakes. Parental feeding behaviors have a significant influence on the development of children's preferences" (p. 4). It would be very beneficial to children's health if parents would provide and expose their children to a range of good food choices and at the same time model consumption of those positive and healthy food choices. Scaglioni et al. concludes the article with mentioning that families play a very large part in supporting a child's development, habits, and behaviors. "Diet plays a unique role in health, and dietary patterns, that is, the mix of food consumed over time throughout the lifecycle, can determine whether a chronic disease develops or regresses." (Hiza, 2012; p. 297). Limiting exposure to unhealthy foods and restaurants or stores that sell unhealthier foods while also serving adequate and recommended portion sizes, will help a child become knowledgeable about healthy foods and help them learn to self-regulate their eating habits (Scaglioni et al., 2018). Parents are responsible for the foods purchased, foods offered, and meal habits provided to their child as the child is dependent upon the parent's choices (Ventura & Birch, 2008).

Benton (2004), looks at different aspects of parenting that may contribute to obesity. Benton claims that there is a correlation between the parent and feeding styles of the child. He also mentions the importance of focusing on feeding styles rather than nutrition when it comes

to prevention of obesity. Nutrition does play a part, but Benton writes about parenting style and how it is more important when impacting healthy habits. For reasons such as, a parent might manipulate the availability of certain foods for gain. The gain for the parent could be to use food for reward or punishment. It is common for parents to offer the reward of one food for the consumption of another which can create an unhealthy pattern and view of food. For example, parents may encourage that a child eat a vegetable in order to get a dessert. Food taste and preferences aside, the child is now associating the foods with emotion and attention. They are deducing that the food they are being forced to eat is of less appeal and the food that they are being rewarded with is more appealing. Benton talks about how the approach in offering food items to children is important.

Davidson et al. (2015) addresses similar concerns as Benton (2004). Davidson et al. (2015) they identified and studied four different types of parenting styles when offering and allowing children the consumption of foods. The four types studied are as follows; autonomy support, structure, coercive control, and permissiveness. The styles fall along a spectrum with a range from autonomy support where there is encouragement and praise of healthy snack consumption, modeling the consumption of healthy foods, helping educate and involve the child in preparation of meals to permissiveness. Permissiveness is where a parent has no rules and there is no guidance. A child has access to snacks whatever snacks whenever they want. In both articles, Davidson et al. (2015) and Blaine et al. (2017) discuss how a parent should have responsibility and some control in the consumption of snacks and meals but that an authoritarian approach and limiting access to food for weight control, although with good intention, does not help the child learn to self-regulate their food intake. In contrast, the

permissive approach does not offer any guidance or control. There is no modeling and it does not teach the child to self-regulate either. Literature suggests that a balance of parent control is important to guide, monitor, and make sure that their children are consuming healthier foods (Blaine et al., 2017; Davidson et al., 2015; Ward et al., 2015).

Another study by Zarnowieki, Sinn, Petkov, and Dollman (2011), mentions that even the attitude of the parent towards healthy eating and healthy foods influences that knowledge that children have of healthy eating. The attitude of a parent or level of importance they place on health determines whether or not a parent will find it important to share health and nutrition knowledge with their child. Zarnowieki et al. suggest that improving parent knowledge and attitude will ultimately improve the knowledge of the children, regardless of their financial means. Results of the study performed by Zarnowieki et al. determined that the level of nutrition knowledge a parent has does have a direct relationship on the child's knowledge of what is healthy and not. A study by Variyam (2001), supports the same theory of parent knowledge and its relationship to child knowledge. Varivam found that the higher the parent knowledge the lower the prevalence of childhood obesity. In order to monitor healthy habits and food consumption parents need to be knowledgeable about nutrition and have a good attitude. In a survey, Varivam found that some parents have the attitude that there is nothing they can do about their child being overweight or obese. They have the attitude that some people are just born to be fat. 33% of the parents that agreed with that statement had children who were overweight and for those that disagreed only 22% of their children were overweight (Varivam, 2001).

A child's environment, experiences, and upbringing will have a role in the establishment and promotion of behaviors that will extend into adulthood. It is important for parents to provide repeated exposure and experiences of healthy foods such as fruits and vegetables to children at a young age to help allow for taste and familiarity. This will help promote healthy eating preferences and will help children to be more accepting and willing to consume healthy foods (Scaglioni, 2018). Children who are knowledgeable about healthy foods and eating at a young age will likely grow with a natural love, appreciation for healthy foods, and life-long healthy behaviors. Children who are not exposed to healthy foods and do not see families model consumption will have a greater chance of obesity during childhood and into adulthood.

In a review of literature performed by Ventura and Birch (2008), the authors noted that there is significant evidence that supports the ideology that parenting affects the shaping of child eating behaviors. However, the article also mentions to keep in mind that children's personalities and characteristics can in turn play a part in influencing parenting. For example, if a child is a picky eater, a parent may be apt to allow a child to consume unhealthy foods in encouragement of the child eating. So, a child's established eating habits or preferences may in turn guide a parent in how they choose food purchases and meals to serve. Ultimately though, a child's overall health and weight gain should be of utmost concern to a family when considering foods provided for consumption as the results of obesity can be negatively life altering.

Lack of Proper Obesity Prevention Education

There is not a large enough priority placed on prevention or the fighting of childhood obesity (Vittrup & McClure, 2018). In the article, *Barriers to Childhood Obesity Prevention: Parental Knowledge and Attitudes*, Vittrup and McClure studied and wrote about families of young children and their eating and exercise habits. They also wanted to know about their knowledge about health, obesity risks, and what the family's attitudes were towards prevention and intervention. The parents had children ages 3-10 and the participants were recruited from preschools and head start programs. One hundred and seventy- seven families participated and of those families, 69% of the parents and 40% of the children were considered overweight or obese by measurement of height and weight reported. Vittrup and McClure found that about 98% of these families had not been aware that their child was considered overweight or obese.

Literature has shown that childhood obesity is a real concern, is increasing in rate, and that there are not adequate forms of prevention. For any type of intervention or prevention to be effective parental support is needed as parents of young children do control and provide the environment and basic needs of their child. Literature has also shown that there are complications and barriers that do not support and assist in making interventions and prevention strategies hugely successful. For childhood obesity rates to begin decreasing, which is the goal, obesity prevention and interventions need to be focused on education and parents. "Parents are the ultimate gate keepers of their children's exposures and experiences; therefore, we need to consider their opinions and limitations when designing prevention and intervention programs" (Vittrup & McClure, 2018). Looking at all the different barriers and addressing the limitations from a parent perspective may help provide a more successful form of prevention.

Understanding those limitations and barriers may be the first step in creating an education program for families that can be effective and successful in its support.

Some of these burdens would be transportation, socio economic status and financial burdens, time constraints, nutritional education, and knowledge that there is even a concern related to food consumption and health (Vittrup & McClure, 2018).

The concept of healthy living is one that most everyone has heard of but the details of what it means, looks like, and how to do it, includes so much more information and education than many parents know or understand as many parents are unaware of their child's health status (Vittrup & McClure, 2018). Parents can see their children and they may look good, but what they do not understand is the effect that small choices such as proper nutrition can be hurting them developmentally and it is not always easy to see. Due to parents being unknowing this may be why they do not always participate in obesity prevention efforts. Provided that parents do take their child in for doctor's visits, a pediatrician or general doctor have one of the best educational platforms. Nutrition facts, child feeding advice, and health concerns or information would be more accepted and highly regarded, coming from a pediatrician or doctor (Vittrup, 2018). Overall increasing the knowledge of parents regarding healthy living and the risks associated with obesity is very important. Obesity is a real threat to every child and one of the first steps in prevention is to help parents understand by providing them information and educating them about the concerns that the threat of obesity poses to their child (Savage et al., 2007).

Another platform for obesity intervention education and prevention, in addition to the medical and parental/ supporting families, is in the educational setting. An obese child also

faces delays and shortages in meeting developmental standards, such as physical development, psychosocial, emotional development, cognitive, and so forth. Obese children are more apt to feel socially awkward, more likely to be teased and bullied, and will not have the appropriate ability to form friendships and relationships. When obese, children will have a harder time concentrating on learning materials and will struggle in school. Children spend most of their day in a school setting. Children eat, play, and learn at school, so it makes sense that intervention and treatment programs are placed in schools to help encourage healthy living, which will result in children having a better ability to learn and meet the appropriate developmental standards. Students with a healthy mind, body, and social- emotional development are apt to be prepared to learn better. The National Association of State Boards of Education has noted, “Health and success in school are interrelated. Schools cannot achieve their primary mission of education if students and staff are not healthy and fit physically, mentally, and socially” (Wechsler, 2004, p. 1).

Story, Nanney, and Schwartz (2009) share that, “Progress in addressing childhood obesity will require the coordinated and collective efforts of many stakeholders working in multiple sectors and settings. Schools are identified as a key setting for public health strategies to lower or prevent the prevalence of overweight and obesity” (p.72). The effects that proper nutrition has on brain development suggests that earliest intervention is key. There are some health programs introduced in k-12 programs but offering earlier intervention in early childhood settings is also very important. “A pre- school child requires a greater demand for nutrients and energy in order to support the physical demands of its body for linear growth and

brain development, rapid recovery following infection as well for general movement” (Taylor et al., 2004).

The article, “Nutrients for Cognitive Development in School-aged Children,” talks about how proper nutrition is very important to brain and cognitive development. Deficiencies in zinc, iron, iodine, vitamin B12, and other nutrients, play a direct role in a child’s cognitive ability and functioning. The brain needs these nutrients among others to help attention, neuropsychological behavior, motor development, and more (Bryan et al., 2004). Nutrition can modify gene structure and plays a direct role in brain growth and development (Bryan, 2004; Rosales et al., 2009). Educating parents is important and the early childhood setting of daycares and preschools can be a platform for intervention and education. Children can attend a daycare/ preschool center typically from the ages of birth through 5. “Children under 5 years have a greater demand for nutrients and energy to support the body’s requirements for growth and development than at any other time throughout their life cycle” (Taylor et al., 2004).

Summary

So, literature does suggest that nutrition education would help support obesity intervention and prevention. Parents being solely responsible for the care and support of their child’s growth, can be best supported with healthy living education through educational settings such as a doctor’s office and school. There are limitations that parents face such as low socio-economic status, fast paced culture with sports and working parents. Education provided for families would have to support families in these situations so that they are able to be successful in providing healthy food items to their children.

Chapter 3- Methodology

Introduction

The literature presents that there is a problem and a rise in the rates of child obesity and that the types of foods fed to children are of importance as is proper nutrition which aides in appropriate child development. The literature has also shown that parents are ultimately responsible for providing food, creating an environment to shape meal patterns, and modeling eating habits to their children as they grow. Many of the foods that children learn to enjoy, consume, and their meal habits come from experience of what they know and are familiar with. It has also been found that healthy living education should be implemented to children at a young age to support their choices and development as they grow.

The aim of this study was to improve the knowledge of parents who have children at the preschool age. By providing parents with education on proper nutrition, the goal was to determine if an intervention could create a change in the parents' desire of providing healthier foods to their children. This study focuses on children's snacking habits, snacking foods, and provides education to parents about sugar content found in popular snacks and drinks. This study was presented to the Institutions Research Review Board (IRB) and was determined to not meet federal requirements for IRB approval of research. The study conducted was a Program Quality Improvement study.

Targeted Population

The target population for this quality improvement project was parents of children who were enrolled at a preschool center on a Midwestern university campus. The preschool center was licensed through the state of Michigan to enroll children through the ages of 2.5- 12. Parent participants have 1 or more children in this age range that are enrolled for care at the preschool center.

Participant Recruitment

An informational study consent letter was sent home with families when picking up their children 10 days prior to the designated day for the study to recruit parent participation. In addition, an email was sent out to all families with children enrolled at the preschool center 8 days prior to the study date. The email included the same informational consent letter that was shared with families previously. The intent of the email was to inform families who were not at the center when the document was sent home and to remind families of the upcoming study opportunity. The letter outlined the study details, times, and dates. See Appendix A for the consent letter.

The study ran for a 4-hour time frame on 2 consecutive days. During this time there was a sign placed on the door of the center and on a wall nearby the classroom where the study was performed. The signs were intended to remind and recruit parents who wanted to participate in the study opportunity.

Participant Involvement

The study participants were parents with children enrolled at the preschool center chose to participate in the study opportunity. The study included three parts; a pre-survey, an intervention of hands on informational displays, and a post survey. Each part of the study took participants anywhere from 5- 15 minutes.

To begin parents entered the classroom where the study was being held and were guided by a sign or the thesis student to pick up a folder which included two surveys; a pre-survey to be completed prior to the intervention and a post survey to be completed at the end. Parents stood or sat at a table provided to complete the pre-survey. At the completion of the pre-survey, the directions, signs, and thesis student guided the parent participants to view and take part in the displays provided if they wished to do so. All parent participants chose to participate in the intervention piece of the study. Parent participants were able to view posters set up with popular drinks and snacks offered to children. Included with the displays were the actual food/ drink item, the nutritional label on the packaged item, and a baggie pre- filled with the amount of sugar found in each food item. Some of the snack items were healthier choices and some were not. Parents were guided to look at and feel the baggies filled with sugar while having the ability to read the nutrition label provided on the packaging of the food item.



Figure 1: *Healthy and Non-Healthy Snack Display with Attached Baggies Pre-Filled with Amount of Sugar*



Figure 2 & 3: *Healthy and Non-Healthy Drink Display with Attached Baggies Pre-Filled with Amount of Sugar*

Parent Participants were also able to view printed documents from local food chains that included snack food items and drinks that are commonly served to children. The printed documents included pictures, corresponding nutritional facts, and sugar amounts.



Figure 4: *Local Fast Food Restaurant and Specialty Beverage Establishment's Nutritional Facts on Many Popular Food Items and Drinks*

Parent participants also had the ability to participate in a hands-on activity at a table. The table was set up with buckets of sugar, measuring spoons, and empty snack and drink containers. A sign on the table informed families how to measure out the correct number of

grams so that they could fill the bottles with the correct amount of sugar that is included in the items when consumed. Parent participants were able to measure and pour sugar into the containers if they wanted to. There were a few signs posted around the displays that shared information about sugar, child obesity, and nutrition.



Figure 5: Hands on Display Table where Parents had the Ability to Choose an Empty Container, Read Nutrition Label, Measure Amount of Sugar Accordingly, and Fill the Containers to Gain a Visual of how Full of Sugar each Item was

Once parent participants chose to be finished with the intervention portion, they pulled the post survey out of their folder and completed it. Once finished, participants placed their folder into a basket with both the pre and post survey included. As parents left the study there was a table of health, nutrition, and snack information that families could choose to take with them.

Parents were informed via the consent letter sent home, emailed, and posted at the study that participation was voluntary and that participants may withdraw from the study at

any point with no penalty to them. Please see Appendices A for consent letter, B for pre-survey, and C for post survey.

Researcher Conflict of Interest, Financial Cost, and Benefits

There was potential conflict of interest between the thesis study student and the parent participants. Thesis study student is employed as a teacher and an administrator at the preschool. Steps were taken to reduce conflict of interest. The consent letter and emails shared contact info of other committee members for participants to reach out to for questions, of whom there was no conflict of interest. Parents were not made aware at any point of the recruitment process of who the thesis study was being performed by so that there was no conflict of interest. Upon entrance to the classroom where the study was held, parents whom were willing to participate did find and meet the thesis study student.

There was no financial cost to parent participants. Possible benefits include an increase in snack and sugar content knowledge providing parents the ability to serve their children healthier snack options.

Instrumentation

The survey questions were self- created with the assistance of the Grand Valley State University Statistical Consulting Center on the formatting of the survey's using Qualtrics, Microsoft Excel Programming, and Statistical Analysis Software (SAS) Software 9.4. The questions were based off literature and support the study questions. Please see Appendices B and C for pre and post survey.

Data Collection and Analysis

Dates, Times, and Location

The Program Quality Improvement Study took place on two consecutive days in July 2019. Each date provided the opportunity for participants to drop in as they were able to participate in the study in a four-hour time table. The study took place in a classroom located at the preschool center in Michigan on a Midwestern university campus. Study location and times were designed to allow convenience for parent participants to be able to participate as they arrived at the preschool prior to picking up their child/ children for the evening. Participants spent 15- 30 minutes involved in the study. Participants had the ability to spend as much or little time as they wished towards the 3 parts of the study; pre-survey, informational intervention, post survey.

Data Analysis

Data analysis was performed using SAS 9.4 by means of a comparative and descriptive method between the pre and post surveys. Also used was Qualtrics XM and Microsoft Programming.

Summary

The study aimed to support the questions:

1. What are the snacking habits of early childhood children at a Midwestern preschool center?
2. Do parents of an early childhood center feel like they are knowledgeable on providing their children healthy snacks and snacking habits?

3. Do parents of an early childhood center think that healthy living education is helpful in making informed snacking decisions?

4. Will the factors that families use to make snack choices for their children change, as a result of receiving information about nutritious snacks and the harmful effects of sugar?

The study used a quantitative comparative analysis using the Statistical Analysis Software (SAS) 9.4 at the assistance of the Grand Valley State University Statistical Consulting Center, Qualtrics XM, and Microsoft Programming.

Chapter 4- Results

Introduction

The details following depict the results of the study, specifically, the context, the findings, and a summary of the results.

Context

There are 50 families who have preschool children enrolled at the preschool. Of those 50 families, nine parents each representing a different enrolled family, volunteered to participate in the study. This resulted in an 18% response rate. All nine parents completed the pre-survey, informational intervention, and the post survey. Survey responses were anonymous and were identified for comparative analysis using a randomized numbered method. Each folder and its surveys were numbered in a randomized order allowing for anonymous responses but also allowing for the ability of comparative analysis.

Findings

Snacking Habits Established in Pre- Survey

Figures 6-9 show snacking habits that parents identified in the pre-survey based upon questions asked. Figure 6 shows that majority of parents believe the terms snacks, snacking, and snack foods to relate to foods eaten outside of the 3 major meals; breakfast, lunch, and dinner. Figure 7 shows what factors parents consider when providing snacks out of the options that were provided such as; convenience, cost, nutritional value, and there was an option for other. The figure does show that nutritional value is most often considered when parents are choosing snacks, however the bar graph does also list the other factors as contributors in the decision-making process on a smaller scale. Some of the other factors that parents listed on the

survey were; whether or not the food is attractive, taste, if their kids will eat it, and if it is a treat on occasion. Figure 8 shows that parents most often offer their child milk and water to consume. Figure 9 shows that families do offer a variety of snacks but that most often children are served fruit. Figures 6-9 are able to represent and answer the first study question of what snacking habits preschool families have for their children. Only 9 families participated in the study so there is a small sample size and results cannot be generalized to a greater population but do provide a look into the particular center and the families snacking habits.

Figure 6

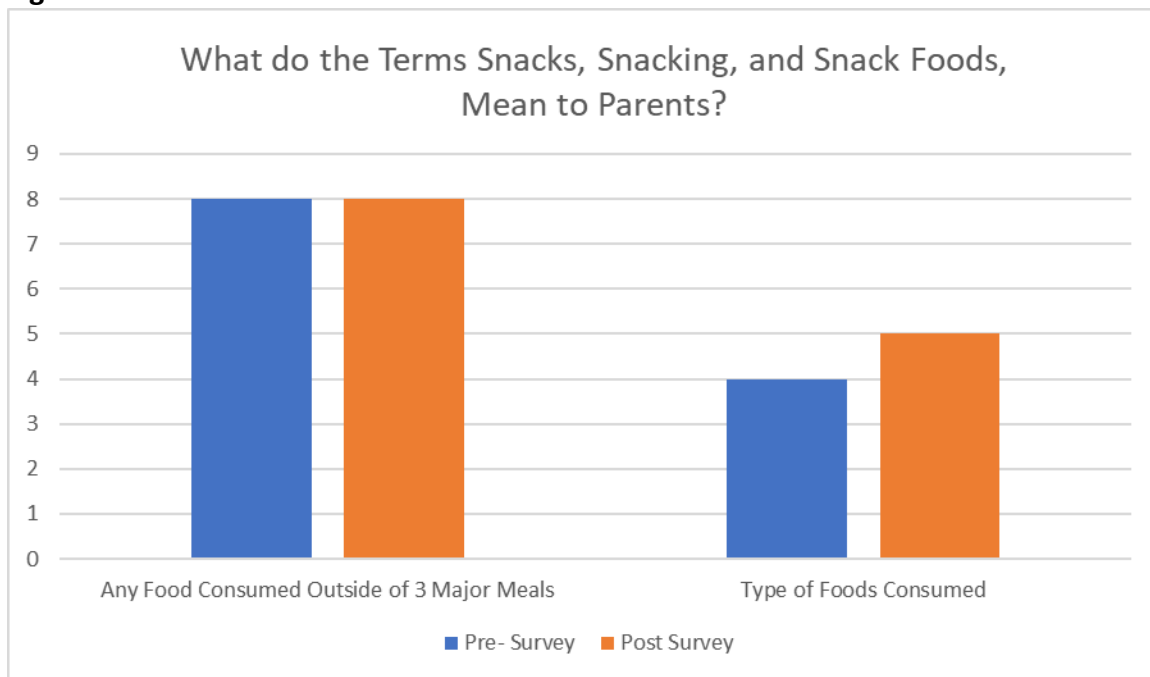


Figure 7

What factors do you consider when purchasing and providing snacks for your child/children?
(Check all that apply)

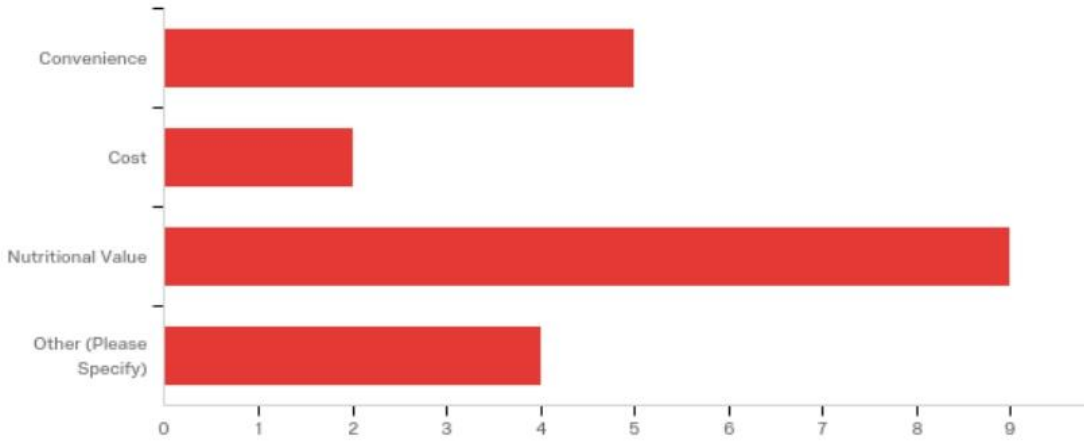


Figure 8

What kinds of drinks does your child/children regularly consume? (Check all that apply)

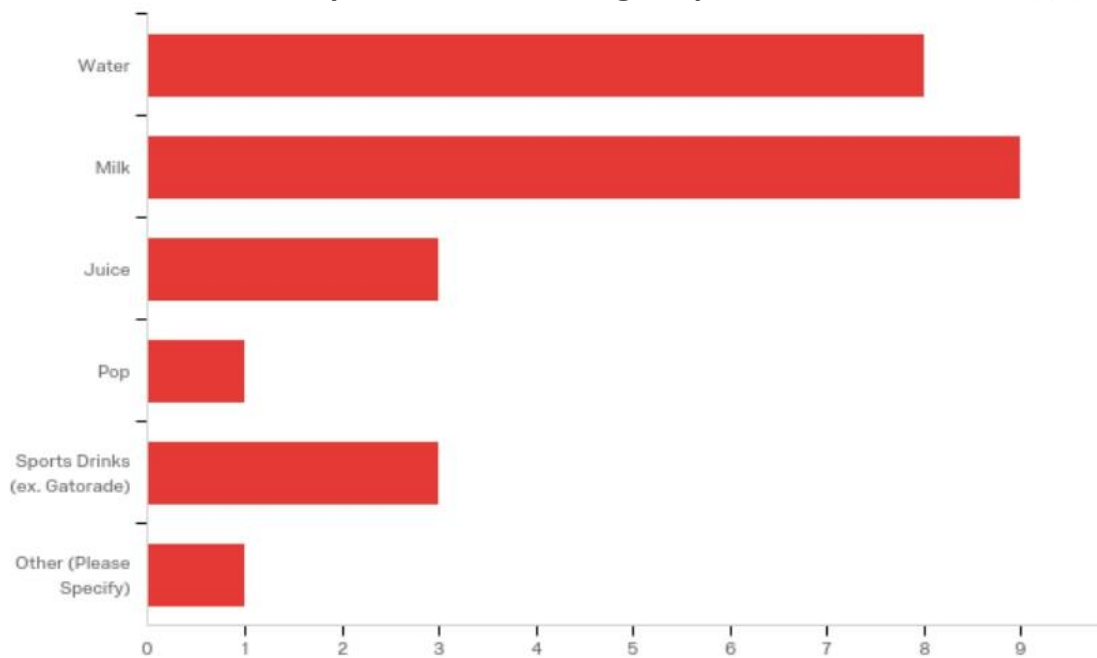
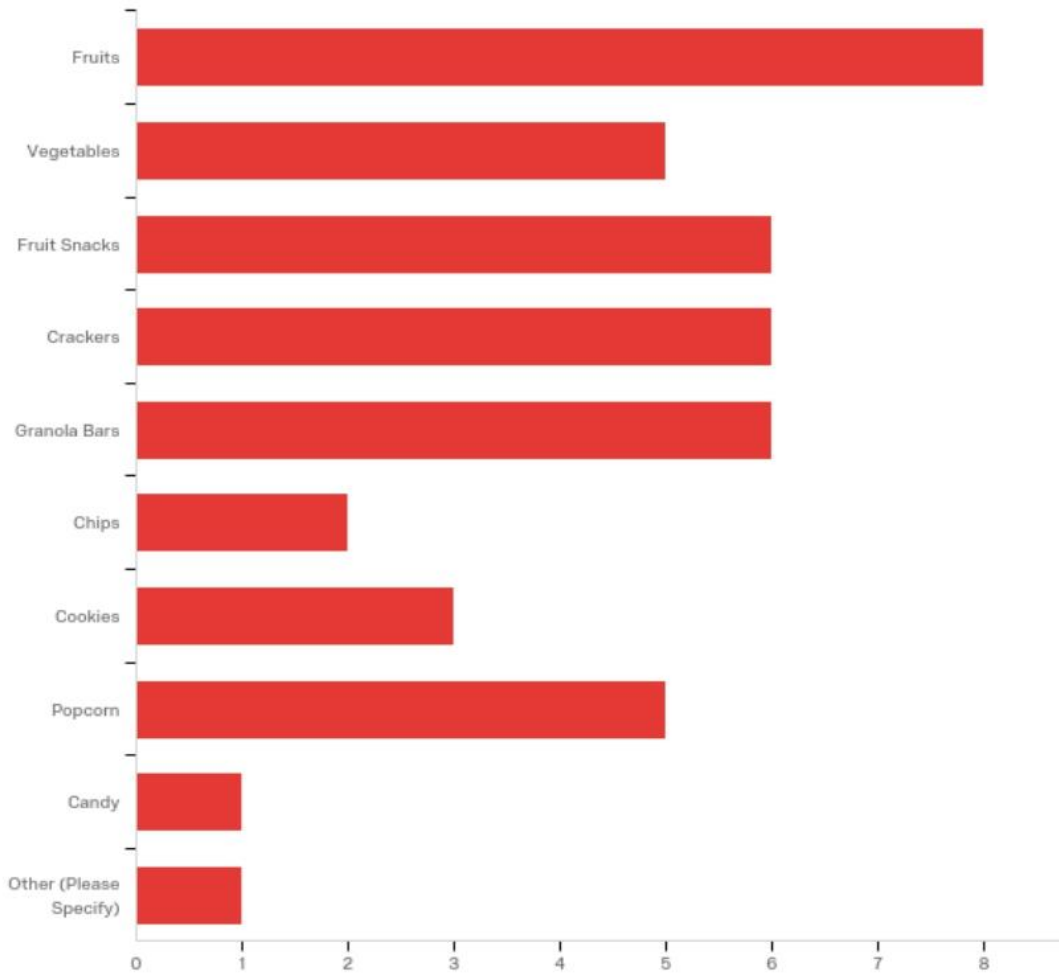


Figure 9

What kinds of snacks does your child/children regularly consume? (Check all that apply)

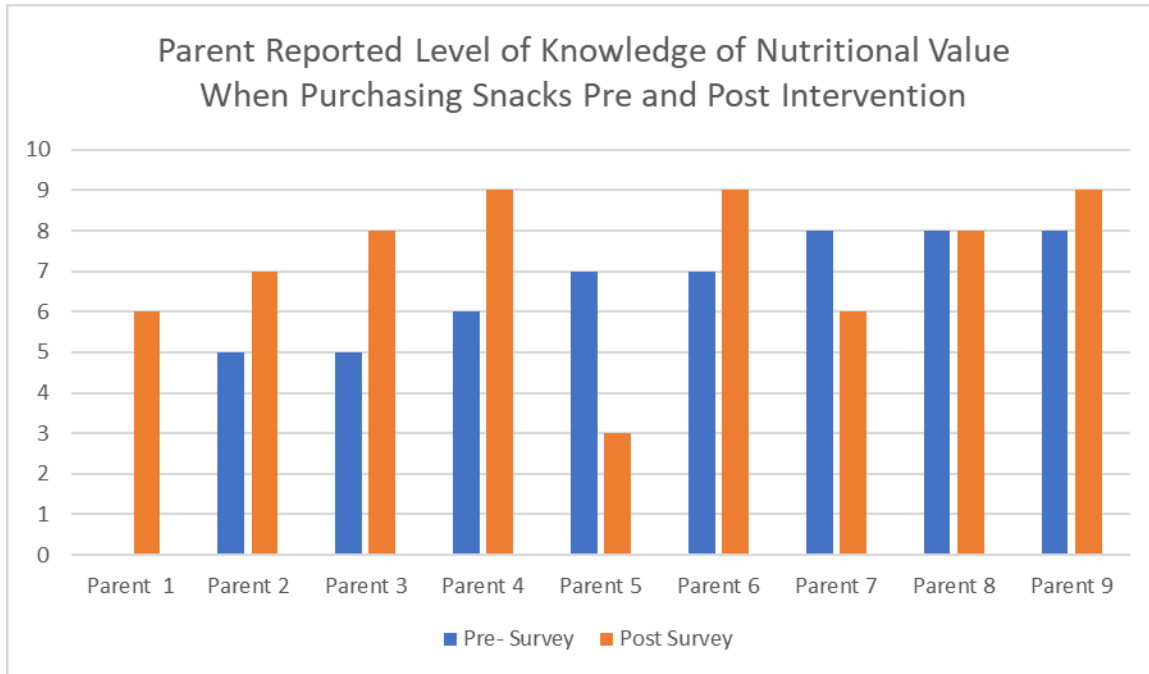


Parent Reported Self Knowledge Level of Providing Healthy Snacks and Snacking Habits

Figure 10 indicates that 6 of the families increased in knowledge of providing healthy snacks to their children from pre to post intervention. One family stayed at the same level and 2 families showed a decrease. The results were based on a likert scale from 0-10, 0= no knowledge and 10= very knowledgable. A possibility for explaining a decrease in results could be that a parent originally felt confident that they were knowledgable and then after learning

more during the intervention, they realized that they did not know as much as they had previously thought. There is also a possibility of error from pre to post survey.

Figure 10

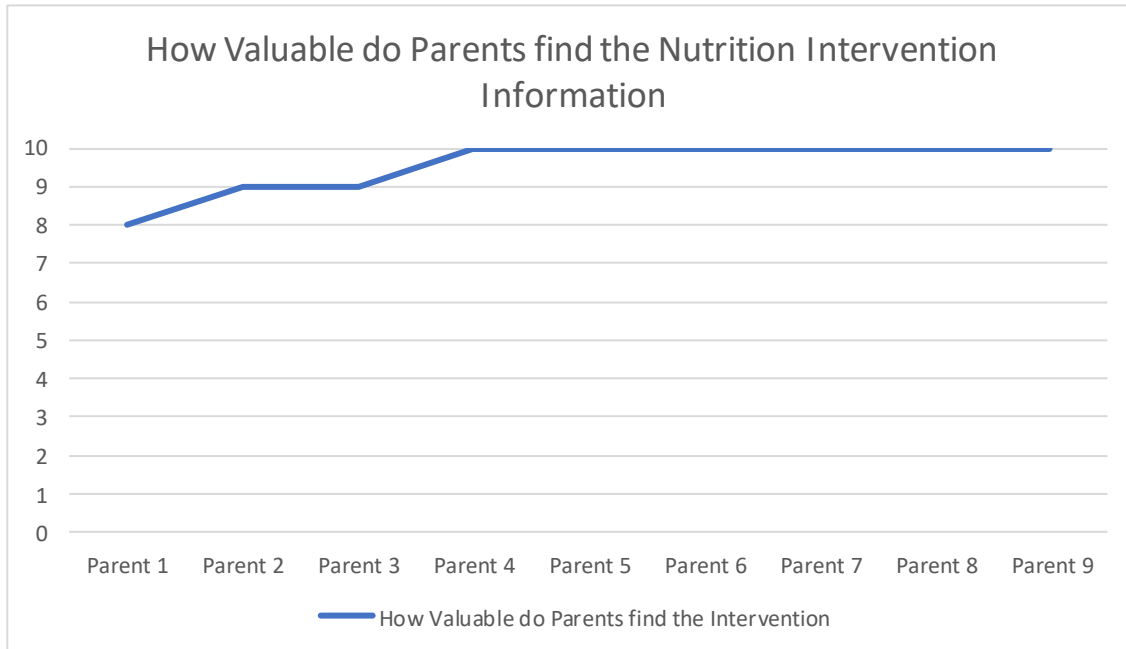


Do Parents Find Nutrition Information Valuable in making Informed Snacking Decisions

Figure 11 represents data that supports that families did find nutrition information valuable.

Figure 11 was based on a survey question in the post survey that provided a likert scale 0-10, 0= Not Valuable and 10= Very Valuable. All parents scored the question with an 8 or higher with the 6 families scoring the question at a 10 of very valuable.

Figure 11



Snacking Habits Change from Pre to Post Intervention

Figures 12- 14 exhibit changes in data from pre to post intervention that can indicate that families are intending to make changes in nutrition of the snacks and snacking habits that they provide their children. In figure 12, 5 parents noted that they would be more likely to read nutrition labels post intervention while to families still rated 8 and above on the likert scale provided. Figure 13 pre-intervention most families were serving milk and water while a lower amount served sports drinks, juice, and pop. The post survey shows that all families decided to offer water. Sports drinks and pop were at 0 for the post survey and 1 parent said they would still offer juice. The data in figure 13 supports that parents did choose to offer their children healthier beverages post the informational intervention. Figure 14 represents that 7 parents

plan to change the type of snack offered while 2 plan participants plan to decrease the frequency of snacks offered.

Figure 12

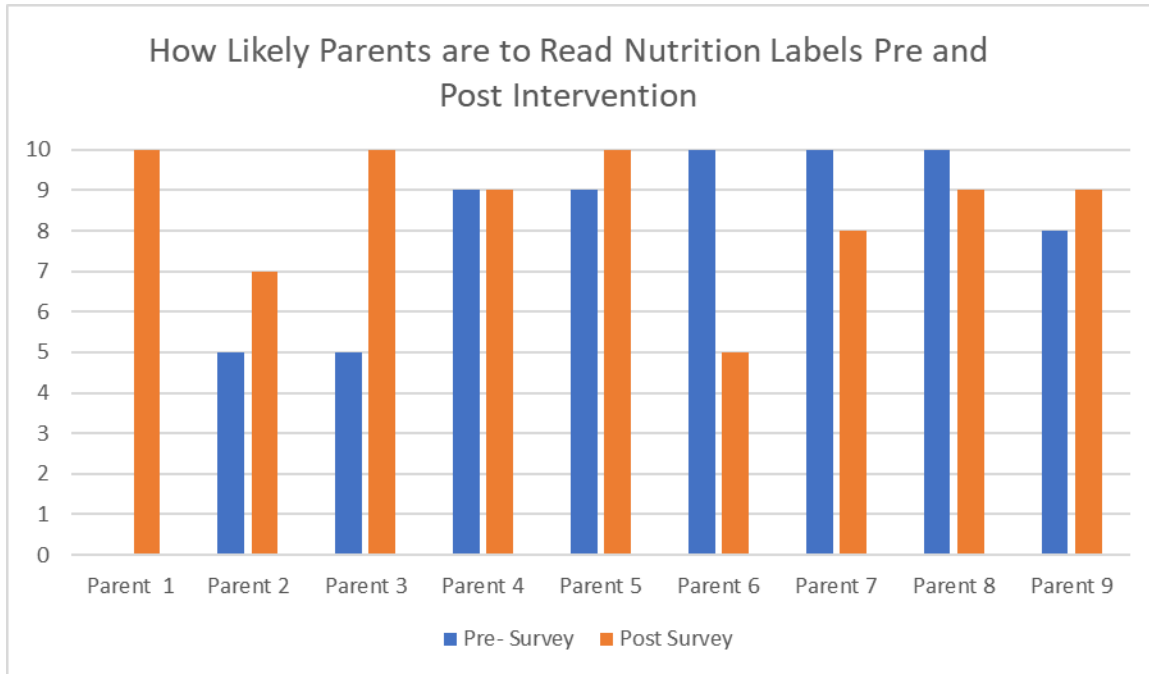


Figure 13

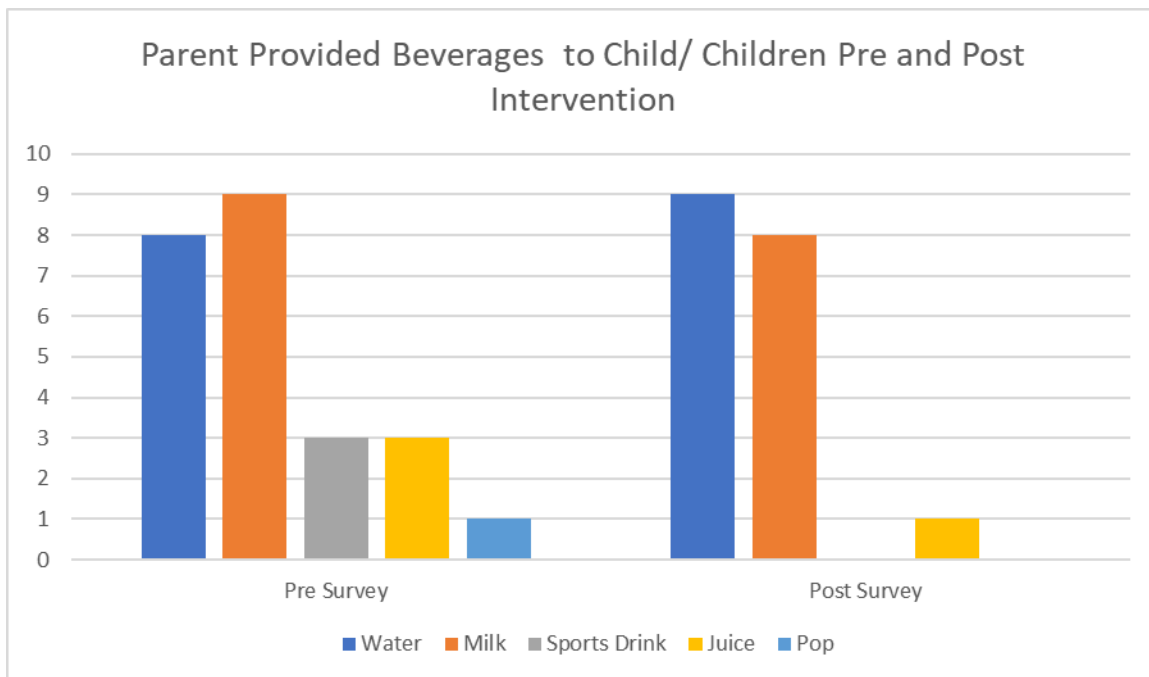
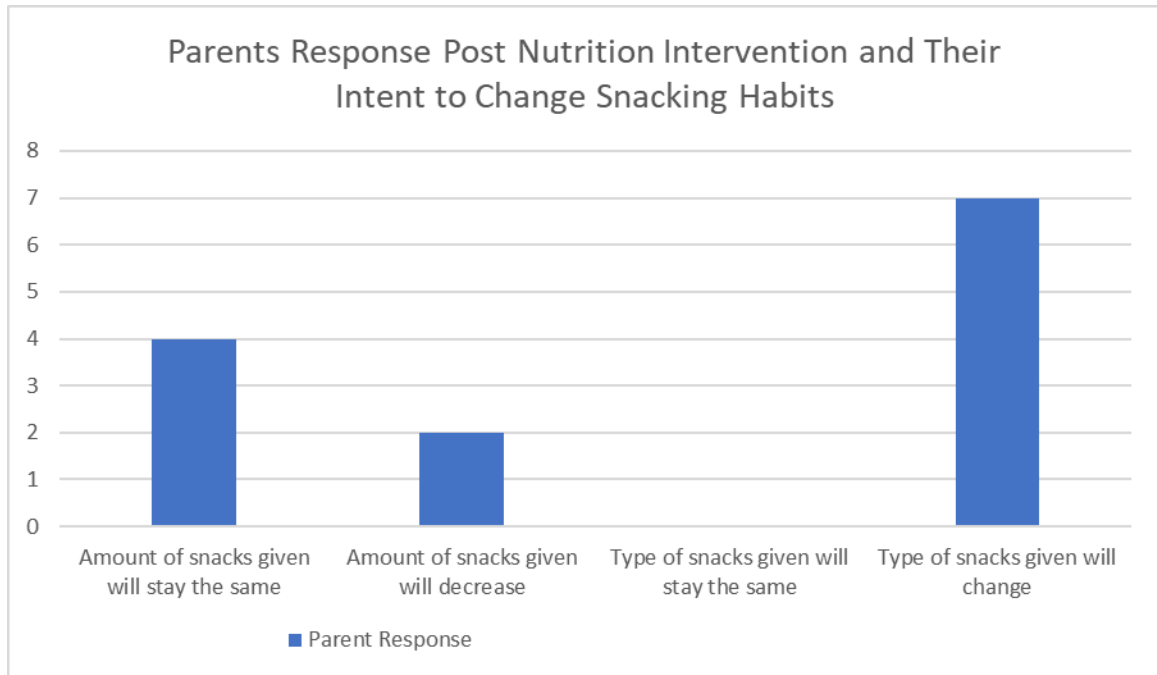


Figure 14



See Appendices D-N for descriptive and comparative data tables

Summary

The results show that for most participants after nutrition and sugar content information was received during the intervention, that changes will be made to improve types of snacks and beverages given, how often snacks are given, that overall knowledge increased, and more parents are willing to look at and read nutrition labels prior to food purchase and all of the participants thought the information was valuable

The results do not show inferential statistics with a p-value and cannot be generalized due to small sample size. Data analysis was performed with the assistance of the Grand Valley

State University Statistical Consulting Center, SAS 9.4., Qualtrics XM, and Microsoft Programming.

The study was intended for Program Quality Improvement and even though the sample is small, the data can be used for further study opportunities to assist in creating a healthy living program provided to parents of children enrolled in the preschool encouraging healthy snack habits for the children and their families.

Chapter 5- Discussion and Conclusion

Introduction

The health and nutrition of a child is very important in influencing appropriate developmental growth. Overweight and obesity negatively impact development and influences risk of unhealthy delays, setbacks, and can increase the risk of dangerous health concerns and diseases.

Although the study results are a product of a small sample, the sample did show that parents did typically improve nutrition and snack choices from the pre to the post survey. It also showed that parents have real questions and limitations that create stressful situations when trying to encourage healthy eating. One parent mentions the interest of learning more information in regards of how to encourage children to love healthy snacks. A parent may have the best of intentions to feed their child healthy snacks but find that their child is a picky eater and is not open to trying healthier food items. Despite intentions, a parent may choose to give in to unhealthier foods due to the concern for the child to eat. With facts such as; in 2013 there being 6.3% equaling about 42 million children across the world and 18.5% children in the United States which totals 13.7 million children who were considered overweight or obese, shows a growing and real problem (World Health Organization, 2015; Hales et al., 2017).

The results of this study support literature and the idea that parents are the most important audience to educate prior to birth and as a child is growing up. Although a small sample, the parent participants were the ones filling out the survey on behalf of their parenting choices and their child's snacking habits. Only a parent or caregiver would have the ability to know and provide for a child's snacking environment. In this study, the intervention used had a

hands-on approach. The intent of the hands-on activity was to allow parents to physically have the ability to read a label, measure, and visually see the large amounts of sugar in different food items. The hope is that the memory sticks with them and causes them to think before purchasing and serving unhealthy snacks to their children.

Other literature shows study approaches that are similar in the aspect of focusing on parent knowledge. Because parents are the prime source of support for child development, vast amounts of literature support that interventions and the fight against obesity be aimed at encouraging knowledge growth, beliefs, and practices of parents in some aspect (Skouteris et al., 2010).

Future Study Opportunities

It would be interesting to perform a similar study over a larger audience to allow for the data to be generalizable. The study could look at surrounding preschool and daycare centers to allow for more data. Other aspects of future research could investigate the questions or information interests that some of the parents included at the end of the survey. In regards to the current preschool center of study, the literature and results support the need for a programming implementation to allow for program quality improvement.

The overall goal for the current preschool center would be to create a program that establishes a love for healthy living. For the program to be effective it would have to provide vast learning angles and support to meet the needs of each individual learner. Adults and children learn in different ways and the program would need to support every learning style while also supporting the many limitations that parents face when supporting their children.

Whiteside-Mansell and Swindle write about a program called WISE which means; Together, We Inspire Smart Eating. The purpose of the intervention was to establish healthy eating habits in children of ages 3-8 (Whiteside- Mansell & Swindle, 2017). The WISE program has a curriculum that provides classroom curriculum, educator training, and an aspect of parent engagement.

A program that directs its teaching at all three populations would be best. The current study and intervention only focused on one population but overall the population of children, parents, and teachers would provide better results as it impacts a bigger portion of a child's environment. Another difference of the Wise program and the current intervention was the difference in parenting approach. The current study used a hands on and visual approach and focused primarily on parents while WISE appears to have a smaller vision on parents and supports parents by sending home a letter and information to families with the intent of it being implemented at home.

The goal of the programming for the current study center would be to also send home materials but to add in a much broader program that supports parents. The program would need to support parents of lower income and less resources. It would also need to support the different learning styles as mentioned above. Ultimately the program would have to be fun because the goal is to implement a love for healthy living and less of a feeling of responsibility. Ideally the center would have a garden that parents and children could help grow and reap the produce benefits. A garden encourages many benefits to a family such as; time spent together, vast amounts of learning, and healthy foods that can be taken home and consumed. The goal would be to sustain the garden's financial demands through a grant so that parents of low

financial means could have access to the garden and its food for free if they help care for it. The ideal program would also have aspects of play where families could come and hang out together. The activities during these play times would be large motor games and events where families could enjoy getting out together, get to know other families, and be active for free. In addition to the hands-on approach there would also be a teacher and a classroom education curriculum so that children were being exposed to the learning of healthy living in the classroom and to the teachers so they can support the children and families in that learning.

The current study did produce a small sample but it was enough to identify the value and interest in a program that could impact lives in a positive and healthy way.

Appendices
Appendix A: Informational Consent Letter



Dear Children’s Enrichment Center Parent or Guardian,
This is a thesis study project being done at GVSU on snacking habits and the importance of providing education to early childhood families about healthy and non-healthy snacks and you are invited to be a research participant.

Purpose

The goal of the study is to determine if an education provided on healthy and non-healthy snack choices is of value or interest to early childhood families. Specifically, the study will be looking at snacking habits and nutritional components of popular and common snacks and beverages provided for children to consume.

Procedure

This letter is being sent to you via email or by hard copy attached to your daily sheet. The study will have 3 parts, but each part will be finished together in up to a 25-minute time frame on **July 8th and 9th**. You may choose either date but can only participate one time. If your child does not attend on either date or your family is off for the summer, you may still stop by and participate. The study is set up to be convenient to families as a “drop in” style workshop. The activity and displays will be set up from **2pm-6pm**. You may drop in as you are able.

1. *Pre-survey*- The pre-survey is a quick survey that needs to be completed prior to the intervention workshop. When arriving at the workshop, you will receive a folder with a numbered pre and post survey. The surveys are numbered only so that the pre and post surveys can be matched for data analysis. The numbers are completely randomized and are done to keep the responses anonymous. At this point you will only fill out the pre-survey and can return it to the folder when complete.
2. *Intervention Workshop*- Please plan to allow yourself up to 25 minutes to complete the surveys and workshop. Your participation in the workshop will need to take place prior to picking up your child/ children from their classrooms. During the workshop you will be able to participate in a quick hands-on activity and look at different displays of information.
3. *Post Survey*- Lastly you will need to fill out a quick post survey prior to exiting the workshop. This will also be in your folder that you receive upon arriving. Please complete the post survey and drop your folder into the designated area.

At the conclusion of the 3 parts mentioned above, you will have the ability to take more informational handouts to take home with you if you are interested.

Risks

This study provides no risks to you as a participant. Survey data will be examined for purposes of gaining a general understanding of snacking habits of early childhood children. No personal information or names are needed when completing the survey and your feedback is anonymous. Your pre and post surveys will be kept in an anonymous folder. Your participation in this study is completely voluntary and you may quit at any time with no penalty to you.

Agreement to Participate

By filling out the surveys and attending the workshop, you are agreeing to the following:

- The details of this study have been explained to me, including what I am being asked to do and the anticipated risks and benefits;
- I have had an opportunity to have my questions answered;
- I am voluntarily agreeing to participate in the study as described on this form;
- I may ask more questions or quit participating at any time without penalty.

Thank you in advance for your willingness to participate in this study. It will help in gaining an understanding of early childhood children's snacking habits and help in determining if providing healthy living education to early childhood parents is beneficial to parents and guardians.

If at any point you have a question about the study you may contact:

Tess Armstrong

armsteph@gvsu.edu

616-331-3515

You may also contact the GVSU faculty research advisor: Dr. Linda Pickett

pickettl@gvsu.edu

616-331-6663

Appendix B: Snacking Habit Pre-Survey

Snacking Habit Pre-Survey

The purpose of this survey is to understand family's snacking habits, the factors that inform their selection of snack foods, and knowledge of nutritional content for purposes of healthy living research in an early childhood setting. The results will guide future early childhood center programming regarding healthy living.

1. What do the terms snacks, snacking, or snack foods mean to you? (Check all that apply)

- Any food consumed outside of the 3 major meals
 - Type of foods consumed
 - Other (Please Specify)
-

2. How many times a day does your child/children have a snack?

3. What factors do you consider when purchasing and providing snacks for your child/children?
(Check all that apply)

- Convenience
 - Cost
 - Nutritional Value
 - Other (Please Specify) _____
-

4. What kinds of snacks does your child/children regularly consume? (Check all that apply)

- Fruits
 - Vegetables
 - Fruit Snacks
 - Crackers
 - Granola Bars
 - Chips
 - Cookies
 - Popcorn
 - Candy
 - Other (Please Specify) _____
-

5. What kinds of drinks does your child/children regularly consume? (Check all that apply)

Water

Milk

Juice

Pop

Sports Drinks (ex. Gatorade)

Other (Please Specify) _____



6. How knowledgeable are you when it comes to the nutritional value of your child's/children's snacks? Please indicate on a scale of 0 - 10 (0=No Knowledge 10=Excellent Knowledge)

- 0 (No Knowledge)
 - 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8
 - 9
 - 10 (Excellent Knowledge)
-

7. A food nutrition label found on the box or packaging of a food item tells us many nutritional facts about the food and the ingredients that are in the food item (healthy and unhealthy). How often do you look at food nutrition labels and the nutritional facts prior to selecting or purchasing snacks? (0= Never, 10= Always)

- 0 (Never)
 - 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8
 - 9
 - 10 (Always)
-

8. How many grams of sugar equal a teaspoon of sugar?

- 5 grams of sugar = a teaspoon of sugar
 - 3 grams of sugar = a teaspoon of sugar
 - 4 grams of sugar = a teaspoon of sugar
-

9. If consumed in high amounts, sugar consumption can increase risk of _____? (Check all that apply)

- Weight Gain
- Cavities
- Heart Disease
- Diabetes
- Cancer
- Depression
- Inflammation
- Blood Pressure
- None of the Above

Snacking Habit Post-Survey

The purpose of this survey is to understand family's snacking habits, the factors that inform their selection of snack foods, and knowledge of nutritional content for purposes of healthy living research in an early childhood setting. The results will guide future early childhood center programming regarding healthy living.

1. What do the terms snacks, snacking, or snack foods mean to you? (Check all that apply)

Any food consumed outside of the 3 major meals

Type of foods consumed

Other (Please Specify)

2. After receiving information, will the amount of snacks per day given to your child change or will you consider changing the type of snack? (Check all that apply)

- Amount of snacks given will stay the same
 - Amount of snacks given will increase
 - Amount of snacks given will decrease
 - Type of snacks given will not change
 - Type of snacks given will change
 - Other (please specify) _____
-

3. After receiving nutritional snack information, what factors will you use when providing snacks for your child/children? (Check all that apply)

- Convenience
 - Cost
 - Nutritional Value
 - Other (Please Specify) _____
-

4. After receiving nutritional snack information, what kinds of snacks will your child/children regularly consume? (Check all that apply)

- Fruits
 - Vegetables
 - Fruit Snacks
 - Crackers
 - Granola Bars
 - Chips
 - Cookies
 - Popcorn
 - Candy
 - Other (Please Specify) _____
-

5. After receiving nutritional snack information, what kinds of drinks will your child/children regularly consume? (Check all that apply)

Water

Milk

Juice

Pop

Sports Drinks (ex. Gatorade)

Other (Please Specify) _____



6. How knowledgeable are you when it comes to the nutritional value of your child's/children's snacks? Please indicate on a scale of 0 - 10 (0=No Knowledge, 10=Excellent Knowledge)

- 0 (No Knowledge)
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Excellent Knowledge)

7. If your knowledge level changed from the pre-survey, please explain why.

8. A food nutrition label found on the box or packaging of a food item tells us many nutritional facts about the food and the ingredients that are in the food item (healthy and unhealthy). Moving forward, will you look at food nutrition labels and the nutritional facts prior to selecting or purchasing snacks? (0=Never, 10=Always)

- 0 (Never)
 - 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8
 - 9
 - 10 (Always)
-

9. How many grams of sugar equal a teaspoon of sugar?

- 5 grams of sugar = teaspoon of sugar
 - 4 grams of sugar = teaspoon of sugar
 - 3 grams of sugar = teaspoon of sugar
-

10. If consumed in high amounts, sugar consumption can increase risk of _____? (Check all that apply)

- Weight Gain
 - Cavities
 - Heart Disease
 - Diabetes
 - Cancer
 - Depression
 - Inflammation
 - Blood Pressure
 - None of the Above
-

11. Did you find the nutrition information valuable? (0= No, 10 = Yes)

- 0 (No)
 - 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8
 - 9
 - 10 (Yes)
-

12. Would you be interested in receiving more information regarding healthy living?

- Yes
 - No
-

13. If you responded yes to the question above, please specify what type of additional information you would be interested in receiving.

Appendix D: Table 1

What the term snacks, snacking, and snack foods mean?

Responses	Pre-Survey	Post Survey	Frequency	Percent
Any food consumed outside of 3 major meals	No	No	0	0.0000
Any food consumed outside of 3 major meals	No	Yes	1	11.1111
Any food consumed outside of 3 major meals	Yes	No	1	11.1111
Any food consumed outside of 3 major meals	Yes	Yes	7	77.7778
Type of foods consumed	No	No	2	22.2222
Type of foods consumed	No	Yes	3	33.3333
Type of foods consumed	Yes	No	2	22.2222
Type of foods consumed	Yes	Yes	2	22.2222

Appendix E: Table 2

Snacking Habits Pre and Post Receiving Nutrition and Sugar Information

Table	Pre Survey	Post Survey	Frequency	Percent
Snacks	2	Amount of snacks given will decrease, Type of snacks given will change	1	11.1111
Snacks	2	Amount of snacks given will stay the same, Type of snacks given will change	1	11.1111
Snacks	2	Amount of snacks given will stay the same, Type of snacks given will change, Other (please specify)	1	11.1111
Snacks	2	Type of snacks given will change	1	11.1111
Snacks	2	Type of snacks given will not change, Type of snacks given will change	1	11.1111
Snacks	3	Amount of snacks given will stay the same, Type of snacks given will change	1	11.1111
Snacks	4	Amount of snacks given will decrease, Type of snacks given will change	1	11.1111
Snacks	5	Type of snacks given will change	1	11.1111
Snacks	6	Amount of snacks given will stay the same, Type of snacks given will not change	1	11.1111

Appendix F: Table 3

Factors Parents Consider when Purchasing Snacks for Children

Question Response	Pre-Survey	Post Survey	Frequency	Percent
Nutritional Value	Yes	Yes	9	100.000
Convenience	No	No	3	33.333
Convenience	No	Yes	1	11.111
Convenience	Yes	No	5	55.556
Convenience	Yes	Yes	0	0.000

Appendix G: Table 4

Types of Beverages Offered to Children

Question Response	Pre-Survey	Post Survey	Frequency	Percent
Water	No	Yes	1	11.1111
Water	Yes	Yes	8	88.8889
Milk	Yes	No	1	11.1111
Milk	Yes	Yes	8	88.8889
Sports Drinks	No	No	6	66.6667
Sports Drinks	Yes	No	3	33.3333
Juice	No	No	5	55.5556
Juice	No	Yes	1	11.1111
Juice	Yes	No	3	33.3333
Juice	Yes	Yes	0	0.0000
Pop	No	No	8	88.8889
Pop	Yes	No	1	11.1111

Appendix H: Table 5

Parent Rating of Knowledge Level of Nutritional Value when Purchasing Snacks

Table	Pre-Survey	Post Survey	Frequency	Percent
Knowledge	0	6	1	11.1111
Knowledge	5	7	1	11.1111
Knowledge	5	8	1	11.1111
Knowledge	6	9	1	11.1111
Knowledge	7	3	1	11.1111
Knowledge	7	9	1	11.1111
Knowledge	8	6	1	11.1111
Knowledge	8	8	1	11.1111
Knowledge	8	9	1	11.1111

A Likert scale was used; 0= No knowledge, 10 = Excellent knowledge

Appendix I: Table 6

Parents Looking at the Nutrition Label and Facts of Snacks Prior to Purchase

Table	Pre-Survey	Post Survey	Frequency	Percent
Read Nutrition Label	0	10	1	11.1111
Read Nutrition Label	5	7	1	11.1111
Read Nutrition Label	5	10	1	11.1111
Read Nutrition Label	9	9	1	11.1111
Read Nutrition Label	9	10	2	22.2222
Read Nutrition Label	10	5	1	11.1111
Read Nutrition Label	10	8	1	11.1111
Read Nutrition Label	10	9	1	11.1111

A Likert scale was used; 0= Never, 10 = Always

Appendix J: Table 7

How Many Grams of Sugar Equal a Teaspoon?

Table	Pre-Survey	Post Survey	Frequency	Percent
Grams of Sugar	3 grams of sugar = a teaspoon of sugar	4 grams of sugar = teaspoon of sugar	3	33.3333
Grams of Sugar	3 grams of sugar = a teaspoon of sugar	5 grams of sugar = teaspoon of sugar	1	11.1111
Grams of Sugar	5 grams of sugar = a teaspoon of sugar	3 grams of sugar = teaspoon of sugar	1	11.1111
Grams of Sugar	5 grams of sugar = a teaspoon of sugar	4 grams of sugar = teaspoon of sugar	4	44.4444

Appendix K: Table 8

If Consumed in High Amounts, Sugar Consumption can Increase Risk of what Health Conditions and Diseases

Question Response	Pre-Survey	Post Survey	Frequency	Percent
Weight Gain	Yes	Yes	9	100.000
Cavities	Yes	No	1	11.111
Cavities	Yes	Yes	8	88.889
Heart Disease	No	Yes	1	11.111
Heart Disease	Yes	Yes	8	88.889
Diabetes	Yes	Yes	9	100.000
Cancer	No	No	0	0.000
Cancer	No	Yes	2	22.222
Cancer	Yes	No	2	22.222
Cancer	Yes	Yes	5	55.556
Depression	No	No	1	11.111
Depression	No	Yes	2	22.222
Depression	Yes	No	2	22.222
Depression	Yes	Yes	4	44.444
Inflammation	No	No	0	0.000
Inflammation	No	Yes	3	33.333
Inflammation	Yes	No	2	22.222
Inflammation	Yes	Yes	4	44.444
Blood Pressure	No	No	0	0.000
Blood Pressure	No	Yes	1	11.111
Blood Pressure	Yes	No	1	11.111
Blood Pressure	Yes	Yes	7	77.778

Appendix L: Table 9

Value of Intervention

Did you find the nutrition information valuable?				
Likert Scale 0-10	Frequency	Percent	Cumulative Frequency	Cumulative Percent
8	1	11.11	1	11.11
9	1	11.11	2	22.22
10	7	77.78	9	100.00

A Likert scale was used; 0= No, 10 = Yes

Appendix M: Table 10

More Information Needed?

Would you be interested in receiving more information regarding healthy living?				
Question Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	4	44.44	4	44.44
Yes	5	55.56	9	100.00

Appendix N: Table 11

Interested Areas of More Information

If you responded yes to the question above, please specify what type of additional information you would be interested in receiving.				
Parent Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Healthy snack options other than fruit and veggies	1	16.67	1	16.67
Healthy snack recipes	1	16.67	2	33.33
How to translate nutritional labels for kids	1	16.67	3	50.00
I receive a lot of info from pediatrician. I would like to see nutrition education increased in schools for kids	1	16.67	4	66.67
What is health diet and snacks? How to make kids love them?	1	16.67	5	83.33
healthy caloric intake for toddlers	1	16.67	6	100.00
Frequency Missing = 3				

The data analysis for this paper was generated using SAS software, Version 9.4. Copyright © 1994 SAS Institute Inc. SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc., Cary, NC, USA.

References

- Anderson, J. (2006). A Comprehensive Approach to Addressing Childhood Obesity in Early Childhood Programs. *Exchange- Exchange Press-*, 169, 41. Retrieved from <https://www.childcareexchange.com/library/5016941.pdf>
- Anderson, P.M., Butcher, K.F. (2006). Child obesity: Trends and potential causes. *Future of Children*, 16(1), 19-45. Retrieved from <https://files.eric.ed.gov/fulltext/EJ795889.pdf>
- Anzman, S. L., Rollins, B. Y., & Birch, L. L. (2010). Parental influence on children's early eating environments and obesity risk: Implications for prevention. *International Journal of Obesity*, 34(7), 1116-24. doi:10.1038/ijo.2010.43
- Benton, D. (2004). Role of parents in the determination of the food preferences of children and the development of obesity. *International Journal of Obesity and Related Disorders*, 28(7), 858-869. doi:10.1038/sj.ijo.0802532
- Blaine, R. E., Kachurak, A., Davison, K.K., Klabunde, R., Fisher, J. O. (2017). Food parenting and child snacking: a systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, 14(146). doi: 10.1186/s12966-017-0593-9
- Bryan, J., Osendarp, S., Hughes, D., Calvaresi, E., & al, e. (2004). Nutrients for cognitive development in school-aged children. *Nutrition Reviews*, 62(8), 295-306. Retrieved from <http://search.proquest.com.ezproxy.gvsu.edu/docview/212330039?accountid=39473>
- Carson, V., Hunter, S., Kuzik, N., Wiebe, S.A., Spence, J.C., Friedman, A., . . . Hinkley, T. (2016,). Systematic review of physical activity and cognitive development in early childhood. *Journal of Science and Medicine in Sport* 19(7), 573-578. doi:10.1016/j.jsams.2015.07.011

- Cotugna, N., & Vickery, C. (2007). Educating early childhood teachers about nutrition: A collaborative venture. *Childhood Education, 83*(4), 194-198. Retrieved from <http://search.proquest.com.ezproxy.gvsu.edu/docview/210393306?accountid=39473>
- Gable, S., & Lutz, S. (2000). Household, Parent, and Child Contributions to Childhood Obesity. *Family Relations, 49*(3), 293-300. Retrieved from <http://www.jstor.org/stable/585894>
- Greydanus, D.E., Athens, H., Agana, M., Kamboj, M.K., Shebrain, S., Soares, N., . . . Patel, D.R. (2018). Pediatric obesity: Current concepts. *Disease- a- Month, 64*(4), 93-156. doi:10.1016/S0011-5029(18)30028-2
- Davison, K. K., Blake, C. E., Blaine, R. E., Younginer, N. A., Orloski, A., Hamtil, H. A., . . . Fisher, J. O. (2015). Parenting around child snacking: Development of a theoretically-guided, empirically informed conceptual model. *The International Journal of Behavioral Nutrition and Physical Activity, 12*, 11. doi: 10.1186/s12966-015-0268-3
- Kumar, S., Kelly, A.S. (2017). Review of childhood obesity: From epidemiology, etiology, and comorbidities to clinical assessment and treatment. *Mayo Clinic Proceedings, 92*(2), 251-265. doi:10.1016/j.mayocp.2016.09.017
- Hales, C. M., Carroll, M. D., Fryar, C. D., Ogden, C. L. (2017). Prevalence of obesity among adults and youth: United States, 2015-2016. *NCHS Data Brief, 288*, 1-8. Retrieved From <https://www.cdc.gov/nchs/products/databriefs/db288.htm>
- Hardy, L.L., King, L., Kelly, B., Farrell, L., Howlett, S. (2010). Munch and move: evaluation of a preschool healthy eating and movement skill program. *International Journal of Behavioral Nutrition and Physical Activity, 7*(80), 1-11. doi: 10.1186/1479-5868-7-80

- Hiza, H. A. B., Casavale, K.O., Guenther, P. M., Davis, C. A. (2012). Diet quality of Americans differs by age, sex, race/ethnicity, income, and education level. *Academy of Nutrition and Dietetics, 113*(2), 297-306. doi.org/10.1016/j.jand.2012.08.011
- Izumi, B.T., Ekhardt, C.L., Hallman, J.A., Herro, K., Barberis, D. (2015). Harvest for healthy kids pilot study: Associations between exposure to a farm-to-preschool intervention and willingness to try and liking of target fruits and vegetables among low-income children in head start. *Journal of the Academy Of Nutrition and Dietetics, 115*(12), 2003-2013. doi.org/10.1016/j.jand.2015.07.020
- Must, A., Strauss, R. S. (1999). Risks and consequences of childhood and adolescent obesity. *International Journal of Obesity, 23*(2), S2-11. doi:10.1038/sj.ijo.0800852
- Monello, L.F., Mayer, J. (1962). Obese adolescent girls: An unrecognized “minority” group?. *The American Journal of Clinical Nutrition, 13*(1), 35-39. doi:10.1093/ajcn/13.1.35
- Rosales, F.J., Reznick, J.S., Zeisel, S.H. (2009). Understanding the role of nutrition in the brain and behavioral development of toddlers and preschool children: identifying and addressing methodological barriers. *Nutritional Neuroscience, 12*(5), 190-202. Retrieved from <http://web.a.ebscohost.com.ezproxy.gvsu.edu/ehost/pdfviewer/pdfviewer?vid=1&sid=6823ce29-28b3-466c-b697-bb55a86148ab%40sessionmgr4008>
- Sahoo, K., Sahoo, B., Choudhury, A. K., Sofi, N. Y., Kumar, R., & Bhadoria, A. S. (2015). Childhood obesity: causes and consequences. *Journal of family medicine and primary care, 4*(2), 187–192. doi:10.4103/2249-4863.154628

- Savage, J. S., Fisher, J. O., & Birch, L. L. (2007). Parental influence on eating behavior: Conception to adolescence. *The Journal of Law, Medicine & Ethics*, 35(1), 22-34.
doi:10.1111/j.1748-720X.2007.00111.x
- Scaglioni, S., De Cosmi, V., Ciappolino, V., Parazzini, F., Brambilla, P., & Agostoni, C. (2018). Factors influencing children's eating behaviours. *Nutrients*, 10(6), 706.
doi:10.3390/nu10060706
- Skinner J. D., Ziegler P., Pac. S., Devaney. B. (2004). Meal and snack patterns of infants and toddlers. *Journal of the American Dietetic Association*. 104(1), 65-70.
doi:10.1016/j.jada.2003.10.021
- Skouteris, H. , McCabe, M. , Swinburn, B. , Newgreen, V. , Sacher, P. and Chadwick, P. (2011), Parental influence and obesity prevention in pre-schoolers: A systematic review of interventions. *Obesity Reviews*, 12, 315-328. doi:10.1111/j.1467-789X.2010.00751.x
- Story, M., Nannery, M. S., Schwartz, M. B. (2009). Schools and obesity prevention: Creating school environments and policies to promote healthy eating and physical activity. *The Milbank Quarterly*, 87(1), 71-100. Doi:10.1111/j.1468-0009.2009.00548.x
- Taylor, L. J., Gallagher, M., McCullough, F. S. W. (2004). The role of parental influence and additional factors in the determination of food choices for pre-school children. *International Journal of Consumer Studies*, 28(4), 337-346. doi:10.1111/j.1470-6431.2004.00391.x
- Variyam, J. N. (2001). Overweight children: Is parental nutrition knowledge a factor? *FoodReview*, 24(2), 18-22. Retrieved from
<http://search.proquest.com.ezproxy.gvsu.edu/docview/200309285?accountid=39473>

- Ventura, A. K., & Birch, L. L. (2008). Does parenting affect children's eating and weight status? *International Journal of Behavioral Nutrition and Physical Activity*, 5(1), 15. <https://doi.org/10.1186/1479-5868-5-15>
- Vittrup, B., & McClure, D. (2018). Barriers to childhood obesity prevention: Parental knowledge and attitudes. *Pediatric Nursing*, 44(2), 81-87, 94. Retrieved from <http://search.proquest.com.ezproxy.gvsu.edu/docview/2028126049?accountid=39473>
- Ward, W. L., Swindle, T. M., Kyzer, A. L., & Whiteside-Mansell, L. (2015). Low fruit/vegetable consumption in the home: Cumulative risk factors in early childhood. *Early Childhood Education Journal*, 43(5), 417-425. Doi: 10.1007/s10643-014-0661-6
- Wells, N. M., Evans, G. W., Beavis, A., & Ong, A. D. (2010). Early childhood poverty, cumulative risk exposure, and body mass index trajectories through young adulthood. *American journal of public health*, 100(12), 2507–2512. doi:10.2105/AJPH.2009.184291
- Welsh, J. A., Cogswell, M. E., Rogers, S., Rockett, H., Mei, Z., & Grummer-Strawn, L. M. (2005). Overweight among low-income preschool children associated with the consumption of sweet drinks: Missouri, 1999-2002. *Pediatrics*, 115(2), E223-E229. doi:10.1542/peds.2004-1148
- Whiteside-Mansell, L., Swindle, T. M. (2017). Together we inspire smart eating: A preschool curriculum for obesity prevention in low- income families. *Journal of Nutrition Education and Behavior*, 49(9), 789-792. doi:10.1016/j.jneb.2017.05.345
- World Health Organization. (2015). Fiscal policies for diet and prevention of noncommunicable diseases: technical meeting report. Retrieved from

<https://apps.who.int/iris/bitstream/handle/10665/250131/9789241511247-eng.pdf;jsessionid=1466800F03A8CC25BE62F32616AEFDD3?sequence=1>

Zarnowiecki, D., Sinn, N., Petkov, J., & Dollman, J. (2012). Parental nutrition knowledge and attitudes as predictors of 5–6-year-old children's healthy food knowledge. *Public Health Nutrition*, 15(7), 1284-1290. doi:10.1017/S1368980011003259

The data analysis for this paper was generated using SAS software, Version 9.4. Copyright © 1994 SAS Institute Inc. SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc., Cary, NC, USA.

The data analysis for this paper was also generated using Qualtrics software, Version XM of Qualtrics. Copyright © 2019 Qualtrics. Qualtrics and all other Qualtrics product or service names are registered trademarks or trademarks of Qualtrics, Provo, UT, USA.
<https://www.qualtrics.com>