Southern California CSU DNP Consortium
California State University, Fullerton
California State University, Long Beach
California State University, Los Angeles

DECREASING CHILDHOOD OBESITY AT A NEIGHBORHOOD CLINIC: A PILOT STUDY

A DOCTORAL PROJECT

Submitted in Partial Fulfillment of the Requirements

For the degree of

DOCTOR OF NURSING PRACTICE

By

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ABSTRACT

Childhood obesity is a national health issue that affects approximately 13 million children in the U.S., and one that has been strongly correlated with an increased incidence of diabetes, hyperlipidemia, and poor psychological health. Poor nutritional habits and low exercise patterns have been identified as two of the major causes. Hispanic/Latino children in particular have the highest prevalence of childhood obesity in this country (Gonzalez, 2016; Ochoa & Berge, 2017). The purpose of this DNP project was to study the effects of implementing a standardized childhood obesity educational program at a neighborhood pediatric clinic in the Los Angeles area, whose clients are primarily Hispanic/Latino.

Institutional Review Board (IRB) full board approval was obtained for this cross-sectional study. Inclusion criteria included children 7 to 12 years of age, who were classified as either overweight (BMI of 85 - 94%) or obese (BMI of 95% or higher). A standardized childhood obesity education program was instituted, with a phone follow-up one month out, and a return clinic visit two months out. The variables of interest were the child's weight, BMI, dietary patterns, and exercise behaviors. A total of eight boys (57%) and six girls (43%) were recruited to participate in the study, with four children classified as overweight (29%) and 10 as obese (71%). A follow-up phone call was successfully performed for all of the participants; however, only 10/14 returned for their follow-up clinic visit. Paired t-tests were performed to evaluate the difference of BMI,

height and weight before and after the education intervention. Changes in the children's weight and BMI were not statistically significant; however, reports of healthier lifestyle behaviors were obtained.

Performing childhood obesity assessments can identify knowledge deficits as well as increase a family's awareness about healthy lifestyle behaviors. The provision of childhood obesity education during well-child visits can be feasible in terms of time, with no added expense to the family. While it may be necessary to conduct a study like this over a longer period of time to see whether any significant improvements occur in terms of a child's weight and BMI, improvements in the child's dietary and exercise behaviors occurred after just one educational intervention at this neighborhood pediatric clinic.

TABLE OF CONTENTS

LIST OF FIGURES

ACKNOWLEDGMENTS

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BACKGROUND

Childhood obesity is a public health concern that was first identified a few decades ago, yet continues to be a national health problem even today. In fact, the World Health Organization (WHO) still lists childhood obesity as one of the most serious health issues that is in need of urgent attention. Obesity affects approximately 13 million children, or 17% of the pediatric population nationally. A child's body-mass-index (BMI) of 85% to 94% is considered as being overweight and a BMI of 95% or higher, as being obese (Jester, Kreider, Ochberg & Meek, 2018).

According to the Center for Disease Control (CDC), 6% of school-aged children belong to the extreme obese category, with BMI scores at or above 120%. Our nation's health care costs for the management and treatment of obesity have reached as much as $200 billion per year (Vittrup & McClure, 2018).

Problem Statement

Obesity is viewed as a societal burden as it not only increases health care expenses and insurance premiums, but it also contributes to a poorer quality of life and lower productivity level within our communities (Vittrup & McClure, 2018). In regards to children, this translates to a decrease in classroom productivity and in social interactions with other children. Obese children often experience problems with sleep disturbances and eating disorders, which then further impairs their ability to function and participate in school-related work (Filipova & Stoffel, 2016).

Aside from changes in school productivity, children who are either overweight or obese are much more likely to experience major health problems, such as hypertension, diabetes, hyperlipidemia, psychological distress, and other health conditions at a young

age (Jester et al., 2018). Childhood obesity thus not only adversely affects a child's activity of daily living, but additionally predisposes him or her to suffering from a chronic illness (Reed, Cygan, Lui, & Mullen, 2016). These authors also revealed that approximately 90% of obese adolescents will remain obese and continue to struggle with weight loss during adulthood.

According to Vittrup and McClure (2018), a lack of knowledge by parents about age-appropriate nutrition and the importance of physical activity for their children is another contributing factor to the childhood obesity epidemic. One key intervention that has been identified is to ensure that the child's annual physical examination has childhood obesity education as part of the office visit. Proper pediatric health promotion management should involve the assessment of weight, height, BMI, and blood pressure, physical activity patterns, dietary habits, as well as a medical and family history. What is equally important is that health care providers make it a priority to identify which of their pediatric clients are overweight or obese, provide family education on how to live a healthier lifestyle, and have a type of follow-up plan in place to promote a decrease in the child's BMI level.

Purpose Statement

The purpose of this Doctor of Nursing Practice (DNP) project was to incorporate a healthy lifestyle component into its existing physical exam procedure, at an urban pediatric clinic in the Los Angeles area that predominantly serves the Hispanic/Latino population. Interventions were to include an assessment lifestyle behavior patterns in those children who met the criteria for being overweight or obese, and the provision of an evidence-based education program on healthy nutrition and physical activity. The

ultimate goal was to see if these practices would result in any lifestyle behavior changes in the child, and whether there would be a change in the child's weight and/or BMI.

Theoretical Framework

Nola Pender created her health promotion model (HPM) in the 1980s, which was a combination of both the social cognitive and expectancy-value theories. Pender's model was developed to explore the multifaceted biopsychosocial processes that motivate people to participate in healthy lifestyle behaviors, which might then lead to a better quality of life. Social cognitive theorists believe that individuals must recognize the need for a change within themselves, before modifying their behaviors. Expectancy-value theorists believe that individuals engage in behaviors that reflect their personal preferences and values (Pender, Murdaugh & Parsons, 2006).

The scientific underpinnings of the HPM are highly applicable and relevant to the community health care setting, as it emphasizes health promotion and disease prevention (Srof & Velsor-Friedrich, 2006). As such, the use of Pender's HPM was an appropriate framework for this DNP childhood obesity project. Carrying out this DNP project would involve examining a child's prior behaviors, personal factors, and benefits, as well as explore whether a change in beliefs and values would result in a new health-promoting behaviors.

Pender's Health Promotion Model (HPM)

The HPM describes the holistic constructs that affect a person's health condition, in which explanations for behavioral changes usually exist within a larger social and environmental context. The HPM further classifies the health behavior determinants into

three major categories: “(a) individual characteristics and experiences, (b) behavior-specific cognitions and affect, and (c) behavioral outcome” (Pender et al., 2006, p.50).

Individual characteristics include genetic variations such as gender, age, and ethnicity, which are inherent. Individual experiences involve one’s prior related behaviors such as a history of interactions with people, environment, and society.

Behavior-specific cognitions and affect consist of perceived benefits, barriers, and self-efficacy, activity-related affect, and interpersonal and situational influences. Self-efficacy is one’s judgment and confidence in his or her capability to organize and accomplish health-promoting behaviors. Behavioral outcomes are the end points of health-decision making and action preparation for health-promoting behaviors.

Adaptation of the HPM for Childhood Obesity Project

Encouraging health-promoting behaviors throughout a person’s lifetime is more imperative than managing weight issues at one point in time (Fidanci, Akbayrak & Arslan, 2017). HPM explains and predicts different variables that influence individuals’ health- promoting behaviors, see Figure 1. The integration of theoretical frameworks and theories for the organization and the development of an evidence-based quality improvement project are fundamental for improving the health outcomes of a specific population (Bonnel & Smith, 2014). The adaptation of the conceptual framework with its applicable constructs further strengthens a clinical project development.

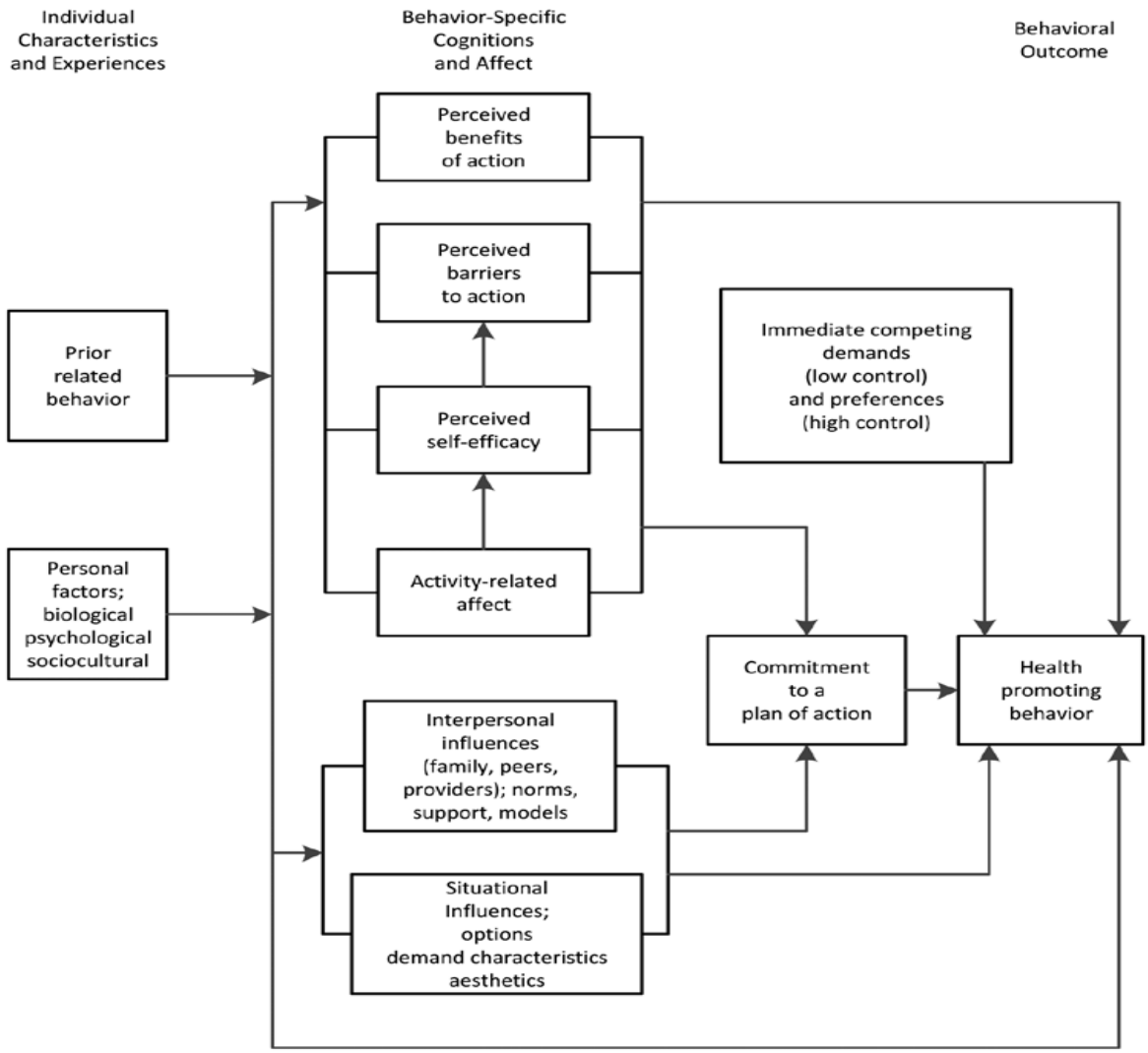


Figure 1. Pender's health promotion model (Pender et al., 2006, p.50). Permission obtained (see Appendix A).

The HPM is an appropriate conceptual framework for managing outpatient childhood obesity and serves as a guideline for health care providers to design and develop practical solutions to address weight issues in school-aged children. The ultimate goals of the HPM are to engage clients and families in the plan of care, to enhance good communication with care coordination and effective treatments, as well as to improve health care through affordable strategies. By identifying the adapted constructs of the behavioral-specific cognitions and affect such as perceived barriers and

interpersonal influences, as seen in Figure 2, clinicians may be able to discover the root causes of this public health matter and implement interventions to decrease the number of children who are either overweight or obese. Thus, the HPM may serve as an effective model for the improvement of health-promoting behaviors among school-aged children, such as consuming a well-balanced diet and engaging in regular physical activity.

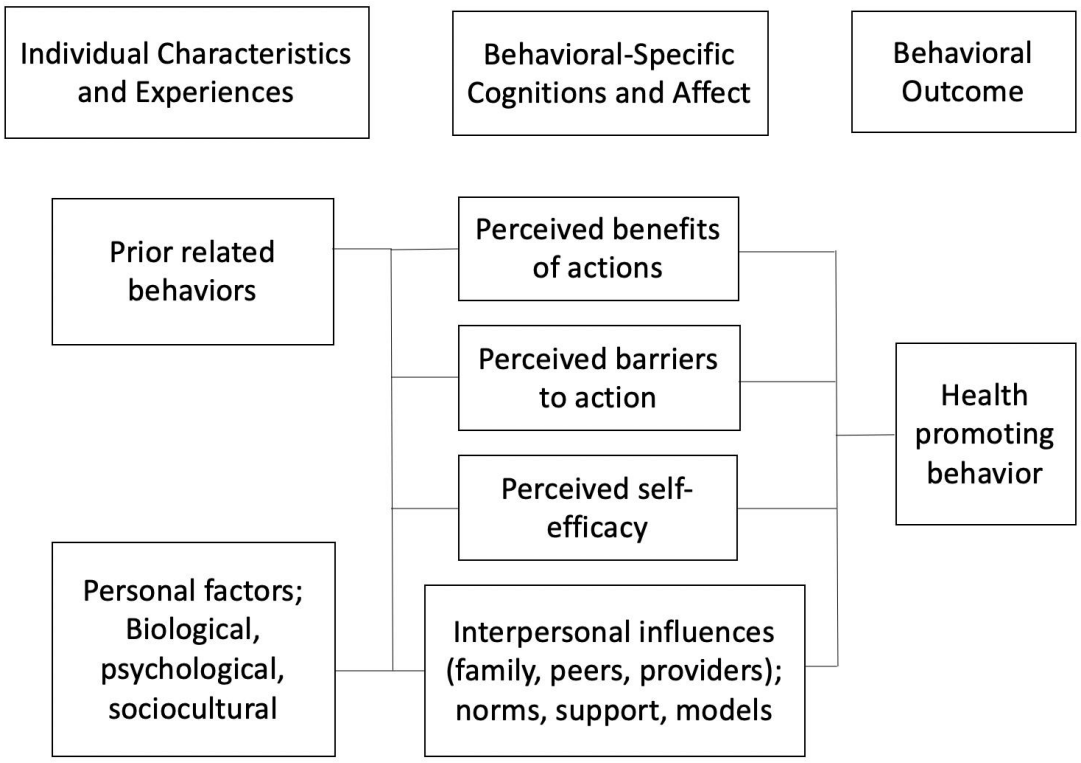


Figure 2. Adaptation of Pender's health promotion model.

REVIEW OF LITERATURE

Overview

A review of the literature provides empirical evidence to support the need to address a specific health issue and to offer recommendations for a potential solution. A literature search was conducted to identify current scientific evidence regarding primary care management of obesity in the school-aged child, including a more in-depth focus as to how this topic relates to Hispanic/Latino families.

A literature review was conducted using PubMed, CINAHL, Google Scholar, Science Direct, and Wiley Online Library databases. Key search terms included evidence-based practice, childhood obesity, primary care pediatric clinic, Hispanic/Latino population, childhood obesity intervention, and childhood obesity education. The search was limited to published peer-reviewed articles written in English language between the years of 2015 to 2020. About 60 articles were retrieved for review and appraisal, and a total of 26 final articles were cited in the review of literature section of this paper.

Benefits of Healthy Weight in Children

There were numerous benefits associated with healthy weight among this population group. Fruh (2017) revealed that modest weight loss of 5% to 10% can improve health outcomes in obese individuals by reducing risks of diabetes, cardiovascular diseases, and sleep disorders, as well as psychological distress. Maintaining a healthy weight or engaging in positive behavioral modifications was found to prevent depression and other psychological disorders. The published literature also supported the strong association between obesity and asthma, poor dental health, and

gastrointestinal disturbances. Therefore, maintaining a healthy weight will likely result in better health outcomes and improved quality of life in children.

Barriers to Healthy Weight in Children

Understanding the barriers that exist in the pediatric population in relation to obesity management is critical for implementing appropriate solutions to this alarming health crisis. Numerous factors are often involved, with the child who is either overweight or obese. Primary risk factors for childhood obesity include a sedentary lifestyle and an unhealthy diet. Sharpe et al., (2016) examined the most influential barriers for healthy weight in 60 participants between the ages of 3 to 16 who presented to a community clinic for routine medical care, 67% of children and families acknowledged the need for improvement in nutrition, and 33% of clients and parents selected inactivity as the major obstacle.

Sedentary Life and Unhealthy Diet

Vaccaro, Zarini, & Huffman (2019) discussed obstacles to better health, including a sedentary lifestyle with no moderate or vigorous routine physical activity and more than two hours of daily television or electronic device use. In addition, many young children spend long hours every day on their parent's cell phones to watch videos or play games. Children who spent long hours in front of the television or computer every day were not getting the adequate amount of physical exercise that is needed for a healthy lifestyle. A positive correlation between obesity and the amount of television or computer screen time by children was due to their engaging in fewer physical activities (Ford et al., 2016; Ochoa & Berge, 2017; Vittrup & McClure, 2018).

Another issue was that many parents were unconcerned about the health consequences of long hours of screen time. Justifications from some Hispanic/Latino parents for excessive screen time were for their convenience, such as keeping the child occupied, and freeing the parent so that they could do other things. Lastly, a decline in physical education programs in schools has only increased the childhood obesity crisis (Vittrup & McClure, 2018).

Aside from sedentary lifestyles, unhealthy diets are the other major cause of childhood obesity. Unhealthy diets often consist of excessive caloric intake, due to the primary consumption of foods and drinks that are high in sugar and fat (Jester et al., 2018; Ochoa & Berge, 2017). A study by Ford et al. (2015) examined lifestyle behaviors among children of all ages with differing ethnicities and concluded that Hispanic/Latino children had some of the worse dietary habits. They were noted to have a history of drinking two or more sweetened beverages and consuming three or more salty or sugary snacks on a daily basis.

Other barriers to a healthy diet include poor access to fresh food, easy access to fast food, and the higher cost of some healthy foods. Food deserts are defined as geographical regions without immediate and available access to fresh and healthy produce (Howlett, Davis & Burton, 2016). Food deserts are commonly found in communities or neighborhoods with low socioeconomic status, which may further contribute to the childhood obesity endemic because the option to consume a healthy diet is impractical. Additionally, food swamps are described as areas with an abundance of fast food restaurants, which lead to an unhealthy food environment (Cooksey-Stowers, Schwartz, & Brownell, 2017).

It was found in the published literature that many parents had insufficient time to prepare healthy meals for their children, due to busy work schedules and multiple childcare obligations. Parents were also poor role models for a healthy diet, as they had poor eating habits themselves. Lastly, some of the rationales provided by Hispanic/Latino parents for purchasing and feeding their children unhealthy foods were that items were cheaper, they required little preparation (i.e. microwavable frozen food), and there was a lack of healthy food options available within their community (Gonzalez, 2016; Ochoa & Berge, 2017).

The Surrounding Environment

Environmental factors are other key determinants of physical activity in which safety, recreational centers, and parks affect a child's ability to participate in outdoor play. Thus, this impacts the ability of children to seek out physical activities. Children and parents were less likely to become active if they perceived their neighborhoods as unsafe for exercise (Gonzalez, 2016; Ochoa & Berge, 2017; Vaccaro et al., 2019). As an example, some Hispanic/Latino parents expressed concerns about their dangerous neighborhood settings, as they had high rates of poverty, crime, and homeless people. Those factors can hinder a child from engaging in physical activity due to potential street violence and harm.

Parental Factors

Family involvement is imperative for achieving optimal health outcomes because parents have a profound impact on their children. Parent-managed health care is directly associated with the development of overweight or obesity in school-aged children. According to Sade (2016), children often lack the capability for autonomy due to their

age and mental capacity. Therefore, the overall health of a school-aged child is a reflection of the health beliefs, experiences and lifestyle behaviors of their caregivers.

Parental perception of weight. Parents and guardians are the key link for successful prevention and treatment of childhood obesity, yet many parents do not know the definition of overweight versus obese. They often do not recognize that their own children are overweight or obese (Vittrup & McClure, 2018). Parental misperceptions about their own child's weight were found to be a contributing factor to the child obesity crisis (Foster & Hale, 2015; Gonzalez, 2016; Ochoa & Berge, 2017; Rahman et al., 2018; Sharpe, Bishop, Devries, & Derouin, 2016). Oftentimes, parents underestimate their child's weight. Another factor was that the perceived weight by Hispanic/Latino parents of what constituted a "healthy" one did not match up with what was actually the ideal weight for their children (Gonzalez, 2016). Chaparro et al., (2011) revealed that 94% of Hispanic/Latino mothers misclassified their overweight children as having a normal weight and 78% of Hispanic/Latino mothers of obese children perceived their children as having no weight problems. Hernandez, Reesor, Machuca, Chishty & Alonso (2016) discussed how 54% of Hispanic/Latino mothers with overweight or obese children perceived their children to have a normal weight, and 18% of mothers with normal weight children thought their children were underweight. Alternatively, many Hispanic/Latino mothers believed that having an overweight or obese child was normal and was actually a reflection of the family's pride, prosperity, and that of being a nurturing parent (Ochoa & Berge, 2017).

Parental influence on diet. Parents control and prepare most of the food that their children consume. As such, the types and amount of food a child eats are often

determined by his or her parents. Parents additionally influence their children's food experiences, attitudes, and preferences towards eating through routine parent modeling and dietary practices (Fruh, 2017; Ochoa & Berge, 2017). One common parent feeding practices shared among the Hispanic/Latino families is the pressure-to-eat style, in which parents often encourage their children to eat more food and expect their children to finish all of their food on the table, regardless of the portion size and the child's conditions (Ochoa & Berge, 2017). Hispanic/Latino mothers believe food restriction is unacceptable for a growing child (Gonzalez, 2016). Lastly, it was noted that some Hispanic/Latino parents believe children will stop eating when they are full (Gonzalez, 2016).

Parental influence on exercise. Parents often serve as role models when it comes to exercising (Schmied et al., 2018). They largely determine the number of activities and sports their children participate in, and children often copy their parents' behaviors. For instance, physically active parents tend to have children who are also physically active as a part of their daily routines, in comparison to children whose parents lead sedentary lifestyles. Vittrup and McClure (2018) revealed that some parents expressed little or no concern about their children's weight, and believed that their children were perfectly healthy, even when they were overweight or obese. One study in the literature noted that as long as a child did not have any activity limitations, that there was nothing wrong with the child's weight (Ochoa & Berge, 2017).

Lack of parental knowledge on proper diet and exercise. The reality is that many parents are unaware or unclear about what is the recommended caloric intake or portion size for their children. A study done by Vittrup and McClure (2018) assessed

barriers for parental knowledge and attitudes in regard to the weight status of their children. Findings discovered that only 10% of parents read the serving size labels on food products or followed the recommended portion size chart when feeding their children.

While a timely diagnosis of a child being overweight provides an opportunity for health education; interventional efforts are challenging if the parents do not perceive their child's weight status as a problem. They are then unable to appreciate the possible adverse health consequences that have been linked to being overweight or obese. A promising finding in the literature was that Hispanic/Latino parents usually respect the clinician, although it is up to the provider to bring up any concerns in regard to a dietary or physical activity issue.

Provider Influence

Although the prevention and treatment of childhood obesity are difficult in the ambulatory setting due to a variety of factors, primary care providers still play a vital role in the management of unhealthy pediatric weight (Sharpe et al., 2016). Clear communication between clients, families, and physicians is crucial for the clinical management of weight issues in children (Shue, Whitt, Daniel, & Shue, 2015). While the topic of childhood obesity can be a delicate issue, the provision of outpatient education at the primary care clinic can help strengthen the patient and provider relationship, and establish rapport, while promoting the health and well-being of children (Gonzalez, 2016; Shue et al., 2015). Many parents depend on primary care providers to address weight issues and make recommendations for what constitutes a healthy weight. Additionally, primary health care professionals possess more opportunities to initiate the conversation

and are obligated to accurately diagnose and control this increasing public health epidemic.

Improving the providers' ability to accurately diagnose childhood overweight and obesity will hopefully increase the number of clients and families who will receive appropriate and timely health education and counseling. Nevertheless, one published study showed frequent under-diagnosis of pediatric overweight and obesity problems, which then hinders timely recognition, management, and treatment of childhood weight issues (Cygan, Baldwin, Chehab, Rodriguez, & Zenk, 2014). It is this lack of proper diagnosis and failure to note the presence of weight problems in a child that may keep primary care providers from identifying the importance of discussing and recommending critical lifestyle changes.

There is frequently insufficient time allocated to each patient during a primary care visit, and the topic of unhealthy childhood weight often was considered a low priority, as opposed to the child's presenting problem or chief medical complaint (Rankin, Blood-Siegfried, Vorderstrasse & Chlebowy, 2015). Many Hispanic/Latino overweight and obese children and their families did not receive notifications in regard to an unhealthy weight, were not educated on culturally sensitive lifestyle recommendations and were not offered necessary follow-up visits to monitor weight status in the ambulatory settings (Turer, Montano, Lin, Hoang, & Flores, 2014).

Strategies to Combat Childhood Obesity

There is a growing need for primary care providers to take the initiative to implement evidence-based screenings and interventions to address pediatric overweight and obesity (Rankin et al., 2015). Managing childhood obesity has been a challenging

task in outpatient care settings for many years, and obesity is still a prevalent health concern affecting many American children today. Primary care providers are responsible for identifying children at risk of being overweight or obese, assessing them for associated complications and providing appropriate education and follow-up appointments as needed.

National Organizations Addressing Childhood Obesity

The American Academy of Pediatrics (AAP) and the National Association of Pediatric Nurse Practitioners (NAPNAP) have recognized the childhood obesity crisis and have acknowledged the necessity to address this topic in traditional medical practice settings (Cygan et al., 2014). The AAP and NAPNAP have established clinical practice guidelines for the assessment, prevention, and management of pediatric overweight and obesity which include, but are not limited to, early identification and assessment of overweight and obesity based on BMI, ages, weight, and gender. The United States Preventive Services Task Force (USPSTF) has recommended that routine obesity screening be done on all children who are six years and older (Gonzalez, 2016). The initial step is to provide health education through conservative measures, along with frequent follow-up visits to reinforce education, provide additional counseling and monitor progress towards positive outcomes.

Screening Tools

Effective screening tools can be utilized to target and monitor nutrition and exercise behaviors among school-aged children, and by doing so, it provides an opportunity for health care professionals to discover barriers to healthy weight practices, as well as to implement practical, individualized solutions to combat childhood obesity.

One such tool was developed by the National Institute for Children's Health Quality (NICHQ). The NICHQ toolkit is a survey of the child's dietary and physical activity patterns (Jester et al., 2018; NICHQ, 2014). The NICHQ toolkit enables primary care providers to quickly access a patient's lifestyle habits, as well as provide an opportunity for effective family healthy lifestyle counseling (see Appendix B). Let's Go.org (2015) also created simple screening questionnaires to survey pediatric clients. It is a way for primary care providers to be able to quickly access children's prior lifestyle habits in order to identify obstacles for healthy weight. Another screening tool is from the AAP and is titled, the *Algorithm for the Assessment and Management of Childhood Obesity in Patients 2 Years and Older* (AAP, 2018).

Educating the Child and Family

Health providers can help identify weight issues among school-aged children by initiating routine screening, but education and counseling on healthy eating habits and the incorporation of age-appropriate activities into the child's daily routine are also essential. Education to prevent and treat obesity through lifestyle modifications is much more convenient and cost-efficient than managing obesity and its co-morbidities through medications and therapies.

Improving the knowledge of children and their families is the initial step towards successful behavioral changes (Shue et al., 2015). Providers need to routinely provide family-centered and age-appropriate anticipatory guidance on nutritional choice and physical activity, although the prevention and management of obesity often will involve changing the family itself, in terms of behavioral changes. Some popular educational materials for this purpose are the United States Department of Agriculture (USDA)'s

"*Updated Child and Adult Care Food Program Meal Patterns: Child and Adult Meals"*, "*MyPlate Snack Tips for Parents"*, and "*Be an Active Family*." Another useful handout is from NAPNAP, entitled "*Information about Obesity/Overweight in Children and Teens for Parents"*. Those resourceful handouts are also available in Spanish and can be downloaded from their professional websites.

Collaborating with Family Members

Parent and child collaboration has been shown to effectively reduce BMI in children (Rahman et al., 2018). Parental involvement facilitates good communication, problem-solving skills, and behavioral modifications. Primary care providers can form a collaborative relationship with both the child and his or her parents, such that everyone works as a team to increase family meal times, improve fruit and vegetable consumption, and limit screen time to fewer than two hours per day. Shared decision making for outpatient management of unhealthy weight is essential if it is to succeed. In the end, parental and provider support for healthy behaviors will likely increase the child's likelihood of living an active and healthy life.

Childhood Obesity in the Hispanic/Latino Population

After performing a review of the literature on childhood obesity with the intention of honing in on the Hispanic/Latino school-age child, several factors were found that contribute towards this health issue. An increased amount of screen time, a lack of moderate or strenuous daily activity, excessive fat and sugar intake, as well as frequent consumption of sweetened drink were identified as common threats to healthy weight in Hispanic/Latino school-aged children (Ford et al., 2016; Jester et al., 2018; Ochoa & Berge, 2017; Vittrup & McClure, 2018).

Factors related to the family itself included a negative influence on food choices, not recognizing the importance of sufficient physical exercise, and an unawareness of their own child being overweight or even obese (Foster & Hale, 2015; Gonzalez, 2016; Ochoa & Berge, 2017; Rahman et al., 2018; Sharpe et al., 2016). Lastly, healthcare providers' lack of attention to the assessment of unhealthy weight and lifestyle, due to a busy schedule and time constraint can greatly hinder or eliminate the opportunity for education on health maintaining behaviors in affected children and their families (Cygan et al., 2014; Rankin et al., 2015).

This DNP student believes that health care providers can incorporate childhood obesity screening and education as part of a child's annual physical examination. The next section of this manuscript will describe how an evidence-based and culturally sensitive education program on healthy nutrition and physical activity for school-aged children and their families was implemented at a primary care pediatric clinic located in a suburb of Los Angeles.

METHODS

Childhood obesity has been rising at an alarming rate in Hispanic/Latino school-aged children, contributing to poor quality of life and adverse health outcomes. Ambulatory care providers must be a part of the solution, if the childhood obesity rate is to be decreased. This quality improvement pilot project focused on providing healthy lifestyle education to parent-child dyads at an ambulatory clinic. The goal of this education was for parents and their overweight children to gain a better understanding of the importance of a proper diet and regular exercise, as well as the need for weight reduction.

Design

This DNP pilot study utilized a pre-intervention and post-intervention within-subjects approach, to evaluate the effectiveness of a change in outpatient care practices. This intervention included administering an adapted version of the 2015 *Childhood Obesity Assessment Questionnaire* by Let's Go.org (see Appendix D), and educating parent-child dyads on the APA (2018) *5-2-1-0 Obesity Recommendation Education Tool* (see Appendix E). In addition to these two new clinical experiences, obtaining the weight and BMI status of these pediatric clients was done prior to participating in this pilot healthy lifestyle education program, and a second time approximately two months later.

Ethical Considerations and IRB Approval

A formal, written approval of this DNP project was obtained from the two medical doctors who are the owners of the pediatric ambulatory clinic where the DNP study took place (see Appendix F). The Institutional Review Board (IRB) full board

approval was additionally secured from California State University, Fullerton (CSUF) before initiating this DNP project (see Appendix G).

To protect the autonomy of the pediatric client and his or her family, participation in this childhood obesity study was on a voluntary basis. A written informed consent was made available in both English and Spanish for parent participants, in addition to the parent permission form. An assent form was provided for each child participant. To ensure privacy and confidentiality of the study data, a unique pseudonym was utilized in lieu of each child participant's name.

Setting

This evidence-based quality improvement project took place at an outpatient pediatric clinic in Whittier, which is a suburb of Los Angeles County. The majority of the population who seek health care services from this clinic are Hispanic or Latino. Most possess a lower socio-economic status, and have Medi-Cal as their primary insurance. All of the children and most of the parents are fluent in English.
This clinic serves newborns and those up to nineteen years of age. Approximately half of the school-aged children being seen at this clinic are either overweight or obese. The DNP student researcher works as a health care provider at this agency.

Sample

Convenience sampling was utilized to recruit parent-child dyads for this pilot study, with a target goal of 20 parent-child dyads. Inclusion criteria for the parent was that he or she was at least 21 years of age, had self-identified as Hispanic or Latino, and had a child between the ages of 7 and 12 years. Criteria for the child included being a client at this specific pediatric outpatient clinic, having a BMI greater than the 84th

percentile for age and gender, and having a scheduled appointment for an annual physical examination. Lastly, both members of the parent-child dyad were required to possess sufficient English language skills to participate in this DNP project. The primary exclusion criteria for the child was if he or she had been diagnosed with any type of psychiatric disorder.

Childhood Obesity Tools

Given the time constraints of a primary care visit, childhood obesity screening and education tools must be quick and easy to implement, if they are to be realistically incorporated into a well child visit. Let's Go.org (2015)'s *Childhood Obesity Resource Toolkit for Healthcare Professionals* was selected, as this website provided convenient and relevant screening questionnaires to identify health-related behaviors in children (see Appendix C). A few additional questions were added to the *Childhood Obesity Assessment Questionnaire* by the DNP student researcher, to more closely align with the constructs of the HPM (see Appendix D). An AAP (2018) educational handout entitled, *5-2-1-0 Childhood Obesity Recommendation* was selected, which includes four realistic and modifiable lifestyle behaviors that contribute to weight loss (see Appendix E).

Data Collection

The data collection process for this DNP project consisted of three different phases. Phase one occurred when the parent-child dyad arrived at the clinic for the child's scheduled annual physical examination. A medical assistant (MA) noted the child's age and gender, measured his or her height and weight, and calculated the child's BMI. Following this check-in process, the DNP student researcher met with the parent-child dyad to assess their current dietary and physical exercise habits, utilizing the

adapted version of the *Childhood Obesity Assessment Questionnaire*. She then taught the parent and child about healthy lifestyle behaviors and provided them with a copy of the *5-2-1-0 Childhood Obesity Recommendations*. Finally, the DNP student researcher performed the child's scheduled physical examination.

The second phase of the data collection process occurred, approximately one month after the initial parent-child dyad healthy lifestyle behaviors assessment and education session. This data collection phase consisted of a follow-up phone call to the child participant's parent, for the purpose of assessing the child's current lifestyle behaviors (based upon the *5-2-1-0 Childhood Obesity Recommendations* handout). It additionally provided an opportunity for the DNP student researcher to review any needed teaching about healthy lifestyle behaviors, as well as to answer any questions the parent or the child had. This second part of the data collection process ended with the DNP student reminding the parent about the upcoming follow-up clinic visit, which was to take place in approximately one month's time.

The third and final stage of the data collection process took place at the pediatric clinic, approximately two months after the initial healthy lifestyle behavior assessment and education session with the participating parent-child dyads. This follow-up clinic visit included a measurement of the child's height, weight, and a calculation of his or her BMI by the clinic MA. The DNP student researcher then performed a parent-child knowledge check on the *5-2-1-0 Childhood Obesity Recommendations* education that they had previously received. Lastly, an assessment of the child's current lifestyle behaviors was conducted by the DNP student researcher.

Data Analysis Methods

For the analysis of this DNP study's results, the researcher selected both descriptive and inferential statistical methods. Descriptive statistics were utilized when examining each child's eating and exercise behaviors at baseline and at the final data collection point two months out. The use of a paired t-test methodology was used to compare each child's height, weight and BMI measurements at the time of the annual physical examination appointment and those obtained at his or her follow-up clinic visit, two months after the healthy lifestyle behavior intervention had taken place.

RESULTS

The aim of this DNP project was to study the effect of a childhood obesity assessment and education pilot program on the lifestyle behaviors of its pediatric clients, at a neighborhood primary care clinic located in Los Angeles County. This DNP study took place from December 23, 2019 to March 18, 2020.

Participant Demographics

The participant recruitment period for this DNP project was from 12/23/2019 to 1/29/2020. A total of 23 parent-child dyads met the study's inclusion criteria, with seven of these dyads declining the opportunity to participate in this childhood obesity study. Two of the parents reported that their child had been diagnosed with a psychiatric disorder, resulting in a total of fourteen parent-child dyads (n=14) who volunteered to participate in this DNP childhood obesity study.

The child participant list at the start of this DNP study consisted of eight boys (57%) and six girls (43%). Four of these children were classified as being overweight (29%) and 10 children were classified as obese (71%) for their age and gender. The child participants' ages ranged from seven to twelve years (μ= 9.29 years). All 14 parent-child dyads spoke English fluently and were able to understand the healthy lifestyle assessment questionnaire content, education handout, and follow-up questions that were asked via phone and at their clinic visit. While the parental consent and permission forms were available in both English and Spanish, all 14 parents selected the English versions as their form of choice.

Baseline Family Assessment

Exploring both the parent and child's perception about childhood obesity, meal planning, healthy lifestyle behaviors, and their surrounding home environment was conducted, using an adapted version of the 2015 *Childhood Obesity Assessment Questionnaire* by Let's Go.org. As mentioned previously, four of the children met the criteria for being overweight and 10 children as being obese, according to their BMI for age and gender. In terms of perceptions about the child's current weight, the majority of parent and child participants felt that the weight in question was high. Ten of the parent participants and nine children believed the child's weight was high, while only three parent-child dyads thought the child's weight was just right. Only one of the parents and two of the children did not express an opinion.

Thirteen out of the 14 parents believed that it was highly important for their child to exercise and to eat healthy foods every day. Seven (50%) of the parents reported that they lived in a safe neighborhood that allowed their children the opportunity to play outside. All 14 parents reported easy access to fresh produce and healthy foods, and a habit of getting take-out or fast food approximately twice a week for their family. Finally, 11 out of 14 children were reported to have a television in their bedroom and three had a computer in their bedroom.

Baseline Dietary and Physical Activity Habits

According to the *5-2-1-0 Childhood Obesity Recommendations*, five servings of fresh fruits or vegetables should be consumed on a daily basis. The 14 parent-child dyads report of fresh fruit or vegetable servings ranged from zero to four servings per day (μ of 1.7 servings). While the recommendations state that sugary drinks (soda, juice, and

sports drinks) should be absent from a child's diet, the participants reported anywhere from zero intake to 32 ounces of sugary drinks per day. Twelve out of the 14 children (86%) stated that they drank eight ounces or more of sugary drinks each day.

In terms of physical activity, the 5-2-1-0 Childhood Obesity Recommendations advocates for a daily screen time (television, computer, video games, etc.) of two hours or less. The reported amount of daily screen time by the 14 child participants ranged from one to eight hours (μ of 3.45 hours). One hour or more of active play per day (activity that results in faster than normal breathing, heart rate or presence of sweating), is recommended by the childhood obesity guideline. The daily active play time ranged between zero minutes to three hours for the 14 child participants (μ of 1.25 hours).

Baseline Body Measurement Metrics

A child's BMI for his or her age and gender determines whether they are underweight, a healthy weight, or overweight. Being overweight consists of a BMI that is at the 85th to the 94th percentile, while a classification of obese is a BMI that is at the 95th percentile or greater. The 14 child participant BMIs ranged from 87% to 100% (μ of 97%). Four of these children were classified as being overweight (29%) and 10 children were classified as obese (71%) for their age and gender. Half of the six female participants were classified as overweight, and the other three met the criteria for being obese. One male participant was classified as overweight, while the other seven fell into the obese category. Being obese was observed in all of the represented age groups.

Follow-up Phone Call Findings

The 14 parent participants were asked to take part in the phone follow-up portion of the study, which was scheduled approximately one month after the parent-child dyad's

healthy lifestyle assessment and education session at the clinic. All fourteen parents ended up participating in this phone call with the DNP student researcher. The purpose of this follow-up phone call was for the researcher to check the parent's knowledge retention about their recent healthy lifestyle education session, assess the child's current eating or exercise behaviors in reference to the *5-2-1-0 Childhood Obesity Recommendations*, and to answer any questions that the parent had. The parent participants were then asked to schedule a follow-up clinic visit appointment with the DNP student researcher provider at the conclusion of the phone call.

While the majority of the parent participants were unable to specify what the numbers represent from the *5-2-1-0 Childhood Obesity Recommendations*, almost all of the parents recalled the importance of increasing fruit and vegetable consumption in their children. In fact, 13 of the 14 parents stated their children were eating more fresh fruits and vegetables as compared to before. Only two of the parents recalled that zero sugary drinks was one of the childhood obesity recommendations. While only two parents remembered from their education session that daily screen time should be limited to two hours, half of the parents did report a decrease in their own child's screen time. Twelve of the 14 parents remembered that active play was part of a healthy lifestyle, with half of the parents reporting an increase in their child's physical activity level.

Post Intervention Family Assessment

The 14 parent-child dyads were asked to return to the clinic approximately two months after their healthy lifestyle education session. The purpose of this return visit was threefold; checking the parent and child's retention of what they had learned about healthy lifestyle behaviors, obtaining the child's weight, height and BMI, and assessing

the child's current healthy lifestyle behaviors, using the *5-2-1-0 Childhood Obesity Recommendations*. Only ten out of the original 14 parent-child dyads ended up returning for their two month follow-up clinic visit.

Half of the returning children were male (n=5), and the other half were female (n=5). In terms of knowledge retention, seven of the parent-child dyads recalled the need to increase fruit and vegetable consumption, although only four remembered that sugary drinks should not be a part of their child's dietary intake. Eight of the dyads recognized the importance of reducing screen time, and seven out of the 10 parent-child dyads recalled the recommendation for at least one hour of daily active play.

Post Intervention Dietary and Physical Exercise Habits

In reference to the *5-2-1-0 Childhood Obesity Recommendations*, the fresh fruit and vegetable intake ranged from one to five servings (μ of 2.9) for the 10 child participants, out of the five servings that are recommended on a daily basis. While the recommendations state that sugary drinks should be absent from a child's diet, five out of 10 children (50%) stated they drank eight ounces or more of this type of beverage each day. The recommended daily screen time is two hours or less, and the 10 child participants reported a range of one to two hours (μ of 1.95 hours) for their daily screen time. In terms of physical activity, the recommended amount of active play is at least one hour per day. Active play for the 10 child participants ranged from one to four hours per day (μ of 2.05 hours).

Post Intervention Body Measurement Metrics

Of the original 14 parent-child dyads, 10 of these families completed the study by returning for their two month follow-up clinic appointment. For these returning children,

two (20%) were in the overweight category and eight (80%) were classified as obese per their BMI values. The children's BMI percentiles ranged from 87% to 100% (μ= 96%). Obesity was present in all of the represented age groups. While two girls were classified as being overweight and the other three as obese, all five boys in contrast were in the obese category.

Data Analysis

In terms of healthy lifestyle behavioral changes among the 10 child participants, positive changes were observed in all four categories (*5-2-1-0 Childhood Obesity Recommendations*). Eight of the child participants increased their fresh fruit and vegetable intake, with a mean of 1.7 servings pre-intervention (childhood obesity education) to 2.9 servings post intervention. Three children reduced their amount of screen time, which resulted in going from a baseline of 3.45 pre-intervention, to only 1.95 hours post-intervention. Four of the child participants increased their active play time, with the mean increasing from 1.25 hours pre-intervention to 2.05 hours post-intervention. Finally, an overall decrease in sugary fluid consumption was observed, where the mean intake decreased from 1.35 to 0.85 servings daily (see Appendix H).

Paired t-tests were performed to evaluate the difference in BMI, height and weight within subjects, before and after the study intervention of a standardized childhood obesity education session. An analysis was performed using SAS software (version 9.4; SAS institute Inc., Cary, NC, USA), with a significance level was set at 0.05. The results indicated that the overall BMI percentile for the participant group decreased about 0.1% after the intervention, but no significant change in mean BMI percentile was noted pre- and post-intervention for each of the individual participants

(t = 0.22, df=9, P=0.8321). Similar to the BMI results, the group's mean weight increased about 1.60 pounds after the intervention, but there was no significant change in mean weight before and after the intervention for the individual participants (t =1.82, df=9, P=0.1018). Of interest was the fact that there was a significant group mean difference before and after the intervention for height (t=3.24, df=9, P=0.01).

DISCUSSION

The goal of this outpatient childhood obesity project was to educate parent-child dyads about the *5-2-1-0 Childhood Obesity Recommendations*, and to then assess at one and two months out whether there were any changes in the children's daily dietary and physical exercise routines. Although this pilot study had a small sample and occurred over a short period of time, the DNP student researcher was also interested in observing if there would be any difference in the children's weight and BMI at the time of their initial healthy lifestyle education session as compared to two months later.

An adaptation of Pender's health promotion model was designed by the DNP student researcher, which served to link three different behavioral phases. The first phase consisted of the children's dietary and physical activity habits, prior to receiving childhood obesity teaching at their primary care clinic. Phase two included the parent-child dyad's belief about the child's weight status, in addition to hearing about the child's weight status (overweight or obese) by the DNP student researcher (health care provider). The third and last phase referred to health promoting behaviors (changes in dietary and/or active play habits), with the two prior phases acting as influencing factors.

An analysis of the data was done to examine the outcomes of the original 14 parent-child dyads in terms of their beliefs about the child's weight status and subsequent participation in this childhood obesity study. There were a total of seven parent-child dyads where both members felt the child's weight was too high. All seven of these dyads completed the two month study. Two additional parent-child dyads completed the study, in which one member felt the child's weight was high and the other member thought that the child's weight was fine. No follow-up clinic visit occurred in three cases where both

members of the parent-child dyad thought the child's weight was fine, the child thought his weight was fine, and the one instance in which the parent-child dyad did not express an opinion.

One direct benefit that occurred as a result of this brief childhood obesity pilot study was that the 10 parent-child dyads who completed the two month study reported healthier lifestyle behaviors as a group, for each category of the *5-2-1-0 Childhood Obesity* Recommendations (see Appendix H). Healthier food preparation by some of the parents was also shared with the DNP student researcher. An examination of the seven parent-child dyads in which both family members felt that the child's weight was too high revealed similar findings, with noted improvements in all four categories.

In a closer examination of these seven parent-child dyads, the biggest healthy lifestyle behavior change was in the fresh fruit or vegetable category. While only one child reached the 5 servings per day goal, six out of the seven increased their daily fresh fruit or vegetable intake by one to three servings (μ of 3.29 servings per day). Screen time was decreased by three of the children, resulting in all seven keeping to the recommended limit of two hours per day (μ of 1.79 hours). Active play was increased by four of the children, and all seven ended up meeting or exceeding the minimum requirement of one hour per day (μ of 2.0 hours).

The intake of sugary drinks was the category with the least improvement out of the four. While three of the children reduced their intake, the goal of no sugary drinks increased from one child participant to two (μ of 1.29 drinks per day). In comparison to the entire group of participants, a slightly higher improvement in regards to fresh fruit or

vegetable intake and amount of screen time was observed for this group of seven dyads who had felt the child's weight was high (see Appendix I).

In terms of body measurement metrics, only two of the child participants lost weight two months out from their healthy behavior teaching intervention. While two of the children had a decrease in their BMI, one of the children went from being classified as overweight to that of meeting the criteria for the obese category. For the two participants who experienced a decrease in their BMI percentile, Carla's dropped by 1 percent and Eric 's dropped by 3 percent. Carla had reported an increase in fresh fruit or vegetable intake and hours of active play, while no changes were noted in her screen time or sugary drinks intake (see Appendix J). Similarly, Eric also had an increase in fresh fruit or vegetable intake and in active play hours. His screen time was reported as unchanged, although Eric had also reduced his sugary drinks consumption (see Appendix K).

Andrea was the one child participant who experienced an increase in her BMI by 3 percent. She reported no change in her fresh fruit or vegetable intake, nor in her number of active play hours. However, Andrea did significantly reduce her daily screen time and sugary drinks intake (see Appendix L). What is unknown were the kinds of activities that replaced her decreased screen time, and details about the types of beverages she consumed.

LIMITATIONS

The initial sample size for this childhood obesity pilot study was small, with only 14 parent-child dyads volunteering to participate. Only 10 out of the 14 original parent-dyads completed the entire study for an attrition rate of 29 percent. It is difficult to know how this might have impacted the study results. The short timeframe between the healthy lifestyle teaching intervention and the two month follow-up weight and BMI check might not have allowed sufficient time for changes in body measurement metrics to have taken place. This was additionally a single-site study, as it was conducted at one ambulatory neighborhood clinic in the Los Angeles area.

Since the DNP student researcher was interested in studying the Latino/Hispanic children at this clinic and limited the study to those who were fluent in English, the study participants did not represent a diverse population. Finally, the most significant limitation to this study was the self-report data collection method for the childhood obesity screening questionnaire, follow-up telephone call and follow-up clinic visit questions. The parent and child participants might have reported those healthy lifestyle behaviors that they believed the DNP student researcher wanted to hear.

IMPLICATIONS FOR PRACTICE

Obtaining a child's weight, height and BMI are routine measurements that are part of a child's annual physical examination. While the office or clinic visit itself may be brief, it is believed that there is time during the physical exam for the health care provider to share the child's body measurement results, obtain a general picture of the child's eating and exercise habits, as well as educate the family about healthy lifestyle behaviors. Subsequently sending the family home with a copy of the AAPs (2018) educational handout entitled, *5-2-1-0 Childhood Obesity Recommendations* is an easy way to encourage the adoption of a healthier lifestyle.

CONCLUSION

This DNP pilot study was interested in examining if a standardized childhood obesity awareness and education program intervention at a pediatric neighborhood clinic would have any effect on its clients' dietary and exercise habits, weight, and BMI. Performing a childhood obesity assessment can identify healthy lifestyle knowledge deficits, and begin the process of working towards a healthier weight and BMI for the child. It was learned that screening for and teaching families about childhood obesity can feasibly be incorporated into the well-child visit, with positive results.

Continuing the conversation of healthy lifestyle behaviors through periodic communication between health care provider and the family via phone or in-person, may be the key to success. Positive changes in many of the children's diet and exercise patterns had occurred at the time of the one month follow-up phone call, and even more significant improvements were noted at the two month follow-up clinic visit. While the body measurement metrics did not show statistical significance for the children's weight and BMI pre and post-intervention, a longer follow-up period might produce different results. If we are to make great strides in the area of childhood obesity, it will likely require an ongoing and concerted effort between the health care provider and family. What should drive this process is knowing that the potential is great for enabling children to enjoy a better quality of life, and optimally, one with a lower incidence of chronic disease.

REFERENCES

American Academy of Pediatrics. (2018). 5, 2, 1, 0 strategies. Retrieved from https://ihcw.aap.org/Documents/Additional%20Resources/5210_strategies.pdf

Bonnel, W., & Smith, K. V. (2014). *Proposal writing for clinical nursing and DNP projects* (1st ed.). New York, NY: Springer Publishing Company.

Cooksey-Stowers, K., Schwartz, M. B., & Brownell, K. D. (2017). Food swamps predict obesity rates better than food deserts in the United States. *International Journal of Environmental Research and Public Health, 14*(11). doi:10.3390/ijerph14111366

Cygan, H. R., Baldwin, K., Chehab, L. G., Rodriguez, N. A., & Zenk, S. N. (2014). Six to success: Improving primary care management of pediatric overweight and obesity. *Journal of Pediatric Health Care, 28*(5), 429-437. doi:10.1016/j.pedhc.2014.02.002

Fidanci, B. E., Akbayrak, N., & Arslan, F. (2017). Assessment of a health promotion model on obese Turkish children. *Journal of Nursing Research, 25*(6), 436-446. Retrieved from http://web.a.ebscohost.com.lib-proxy.fullerton.edu/ehost/search/advanced?vid=0&sid=a406c3c0-8b99-47d9-be2b-1d835e7af084%40sessionmgr4006

Filipova, A. A., & Stoffel, C. L. (2016). The prevalence of binge eating disorder and its relationship to work and classroom productivity and activity impairment. *Journal of American College Health, 64*(5), 349-361. Retrieved from https://doi-org.lib-proxy.fullerton.edu/10.1080/07448481.2016.1150283

Ford, M. C., Gordon, N. P., Howell, A., Green, C. E., Greenspan, L. C., Chandra, M., . . . Lo, J. C. (2016). Obesity severity, dietary behaviors, and lifestyle risks vary by race/ethnicity and age in a Northern California cohort of children with obesity. *Journal of Obesity, 2016*, 4287976. doi:10.1155/2016/4287976

Foster, B. A., & Hale, D. (2015). Perceptions of weight and health practices in Hispanic children: A mixed-methods review. *International Journal of Pediatrics*, 1-6. doi:10.1155/2015/761515

Fruh, S. M. (2017). Obesity: Risk factors, complications, and strategies for sustainable long-term weight management. *Journal of the American Association of Nurse Practitioners, 29*(1), S3-S14. doi:10.1002/2327-6924.12510

Gonzalez, G. (2016). Primary care interventions to reduce childhood obesity in Latino families. *Journal of Pediatric Health Care, 30*(5), 471-479. doi:10.1016/j.pedhc.2015.11.002

Hernandez, D. C., Reesor, L., Machuca, I., Chishty, M., & Alonso, Y. (2016). Low-income immigrant Hispanic mothers' concerns and perceptions of their young child's weight. *Public Health Nursing, 33*(5), 412-420. doi:10.1111/phn.12252

Howlett, E., Davis, C., & Burton, S. (2016). From food desert to food oasis: The potential influence of food retailers on childhood obesity rates. *Journal of Business Ethics, 139*(2), 215-224. doi:10.1007/s10551-015-2605-5

Jester, A., Kreider, K. E., Ochberg, R., & Meek, J. (2018). Effectiveness of implementing initial education strategies to promote awareness and healthy habits in childhood obesity: A quality improvement project. *Journal of Pediatric Health Care, 32*(2), 157-162. doi:10.1016/j.pedhc.2017.09.006

Let's Go! (2014). 5-2-1-0 goes to child care partner implementation toolkit. Retrieved from http://www.5210letsgo.com/download/2013-14_ImplementationToolkit_WebsiteVersion.pdf

Let's Go! (2015). Childhood obesity resource toolkit for healthcare professionals. Retrieved from http://www.5210letsgo.info/download/2012-2013-HEALTHCARE-TOOLKIT-Running-File.pdf

National Institute for Children's Health Quality. (2014). Healthy care for healthy kids: Obesity toolkit. Retrieved from https://www.nichq.org/sites/default/files/resource-file/Healthy_Care_for_Healthy_Kids_Obesity_Toolkit.pdf

Ochoa, A., & Berge, J. (2017). Home environmental influences on childhood obesity in the Latino population: A decade review of literature. *Journal of Immigrant and Minority Health, 19*(2), 430-447. doi:10.1007/s10903-016-0539-3

Pender, N. J., Murdaugh, C. L., & Parsons, M. A. (2006). *Health promotion in nursing practice.* (5th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Rahman, A., Fulda, K. G., Franks, S. F., Fernando, S. I., Habiba, N., & Muzaffar, O. (2018). How often parents make decisions with their children is associated with obesity. *BioMed Central Pediatrics, 18*(1), 1-8. doi:10.1186/s12887-018-1283-8

Rankin, A., Blood-Siegfried, J., Vorderstrasse, A., & Chlebowy, D. O. (2015). Implementation of childhood obesity identification and prevention strategies in primary care: A quality improvement project. *International Journal of Pediatrics and Adolescent Medicine, 2*(2), 59-63. doi:10.1016/j.ijpam.2015.05.002

Reed, M., Cygan, H., Lui, K., & Mullen, M. (2016). Identification, prevention, and management of childhood overweight and obesity in a pediatric primary care center. *Clinical Pediatrics, 55*(9), 860-866. doi:10.1177/0009922815614350

Sade, R. (2016). Introduction: Ethical and legal issues in pediatrics. *The Journal of Law, Medicine & Ethics, 44*(2), 228-230. doi:10.1177/1073110516654117

Schmied, E. A., Chuang, E., Madanat, H., Moody, J., Ibarra, L., Ortiz, K., . . . Ayala, G. X. (2018). A qualitative examination of parent engagement in a family-based childhood obesity program. *Health Promotion Practice, 19*(6), 905-914. doi:10.1177/1524839918757487

Sharpe, L., Bishop, C., Devries, A., & Derouin, A. (2016). Quick screen to intervene: Starting the conversation about pediatric obesity. *Journal for Nurse Practitioners, 12*(10), e431-e434. doi:10.1016/j.nurpra.2016.06.009

Shaikh, U., Nettiksimmons, J., Joseph, J., Tancredi, D., & Romano, P. (2014). Collaborative practice improvement for childhood obesity in rural clinic: The healthy eating active living telehealth community of practice (health cop). *American Journal of Medical Quality, 29*(6), 467-475. doi:10.1177/1062860613506252

Shue, C. K., Whitt, J. K., Daniel, L., & Shue, C. B. (2015). Promoting conversations between physicians and families about childhood obesity: Evaluation of physician communication training within a clinical practice improvement initiative. *Health Communication, 31*(4), 1-9. doi:10.1080/10410236.2014.963785

Srof, B., & Velsor-Friedrich, B. (2006). Health promotion in adolescents: A review of Pender's health promotion model. *Nursing Science Quarterly,19*(4), 366-373. doi:10.1177/0894318406292831

Turer, C. B., Montano, S., Lin, H., Hoang, K., & Flores, G. (2014). Pediatricians' communication about weight with overweight Latino children and their parents. *Pediatrics, 134*(5), 892-899. Retrieved from https://pediatrics-aappublications-org.lib-proxy.fullerton.edu/content/134/5/892

Vaccaro, J. A., Zarini, G. G., & Huffman, F. G. (2019). Parental perceptions of child's medical care and neighborhood and child's behavioral risk factors for obesity in U.S. children by body mass index classification. *Journal of Environmental and Public Health*, 1-10. doi:10.1155/2019/3737194

Vittrup, B., & McClure, D. (2018). Barriers to childhood obesity prevention: Parental knowledge and attitudes. *Pediatric Nursing, 44*(2), 81-94. Retrieved from http://web.a.ebscohost.com.lib-proxy.fullerton.edu/ehost/search/advanced?vid=0&sid=a406c3c0-8b99-47d9-be2b-1d835e7af084%40sessionmgr4006

APPENDIX A

PERMISSION TO USE PENDER'S HEALTH PROMOTION MODEL

Dear Ruby:

You can select concepts from the HP model for use in your study. Just be clear to present the full model and your study model so the distinction is clear.

Wishing you all the best,
Nola Pender

•••

Dear Dr. Pender,
Thank you again for your quick response. I will present both the original full HPM and my adapted HPM in my project, so it will be clear to my audience.
I really appreciate your time, help, and guidance.
Have a wonderful week.

Respectfully,
Xiaofei (Ruby) Guo
5/6/19

42

APPENDIX B

NICHQ ASSESSMENT QUESTIONNAIRE

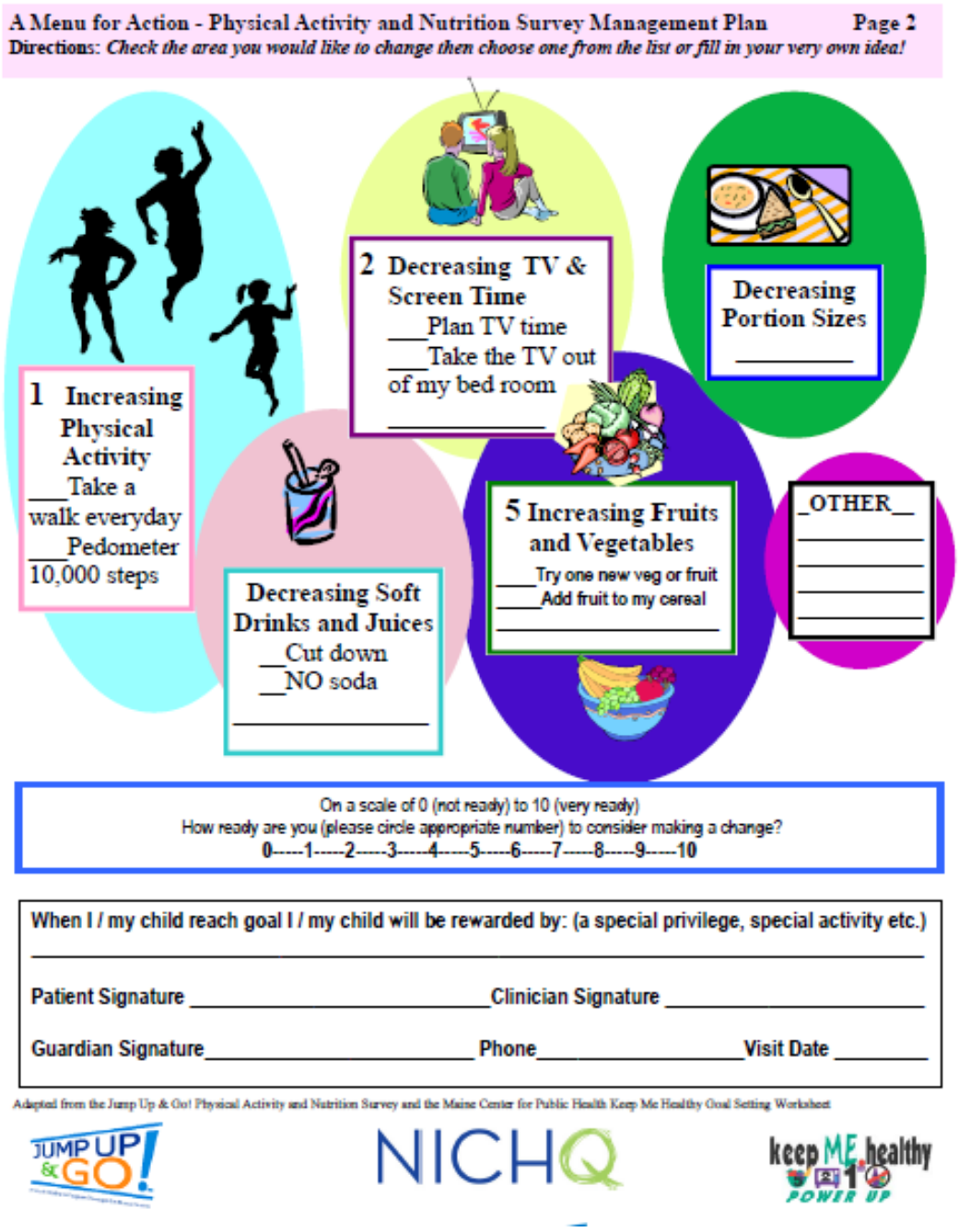
A Menu for Action - Physical Activity and Nutrition Survey Management Plan **Page 1**

While you are waiting to see the doctor please take a moment to answer questions 1-10

1. Do you eat ***5 or more*** fruits and vegetables ***per day***?	YES □	NO □
2. Do you have a ***favorite fruit or vegetable*** that you would eat ***everyday***?	YES □	NO □
3. Do you eat ***breakfast everyday***?	YES □	NO □
4. Do you watch ***TV, videos or play computer games*** **for** ***no more than 2 hours*** per day?	YES □	NO □
5. Do you take gym class or participate in sports or dance ***in or outside of school more times per week***?	YES □	NO □
6. Do you have a ***favorite sport or physical activity*** that you love to do?	YES □	NO □
7. Do you eat dinner ***at the table with your family*** at least once a week?	YES □	NO □
8. Do you have a TV in ***your bedroom***?	YES □	NO □
9. Do you eat ***in front of the TV***?	YES □	NO □
10. Do you drink soda, juice, or other ***sugar sweetened drinks*** one or more times a day?	YES □	NO □
Would you like to talk to your doctor about making changes to improve your health?	YES □	NO □

(if yes, continue to page 2)

Adapted from the Jump Up & Go! Physical Activity and Nutrition Survey and the Maine Center for Public Health Keep Me Healthy Goal Setting Worksheet


A Menu for Action - Physical Activity and Nutrition Survey Management Plan Page 2
Directions: Check the area you would like to change then choose one from the list or fill in your very own idea!
1 Increasing Physical Activity
___Take a walk everyday
___Pedometer 10,000 steps
2 Decreasing TV & Screen Time
___Plan TV time
___Take the TV out of my bed room
_____
Decreasing Portion Sizes
_____
Decreasing Soft Drinks and Juices
__Cut down
__NO soda
_____
5 Increasing Fruits and Vegetables
___Try one new veg or fruit
____Add fruit to my cereal
_____
_OTHER__
_____
_____
_____
_____
On a scale of 0 (not ready) to 10 (very ready)
How ready are you (please circle appropriate number) to consider making a change?
0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
When I / my child reach goal I / my child will be rewarded by: (a special privilege, special activity etc.)
_____
Patient Signature _____ Clinician Signature _____
Guardian Signature_____ Phone_____ Visit Date _____
Adapted from the Jump Up & Go! Physical Activity and Nutrition Survey and the Maine Center for Public Health Keep Me Healthy Goal Setting Worksheet
JUMP UP & GO!
NICHQ
keep ME healthy
POWER UP

(NICHQ, 2014)

Good morning,

Thank you for reaching out to us about our obesity toolkit. You are absolutely welcome to use the toolkit, so long as it is not modified and NICHQ is cited as a source, including a link to NICHQ's website.

All best,

Caitlin

Caitlin Forbes
Senior Manager, Marketing and Digital Strategy

National Institute for Children's Health Quality (NICHQ)

45

APPENDIX C

LET'S GO ASSESSMENT QUESTIONNAIRE

5210 Healthy Habits Questionnaire (Ages 2–9)

We are interested in the health and well-being of all our patients. Please take a moment to answer the following questions.

Patient Name: _____ Age: _____ Today's Date: _____

1. How many servings of fruits or vegetables does your child eat a day? _____
   One serving is most easily identified by the size of the palm of your child's hand.
2. How many times a week does your child eat dinner at the table together with the family? _____
3. How many times a week does your child eat breakfast? _____
4. How many times a week does your child eat takeout or fast food? _____
5. How many hours a day does your child watch TV/movies or sit and play video/computer games? _____
6. Does your child have a TV in the room where he /she sleeps? Yes ☐ No ☐
7. Does your child have a computer in the room where he /she sleeps? Yes ☐ No ☐
8. How much time a day does your child spend in active play (faster breathing/heart rate or sweating)? _____
9. How many 8-ounce servings of the following does your child drink a day?

   100% Juice _____ Fruit drinks or sports drinks _____ Soda or punch _____
   Water _____ Whole milk _____ Nonfat or reduced fat milk _____

10. **Based on your answers, is there <u>ONE</u> thing you would like to help your child change now? Please check one box.**

    ☐ Eat more fruits & vegetables.
    ☐ Take the TV out of the bedroom.
    ☐ Play outside more often.
    ☐ Switch to skim or low fat milk.
    ☐ Spend less time watching TV/movies and playing video/computer games.
    ☐ Eat less fast food/takeout.
    ☐ Drink less soda, juice, or punch.
    ☐ Drink more water.

Please give the completed form to your clinician. Thank you.

5210 LET'SGO!
www.letsgo.org

Adapted by MaineHealth® and Maine Medical Center from the High Five for Kids in Massachusetts and Keep ME Healthy in Maine.

5210 Healthy Habits Questionnaire (Ages 10–18)

We are interested in the health and well-being of all our patients. Please take a moment to answer the following questions.

Patient Name: _____ Age: _____ Today's Date: _____

1. How many servings of fruits or vegetables do you eat a day?
   One serving is most easily identified by the size of the palm of your hand. _____
2. How many times a week do you eat dinner at the table together with your family? _____
3. How many times a week do you eat breakfast? _____
4. How many times a week do you eat takeout or fast food? _____
5. How many hours a day do you watch TV/movies or sit and play video/computer games? _____
6. Do you have a TV in the room where you sleep? Yes ☐ No ☐
7. Do you have a computer in the room where you sleep? Yes ☐ No ☐
8. How much time a day do you spend in active play (faster breathing/heart rate or sweating)? _____
9. How many 8-ounce servings of the following do you drink a day?

100% Juice _____	Fruit drinks or sports drinks _____	Soda or punch _____
Water _____	Whole milk _____	Nonfat or reduced fat milk _____

10. Based on your answers, is there <u>ONE</u> thing you would be interested in changing now? Please check one box.

- ☐ Eat more fruits & vegetables.
- ☐ Take the TV out of the bedroom.
- ☐ Play outside more often.
- ☐ Switch to skim or low fat milk.
- ☐ Spend less time watching TV/movies and playing video/computer games.
- ☐ Eat less fast food/takeout.
- ☐ Drink less soda, juice, or punch.
- ☐ Drink more water.

5210 LET'SGO!
www.letsgo.org

Please give the completed form to your clinician. Thank you.

Adapted by MaineHealth® and Maine Medical Center from the High Five for Kids in Massachusetts and Keep ME Healthy in Maine.

(Let's Go, 2014)

Dear Victoria,
This is a doctoral of nursing practice student at California State University, Fullerton. My doctoral project will focus on outpatient management of childhood obesity. I found the let's go. org's "Let's go! Childhood Obesity Resource Toolkit for Health care Professionals" very helpful for developing my screening questionnaires and education material for children and their parents. My project is based on Pender's Health Promotion Model. I am seeking consent from your organization to grant me permission to use and adapt the 5-2-1-0 toolkit for my project. Credits will be given to Let's go. org for using and adapting its original sources.
Thank you for your time, support and most importantly, your continuous commitment for improving the health of our future generations.

Sincerely,
Xiaofei Guo, FNP-BC, MSN, RN
4/25/19

Reply Forward

Victoria W. Rogers Mon, Apr 29, 2:23 PM (1 day ago)
to me

Hi Xiaofei-

This sounds great and you have my permission. Let me know how things go!

Tory

Victoria W. Rogers, MD
Senior Director, Let's Go!

APPENDIX D

CHILDHOOD OBESITY ASSESSMENT QUESTIONNAIRE

Childhood Obesity Assessment Form (*Let's Go.Org*, 2015)

1. How many servings of fruits or vegetables does your child eat a day? (one serving is most easily identified by the size of the palm of your child's hand) _____

2. How many times a week does your child eat dinner at the table together with the family? _____

3. How many times a week does your child eat breakfast? _____

4. How many times a week does your child eat takeout or fast food? _____

5. How many hours a day does your child watch TV/movies or sit and play video/computer games? _____

6. Does your child have a TV in the room where he/she sleeps____ Yes _____ No

7. Does your child have a computer in the room where he/she sleeps ____ Yes ___ No

8. How much time a day does your child spend in active play (faster breathing/heart rate or sweating)? _____

9. How many 8-ounce (237 ml) servings of the following does your child drink a day?

_____ 100% juice

_____ Water

_____ Fruit drinks

_____ Sports drinks

_____ Whole milk

_____ Nonfat or reduced fat milk

_____ Soda

Demographic & Measurement Data

Age (in years) _____

Gender _____ Male _____ Female

Height (in inches) _____

Weight (in pounds) _____

BMI (%) _____

Family Beliefs and Perceptions (*Health Promotion Model*, Pender, 2006)

1. How do you and your child feel about his or her weight?

Parent:	Child:
_____ Low	_____ Low
_____ High	_____ High
_____ Just right	_____ Just right
_____ Unsure	_____ Unsure

2. How important is it for your child to get exercise every day?

3. How important is it for your child to eat healthy foods every day?

4. Is your child able to go outside and play every day?

5. How easy is it to make healthy foods for your family?

Following Family Education on the 5-2-1-0 Recommendations:

Is there one lifestyle change you would be interested in making now?

_____ Eat more fruit & vegetables

_____ Take the TV out of the bedroom

_____ Play outside more often

_____ Switch to nonfat or low fat milk

_____ Spend less time watching TV/movies

_____ Spend less time playing video/computer games

_____ Eat less fast food/takeout food

_____ Drink less soda, juice, or punch

_____ Drink more water

_____ Not at this time

APPENDIX E

5-2-1-0 CHILDHOOD OBESITY RECOMMENDATION

(AAP, 2018)

Dear Mala,
I found the attached documents on the AAP webpage and I wanted to incorporate the PDF document (5-2-1-0 strategies) into my project.
Please Let me know if it is ok.
Thank you for your time and help.

Sincerely,
Xiaofei Guo
4/23/19

•••

2 Attachments

Thapar, Mala Tue, Apr 23, 10:14 AM (2 days ago)
to me

Yes, please just credit us as the original source because some of the supplemental content is ours. Thank you! Mala

APPENDIX F

CLINIC CONSENT

Ken B. Chon, M.D.
Jamie Pardo, M.D.
Simona Magda, PNP-C

WHITTIER PEDIATRIC GROUP
INFANT, CHILDREN
AND ADOLESCENTS
8522 S. Painter Ave., Whittier, CA 90602
Tel: (562) 698-6266 Fax: (562) 945-4530

Yu-Fei Wu, M.D.
Xiaofei Guo, FNP-BC

Dear Dr. Ken Chon and Dr. Yufei Wu,

My name is Xiaofei Guo, and I am currently a Doctor of Nursing Practice (DNP) student of the Southern California CSU DNP Consortium, which is a joint venture of the schools of nursing from California State University - Fullerton, California State University - Long Beach, and California State University - Los Angeles. My professor, Dr. Kathleen Hinoki, Ph.D., and I are interested in studying childhood obesity within the Hispanic/Latino school-age child population. A requirement of my doctoral program is to carry out a DNP clinical project that might benefit the clients at my current place of employment. Accordingly, we are requesting your permission to carry out a childhood obesity study at your Whittier Pediatric Group clinic.

Dr. Hinoki is an assistant professor in the school of nursing at California State University, Los Angeles and would be the Co-Investigator; however, she will not be doing any of the participant recruitment, consenting or data collection. I would be serving as the Principal Investigator (PI) for this study and would be the person who does the participant recruitment, informed consent, assent, and data collection for this childhood obesity study.

We would like to see if providing parents and children with some education on living a healthy lifestyle would have any effect on the child's eating or exercise habits, as well as on the child's weight and body-mass-index (BMI). We are aiming to recruit up to 20 parent-child dyads. This study would specifically work with parent-child dyads who meet the following criteria:

- The parent and child are of Hispanic or Latino ethnicity
- The child is 7 years to 12 years of age
- The child's scheduled clinic visit is for his or her annual physical examination
- The child's BMI is greater than the 84th percentile for his or her age and gender
- The parent and child have sufficient English language skills
  (ability to answer oral questions about current eating and exercise habits and ability to understand the provided childhood obesity education)

There would be three components to this childhood obesity study:

- Added to the annual physical examination visit would be an oral survey of the child's eating and exercise habits based on the *Let's Go.Org* program and health promotion model, as well as teaching/giving a handout to the parent and child on the "*5-2-1-0 Childhood Obesity Recommendations*".
- A follow-up phone call about one month after the child's annual physical examination to inquire about the child's healthy lifestyle behaviors in relation to the "*5-2-1-0 Childhood Obesity Recommendations*".

- A return clinic visit about two months after the annual physical examination to inquire about the child's healthy lifestyle behaviors in relation to the "*5-2-1-0 Childhood Obesity Recommendations*". A weight, height and BMI calculation would also be done.

As the Principal Investigator (PI), I would inform the parent and the child that it is up to them if they would like to participate in this childhood obesity study. The parent and child will only be enrolled into this study if the parent and the child *both* agree to participate (signed informed consent by the parent and a signed assent form by the child). As participants in the study, the parent and the child would possess the right to not answer any of the childhood obesity questions. They may also withdraw from the study at any time, without any negative consequences. I would also assure them that the child's physical examination would still be performed as scheduled, if the parent or the child should decide not to participate in this study. Lastly, as agreed with the two of you, there would be no charge for any of these study components.

This childhood obesity study will not be implemented unless both of you, as the owners of this pediatric medical community clinic grant your approval. In addition, obtaining approval from the Institutional Review Board (IRB) at California State University, Fullerton would also be necessary in order to conduct this childhood obesity study. If approved by both entities, we anticipate the recruitment process for these 20 parent-dyads might take up to six weeks. In terms of the study data and the results, they might be used for possible publication purposes, but all participant identifiers would be removed.

We both thank you for your time and for your consideration of our request. Please do not hesitate to contact us for further information or for any questions you may have about this childhood obesity study.

Dr. Kathleen Hinoki: khinoki@calstatela.edu (323)343-4715

Xiaofei Guo: ruby91007@csu.fullerton.edu

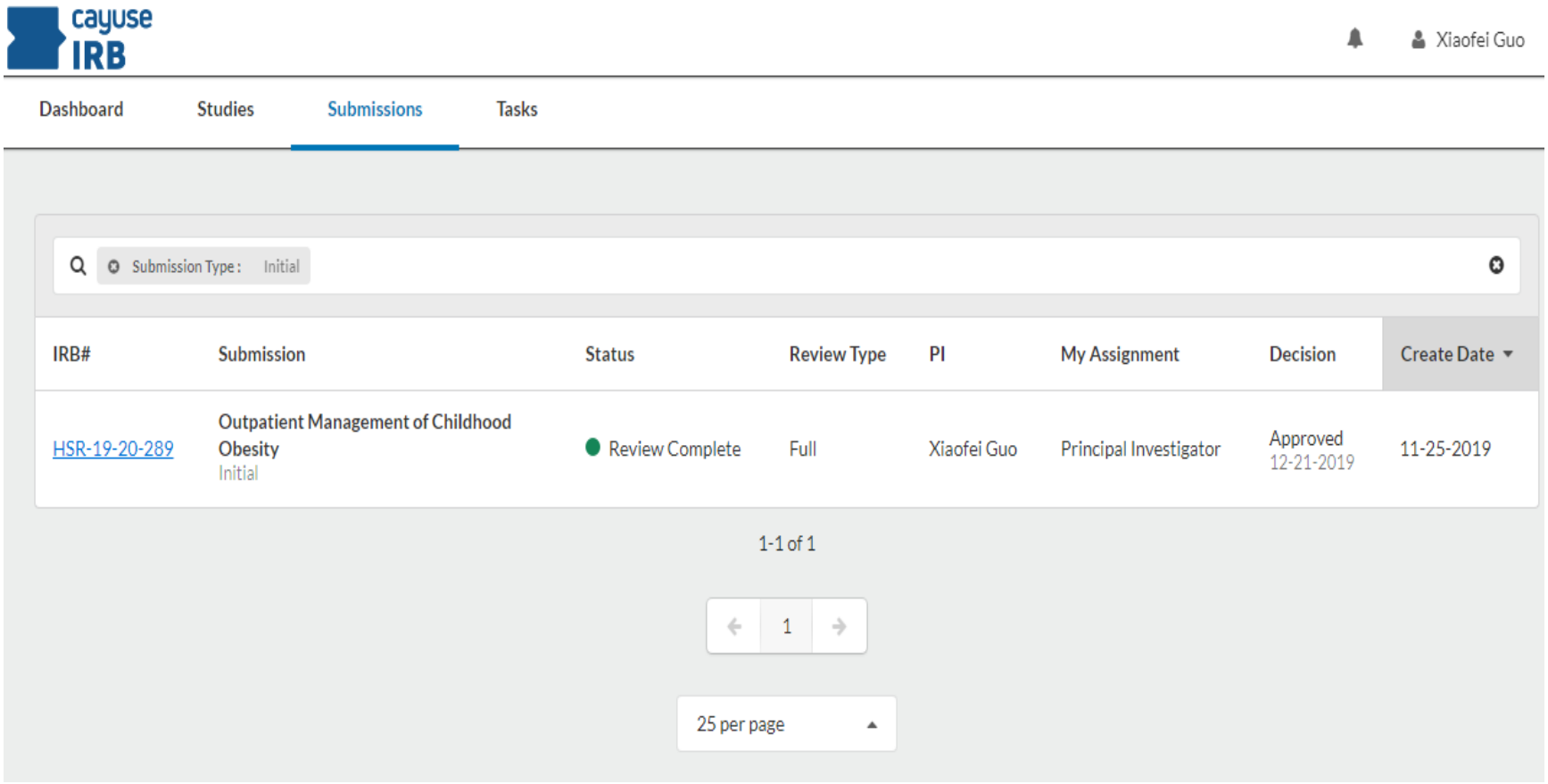
Your signatures below signify that you have granted us permission to carry out this childhood obesity study at your Whittier Pediatric Group clinic location.

Ken Chon, MD — Date: 11/18/19

Yufei Wu, MD — Date: 11/20/19

APPENDIX G

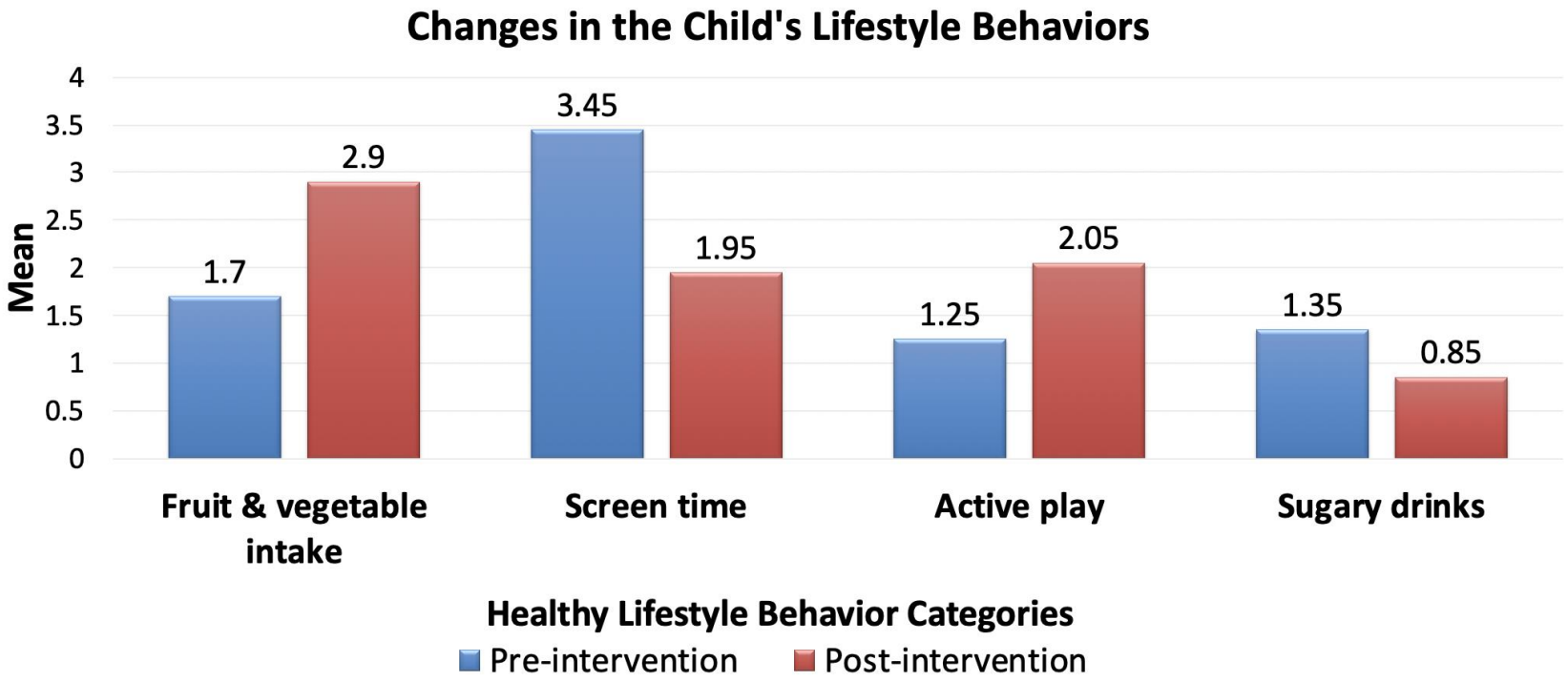
CALIFORNIA STATE UNIVERSITY FULLERTON IRB APPROVAL



55

APPENDIX H

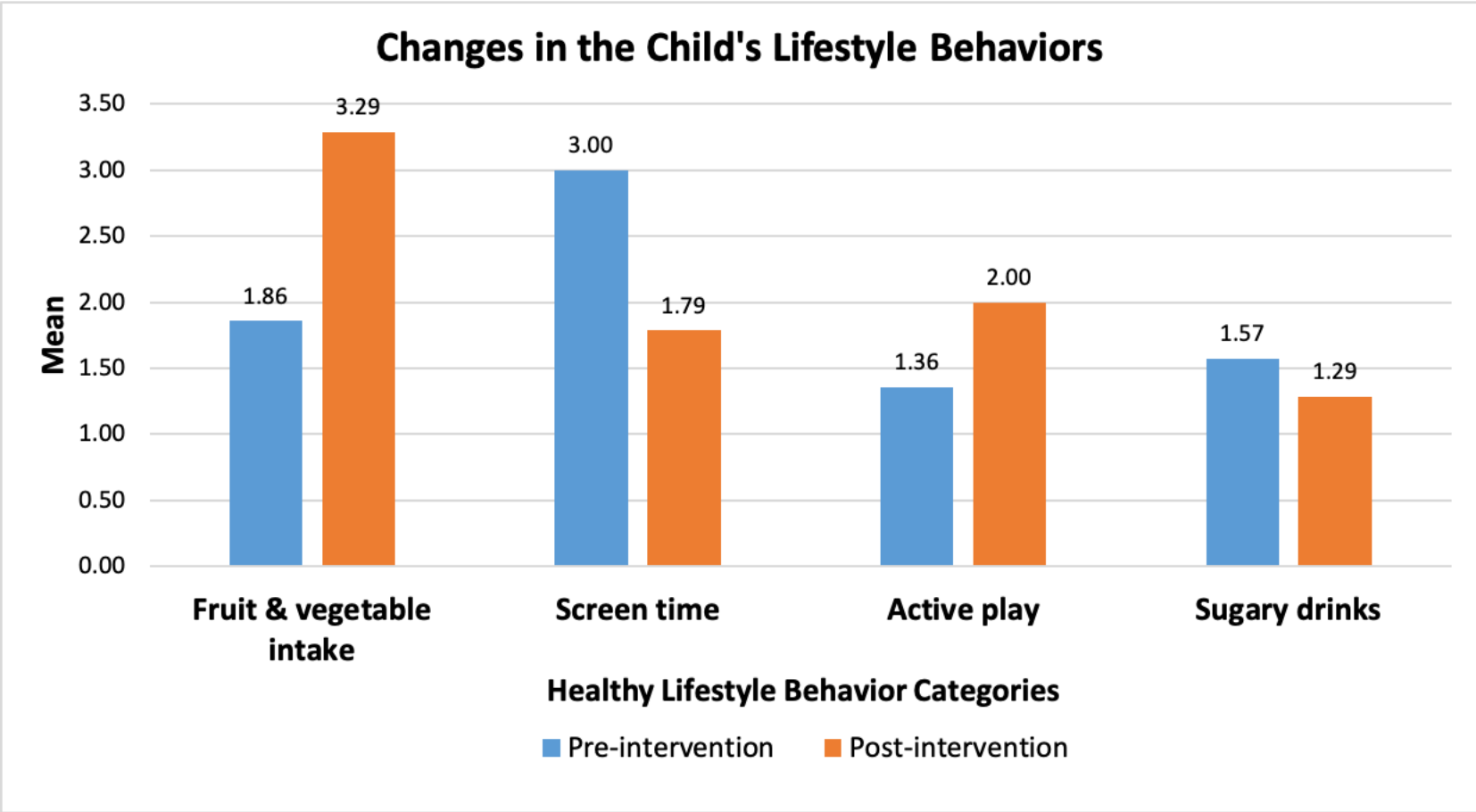
BEHAVIORAL CHANGES BAR CHART



56

APPENDIX I

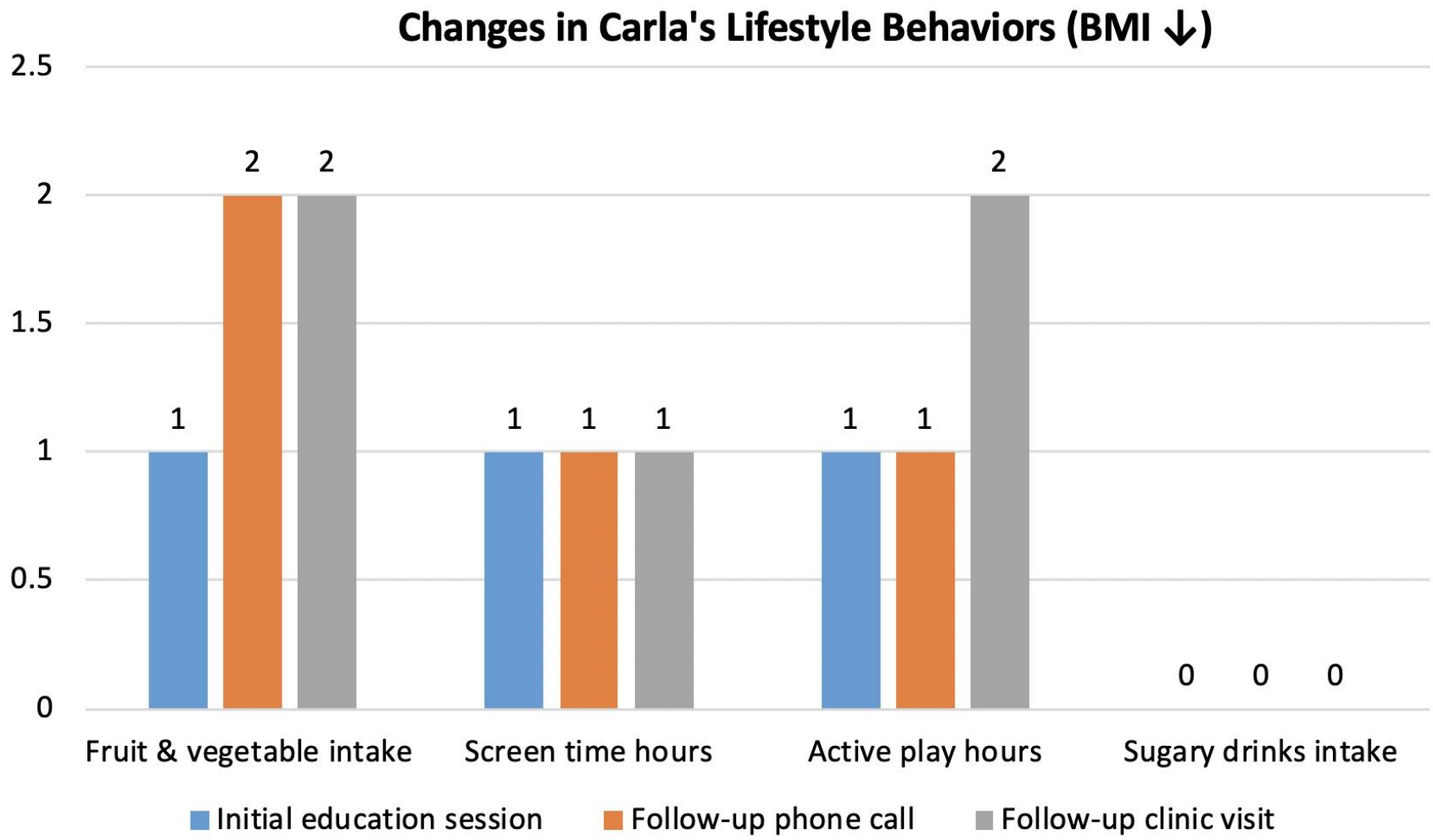
BEHAVIORAL CHANGES BAR CHART



57

APPENDIX J

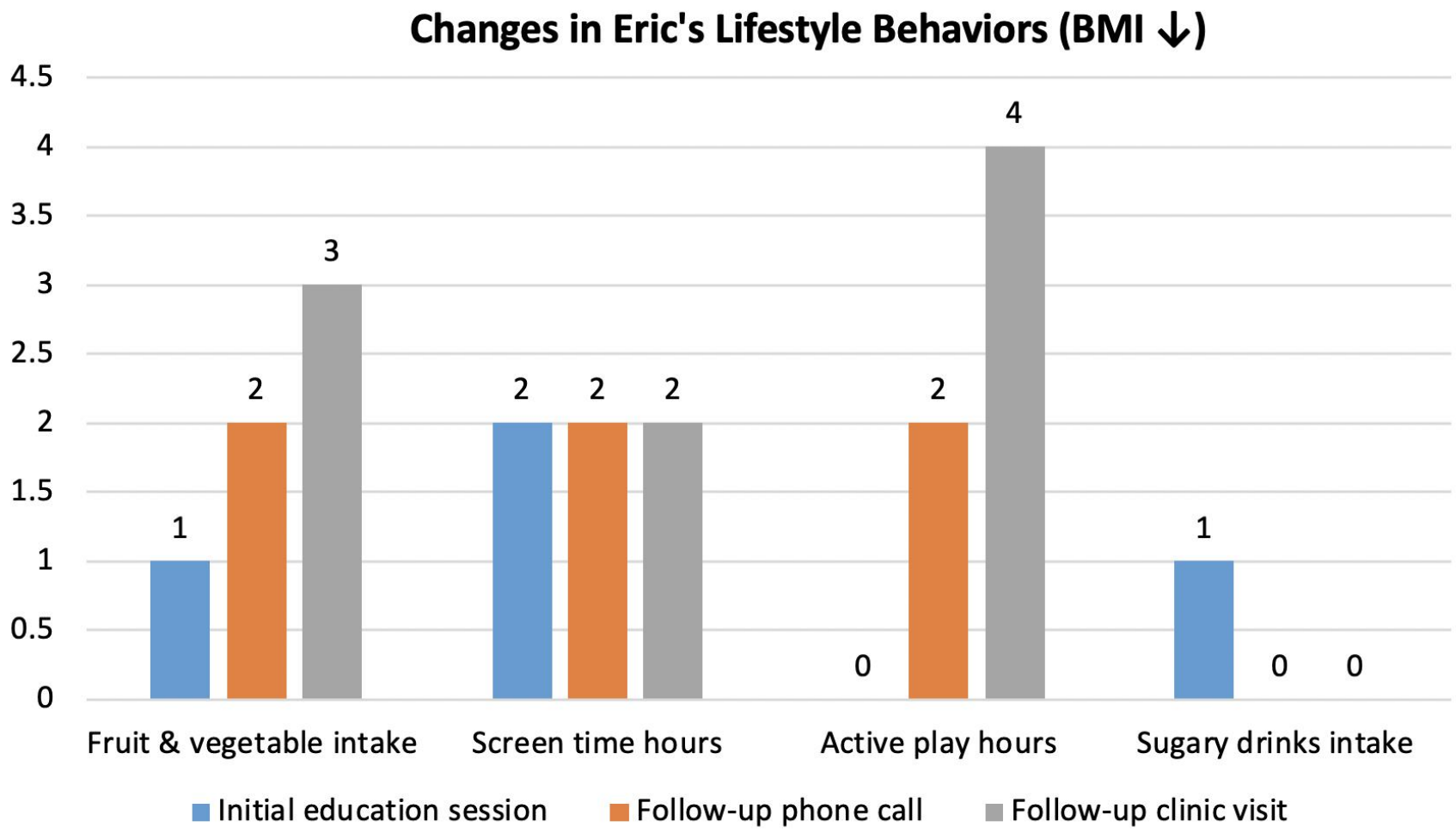
CHANGES IN CARLA'S LIFESTYLE BEHAVIORS



58

APPENDIX K

CHANGES IN ERIC'S LIFESTYLE BEHAVIORS



59

APPENDIX L

CHANGES IN ANDREA'S LIFESTYLE BEHAVIORS