

PARENTAL AWARENESS OF CHILDHOOD OBESITY: A QUALITY IMPROVEMENT
INITIATIVE

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Abstract

The incidence of childhood obesity continues to rise, placing an increased risk of morbidity and mortality in adulthood. Over the years, the perceived “normal” weight increased causing a shift in parental misperceptions of their child’s actual weight (Hansen, Duncan, Tarasenko, Yan, & Zhang, 2014). Parental misperception of their child’s weight status is likely to lead to decreased motivation to address and change childhood obesity (Lundahl, Kidwell, & Nelson, 2014). Examination of parental perceptions can generate instructive information for addressing parental perceptions, increasing readiness to change, and managing the overweight and obese child. (Hansen et al., 2014). The goal of this quality improvement project was to assess parental perceptions of the overweight child and readiness to change behaviors. The project analysis revealed there remains a disproportionate number of parents who underestimate their child’s weight, as well as an association between parental perception of their child’s weight and readiness to change. This misperception is one that must be addressed to begin the process of treating and managing obesity. The results are intended to provide information to assist in increasing awareness of parents’ perceptions of their overweight child’s weight status as a starting point to the next steps towards implementing an obesity prevention and management plan.

Keywords: childhood obesity, pediatric obesity, parental perception, parental misperception, parental attitudes and behaviors, body weight, child weight, weight perception, and readiness to change

Acknowledgements

Parental Awareness of Childhood Obesity: A Quality Improvement Initiative

Chapter 1. Problem

Obesity rates have increased; approximately one-third of American children are overweight or obese (Wolfson, Gollust, Niederdeppe & Barry, 2015). The incidence of childhood obesity continues to rise placing an increased risk of morbidity and mortality in adulthood. According to the World Health Organization (2018), overweight and obese children are likely to become overweight or obese adults and develop obesity-related diseases such as diabetes and cardiovascular diseases. Consequently, obesity-related health issues remain a problem causing an increase in healthcare expenditures (Finkelstein, Graham, & Malhotra, 2014). Biro and Wien (2010) reported that nearly half of overweight adults were overweight as children. Despite heightened awareness, many parents are unable to correctly identify their child's weight status (Lundahl et al., 2014).

Childhood obesity is an unending problem in the United States placing children at risk for unfavorable health (Centers for Disease Control and Prevention [CDC], 2018). The CDC accounts for approximately 12.7 million children and adolescents being affected by childhood obesity. The CDC (2018) reported despite recent declines in obesity among preschool-aged children, the prevalence of obesity is still too high. It is estimated that overweight five- year old are four times as likely to become obese (Bonnet, George, Evans, Silberberg, & Dolinsky, 2014). Overweight and obese children are at increased risk of acquiring comorbidities, including both physical and mental ailments.

Obesity is a major preventable public health problem that is expected to increase over the years (Biro & Wien, 2010). Obesity can have unfavorable effects on a child's overall health, which may cause immediate and long-term impacts on physical, social, and emotional health

(Wolfson et al., 2015). Being overweight or obese increases a child's risk for comorbidities such as asthma, sleep apnea, bone and joint problems, Type 2 diabetes, and risk factors for heart disease. Comorbidities associated with obesity have life-long health and well-being implications. Side effects of being overweight and obese can be physical, as well as psychological. Overweight children are more susceptible to social and emotional difficulties, including social isolation, depression, and lower self-esteem and more likely to experience bullying and teasing compared to children of normal weight (Durbin, Baguioro, & Jones, 2018; Wolfson et al., 2015). Today's youth have a shorter life expectancy than their parents' generation often attributed to obesity and obesity-related health problems (Wolfson et al., 2015). Even with the known comorbidities associated with obesity, parents fail to make appropriate lifestyle changes due to incorrect perceptions of their child's weight status (Lundahl et al., 2014).

There are exponential costs associated with managing the comorbidities related to obesity. Wolfson et al. (2015) noted obesity is the second leading cause of preventable death and a major driver of climbing healthcare costs totaling more than \$147 billion annually. The lifetime direct medical costs of a 10-year-old obese child have been estimated to range from \$12,660 to \$19,630 and increase with weight gain through adulthood to estimates of \$16,319 to \$39,080 (Finkelstein et al., 2014). Reducing childhood obesity is paramount to better long-term health and financial outcomes and begins with early identification and management of the overweight or obese child. Without correct parental perceptions of their child's weight, parents are unlikely to make appropriate changes to assist with the weight management of their child, which decreases long-term health outcomes and increases financial costs.

Children living in rural areas have a greater risk of being overweight or obese. (Karunanayake et al., 2016). Specifically, those residing in rural areas note a lack of resources

including healthcare facilities, exercise facilities, and access to healthy and affordable food which have an impact on obesity rates (Karunanayake et al., 2016). High-calorie diets and sedentary lifestyles essentially cause obesity and obesity-related health problems. However, there are likely barriers preventing children and their families from maintaining a healthy lifestyle, such as lack of knowledge, food costs, lack of time, lack of resources, and safety (Vittrup & McClure, 2018). Amongst these contributing factors is the discordance between a child's actual weight and the parents perceived weight status of their child.

Parents play a vital role in preventing and reducing childhood obesity by promoting a healthy lifestyle (Mintz, 2015). Karunanayake et al. (2016) highlighted the parental perceptions of their child's weight and the significance these perceptions have in the long-term health of the child and the implications for addressing preventive strategies. This misperception is one that must be addressed to begin the process of treating and managing obesity. Using this quality improvement (QI) project, the Doctorate of Nursing Practice (DNP) candidate assessed the parental perceptions of the overweight child in a small rural pediatric primary care practice. This QI project served as the initial step towards refining strategies for childhood obesity prevention and management in order to reduce the burden of childhood obesity.

Clinical Needs Assessment

A clinical needs assessment identifies the scope and potential gaps in clinical practice and health care delivery for a specific patient population. A pediatric primary care clinic (PPCC) was the setting for this QI project. The PPCC provides primary care to approximately 4,000 patients annually. The providers of the PPCC continue to identify and diagnose childhood obesity, but there remains a disproportionate number of parents who underestimate their child's weight. With no perceived problem, parents are unlikely to implement a change in lifestyle. Many patients of

the PPCC return for follow-up examinations with little to no interest to change due to parental misperceptions of their child's weight. Studies revealed the underestimation of obesity rates ranging from 27.9% to 100% (Tompkins, Seablom, & Brock, 2014). Parental misperception of their child's weight status is likely to lead to decreased motivation to address and change childhood obesity (Lundahl et al., 2014). Even with obesity rates stabilizing, the literature demonstrates a need for modification in addressing parental perceptions, increasing readiness to change, and managing the overweight and obese child. Currently, there are no standardized methods to identify parents' perceptions of their child's weight or standardized educational tools for obesity. Subsequently, any education provided may not be adequate given the lack of standardized evidence-based practice guidelines or customized plans for parents to address potential risks. Examination of parental perceptions can generate instructive information for addressing parental perceptions, increasing readiness to change, and managing the overweight and obese child. (Hansen et al., 2014). The primary goal of this QI project was to assess parental perceptions of the overweight child and readiness to change behaviors, as the initial step to reduce the burden of childhood obesity.

Parental perceptions of their child's weight play a contributory role in obesity prevention and treatment. Over the years, as the obesity prevalence increased, the perceived "normal" weight increased causing a shift in parental misperceptions of their child's actual weight (Hansen et al., 2014). Parental perceptions of their child's weight influence a parent's readiness to accept healthy behaviors (Hansen et al., 2014). In a previous study, "all parents of overweight children and 75% of parents of obese children incorrectly assumed their child was not overweight" (Vittrup & McClure, 2018, p. 83). Active participation of parents is influential and allows for better outcomes, but involvement requires an accurate perception of their child's weight.

Specific Aim

This QI project focused on assessing parental perceptions of their child's weight and readiness to change to determine best practices for obesity management. Active participation of parents is influential and allows for better outcomes, but involvement requires an accurate perception of their child's weight. While most providers assess growth and development, one-fifth of the children in the United States are overweight (Randle, Okely, & Dolnicar, 2017). The providers and staff of the PPCC have noted similar childhood obesity trends. With a diagnosis of overweight or obese, the PPCC provides parents and patients with counseling on risks of obesity and a healthy lifestyle consisting of a healthy diet and exercise. However, patients often return to the PPCC without having made the proper changes to achieve a healthy weight. With no perceived problem, parents are unlikely to make the necessary changes for a healthy lifestyle. Education on risks, prevention, and management of obesity are insufficient without addressing parental misperceptions of their child's weight. Correct parental perception of their child's weight and motivation to change is considered the first step in the treatment of overweight and obese children (Randle et al., 2017). There is a substantial need for system-wide improvement in the management of childhood obesity.

This project aimed to evaluate and understand how parents perceive their child's weight status. This project will in turn help find solutions to improve obesity management and health outcomes based on a better awareness of parents' perceptions. Overall, the goals were to (a) assess parental perceptions, (b) determine readiness for change for healthy weight management, and (c) introduce evidence-based healthy lifestyle management strategies.

Background and Clinical Significance of Proposed Project/Intervention

The United States Department of Health and Human Services identified various areas of focus to endorse health and reduce the risk of chronic disease. Amongst the topics of discussion were nutrition and weight. The rise in obesity has caused serious health and cost consequences. The incidence of childhood obesity continues to steadily rise, which places an increased risk of morbidity and mortality in adulthood. Identifying and addressing parental misperceptions of their child's weight status is fundamental to combat childhood obesity and obesity-related problems.

For the overweight or obese child, parents are an instrumental factor for treating and managing obesity (Gorin et al., 2014). Throughout childhood, parents and guardians are accountable for providing food options and are also responsible for their child's environment, including activities (Adamo & Bret, 2014). Parental misperceptions of the overweight child's weight status affect a parents' willingness and ability to incorporate healthy lifestyle changes before their child becomes overweight and develops obesity-related health issues (Vittrup & McClure, 2018). Parental failure to correctly recognize the weight status of their child is one reason for the substandard results of pediatric obesity prevention and management (Hansen et al., 2014). To start addressing childhood obesity, it is important to explore parental perception and attitude toward their child's weight status.

To combat obesity and obesity-related problems, it is essential to understand how parents think about their child's weight status. As a result, assessing and understanding the knowledge and opinions of parents is an important step in refining strategies for childhood obesity prevention and management (Vittrup & McClure, 2018). A thorough assessment of a family's attitudes and perceptions provides insight into the most effective way to implement obesity prevention and intervention efforts. Understanding and addressing the discordance between a

child's actual weight and perceived weight may increase a parent's willingness to participate in their child's weight management actively. Healthcare providers in the primary care setting are in an optimal position to remedy parental underestimates, increase readiness to change, and promote the adoption of healthy habits (Lundahl et al., 2014).

Study Question

In parents of children with a body mass index (BMI) 85% or greater, what are the perceptions of parents towards their child's weight in a pediatric clinic in rural Texas? Parental perceptions will guide the next steps in determining readiness for change and introducing evidence-based healthy lifestyle management plans.

Problem Statement

In previous studies, parental misperceptions are recognized as a contributory factor to childhood obesity (Gorin et al., 2014). However, the significance of exploring parental perceptions has been underestimated. Many parents fail to accept that their child is overweight and at increased risk for secondary chronic diseases (Gorin et al., 2014). Foster and Hale (2015) found that parental weight misperceptions influence lifestyle behaviors and weight outcomes. This poses an immediate threat to the health of the overweight child and leads to lifelong health disparities. Foster and Hale (2015) emphasize understanding the parent's perception of their child's weight to help guide counseling and education. While routine well exams are an opportunity to foster healthy growth and development, quality gaps remain with identifying and addressing parental misperceptions of the overweight child and effective weight management.

PICOT Statement

Among parents of children aged 3 to 12 years old with a BMI of 85% or greater, does understanding parental perception of their child's weight increase a parent's readiness to change toward a healthy lifestyle management?

- Population (P)–Parents of children aged 3 to 12 years old with a BMI of 85% or greater
- Intervention (I)–Understanding parental perceptions of their child's weight to inform next steps in readiness for change and healthy lifestyle management
- Outcome (O) are three-fold –
 1. Assessing parental perceptions
 2. Determining readiness for change for healthy weight management
 3. Introduction of evidence-based healthy lifestyle management strategies guided by parental perceptions and readiness for change for healthy weight management

Purpose and Objective

The purpose of this QI project was to assess the parental perceptions of the overweight child and effectiveness of a process change by addressing parental perceptions. The objectives of this project were to (a) assess parental perceptions, (b) determine readiness for change for healthy weight management, and (c) introduce evidence-based healthy lifestyle management strategies guided by parental perceptions and readiness for change for healthy weight management. A thorough examination of parental perceptions can generate instructive information for refining strategies for childhood obesity prevention and management (Hansen et al., 2014). The primary goal of this QI project was to assess parental perceptions of the overweight child and readiness to change behaviors, as the initial step to reduce the burden of

childhood obesity. Also, participants were interviewed and provided with an introduction to evidence-based healthy lifestyle management strategies based on their readiness to make healthy lifestyle changes.

Chapter 2. Review of Literature

Background

Despite increases in awareness of childhood obesity, the prevalence is a growing problem in many countries. Parents and guardians are responsible for the growth and development of their child, but many parents inaccurately perceive their child's weight status. With no perceived problem, parental misperception of their child's weight status likely will decrease a parent's ability to intervene and prevent obesity-related health issues (Vittrup & McClure, 2018). With childhood obesity increasing morbidity, mortality, and healthcare costs, it is imperative to review, understand, and manage parental perceptions closely to prevent and reduce childhood obesity. With this quality improvement (QI) project, the Doctorate of Nursing Practice (DNP) candidate assessed the parental perceptions of the overweight child to determine the necessity of a process change for obesity management and introduce evidence-based healthy lifestyle management guided by parental perceptions and readiness for change for healthy weight management. The literature review contained research evidence on parental perceptions and its influence on readiness to change, as well as potential weight management strategies.

Literature Review and Search Process

This DNP candidate conducted a literature review to evaluate current and previous research on parental perceptions of the overweight child. Using Texas Woman's University electronic library and Google Scholar, the DNP candidate performed a literature review to identify the parental perceptions of the overweight child. Keeping in mind the question that serves as the focus of this QI project: In parents of children of children 3 to 12 years old with a BMI 85% or greater, what are the perceptions of parents towards their child's weight in a

pediatric clinic in rural Texas?. Parental perceptions will guide the next steps in determining readiness for change and introducing evidence-based healthy lifestyle management plans.

A literature review on parental perceptions of the overweight child produced studies related to parental perceptions, parental knowledge and attitude, effective communication, parenting styles, and weight management programs. In this project, the DNP candidate emphasizes consideration of understanding parental perceptions of their child's weight. Most of the data on this topic was from cross-sectional studies, longitudinal studies, systematic reviews, and randomized controlled trials. Of the articles identified, the DNP candidate analyzed approximately 200 articles. Numerous articles failed to meet the inclusion criteria and were excluded due to the following reasons: parental perception of nutrition status was assessed, parental perceptions of weight were not reviewed, and articles discussing parenting styles, feeding styles, feeding practices, weight management programs. The remaining articles were further refined by using the inclusion criteria. The inclusion criteria included the following subjects or themes: childhood obesity, pediatric obesity, parental perception, parental misperception, parental attitudes and behaviors, body weight, child weight, weight perception, and readiness to change. Of the articles that met the inclusion criteria, several were not considered for this literature review due to small sample size or unfavorable results that failed to support this QI project. Overall, the themes of the included articles consist of pediatric obesity, prevention, the role of the primary care provider, the role of parents, and barriers to treatment of childhood obesity.

The electronic databases queried included CINAHL, Cochrane Review, EBSCOhost, Psychology and Behavioral Sciences Collection, PsychInfo, and PubMed. The search strategy involved Boolean connectors and the MESH terms or combinations of childhood obesity,

pediatric obesity, parental perception, parental misperception, parental attitudes and behaviors, body weight, child weight, weight perception, and parent readiness. The DNP candidate entered the search terms in various combinations to yield a comprehensive search. Search results were limited to articles from January 2014 through 2018. The DNP candidate considered evidence from a variety of sources including research trials, observational studies, longitudinal reviews, peer-reviewed journal articles, meta-analysis reviews, randomized controlled trials, and systematic reviews.

Additional literature identified within the related research through perusing the reference lists included studies, key articles, and previous reviews. The DNP candidate appraised articles and studies investigating parental knowledge, perceptions, and attitudes of childhood obesity and their child's weight, as well as readiness to change towards a healthy lifestyle. Those deemed most relevant were included. The DNP candidate excluded article that did not meet the above criteria or if the emphasis of the article was perceptions of parenting styles, feeding styles, feeding practices, and weight loss programs. A table outlining the synthesis of literature and levels of evidence is in Appendix A. The table reflects the types of articles found throughout the literature review, which consist of cross-sectional studies, longitudinal studies, systematic reviews, and randomized controlled trials. The articles selected are of high levels of evidence and given the high levels of evidence a selected review would be appropriate for this QI project.

Summary of the Literature

The literature review discusses the influence of parental perceptions on a child's weight. Also, the literature review provides research evidence on parental perceptions and readiness to change, as it relates to childhood obesity, and potential weight management strategies.

Brown et al. (2016) conducted a cross-sectional analysis assessing parental perceptions of infants 2-12 months old. Infants were measured at each routine well-baby visit and parents completed questionnaires regarding perceptions of their child's weight. Instead of BMI, weight-for-length (WFL) was measured. A WFL greater than 95% was considered overweight. The study included a total of 865 two-month-old infants enrolled but concluded with 563 remaining enrolled with complete growth measurements and perception data at 12 months. Of those participants remaining, 85% to 90% of infants were at a healthy WFL. Many parents perceived their infants at a healthy weight, but most parents of overweight infants failed to perceive their child as overweight (accuracy 7%-26%; $p < 0.001$). Brown et al. (2016) reported overweight mothers were more likely to underestimate their child's weight (odds ratio, 2.2; 95% confidence interval, 1.2-3.8). The researchers concluded accuracy of weight perception is lowest at 12 months of age and found to be related to parental weight (Brown et al., 2016). There remains a discrepancy in the accuracy of parental perceptions of their child's weight status. Brown et al. (2016) suggested additional research to understand how providers can maximize counseling to improve parental understanding of their child's weight status and improve healthy behaviors. This research underscores the importance of understanding parental perceptions of their child's weight status on weight management.

Karunanayake et al. (2016) conducted a study to evaluate parents' perceptions of their child's body weight among rural children. Participants were school-aged children from a rural area in Canada. Questionnaires were distributed to parents of the school-aged children. Parents were asked to report their child's height, weight, and weight status. Of the 584 participants, 307 were boys, 52.6% and 277 were girls, 47.4%. Parental perception of their child's weight was appraised using the following question: Do you consider your child to be (underweight, just

about the right weight, overweight? A total of 7.9% of children were perceived as overweight by their parents, but 26.5% were overweight based on clinical measurements. Approximately 71% of parents of overweight children inaccurately perceived their child's weight status. Factors including age, sex, and SES were associated with parents' misperceptions of their child's weight. At the conclusion of the study, the accuracy of the parent reported weight, 80%, was higher than the parental perception of weight status, 74% (Karunanayake et al., 2016). Karunanayake et al. (2016) suggested increased efforts on improving parent's perception of their child's weight status and assessment of longitudinal effects of parental misperceptions of weight status. This study supports the need for further investigation of parental perceptions to help find solutions to improve obesity management and health outcomes.

Lundahl et al. (2014) performed a meta-analysis reviewing the importance of the parental perceptions of their child's weight in obesity prevention and treatment. The researchers queried research studies from September 2012 to January 2013 with the search terms of parental, maternal, mother, father, child, overweight, obesity, weight, and perceptions. Lundahl et al. (2014) identified a total of 3,218 articles resulting in the inclusion of 76 articles. The search revealed 69 studies (representing 78 samples) reporting an underestimation of their child's weight. Overall a total of 67.5% (95% confidence interval; $p < 0.001$) of parents underestimated their overweight child's weight status (Lundahl et al., 2014). The researchers suggested pediatricians make efforts to amend misperceptions and promote the implementation of healthy behaviors.

Nemecek, Sebelefsky, Woditschka, and Voitl (2017) studied the factors associated with parental perceptions of childhood obesity. The study was conducted in a pediatric clinic with a total of 600 children. Data were collected by means of a questionnaire in which parents were

asked to report their height and weight, as well as their child's height and weight. The measured height and weight of children were compared to the parent's reported height and weight of the child. The researchers found parental BMI, parental weight ($p < 0.01$), and higher birth weight ($p < 0.001$) to be associated with childhood obesity. Of the overweight children, only 15.7% were correctly classified as being overweight or obese. Nemecek (2017) concluded that parental misperceptions of their child's weight are a major risk factor for the overweight and obese child and suggested regular measurements of children's height and weight.

In conclusion, the study results revealed the factor showing a significant influence on the correctness of parental perception was the child's weight status. To decrease misperceptions, Nemecek et al. (2016) suggested high-risk children be measured at regular intervals and screened for obesity regularly. This study highlights the significant discrepancy on the correctness of parental perceptions of their child's weight status. With such a discrepancy, there remains a need for further investigation of parental perceptions of the overweight child.

A systematic review completed by Tompkins, Seablom, and Brock (2015) investigated the accuracy of parental perception of their child's weight status. Of 782 articles identified, 13 studies met the criteria for inclusion. The studies under review revealed underestimation of obesity rate ranging from 27.9% to 100%. Tompkins et al. suggested there had been no improvement in the accuracy of parental perception of their child's weight since a similar review in 2006. Also, the systematic reviewed a lack of concern from parents of overweight children regarding their child's weight. Most of the programs addressing childhood obesity targeted physical inactivity. This systematic review strongly encouraged childhood obesity campaigns to encourage parental participation and address parental misperceptions of their child's weight. With increased awareness, parents are more likely to promote and incorporate healthy lifestyle

changes with their children. This research exemplifies the significance of understanding parental perceptions of their child's weight status on weight management.

Wills and Lawton (2015) conducted a qualitative study to explore parent's perceptions of their teenager's weight and the factors influencing weight management. The study involved two groups, one from lower socioeconomic status (SES) and the other from higher SES. Each group consisted of teenagers aged 13 to 15 years old. The adolescents completed a short screening questionnaire detailing socio-demographic information and family affluence. Height, weight, and BMI were assessed for each participant. In addition, the researchers conducted interviews with parents regarding the family's food habits and parents' views about their child's weight and general health. The findings revealed the significance between parents' concerns about their own weight and their attitude towards their teenage child's weight. Regardless of SES, the study results emphasized the importance of understanding parents' perceptions when developing family-based weight management interventions. While there is no single solution to parental misperceptions, Wills and Lawton (2015) highlight the importance of thoroughly understanding the origin of parental misperceptions and attitudes of weight. This research emphasizes the importance of understanding parental perceptions of their child's weight status to inform next steps in readiness for change and healthy lifestyle management.

Vittrup and McClure (2018) conducted a longitudinal study reviewing parental knowledge and attitudes toward childhood obesity prevention and intervention of children aged 3 to 10 years old. Participants included 205 parents of varying ages with children between 3 and 10 years of age. All participants completed a questionnaire titled Knowledge, Attitudes, and Barriers Related to Childhood Obesity. The results concluded with 100% of parents of overweight children and 75% of parents of obese children incorrectly identified their child as not

being overweight. Parental knowledge about healthy lifestyles varied. Most parents were unable to determine portion sizes properly. Similarly, most parents lacked knowledge of the risk factors and societal costs of obesity. Vittrup and McClure (2018) concluded that parental support is important for the prevention and intervention of childhood obesity. The study recommended medical and nursing professionals provide increased guidance through education about healthy eating, exercise, health risks, and societal costs.

Hansen et al. (2014) conducted a study which investigated parental perceptions of their child's weight. Data collected in the NHANES 1988-1994 and 2005-2010 was reviewed. Parents of children ages 6 to 11 years were queried whether they considered their child overweight, underweight, or just about the right weight. From 1988-2010, there was a 24% decline in the probability of weight status being appropriately perceived by parents. The results concluded that there is an increasing tendency for parents to misperceive the overweight child's weight, which may be an indication of a generational shift in social norms related to body weight. The study recommends primary care providers target parental recognition of their child's weight. In addition, the study recommends health care providers identify and notify parents of their child's weight and provide evidence-based interventions. This study supports the need for further investigation of parental perceptions to help find solutions to improve obesity management and health outcomes.

Rhee, McEachern, and Jelalian (2014) conducted a cross-sectional study to examine the factors associated with parental readiness to changes to help their overweight child lose weight. The purpose of this study was to identify parents who were actively making changes for their overweight child and determine what factors were associated with readiness to make eating and physical activity changes. In this study, 202 parents of overweight/obese children answered

questions assessing their stage of change, beliefs about child health and weight, and provider behaviors. More than 60 were in the action/maintenance stage of change for dietary behaviors, while only 40% were in the action/maintenance stage for physical activity. Factors affecting parent readiness included provider involvement, parental weight, and parental perception of their child's weight. This study concluded that parents could be in different stages of change for assisting their child in modifying lifestyle behaviors. Rhee et al. (2014) suggest training for providers around useful behavioral strategies and motivational interviewing skills. In addition, registered dietitian and nutritionists or health educators in the primary care setting to engage families and increase readiness to make lifestyle changes. Lastly, the study suggests additional attention to whether parents view their child's weight as a health problem. This research emphasizes the importance of understanding parental perceptions of their child's weight status to inform next steps in readiness for change and healthy lifestyle management.

Foster and Hale (2015) conducted a cross-sectional study to explore the relationship between parental perceptions of their child's weight and their health beliefs and practices. Interviews were conducted with parent-child dyads in a primarily Hispanic, low-income population. In this study, 40 parents of overweight/obese children answered questions assessing parental perceptions of their child's weight and their health beliefs and practices. Most (58%) parents of overweight children failed to correctly classify their child's weight status. The results showed that accurate perception of weight was associated with inner motivation. Foster and Hale suggest there may be various populations at different stages of readiness for change towards a healthy lifestyle, incorporating this understanding should be considered for interventions in the prevention and management of childhood obesity.

The literature review conducted demonstrated there remain gaps with identifying and addressing parental misperceptions of the overweight child and effective evidence-based weight management. The literature review proved there is a need for further exploration of parental perceptions and its influence on readiness to changes, as well as potential weight management strategies.

Synthesis of Literature

Throughout the literature review, there were several reoccurring themes. The aforementioned MESH terms yielded a variety of articles regarding parental perceptions of the overweight child. The articles which met inclusion criteria produced similar themes, such as pediatric obesity, prevention, the role of pediatric primary care provider, roles of parents, and barriers. The consistent themes are valuable factors to consider in this QI project and should be explored to provide information and strategies to assist in the identification of obstacles and challenges to implementing an obesity management plan particularly from the perspective of parental perception and readiness for change.

Childhood/Pediatric Obesity. There are several ways to determine a child's weight status. Often in the primary care setting, the healthcare professionals review the height, weight, and body mass index (BMI) and growth charts for each with patients and parents. Body mass index is a measure used to determine a child's weight status. The CDC defined overweight as a BMI at or above the 85th percentile and below the 95th percentile for children and teens of the same age and sex and obesity as a BMI at or above the 95th percentile for children and teens of the same age and sex (Tompkins et al., 2015). To obtain a child's BMI, it is calculated by dividing the child's weight in kilograms by the square of the child's height in meters. Due to the

difference in body composition, a child's BMI is determined using an age- and sex-specific percentile for BMI rather than the BMI categories used for adults (CDC, 2016).

Prevention. Several studies have mentioned the importance of early identification of high-risk individuals to decrease the risk for comorbidities associated with obesity. Obesity is a complex disorder and there are various causes including genetics, behavioral, and hormonal influences. Research supports prevention and early identification of childhood obesity to improve health outcomes (Biro & Wien, 2010). Brown et al. (2016) suggested counseling regarding feeding behaviors starting in infancy. The study emphasized discussing feeding behaviors, especially in the first year of life, including portion sizes (Brown et al., 2016). Robinson and Sutin (2016) recognized the significance of health promotion and physical activity programs in raising awareness and promoting healthy behaviors to prevent childhood obesity. There are a variety of prevention options, but participation is influenced by the parent's perception of their child's weight (Tompkins et al., 2015).

Roles of Primary Care Providers (PCP). Pediatric PCPs could empower patients and families to maintain a healthy lifestyle by establishing rapport with patients and their families. Developing a good rapport with patients and families is likely to increase compliance and improve health outcomes. With routine well exams occurring at regular intervals, PCPs recognize well child checks as an optimal time to foster healthy growth and development (Bonnet et al., 2014). With routine visits, providers can focus on fostering positive changes in patients and families to achieve a healthy weight.

To address childhood obesity, parental misperceptions must be addressed with sensitivity, effective communication, and adequate follow up. The pediatric PCP is an influential factor to resolve parental misperceptions, encourage healthy lifestyle changes, and "increase the chances

that parents will take the steps necessary to optimize the health of their children” (Lundahl et al., 2014, p. 700). According to Vittrup and McClure (2018), parents expressed the need for support and suggested more time at well-child visits without additional costs. Rhee et al. (2014) report providers are an important source of information and support for behavior change and advise providers to engage with parents and help them reach the action stage of change. Throughout the routine visits, this is an opportune time for PCPs to conduct motivational interviewing techniques with the child, parents, and caregivers to promote positive change. The use of motivational interviewing helps identify barriers towards a healthy lifestyle such as time and financial constraints, fear of injury, marital constraints, safety, and or other medical conditions (Durbin et al., 2018). The PCP plays an integral role in educating and equipping parents with the knowledge required to prevent and manage childhood obesity.

Role of Parents. A consistent theme throughout much of the literature is the role of parents of the overweight child. Vittrup and McClure (2018) have deemed parents responsible for the socialization of their children including eating behaviors, exercise habits, and attitudes toward food and exercise. In this study, the researcher characterized parents as providers, environmental gatekeepers, and role models. In addition, Vittrup and McClure recognized parental choices are influential to their children’s habits with food and exercise. In this same study, “parents regarded themselves as being the most responsible in addressing the problem of childhood obesity” (Vittrup & McClure, 2018, p. 84). Rhee et al. (2014) emphasize the importance of a parent’s readiness to make lifestyle changes to assist and support their children in weight loss. Even with parents accepting responsibility for their child’s weight, there remains the barrier of weight misperception to confront to ensure consistent compliance.

Barriers. The importance of understanding how barriers influence obesity prevention and intervention was evident in most articles. Obesity and obesity-related health problems are essentially caused by high-calorie diets and sedentary lifestyles but can be associated with a variety of barriers. The barriers preventing children and their families from maintaining a healthy lifestyle include lack of knowledge, food costs, socioeconomic status (SES), lack of time, lack of resources, and safety (Vittrup & McClure, 2018). Also, parental weight status was noted as a barrier to consider when approaching childhood obesity. In addition, Rhee et al. (2014) include parental fears and lack of parental confidence as barriers to readiness to make lifestyle changes. The aforementioned barriers are important to address in understanding parental perceptions of their child's weight regarding childhood obesity and increasing health promotion.

Summary of Chapter 2

Research evidence from searching, selecting, and appraising the literature demonstrates a need for modification in addressing parental perceptions, increasing readiness to change behaviors, and weight management of the overweight and obese child. With increasing obesity rates and the discrepancy of parental perception of their child's weight status, there is a substantial need for a system wide improvement in the prevention and management of childhood obesity. Results are intended to improve strategies to assist in the identification of obstacles and challenges to implementing an obesity prevention and management plan. The current project was necessary to develop and provide solutions to facilitate the implementation of an evidence-based weight management plan. The findings from this QI project were used to improve clinical practices in the prevention, treatment, and management of childhood obesity. This QI projects focused on improving the assessment of parental perceptions of the overweight and obese child's weight and determine the necessity of a process change for obesity management by addressing

parental perceptions. By understanding parental perceptions of their child's weight, an important step in addressing childhood obesity, the future goal is to increase readiness to modify unhealthy behavior through motivational interviewing.

Chapter 3. Method

The purpose of the quality improvement (QI) project was to assess the parental perceptions of the overweight and obese child's weight and determine the necessity of a process change for obesity management by addressing parental perceptions. Specifically, the DNP candidate aimed to (a) assess parental perceptions, (b) determine readiness for change for healthy weight management, and (c) introduce evidence-based healthy lifestyle management strategies guided by parental perceptions and readiness for change for healthy weight management. The outcomes and objectives of this project were measurable and documented. The results were intended to provide information and strategies to assist in increasing awareness of parents' perceptions of their overweight child's weight status as a starting point to next steps towards implementing an obesity prevention and management plan.

Setting

The project was conducted at a newly established PPCC in a rural area in Texas. The PPCC is a small personalized practice offering accessible quality healthcare for children. The PPCC provides primary care to approximately 4,000 patients annually. The practice provides services including physicals, immunizations, preventive care check-ups, chronic disease management, sick visits, and referrals to specialty clinics. The providers of the PPCC, two pediatric nurse practitioners (PNPs), care for children and adolescents; newborn through 20 years of age. The personnel in this setting who were involved in direct patient care and assisted with the project include the PNPs and medical assistants. According to the healthcare team at the PPCC, this practice, like many others has seen a rise in overweight and obese children. The providers of the PPCC continue to identify and diagnose childhood obesity, but there remains a disproportionate number of parents who underestimate their child's weight.

Sample and Data Collection

With the following PICOT question: Among parents of children aged 3 to 12 years old with a BMI of 85% or greater, how does an awareness of parental perception of child's weight influence parental readiness to change toward healthy lifestyle management? The inclusion criteria for this QI project consisted of parents of patients aged 3 to 12 years old with a BMI of 85% or greater identified within the specified period. PPCC's patient population consists of approximately 65% Caucasian, 20% Hispanic, and 15% African American. Exclusion criteria consisted of parents of patients less than 3 years old, patients aged 12 years or older, and patients with a BMI of less than 85%. The population in this project were current patients of the PPCC who presented for routine well examination which have been previously identified as obese or overweight in their electronic medical record (EMR). Routine well exams occur at regular intervals and are an opportune time for PCPs to assess weight and parental perceptions (Bonnet et al., 2014). Prior to a routine well office visit, parents of patients with a documented elevated BMI who meet criteria were contacted by the DNP candidate to recruit participants, explained the project, and obtained verbal consent. The explanation included the reason their child has been selected, the purpose of the project, length of the project, and the method in which the project will be conducted. If the parent agreed to participate, they were asked to come 15 minutes early to their scheduled appointment. In this QI project, the DNP candidate used a mixed methods approach to explore parental perceptions of their child's weight, which consisted of a completed questionnaire and interview techniques. This project will guide the next steps in determining readiness for change and introducing evidence-based healthy lifestyle management plans.

To protect data privacy and security in accordance with the Health Insurance Portability and Accountability Act (HIPPA), patients and their parents were not identified. To de-identify participants, each participant was assigned a number for their respective data. For safety and security purposes, all collected data was stored on an encrypted USB drive and kept by this DNP candidate. Demographics and weight status were extracted from the EMR, as well as data was obtained from the questionnaire and interviewing process. Copies of questionnaires were saved on the encrypted USB drive. Data was compiled in an Excel document and later extracted into Statistical Package for the Social Sciences (SPSS) for statistical analysis. Data was accessible to the DNP candidate, the DNP candidate's chair faculty, and the DNP candidate's co-chair faculty.

Statistical Analysis Plan

Statistical analyses were conducted using SPSS (IBM SPSS Statistics for Windows). The selected questionnaire contains items on age, gender, birth weight, mode of delivery (caesarian section, vaginal delivery) or birth complications, preterm birth, number of siblings and how long children have been/were breastfed, patient's estimated weight, patient's estimated height, patient's estimated weight status, parental weight, and parental height. The following variables were evaluated descriptively for statistical testing: age, gender, BMI, patient's estimated weight status, father's weight status, mother's weight status, and level of readiness to change.

Descriptive analyses were completed using frequencies, measures of central tendency, and variability. A correlation analysis to examine the relationship between parental estimation of their child's weight status and parental readiness to change was conducted. An a priori power analysis was conducted using G*Power 3.1.9 to determine the minimum sample size required to find statistical significance using Pearson's correlation analysis. With a desired level of power set at .80, an alpha (α) level at .05, and a moderate effect size of .30 (ρ), it was determined that a

minimum of 84 participants would be required to ensure adequate power (Cohen, 1988). Parental perceptions guided next steps in determining readiness for change and introducing evidence-based healthy lifestyle management plans.

Characteristics that Influence Improvement

An accommodating institution and ancillary staff are essential for the success of any QI project. PPCC values quality care, patient safety, and improving patient health outcomes and offers support to research and QI projects. According to the healthcare team at the PPCC, this practice, like many others has seen a rise in overweight and obese children. The providers of the PPCC continue to identify and diagnose childhood obesity, but there remains a disproportionate number of parents who underestimate their child's weight. Considering the prevalence of childhood obesity and the impact of parental perceptions on the overweight child, the PNPs of PPCC are receptive to exploring parental perceptions of the overweight child and its effects on readiness to implement healthy lifestyle behaviors.

Project Aim

Quality gaps remain with identifying and addressing parental misperceptions of the overweight child and effective weight management. Considering the complexity of childhood obesity, this project serves as the initial step towards discovering and implementing solutions to improving the prevention and management of childhood obesity. The providers and staff of the PPCC have noted childhood obesity trends similar to national trends. With a diagnosis of overweight or obese, the PPCC provides parents and patients with counseling on risks of obesity and a healthy lifestyle consisting of a healthy diet and exercise. However, patients often return to the PPCC without having made the proper changes to achieve a healthy weight. A thorough examination of parental perceptions and assessing readiness can generate instructive information

for refining strategies for childhood obesity prevention (Hansen et al., 2014). The selected questionnaire provided pertinent information on parental perceptions and contributory factors toward obesity. In conjunction with the questionnaire, motivational interviewing provided additional information on perceptions and readiness to change. Determining readiness for change provided guidance in developing the most appropriate intervention based on the participants level of motivation. The primary goal of this QI project was to assess parental perceptions of the overweight child and readiness to change behaviors, as the initial step to reduce the burden of childhood obesity. In addition, a randomly selected small sample of participants was interviewed and provided with an introduction to evidence-based healthy lifestyle management strategies.

Planning of the Intervention and its Components

The aims of this QI project were to (a) assess parental perceptions, (b) determine readiness for change for healthy weight management, and (c) introduce evidence-based healthy lifestyle management strategies guided by parental perceptions and readiness for change for healthy weight management. To implement this QI project, this DNP student discussed the planned interventions with the academic mentor, the professional mentor at PPCC, and the data extractor.

Study Design and Approaches for Implementation

This QI project was conducted over a one-month period in the PPCC. Throughout the project, information was posted in the lobby of the PPCC to inform and invite parents to participate in the project. The information posted explained the purpose of the project, length of the project, the method in which the project will be conducted, and assured parents their child's care would not be affected based on their responses. A copy of the information to be posted is in Appendix B.

All parents of children with a scheduled routine well examination during the time of the project were asked to participate. Parents may participate, but information for participants who do not meet criteria for this project was not be included in the statistical analysis. Upon arrival for their scheduled appointment, a script was used to inform parents of the project, which included the purpose of the project, length of the project, the method in which the project was conducted, and assured parents their child's care would not be affected based on their responses. A copy of the script is in Appendix C. Once the parent verbally agreed to participate, the DNP candidate reviewed and obtained informed consent from the parents. Parents were required to sign an informed consent acknowledging that they have the right to withdraw from participation at any time. A copy of the informed consent is in Appendix D.

In this QI project, the DNP candidate used a mixed method approach to explore parental perceptions of their child's weight, which consisted of a completed questionnaire and interview techniques. Data collection began with the administration of the selected questionnaire related to parental perceptions. In this project, there was the distribution of a questionnaire to agreeing participants to evaluate parental perceptions of their child's weight. Parents were encouraged to answer based on their perceptions. At routine well-child examination visits, participants were asked to complete the parental perceptions questionnaire selected by this DNP candidate based on the literature review and topic of interest. A copy of the questionnaire is in Appendix E. Permission to use the questionnaire is in Appendix F. The selected questionnaire was completed by participants independently and included questions about birth history, actual and perceived body weight of the child, parental weight, and parental education level. The variables considered

for this data analysis included (a) age, (b) height, (c) weight, (d) BMI, (e) gender, (f) parental perception of the patient's weight, and (g) parental estimation of both parent's weight.

The selected questionnaire was developed and reported in a study to analyze parental perceptions of the overweight child. Nemecek et al. (2017) developed and used this questionnaire in a pediatric clinic with a total of 600 children to study the factors associated with parental perceptions of childhood obesity. The questionnaire contains items closely associated with excess weight including socioeconomic status (SES), birth weight, mode of delivery (caesarian section, vaginal delivery) or birth complications, preterm birth, number of siblings and how long children have been/were breastfed. Socioeconomic factors can be indicative of barriers preventing children and their families from maintaining a healthy lifestyle, such as lack of knowledge, food costs, lack of time, lack of resources, and safety (Vitrup & McClure, 2018). In addition, SES, gestational age, birth weight, and length of breastfeeding are related to early childhood weight gain (Fuemmeler, Lovelady, Zucker, & Østbye, 2013). Children born by caesarean section are at increased risk for obesity than compared to those born by vaginal delivery (Nemecek et al., 2017). In addition, parents were also asked to indicate their height and weight, estimate the height and weight of their child, and estimate children's weight status as "underweight," "normal weight" or "overweight." Parental weight status is another important risk factor for childhood obesity (Fuemmeler et al., 2013). The odds of childhood obesity are increased with a single or even both parents being overweight or obese (Nemecek et al., 2017).

Nemecek et al. (2017) designed the questionnaire specifically for their study. There was no previous use or validation of the tool. However previous studies and research were used to assist with selecting pertinent content for the questionnaire. Since there was no prior use or validation of the tool, this DNP candidate asked two experts in pediatric primary care to review

the questionnaire and give feedback regarding the questionnaire. The two experts included a pediatrician and pediatric nurse practitioner. After reviewing the questionnaire, the content and its relevance to this QI project was discussed. The two experts agreed the content was appropriate and sufficient for assessing parental perceptions of their child's weight.

After completion of the questionnaire, the completed questionnaire was given to this DNP candidate for review. Next, measurements of the patients included height, weight, and BMI. Height was measured using a fixed tape measure with patients standing in socks on a hard floor. Weight was measured using a calibrated scale with patients in socks. Using clinical measures of weight and height, BMI was calculated based on the equation of $BMI = \text{weight (kg)} / \text{height (m)}^2$. Measurements were reviewed by providers with parents. For patients aged 3 to 12 years old with a BMI of 85% or greater, the provider reviewed obesity facts, causes, risks, and appropriate plan of care with patients and parents.

In addition, the DNP candidate conducted motivational interviewing with participants to determine readiness for change for healthy weight management and introduce evidence-based healthy lifestyle management strategies. The use of motivational interviewing helps identify barriers towards a healthy lifestyle such as time and financial constraints, fear of injury, marital constraints, safety, and or other medical conditions (Durbin et al., 2018). The process included open-ended questions and discussion to assess the relationships between stages of change as it relates to readiness for change towards a healthy lifestyle. Along with knowledge of parental perceptions, assessing readiness to change can generate instructive information for refining strategies for childhood obesity prevention (Hansen et al., 2014). Hansen et al. recommend primary care providers target parental recognition of their child's weight.

Assessing readiness to change is a contributory factor to childhood obesity management and promotes behavior change in individuals who need to modify their lifestyle (Ceccarini, Borrello, Pietrabissa, Manzoni, & Castelnuovo, 2015). Based on the motivation level, participants were categorized using the stages of change defined in the TTM. The model is a theoretical framework for determining readiness to change and defines the stages and processes of change (Ceccarini et al., 2015). The stages of change of the TTM include Precontemplation, Contemplation, Preparation, Action, and Maintenance. To determine the stage of change, participants will be asked the following questions:

1. Have you thought about doing anything to lose weight?—Pre-contemplation
2. Are you currently thinking about doing anything to lose weight?—Contemplation
3. Have you made any plans to start losing weight?—Preparation
4. Are you actively trying to lose weight?—Action
5. Are you trying to maintain your weight after weight loss?—Maintenance

The stage of change will guide the next steps in planning and implementing interventions for weight management. Once a stage of change was determined, participants in the Pre-Contemplation and Contemplation stage received in-depth education on the effect obesity can have on their child's overall health. While participants in Pre-Contemplation and Contemplation are not ready to make a commitment, it is imperative to reinforce the necessity for such a commitment towards a healthy lifestyle. A pamphlet outlining the risks of obesity was given to participants in the Pre-Contemplation and Contemplation stage. A copy of the pamphlet is in Appendix G. Participants in the Preparation and Action stages are motivated to change and require specific guidance for further steps. There was additional counseling on appropriate evidence-based balanced diet and exercise plans for the patient. To assist participants motivated

to change, a pamphlet was provided with diet and exercise education, as well as community resources to assist with implementation of the healthy lifestyle plan. A copy of the pamphlet is in Appendix H. In addition, these participants were scheduled for a follow-up visit in 1 week to provide further education and counseling on healthy lifestyle changes to support their decision to change. This project supports the need for further investigation of parental perceptions to help find solutions to improve obesity management and health outcomes.

Timeline of Phases

1. In September 2018, the initial meeting with the academic chair and co-chair was held, the topic was approved, and guidance was sought from the sponsoring physician and Texas Woman's University (TWU) Center for Research and Design Analysis (CRDA).
2. In January 2019, the initial proposal of the project was completed, and the proposal was successfully defended. The QI committee reviewed the project for IRB determination.
3. In February 2019, the data collection process and the data evaluation process were initiated.
4. In March 2019, this DNP candidate completed the data collection and data evaluation.
5. In April 2019, this DNP candidate completed the manuscript formation and the final defense of this capstone project.

Project Objectives

The primary goal of this QI project was to identify parental perceptions of the overweight child and to find solutions to improve obesity management. The results from this project will be used in further planning of interventions at the site. The short term-goals from this QI project included assess parental perceptions, determine readiness for change for healthy weight management, and introduce evidence-based healthy lifestyle management strategies. The long-

term projected outcome of this project was to find innovative ways to understand parent's perceptions of the overweight child, decrease the discrepancy of perceived weight and the actual weight of the overweight child and implement best-evidence clinical practices in the treatment of childhood obesity.

SWOT (Strengths, Weaknesses, Opportunities, and Threats) Analysis

A SWOT analysis was used to evaluate the strengths, weaknesses, opportunities, and threats of a project. The SWOT analysis assisted in examining the details of the development and planning of this QI project.

The strengths of this project included the questionnaire which had been previously used to evaluate parental perceptions, which was reviewed by pediatricians and PNP's to validate content. There the current staff of the PPCC is adequately trained and will not require additional training for this QI project.

While the questionnaire was a strength, it is also a weakness due to the lack of known validity and reliability. There was no previous use or validation of the tool. However previous studies and research were used to assist with selecting pertinent content for the questionnaire. Since there was no prior use or validation of the tool, this DNP candidate asked two experts in pediatric primary care to review the questionnaire and give feedback regarding the questionnaire. After reviewing the questionnaire, the content and its relevance to this QI project was discussed. The two experts agreed the content was appropriate and sufficient for assessing parental perceptions of their child's weight. Also, the number of participants involved in the project depends on the willingness of parents to participate. Prior to a routine well office visit, parents of patients with a documented elevated BMI who meet criteria were contacted by the DNP candidate to recruit participants, explain the project, and obtain verbal consent.

Opportunities included the fact that patients will be seen in the office of PPCC at the time of the initiative. The project allowed for providers to reinforce identifying and educating parents of overweight and obese children.

Threats included the fact that patients and parents must attend scheduled appointments. To prevent missed appointments, reminder phone calls were made 24 hours before the scheduled appointment. Another threat is that parents had to be literate to complete the questionnaire. Parents who were unable to read were assisted by either reading the questionnaire or conducting an interview to obtain the information from the questionnaire. For Spanish speaking families, the questionnaire was available in Spanish. Lastly, parents must be willing to complete the entire questionnaire. A diagram of the SWOT analysis for this project can be found in Figure 1.

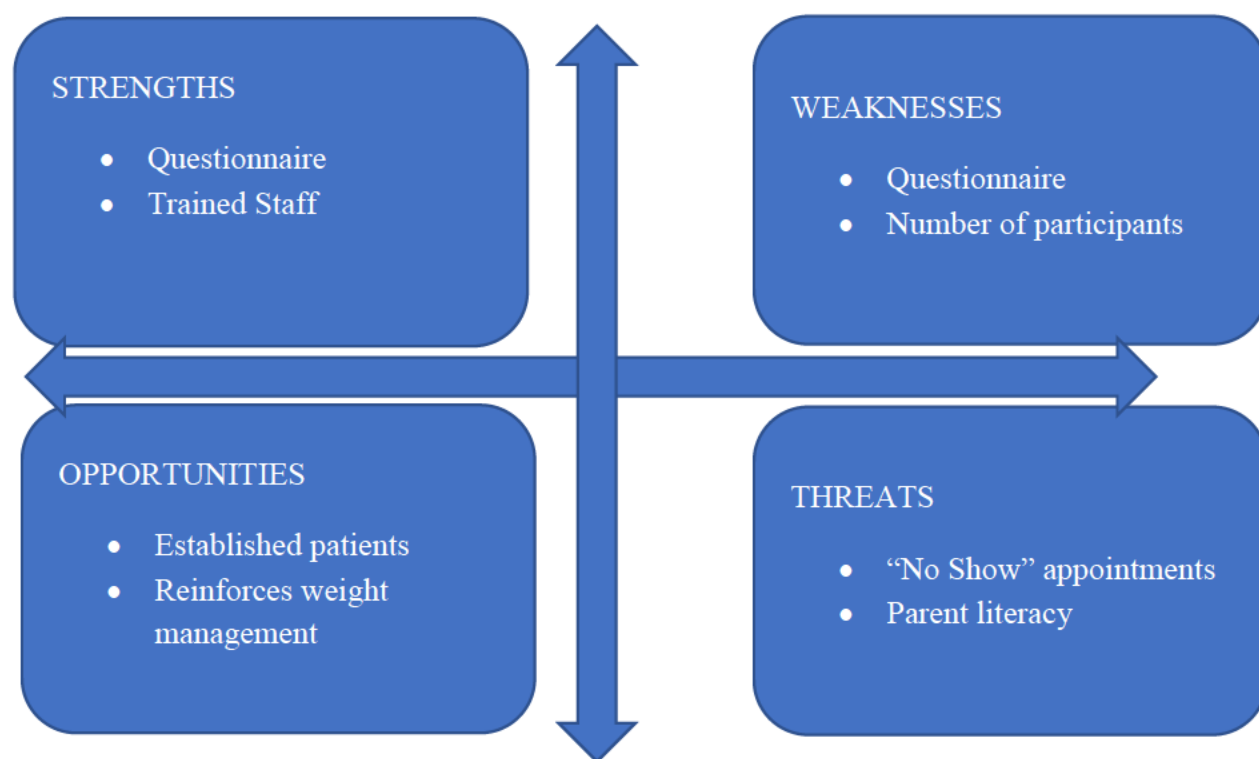


Figure 1. SWOT analysis.

Congruence of Project to Organization's Strategic Plan

The mission of the PPCC is to promote the health and wellness of the local pediatric population by providing accessible, high quality, evidence-based medical care. Moreover, the PPCC has a goal to work with families to help them make informed decisions regarding their child's journey and provide a collaborative care team that supports the patient's and family's needs. The PNP's of the PPCC have seen a rise in overweight and obese patients, but there remains a disproportionate number of parents who underestimate their child's weight. The PCP plays an integral role in educating and equipping parents with the knowledge required to prevent and manage childhood obesity. This QI project and the intervention to understand parent's perceptions of the overweight child's aligns with this organization's mission. The interventions outlined in this project are of high quality and evidence-based to promote health and wellness.

Cost-Benefit Analysis

This DNP candidate contributed the monetary funds required to implement the QI project. The budget for this QI project included resources such as information technology (computer hardware and software), physical (project materials), and time. The budget is low and included the cost of supplies, i.e., pens, questionnaires, etc., estimated at \$100.00. This DNP candidate used her own time to collect, evaluate, organize, synthesize, and analyze data. Completion of the questionnaire and the interviewing process may require a substantial amount of time and can potentially disrupt the clinic's patient flow, which in turn can have an impact on patient satisfaction or the clinic's revenue. To prevent time constraints that could potentially disrupt the clinic's patient flow, a maximum of four participants per provider per day were allowed. While the cost-effectiveness may be disputable, there are long-term cost savings and health benefits. With an improvement in childhood obesity, there is likely to be a reduction in

obesity-related comorbidities, medication costs, complications, absenteeism, and disability. With clearly defined parental perceptions, there will be more valuable evidence to determine the necessity of a process change for obesity management by addressing parental perceptions (Nemecek et al., 2016).

Guiding Framework

Model for improvement—Plan Do Study Act. The Model for Improvement-Plan-Do-Study-Act (MI-PDSA) was used as the QI tool for this project. The MI-PDSA is common amongst QI projects as a framework for accelerating improvement (Langley et al., 2009). The framework supports in developing, testing, and implementing change to improve patient outcomes (Langley et al., 2009). The MI-PDSA has two parts, which include three fundamental questions and the PDSA cycle (Langley et al., 2009). The first part of the MI-PDSA cycle include the following questions:

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What change can we make that will result in improvement? (Langley et al., 2009)

The PDSA cycle consists of four critical steps: *Plan*, *Do*, *Study/Check*, and *Act* (Langley et al., 2009). In Step 1, the *Plan* stage, the change to be tested or implemented was identified. Step 2, *Do* phase, is the implementation phase of the identified change. In Step 3, *Study* or *Check* phase, data were collected and thoroughly analyzed. Step 4, *Act* phase, consists of either the implementation of change or returning to the planning phase and revising the plan. PDSA facilitates continuous change for the improvement of patient outcomes.

This QI project is continuous and requires multiple phases of evaluations. In the *Plan* phase, this primary DNP candidate discussed the query question, objectives, and clinical needs

with the academic mentor, the professional mentor at PPCC, and the data extractor. Considering the prevalence of childhood obesity and the impact of parental perceptions on the overweight child, the team decided to study the parental perceptions of the overweight child and its effects on readiness to implement healthy lifestyle behaviors. In the *Do* phase, parents of patients aged 3-12 years old identified with a BMI of 85% or greater, who are willing to participate, will be given a baseline questionnaire to assess their perceptions. The purpose of the QI project was to assess the parental perceptions of the overweight and obese child's weight and determine the necessity of a process change for obesity management by addressing parental perceptions. The outcomes and objectives of this project were measurable and documented to validate the use of human resources. In the *Study* phase, the data collected were measured and analyzed. With the information from the previous stage, the team determined in the *Act* phase to return to the initial *Plan* phase to find innovative ways to decrease the discrepancy of perceived weight and the actual weight of the overweight child and to implement best-evidence clinical practices in the treatment of childhood obesity.

Evidence-based model—Iowa model. The Iowa model was used in this project. The Iowa model emphasizes organization and collaboration when incorporating quality care.

The Iowa seven-step model allows for a focus on knowledge and problem-focused triggers, which leads to a critical analysis of current practices (Buckwalter et al., 2017). Childhood obesity is an unending problem in the United States placing children at risk for unfavorable health (Centers for Disease Control and Prevention [CDC], 2018). Parental misperceptions have been recognized as a contributory factor to childhood obesity. However, the significance of exploring parental perceptions has been underestimated. Many parents fail to accept their child is overweight and at increased risk for secondary chronic diseases (Gorin et al.,

2014). This poses an immediate threat to the health of the overweight child and leads to lifelong health disparities. Prior to evaluation, there was no clear understanding of the parental perceptions regarding the overweight child of this pediatric primary clinic in rural Texas. The primary goal of this QI project was to identify and understand parental perceptions of the overweight child to find solutions to improve obesity management. The Iowa model has three distinct goals: (a) to ensure better patient outcomes; (b) to inform the decision, actions, and interactions; and (c) to deliver best possible care (Buckwalter et al., 2017). This model promotes continuous evaluation of best practices to ensure a high standard of quality care.

Transtheoretical model. To influence change in the treatment of childhood obesity, it is imperative to understand the driving forces for the indicated intervention. The transtheoretical model (TTM) is a theoretical framework for determining readiness to change and defines the stages and processes of change (Ceccarini et al., 2015). In addition, TTM outlines the relationships between the stages, decisional balance, self-efficacy, and relapse through the stages of change (Ceccarini et al., 2015).

The stages of change of the TTM are Pre-Contemplation, Contemplation, Preparation, Action, and Maintenance. In the Pre-Contemplation stage, individuals are not willing to change. During the Contemplation stage, individuals are considering changing their behavior and are receptive to receiving information. The Preparation stage is characterized by a commitment toward the change. In the Action stage, individuals have actively attempted to change their behavior. At this level, the risk of relapsing is rather high, since individuals are engaged in something new. Maintenance, the final stage, individuals have changed their behavior.

Assessing readiness to change is a contributory factor to childhood obesity management and promotes behavior change in individuals who need to modify their lifestyle (Ceccarini et al.,

2015). The stage of change will guide the next steps in planning and implementing interventions for weight management.

Motivational interviewing. In conjunction with other treatment modalities, MI was another approach in the treatment of childhood obesity. MI is a technique that incorporates a collaborative and goal-oriented style of communication, which is designed to strengthen the commitment towards a specific goal by exploring the person's reasons for change (Borrello et al., 2015). MI supports participants by promoting autonomy and active participation (Borrello et al., 2015). Durbin, Baguioro, and Jones (2018) agree that motivational interviewing is useful in identifying more detailed parental perceptions and barriers to weight management. In this project, MI with participants helped to determine readiness for change for healthy weight management and introduce evidence-based healthy lifestyle management strategies. Motivational interviewing serves as an important introduction to later implementing a change in behavior.

Summary of Chapter 3

Parents play a vital role in preventing and reducing childhood obesity by promoting a healthy lifestyle (Mintz, 2015). Karunanayake, et al. (2016) highlights the parental perceptions of their child's weight and the significance these perceptions have in the long-term health of the child and the implications for addressing preventive strategies. With the incorporation of the PDSA cycle, Iowa model, TTM, and MI, this QI project evaluated how parents perceive their child's weight status to find solutions to improve obesity management and health outcomes. Success in this QI project will make it possible to address parents regarding their child's weight and determine readiness for change.

Chapter 4. Results/Outcomes

Study Question

In parents of children with a body mass index (BMI) 85% or greater, what are the perceptions of parents towards their child's weight in a pediatric clinic in rural Texas? Parental perceptions will guide the next steps in determining readiness for change and introducing evidence-based healthy lifestyle management plans.

Phases of Study

The Model for Improvement-Plan-Do-Study-Act (MI-PDSA) was used as the QI tool for this project. The MI-PDSA is common amongst QI projects as a framework for accelerating improvement (Langley et al., 2009). The framework supports in developing, testing, and implementing change to improve patient outcomes (Langley et al., 2009). The MI-PDSA cycle consists of four stages: plan, do, study, and act.

Plan. During the planning stage, this DNP candidate discussed the query question, objectives, and clinical needs with the academic mentor, and the professional mentor at the PPCC. Considering the prevalence of childhood obesity and the impact of parental perceptions on the overweight child, the team decided to study the parental perceptions of the overweight child and its effects on readiness to implement healthy lifestyle behaviors. In September 2018, the initial meeting with the academic chair and co-chair was held, the topic was approved, and guidance was sought from the sponsoring physician and TWU CRDA. After further discussion, it was determined a mixed method approach would be used to explore parental perceptions of their child's weight, which consisted of a completed questionnaire and interview techniques.

Do. In the *Do* stage, team members were identified as receptionists, medical assistants, and nurse practitioners involved in the care of overweight children. In January 2019, the initial

proposal of the project was completed, and the proposal was successfully defended to conduct the project. The purpose of the QI project was to assess the parental perceptions of the overweight and obese child's weight and determine the necessity of a process change for obesity management by addressing parental perceptions. In February 2019, the DNP candidate received approval from the Internal Review Panel, and the project was deemed a QI project at the academic institution prior to the initiation of data collection or analysis. After obtaining approval, this DNP candidate began collecting data in February and March 2019 through completed questionnaires and interview techniques.

Study. The *Study* stage began in March 2019 when this DNP candidate collected, reviewed, and analyzed the data to find solutions to improve obesity management and health outcomes based on a better awareness of parents' perceptions. Data analysis was conducted with the help of the CRDA. After further review of the information obtained in the *Study* stage, the team decided to *Act* to introduce evidence-based healthy lifestyle management plans. Quality gaps remain with identifying and addressing parental misperceptions of the overweight child and effective weight management. There is a substantial need for system wide improvement in the management of childhood obesity.

Act/Plan. Based on the information obtained, parents continue to estimate their child's weight status incorrectly. With no perceived problem, parents are unlikely to make the necessary changes for a healthy lifestyle. The main limitation of this project was the small sample size. Therefore, the team planned to reevaluate the primary care weight management education and interventions. The team also considered alternate resolutions to remedy parental underestimates, increase readiness to change, and promote adoption of healthy habits. Currently, there are no standardized methods to identify parents' perceptions of their child's weight or standardized

educational tools for obesity. By making this change, parents are likely to make appropriate changes to assist with the weight management of their child, which decreases long-term health outcomes and decreases financial costs. In April 2019, this DNP completed the manuscript formation and the final defense of this project.

Ethical Implication

The DNP candidate received approval from the academic faculty for the project as quality improvement (QI) initiative. The project was deemed a QI project by the DNP academic institution. Patients' parents were asked to sign a consent prior to administering the survey and collecting data. To protect data privacy and security in accordance with the Health Insurance Portability and Accountability Act (HIPPA), patients and their parents were not identified. To de-identify participants, each participant was assigned a number. For safety and security purposes, all collected data has been stored on an encrypted USB drive and kept by this DNP candidate. Copies of questionnaires were saved on the encrypted USB drive.

Findings/Results

The aim of this project was to evaluate and understand how parents perceive their child's weight status. The research question was: In parents of children with a body mass index (BMI) 85% or greater, what are the perceptions of parents towards their child's weight in a pediatric clinic in rural Texas?

The initial statistical analysis conducted was Pearson's correlation analysis. However, because of the small sample size and interest in categorical variables an alternative test was conducted. The Chi-Square Test was conducted to find the association between the categorical values of parental perception and readiness to change. SPSS (IBM SPSS Statistics for Windows) was used for overall statistical analysis. The QI project was conducted over 1 month at the

PPCC. This DNP candidate received assistance from the CRDA with the data analysis. Initially, data were collected from the selected questionnaire and electronic medical records (ER) using Microsoft Excel and were analyzed using SPSS.

The selected questionnaire was developed and reported in a study to analyze parental perceptions of the overweight child. The questionnaire contains items closely associated with excess weight including socioeconomic status (SES), birth weight, mode of delivery (caesarian section, vaginal delivery) or birth complications, preterm birth, number of siblings and how long children have been/were breastfed. While all these factors play a contributory role in childhood obesity, in this project there was noted to be an association between parental weight status and correct identification of their child's weight status. Parents who perceived themselves as overweight were more likely to correctly identify their child as overweight. The odds of childhood obesity are increased with a single or even both parents being overweight or obese (Nemecek et al., 2017). Previous studies revealed the underestimation of obesity rates ranging from 27.9% to 100% (Tompkins, Seablom, & Brock, 2014). In the whole project population, 31.1% of the children were correctly classified as overweight by their parents, while 68.9% were incorrectly classified as average weight. This poses an immediate threat to the health of the overweight child and leads to lifelong health disparities. Foster and Hale (2015) emphasize understanding the parent's perception of their child's weight to help guide counseling and education.

Factors including age, sex, and SES were associated with parents' misperceptions of their child's weight. In addition, assessing readiness to change is a contributory factor to childhood obesity management and promotes behavior change in individuals who need to modify their lifestyle (Ceccarini, Borrello, Pietrabissa, Manzoni, & Castelnovo, 2015). Rhee et al. (2014)

emphasize the importance of a parent's readiness to make lifestyle changes to assist and support their children in weight loss. Even with parents accepting responsibility for their child's weight, there remains the barrier of weight misperception to confront to ensure consistent compliance. The following variables were evaluated descriptively for statistical testing: age, gender, BMI, patient's estimated weight status, and level of readiness to change. Descriptive analyses were completed, as well as a correlation analysis to examine the relationship between parental estimation of their child's weight status and parental readiness to change was conducted.

Descriptive Statistics

The primary goal of this QI project was to assess parental perceptions of the overweight child and readiness to change behaviors, as the initial step to reduce the burden of childhood obesity. A total of 48 children who met the criteria of children aged 3 to 12 years old with a BMI of 85% or greater were included in this analysis. Of the children evaluated, the majority were female (female 60.4%, male 39.6%) and the children had a mean age of 7.9 years. Of the overweight girls, 24% were correctly categorized as being overweight, while this rate was higher for boys (44%). Fewer boys were misperceived by their parents compared to girls, (56% vs. 76%). The number of participants was lower in this study, yielding differences in gender percentages compared to previous studies. Nemecek et al. (2016) studied the factors associated with parental perceptions of childhood obesity. The study was conducted in a pediatric clinic with a total of 600 children. The majority were male (male 52.7%, female 47.3%) and the children had a mean age of 4.66 years. A bar chart illustrating the descriptive frequencies of gender and age is in Figure 2 and 3. The relevant data can be seen in the tables below.

Table 1

Statistics-Gender

Gender	Frequency	%	Valid %	Cumulative %
Female	29	60.4	60.4	60.4
Male	19	39.6	39.6	100.0
Total	48	100.0	100.0	

Table 2

Statistics-Age

Age	Frequency	%	Valid %	Cumulative %
3	7	14.6	14.6	14.6
4	1	2.1	2.1	16.7
5	3	6.3	6.3	22.9
6	5	10.4	10.4	33.3
7	2	4.2	4.2	37.5
8	7	14.6	14.6	52.1
9	6	12.5	12.5	64.6
10	6	12.5	12.5	77.1
11	7	14.6	14.6	91.7
12	4	8.3	8.3	100.0
Total	48	100.0	100.0	

Table 3

Statistics-Age

Age	<i>N</i>	<i>M</i>	Median	<i>SD</i>	%
	48	7.90	8.00	2.904	3.00
Missing	0				

Table 4

Parental Perception Gender Cross Tabulation

Parental Perception	Female	Male	Total
average weight	22	10	32
overweight	7	8	16
Total	29	18	47

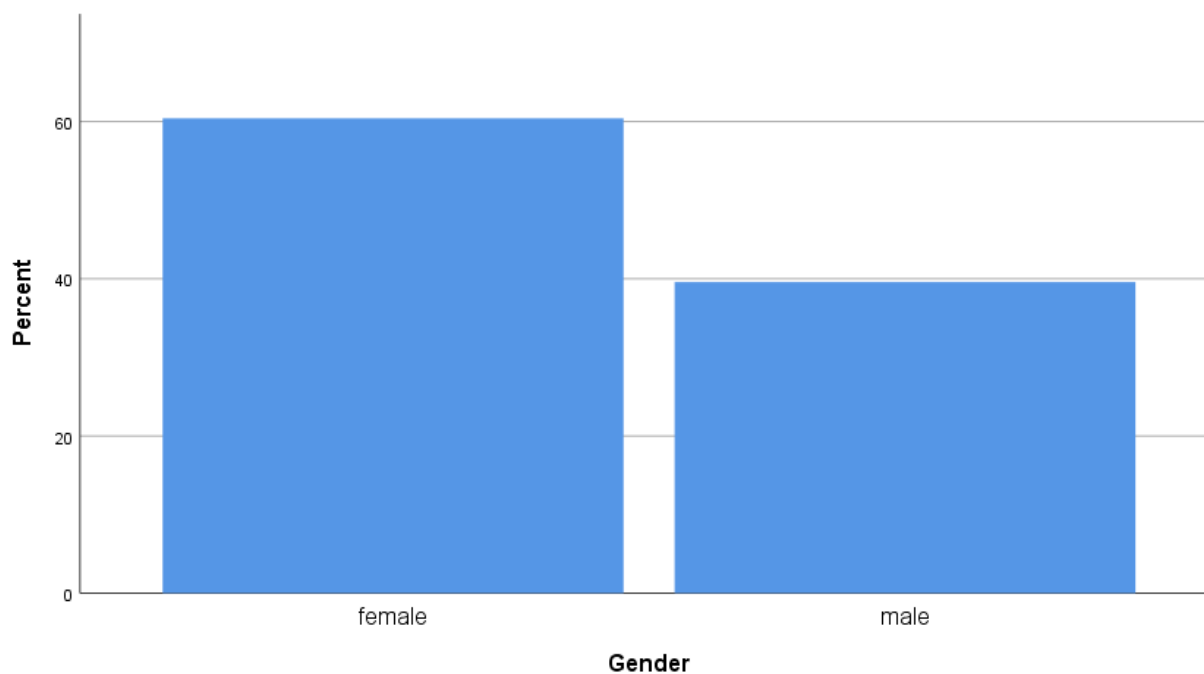


Figure 2. Statistics for gender.

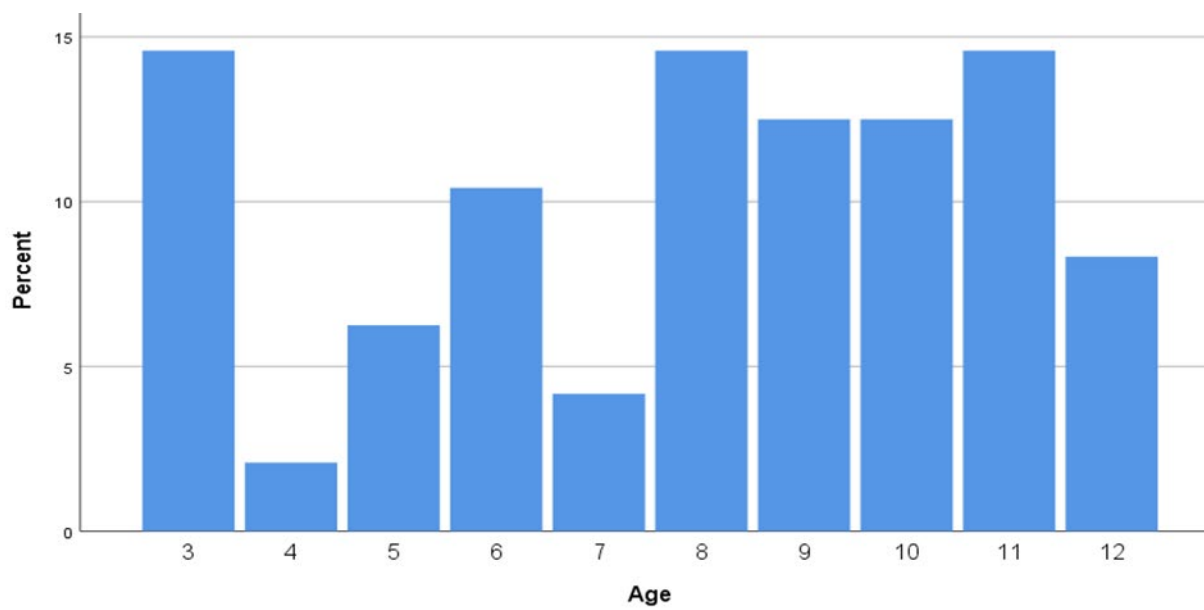


Figure 3. Statistics for age.

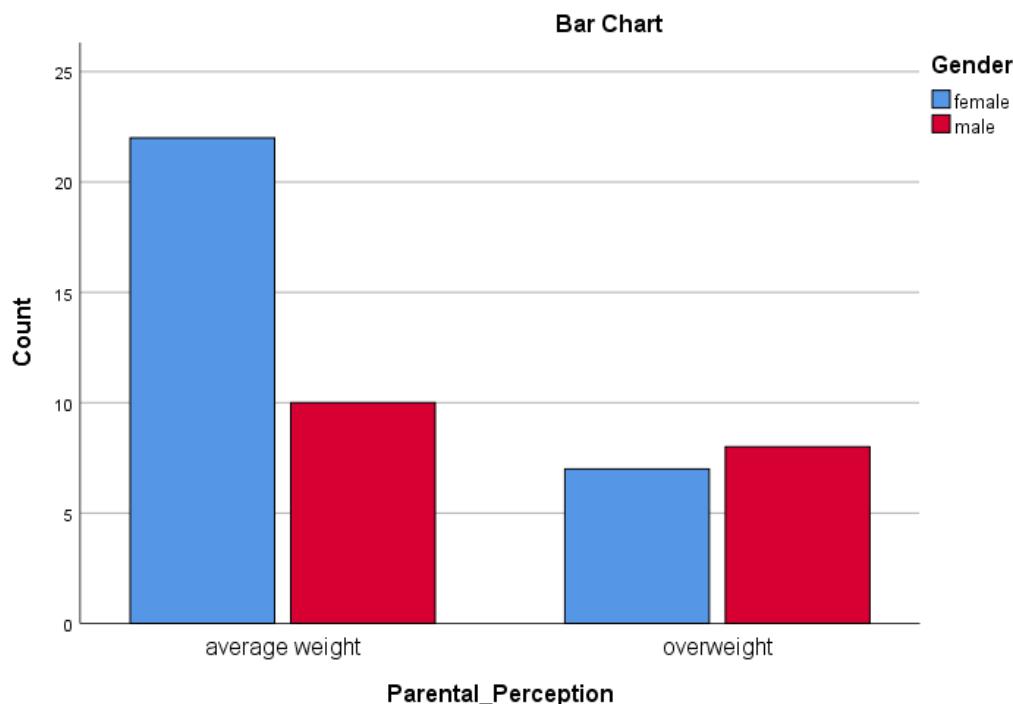


Figure 4: Crosstabulations of Parental Perception and Gender

The CDC defined overweight as a BMI at or above the 85th percentile and below the 95th percentile for children and teens of the same age and sex and obesity as a BMI at or above the 95th percentile for children and teens of the same age and sex (Tompkins et al., 2015).

Measurements of the patients included height, weight, and BMI. Height was measured using a fixed tape measure with patients standing in socks on a hard floor. Weight was measured using a calibrated scale with patients in socks. Using clinical measures of weight and height, BMI was calculated based on the equation of $BMI = \text{weight (kg)} / \text{height (m)}^2$. Measurements were reviewed by providers with parents.

Amongst all the overweight children, the BMI percentage ranged from 87% to 99%. The children had a mean BMI percentage of 96.44%, a median of 99.0%, with a standard deviation of 3.560 as shown in Tables 5. Table 6 shows the frequency of the number of participants at each

BMI percentage. A bar chart illustrating the descriptive frequencies of BMI percentage is in Figures 4. The relevant data can be seen in the tables below.

Table 5

Statistics-BMI %

BMI	<i>N</i>	<i>M</i>	Median	<i>SD</i>	Variance	Minimum	Maximum	%
	48	96.44	99	3.560	12.677	87	99	87.00
Missing	0							

Table 6

Statistics-BMI %

Parental Perception-				
BMI %	Frequency	%	Valid %	Cumulative %
87	1	2.1	2.1	2.1
90	3	6.3	6.3	8.3
91	3	6.3	6.3	14.6
92	3	6.3	6.3	20.8
93	2	4.2	4.2	25.0
94	3	6.3	6.3	31.3
95	1	2.1	2.1	33.3
96	2	4.2	4.2	37.5
97	1	2.1	2.1	39.6
99	29	60.4	60.4	100.0
Total	48	100.0	100.0	

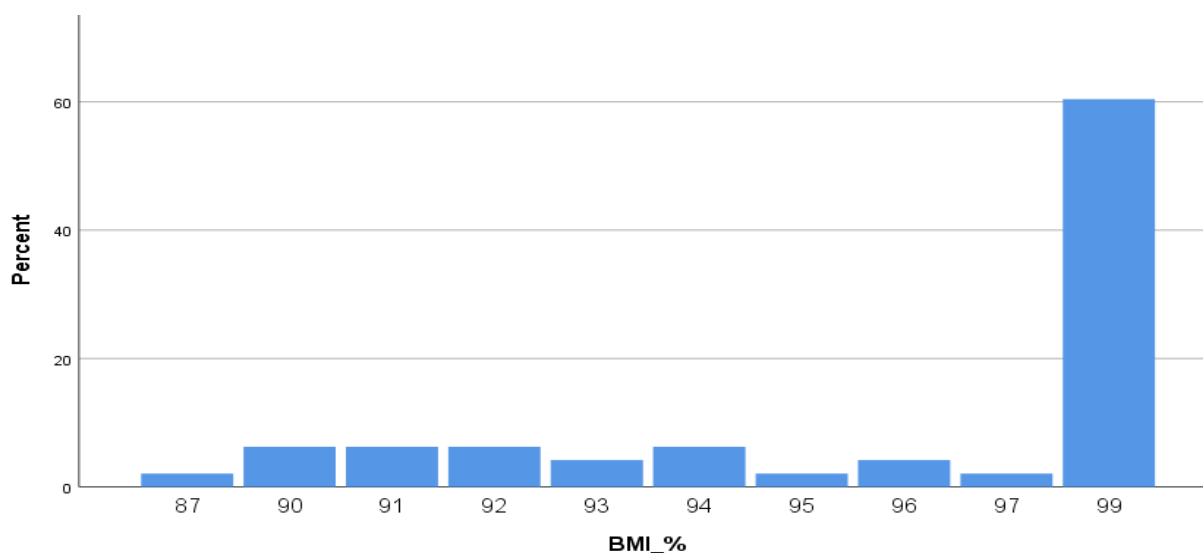


Figure 4. BMI %.

Currently, there are no standardized methods to identify parents' perceptions of their child's weight. After reviewing the actual BMI with parents, this DNP candidate compared the actual BMI with the perceived weight status of the child. Parental perceptions of their child's weight play a contributory role in obesity prevention and treatment. While all children were overweight, parents failed to correctly categorize their child's weight status. Of the children evaluated, the majority were classified as average weight (66.7%), but no children were considered underweight by their parents. Of all the participants in the project, 31.3% of the children were correctly classified as overweight as shown in Tables 6. One participant failed to answer the question item for the parental perception of their child's weight status. A bar chart illustrating the descriptive frequencies of parental perceptions of their child's weight is in Figures 5. Parental perceptions of their child's weight influence a parent's readiness to accept healthy behaviors (Hansen et al., 2014). In a previous study, "all parents of overweight children and 75% of parents of obese children incorrectly assumed their child was not overweight"

(Vittrup & McClure, 2018, p. 83). Active participation of parents is influential and allows for better outcomes, but involvement requires an accurate perception of their child's weight.

Table 7

Parental Perception

Parental Perception		Frequency	%	Valid %	Cumulative %
	average weight	32	66.7	68.1	68.1
	overweight	15	31.3	31.9	100.0
	Total	47	97.9	100.0	
Missing	System	1	2.1		
Total		48	100.0		

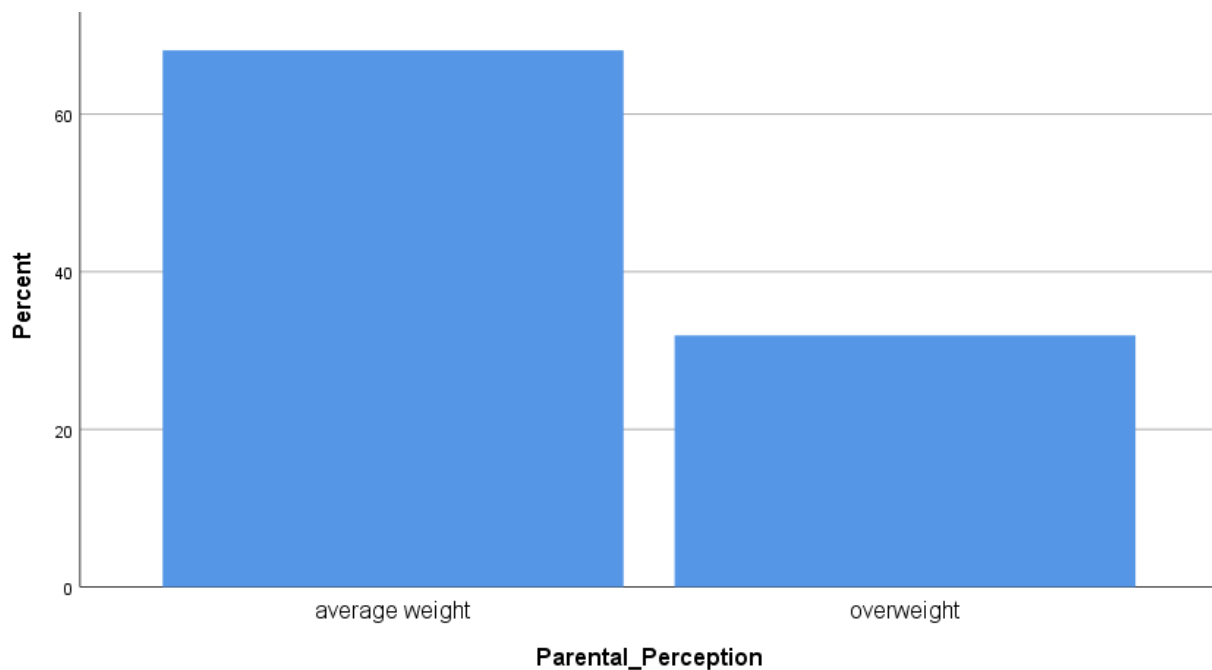


Figure 5. Parental perceptions-weight.

Assessing readiness to change is a contributory factor to childhood obesity management and promotes behavior change in individuals who need to modify their lifestyle (Ceccarini,

Borrello, Pietrabissa, Manzoni, & Castelnovo, 2015). Motivational interviewing was conducted to determine readiness to change. Motivation level was assessed and categorized using the TTM.

To determine the stage of change, participants will be asked the following questions:

6. Have you thought about doing anything to lose weight?—Pre-contemplation
7. Are you currently thinking about doing anything to lose weight?—Contemplation
8. Have you made any plans to start losing weight?—Preparation
9. Are you actively trying to lose weight?—Action
10. Are you trying to maintain your weight after weight loss?—Maintenance

The stage of change guided the next steps in planning and implementing interventions for weight management.

There was a total of 46 participants who provided an answer to determine the motivational level. Two participants did not provide an answer regarding the motivational level. Of all the participants, 22 (45.8%) participants were found to be in the Precontemplation stage, and eight (16.7%) participants were found to be in the Contemplation stage. Participants in Pre-Contemplation and Contemplation are not ready to make a commitment, but the necessity for a commitment towards a healthy lifestyle was discussed, and a pamphlet outlining the risks of obesity was provided for reinforcement. However, only two (4.2%) participants were found to be in the Preparation stage, and five (10.4%) participants were found to be in the Action stage. Participants in the Preparation and Action stages are motivated to change and require specific guidance for further steps. Therefore additional counseling on appropriate evidence-based balanced diet and exercise plans were reviewed. Also, these participants were scheduled for a follow-up visit in 1 week to provide further education and counseling on healthy lifestyle changes to support their decision to change. Of the children classified as overweight, six children

were in the Contemplation stage, two children were in the Preparation stage, and three children were in the Action stage. Of all the participants, a total of five participants who correctly categorized their child as overweight were also identified to be in a stage motivated to change. This demonstrates an association between parental perception and readiness to change. A bar chart illustrating the descriptive frequencies of readiness to change is in Figure 6.

Active participation of parents is influential and allows for better outcomes, but involvement requires an accurate perception of their child's weight. With no perceived problem, parents are unlikely to make the necessary changes for a healthy lifestyle. Education on risks, prevention, and management of obesity are insufficient without addressing parental misperceptions of their child's weight. Correct parental perception of their child's weight and motivation to change is considered the first step in the treatment of overweight and obese children (Randle et al., 2017).

Table 8

Statistics-RTC

RTC		Frequency	%	Valid %	Cumulative %
Valid	precontemplation	22	45.8	47.8	47.8
	contemplation	8	16.7	17.4	65.2
	preparation	2	4.2	4.3	69.6
	action	5	10.4	10.9	80.4
	maintenance	9	18.8	19.6	100.0
	Total	46	95.8	100.0	
Missing	System	2	4.2		
Total		48	100.0		

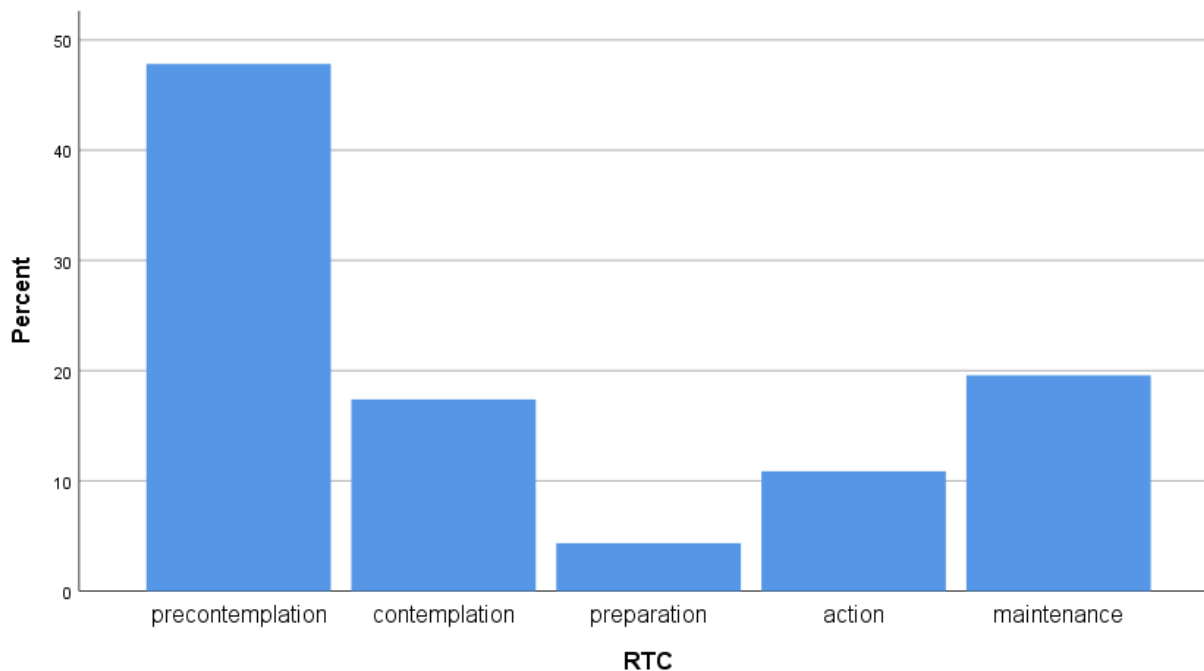


Figure 6. Statistics-RTC.

Crosstabulations using Pearson's chi-square and Cramer's V tests were conducted to examine the relationship between parental perception of their child's weight status and readiness to change. As shown in Tables 8–10, there was a significant statistical association between parental perception of their child's weight status and readiness to change. A greater proportion of participants classified as overweight were in the contemplation, preparation, and action compared to those who were classified as average weight. Due to the small sample size, there are six cells lacking the appropriate number to yield an appropriate and reasonable result. With cells lacking the minimum expected count, the chi-square test assumptions are violated. In this case, Fisher's Exact test or the Likelihood Ratio can be used to determine the association between parental perception of their child's weight and readiness to change. The Fisher's test yielded a p -value of 0.00, which concludes there is a statistically significant association between parental perception of their child's weight and readiness to change. The results of the project yielded a

Cramer's V of 0.697, which indicates a strong relationship between parental perception of their child's weight and readiness to change. Of all 48 participants, a total of 15 participants correctly identified their child as overweight. However, only five participants who correctly categorized their child as overweight were also identified to be in a stage motivated to change. This demonstrates an association between parental perception and readiness to change. The results of the chi-square test and Cramer's V test are in Figure 7. The relevant data can be seen in the tables below.

Table 9

RTC—Chi-Square Tests

		Asymptotic				
			Significance	Exact Sig.	Exact Sig.	Point
Chi-square Tests	Value	<i>df</i>	(2-sided)	(2-sided)	(1-sided)	Probability
Pearson Chi-Square	21.871 ^a	4	.000	.000		
Likelihood Ratio	22.620	4	.000	.000		
Fisher's Exact Test	20.134			.000		
Linear-by-Linear	.739 ^b	1	.390	.432	.224	.053
Association						
N of Valid Cases	45					

Note. ^a 6 cells (60.0%) have expected count less than 5. The minimum expected count is .62;

^b The standardized statistic is .859.

Table 10

Symmetric Measures

		Approximate		Exact
Symmetric Measures		Value	Significance	Significance
Nominal by Nominal	Phi	.697	.000	.000
	Cramer's V	.697	.000	.000
N of Valid Cases		45		

Table 11

*RTC * Parental Perception Crosstabulation*

		Parental Perception			
Crosstabulation		average weight	overweight	Total	
RTC	precontemplation	Count	20.0	2.0	22.0
		Expected Count	15.2	6.8	22.0
	contemplation	Count	2.0	6.0	8.0
		Expected Count	5.5	2.5	8.0
	preparation	Count	0.0	2.0	2.0
		Expected Count	1.4	.6	2.0
	action	Count	1.0	3.0	4.0
		Expected Count	2.8	1.2	4.0
	maintenance	Count	8.0	1.0	9.0
		Expected Count	6.2	2.8	9.0
Total	Count	31.0	14.0	45.0	
	Expected Count	31.0	14.0	45.0	

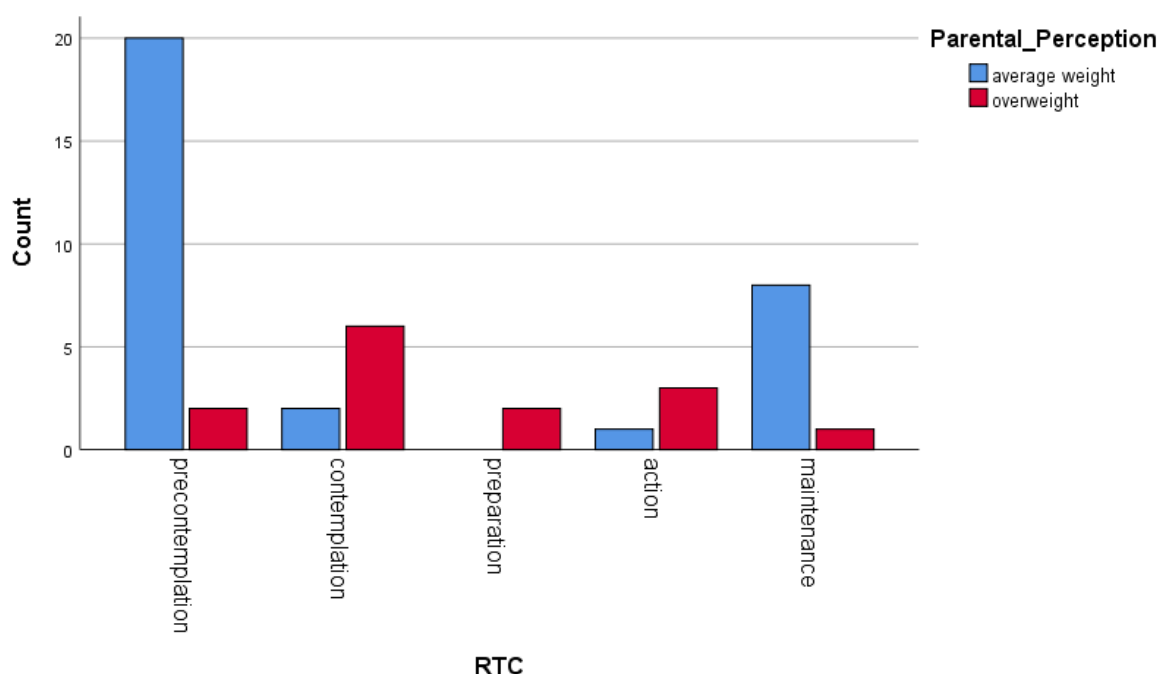


Figure 7. Parental perceptions-RTC.

Research Question and Objectives

This project aimed to evaluate and understand how parents perceive their child's weight status. This project will in turn help find solutions to improve obesity management and health outcomes based on a better awareness of parents' perceptions. The research question was: In parents of children with a body mass index (BMI) 85% or greater, what are the perceptions of parents towards their child's weight in a pediatric clinic in rural Texas?

While conducting this project, this DNP candidate anticipated finding a disproportionate number of parents who underestimate their child's weight. The specific objectives of the project were to (a) assess parental perceptions, (b) determine readiness for change for healthy weight management, and (c) introduce evidence-based healthy lifestyle management strategies.

Parental perceptions. The literature review discussed the influence of parental perceptions on a child's weight. Also, the literature review provided research evidence on parental perceptions and readiness to change, as it relates to childhood obesity, and potential

weight management strategies. The literature review concluded that there is an increasing tendency for parents to misperceive the overweight child's weight. While considering this project, the DNP candidate expected to find a disproportionate number of parents who underestimate their child's weight. In the whole project population, 31.1% of the children were correctly classified as overweight by their parents, while 68.9% were incorrectly classified as average weight. There were significant gender differences. Of the children evaluated, the majority were female (female 60.4%, male 39.6%) and the children had a mean age of 7.9 years. Within this population, parents of female patients were more likely to underestimate their child's weight than parents of male patients, but due to the small sample size this result is not statistically significant. In a previous study, Nemecek et al. (2016) reported boys were less likely to be misperceived by their parents than girls. Nemecek et al. (2016) concluded there was no significant association with misperception and age, paternal weight status, maternal weight status, or the child's gender. However, the study results revealed the factor showing a significant influence on the correctness of parental perception was the child's weight status. Parental misperception of their child's weight status is likely to lead to decreased motivation to address and change childhood obesity (Lundahl et al., 2014). Correct parental perception of their child's weight and motivation to change is considered the first step in the treatment of overweight and obese children (Randle et al., 2017). Examination of parental perceptions can generate instructive information for addressing parental perceptions, increasing readiness to change, and managing the overweight and obese child. (Hansen et al., 2014).

The research underscores the importance of understanding parental perceptions of their child's weight status on weight management. Most weight management programs are addressing childhood obesity target physical inactivity, but there is significance in understanding parental

perceptions of their child's weight status to inform next steps in readiness for change and healthy lifestyle management. Brown et al. (2016) suggested additional research to understand how providers can maximize counseling to improve parental understanding of their child's weight status and improve healthy behaviors. Vittrup and McClure (2018) concluded that parental support is important for the prevention and intervention of childhood obesity.

Readiness to change. Parental perceptions of their child's weight influence a parent's readiness to accept healthy behaviors (Hansen et al., 2014). Rhee et al. (2014) identified various factors affecting parent readiness including provider involvement, parental weight, and parental perception of their child's weight. This study concluded that parents could be in different stages of change for assisting their child in modifying lifestyle behaviors. Rhee et al. (2014) suggest training providers on useful behavioral strategies and motivational interviewing skills. Foster and Hale suggest there may be various populations at different stages of readiness for change towards a healthy lifestyle; incorporating this understanding should be considered for interventions in the prevention and management of childhood obesity.

The transtheoretical model (TTM) is a theoretical framework for determining readiness to change and defines the stages and processes of change (Ceccarini et al., 2015). This DNP candidate expected various levels of readiness to change ranging from Precontemplation stage to Action stage but did not anticipate for participants to identify as being in the Maintenance stage. Of the 31.1% of the children correctly classified as overweight, each participants level of readiness to change varied. Based on the motivation level, participants were classified using the stages of change in the TTM. Of all the participants, 22 (45.8%) participants were found to be in the Pre-Contemplation stage and eight (16.7%) participants were found to be in the Contemplation stage. Only two (4.2%) participants were found to be in the Preparation stage and

five (10.4%) participants were found to be in the Action stage. Of the children correctly classified as overweight, six children were in the Contemplation stage, two children were in the Preparation stage, and three children were in the Action stage. Of all 48 participants, there were a total of nine participants in the Maintenance stage. However, only one of these participants who were in the Maintenance stage correctly identified their child as overweight. The results of this project support the need for further investigation of parental perceptions to help find solutions to improve obesity management and health outcomes.

Introduction of lifestyle management strategies. Once a stage of change was determined, participants in the Pre-Contemplation and Contemplation stage received in-depth education on the effect obesity can have on their child's overall health. While participants in Pre-Contemplation and Contemplation are not ready to make a commitment, it is imperative to reinforce the necessity for such a commitment towards a healthy lifestyle. Information and counseling were provided on the risks of obesity. The pamphlet provided to participants in Pre-Contemplation and Contemplation included information on the immediate and long-term impacts obesity has on physical, social, and emotional health. Participants in the Preparation and Action stages are motivated to change and require specific guidance for further steps. There was additional counseling on appropriate evidence-based balanced diet and exercise plans for the patient. This DNP candidate discussed the implications of childhood obesity, including diabetes, heart disease, depression, sleep apnea, and musculoskeletal complaints. Basic lifestyle changes were reviewed including serving sizes, exercise, and limited screen time. Also, these seven participants were scheduled for a follow-up visit to provide further education and counseling on healthy lifestyle changes to support their decision to change. Throughout the project, there were no follow up visits conducted for weight management. The stages of the TTM provided relevant

information on each participant's readiness to change towards a healthy lifestyle. The results emphasize the importance of understanding parental perceptions of their child's weight status to inform next steps in readiness for change and healthy lifestyle management.

Quality Indicators and Resources

Quality indicators for this project were age, BMI, and completion of the selected questionnaire. An accommodating institution and ancillary staff were essential for the success of any QI project. The PNPs of PPCC were receptive to exploring parental perceptions of the overweight child and its effects on readiness to implement healthy lifestyle behaviors. Additionally, this DNP candidate received support and guidance from the DNP candidate's faculty chair, the DNP candidate's faculty co-chair, and the CRDA with the topic approval, proposal, data collection, and data evaluation process.

Barriers

There were some expected and unexpected barriers to this project. The success of the project depended on the various staff members who came in contact with direct patient care. This DNP candidate provided education to staff on effective ways to communicate with parents the purpose of the project to increase participation. Despite knowing the purpose of the project, some parents were hesitant to participate and had additional questions. On the other hand, other parents or guardians lacked the knowledge to complete the questionnaire thoroughly. Guardians presenting with patients included foster parents, siblings, or relatives, some of whom were unfamiliar with the patient's past medical history and unable to provide answers for the entire questionnaire. Through motivational interviewing, it was determined that some of the parents who perceived their child as overweight considered themselves to be in the maintenance phase of readiness to change. These parents accurately perceived their child's weight status and are

actively making lifestyle changes to avoid weight gain while maintaining their child's current weight. In addition, there was no funding source available to support this project. The DNP candidate was able to overcome the barriers by gaining the support of the stakeholders and providing staff with education.

Summary of Chapter 4

A mixed methods approach was used to explore parental perceptions of their child's weight, which consisted of a completed questionnaire and interview techniques. The data were collected and stored in a manner that protected patients' privacy and confidentiality. Data were evaluated to (a) assess parental perceptions, (b) determine readiness for change for healthy weight management, and (c) introduce evidence-based healthy lifestyle management strategies guided by parental perceptions and readiness for change for healthy weight management.

Descriptive analyses were completed along with a correlation analysis to examine the relationship between parental estimation of their child's weight status and parental readiness to change was conducted. The project analysis revealed there is a statistically significant association between parental perception of their child's weight and readiness to change, as well as a disproportionate number of parents who underestimate their child's weight. This misperception is one that must be addressed to begin the process of treating and managing obesity. This DNP candidate plans to take into consideration parental perceptions and incorporate innovative ways to improve parental perceptions and increase readiness to change towards a healthy lifestyle.

Chapter 5. Discussion

Interpretation of Findings

The incidence of childhood obesity continues to steadily rise, which places an increased risk of morbidity and mortality in adulthood. Identifying and addressing parental misperceptions of their child's weight status is fundamental to combat childhood obesity and obesity-related problems. The literature revealed the importance of identifying and addressing parental misperceptions of the overweight child and effective evidence-based weight management.

Parental misperceptions of the overweight child's weight status affect a parents' willingness and ability to incorporate healthy lifestyle changes before their child becomes overweight and develops obesity-related health issues (Vittrup & McClure, 2018). A disproportionate number of parents continue to underestimate their child's weight. In the whole project population, 31.3% of the children were correctly classified as overweight. With childhood obesity increasing morbidity, mortality, and healthcare costs, it is imperative to review, understand, and manage parental perceptions closely to prevent and reduce childhood obesity. With no perceived problem, parents are unlikely to implement a change in lifestyle.

The inability for parents to identify their child's weight status correctly affects their readiness to change towards a healthy lifestyle. Of all the participants, 22 (45.8%) participants were found to be in the Precontemplation stage and eight (16.7%) participants were found to be in the Contemplation stage. However, only two (4.2%) participants were found to be in the Preparation stage and five (10.4%) participants were found to be in the Action stage. Parental perceptions of their child's weight influence a parent's readiness to accept healthy behaviors (Hansen et al., 2014). Active participation of parents is influential and allows for better outcomes, but involvement requires an accurate perception of their child's weight.

The MI-PDSA is common amongst QI projects as a framework for accelerating improvement (Langley et al., 2009). The framework supports in developing, testing, and implementing change to improve patient outcomes (Langley et al., 2009). The MI-PDSA will continue to be used to further assess and address parental perceptions of the overweight child and readiness to change behaviors. Additional interventions towards decreasing childhood obesity include a multidisciplinary approach incorporating endocrinologists, nutritionists, counselors, and certified personal trainers. With this QI project, this DNP candidate provided statistically significant data on parental perceptions to guide the next steps towards a process change in decreasing childhood obesity. Since childhood obesity continues to place an increased risk of morbidity and mortality, the guiding framework and findings of the project can be used to help plan and implement a process towards implementing obesity prevention and management plan.

Study Limitations

This project was limited because the sample size was limited to one specific practice. Participants were limited to patients between the ages of 3 and 12 years old, which eliminated infants, toddlers, and adolescents. Such as a small sample size for this project may have caused deviance in the results. A limited timeframe elapsed for conducting the project, which gave this DNP candidate a small sample population. This small sample size weakens the results and does not allow for generalizability. The sample demographics may not represent the demographics of the general population of the PPCC. Also, subgroup differences such as ethnicity and cultural beliefs could not be analyzed due to the small number of participants. Another limitation is the voluntary self-reporting nature of the questionnaire. While routine well exams are an opportunity to foster healthy growth and development, it may prove useful to examine additional ways to identify and address parental misperceptions of the overweight child.

Discussion

The providers of the PPCC continue to identify and diagnose childhood obesity, but there remains a disproportionate number of parents who underestimate their child's weight.

Considering the prevalence of childhood obesity and the impact of parental perceptions on the overweight child, the PNPs of the PPCC are receptive to exploring parental perceptions of the overweight child and its effects on readiness to implement healthy lifestyle behaviors.

This project confirms there is an association between parental perception of their child's weight and readiness to change. Correct parental perception of their child's weight and motivation to change is considered the first step in the treatment of overweight and obese children (Randle et al., 2017). Ongoing QI initiatives exploring childhood obesity can provide valuable information to improve the health outcomes of overweight or obese children. The long-term projected outcomes for this project include to (a) find innovative ways to understand parents' perceptions of the overweight child, (b) decrease the discrepancy of perceived weight and the actual weight of the overweight child, and (c) implement best-evidence clinical practices in the treatment of childhood obesity.

This QI project is continuous and requires multiple phases of evaluation. The results of this project will be useful in the care of overweight and obese children and to improve overall health outcomes. With the parental perceptions of the PPCC, it was determined to return to the initial *Plan* phase to further understand factors contributing to misperceptions, find innovative ways to decrease the discrepancy of perceived weight and the actual weight of the overweight child and to implement best-evidence clinical practices in the treatment of childhood obesity. Examination of parental perceptions can generate instructive information for refining strategies for childhood obesity prevention and management, as well as guide the next steps to reduce the

burden of childhood obesity. Future research should take into consideration parental perceptions and incorporate innovative ways to improve parental perceptions and increase readiness to change towards a healthy lifestyle.

Recommendations

When conducting this project, this DNP candidate anticipated statistically significant data to (a) assess parental perceptions, (b) determine readiness for change for healthy weight management, and (c) introduce evidence-based healthy lifestyle management strategies guided by parental perceptions and readiness for change for healthy weight management. Despite the limited sample size and interval time for data collection, these anticipated outcomes were met as expected. This DNP candidate would recommend reevaluation of parental perceptions and include additional variables such as ethnicity, culture, comorbidities, and family history to understand the reason of misperceptions further. In addition, this DNP candidate would recommend a longitudinal study to analyze the follow-up rate and progress of participants in the Preparation and Action stages.

As the next step in decreasing childhood obesity, this DNP candidate would recommend improving parent's perceptions and evaluating the parent's knowledge of childhood obesity, as well as the implementation of a comprehensive weight management program. Standardizing the care of overweight and obese children through evidence-based clinical pathways and protocols may help reduce the rate of childhood obesity and the comorbidities associated with childhood obesity. To standardize the care of overweight and obese children, it would require further studies in a large population. A previous study recommended health care providers identify and notify parents of their child's weight and provide evidence-based interventions. Vittrup and McClure (2018) recommended medical and nursing professionals provide increased guidance

through education about healthy eating, exercise, health risks, and societal costs. This DNP candidate recommends continuing to assess growth and development at routine well visits along with counseling on risks of obesity and healthy lifestyle habits consisting of a healthy diet and exercise.

In addition, this DNP candidate recommended the providers of the PPCC evaluate the current process in the care of overweight and obese children. The pediatric PCP is an influential factor to resolve parental misperceptions, encourage healthy lifestyle changes, and “increase the chances that parents will take the steps necessary to optimize the health of their children” (Lundahl et al., 2014, p. 700). Pediatric PCPs have the ability to empower patients and families to maintain a healthy lifestyle by establishing rapport with patients and their families.

Developing a good rapport with patients and families is likely to increase compliance and improve health outcomes. The use of motivational interviewing can identify barriers towards a healthy lifestyle such as time and financial constraints, fear of injury, marital constraints, safety, and or other medical conditions (Durbin et al., 2018). Rhee et al. (2014) report providers are an important source of information and support for behavior change and advise providers to engage with parents and help them reach the action stage of change. To address childhood obesity, parental misperceptions must be addressed with sensitivity, effective communication, and adequate follow up.

Future Directives

Continuous QI projects in weight management targeting parental perceptions can provide valuable information to improve best practices for obesity management. The long-term projected outcomes for this project might include (a) improved parental perceptions of the overweight child, (b) increased readiness to change towards a healthy lifestyle, and (c) implementation of

evidence-based healthy lifestyle management strategies. As a result, the long-term projected outcomes can be evaluated at the 2-, 3-, and 5-year times intervals to determine a change in the child's weight, weight status, and parental perception of the child's weight status. Future QI projects will in turn help find solutions to improve obesity management and health outcomes based on a better awareness of parents' perceptions.

The American Association of Colleges of Nursing DNP Essentials

Through this project, the DNP candidate addressed the essentials and implications of the American Association of Colleges of Nursing (2006) listed.

Essential I—scientific underpinnings for practice. A thorough examination of nursing practice, theories, and philosophies were conducted to determine the best approach to addressing parental perceptions, increasing readiness to change, and managing the overweight and obese child. The DNP candidate was able to implement this QI project using the IOWA model, PDSA model, and Lewin's change model to promote health outcomes while offering patient-centered care.

Essential III—clinical scholarship and analytical methods for evidence-based practice. A clinical needs assessment and thorough literature review was conducted to identify gaps in clinical practice and to implement best evidence practices. The DNP candidate was able to implement this QI project to promote health outcomes while offering patient-centered care. This DNP candidate implemented interventions based on the current evidence.

Essential VII—clinical prevention and population health for improving the nation's health. Obesity is a complex disorder and there are various causes including genetics, behavioral, and hormonal influences. Research supports prevention and early identification of childhood obesity to improve health outcomes (Biro & Wien, 2010). This project was conducted

in congruence with the facility's mission to promote the health and wellness of the local pediatric population by providing accessible, high quality, evidence-based medical care.

Essential VIII—advanced nursing practice. With this project, the DNP candidate demonstrated the importance of assessing parental perceptions of the overweight child and readiness to change behaviors as the initial step to reducing the burden of childhood obesity. This DNP candidate employed techniques of effective communication, leadership, and coordination between patients and their families.

Evidence-based model—Iowa model. The Iowa model was used in this project. The Iowa model emphasizes organization and collaboration when incorporating quality care.

The Iowa seven-step model allows for a focus on knowledge and problem-focused triggers, which leads to a critical analysis of current practices (Buckwalter et al., 2017). The Iowa model has three distinct goals: (a) to ensure better patient outcomes; (b) to inform the decision, actions, and interactions; and (c) to deliver best possible care (Buckwalter et al., 2017). The significance of exploring parental perceptions has been underestimated. Many parents fail to accept their child is overweight and at increased risk for secondary chronic diseases (Gorin et al., 2014). This poses an immediate threat to the health of the overweight child and leads to lifelong health disparities. With this QI project, this DNP candidate provided statistically significant data on parental perceptions to guide the next steps towards a process change in decreasing childhood obesity. Prior to evaluation, there was no clear understanding of the parental perceptions regarding the overweight child of this pediatric primary clinic in rural Texas. Since childhood obesity continues to place an increased risk of morbidity and mortality, the continuous evaluation of best practices and findings of the project can be used to help plan and implement a process towards implementing obesity prevention and management plan.

Plan for Dissemination

This QI project will be instrumental in assessing parental perceptions of the overweight child to generate instructive information for refining strategies for childhood obesity prevention and management. By understanding parental perceptions of their child's weight, an important step in addressing childhood obesity, the future goal is to increase readiness to modify unhealthy behavior through motivational interviewing. The result of this project was disseminated by means of an academic university poster presentation at a research symposium.

Summary of Chapter 5

Currently, there are no standardized methods to identify parents' perceptions of their child's weight or standardized educational tools for obesity. Subsequently, any education provided may not be adequate given the lack of standardized evidence-based practice guidelines or customized plans for parents to address potential risks. Examination of parental perceptions can generate instructive information for addressing parental perceptions, increasing readiness to change, and managing the overweight and obese child (Hansen et al., 2014). The project analysis revealed there remains a disproportionate number of parents who underestimate their child's weight, as well as an association between parental perception of their child's weight and readiness to change. This misperception is one that must be addressed to begin the process of treating and managing obesity. This DNP candidate plans to take into consideration parental perceptions and incorporate innovative ways to improve parental perceptions and increase readiness to change towards a healthy lifestyle.

Conclusion

Obesity is a major preventable public health problem that is expected to increase over the years (Biro & Wien, 2010). There is a substantial need for system wide improvement in the

management of childhood obesity. Even with the known comorbidities associated with obesity, parents fail to make appropriate lifestyle changes due to incorrect perceptions of their child's weight status (Lundahl et al., 2014). Without correct parental perceptions of their child's weight, parents are unlikely to make appropriate changes to assist with the weight management of their child, which decreases long-term health outcomes and increases financial costs. This project confirms there is a relationship between parental perception of their child's weight and readiness to change. Correct parental perception of their child's weight and motivation to change is considered the first step in the treatment of overweight and obese children (Randle et al., 2017). Further examination of parental perceptions can generate instructive information for addressing parental perceptions, increasing readiness to change, and managing the overweight and obese child. (Hansen et al., 2014).

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APPENDIX A

Synthesis of Literature and Levels of Evidence

Table A1

Synthesis of Literature

Synthesis	Specific Themes	Variations: Concepts	Variations: Methods and Design	Citations: Author and Year	Level of Evidence
II	Parents underestimate their overweight child's weigh	Overweight, Parental Perceptions	Cross Sectional Analysis	Brown et al. (2016)	II
II	Parent's Perspective of Child's Body Weight	Rural Area Body Weight Body Mass Index	Cross Sectional Analysis	Karunanayake et al. (2016)	II
II	Parents underestimate their overweight child's weigh	Parental Perceptions, Child,	Meta-analysis	Lundahl et al. (2014)	I

		Weight, Obesity			
II	Overweight in children and its perception by parents: cross- sectional observation in a general pediatric outpatient clinic	Parental Perception, Overweight, Pediatric Obesity	Cross Sectional Observational Study	Nemecek et al. (2017)	V
II	Parental Perception of Child's Body Weight	Parental Perception, Obesity	Systematic Review	Tompkins et al. (2015)	I

(table continues)

Synthesis	Specific Themes	Variations: Concepts	Variations: Methods and Design	Citations: Author and Year	Level of Evidence
II	Attitudes to weight and weight management in the early teenage years	Parental Perceptions, weight	Qualitative Study	Wills & Lawton (2015)	V
II	Barriers to Childhood Obesity Prevention: Parental Knowledge and Attitudes.	Parental Knowledge and Attitudes.	Longitudinal Study	Vittrup & McClure (2018)	IV
II	Parental Perceptions of Overweight Children	Parental Perceptions	Longitudinal Studies	Hansen et al., (2014)	IV
II	Readiness to Change for Overweight Child	Parent Readiness to Change	Cross Sectional Study	Rhee et al., (2014)	V
II	Perceptions of Weight and Health	Parental Perceptions Readiness to Change	Cross Sectional Study	Foster & Hale, (2015)	V

Note. Key to Evidence Levels:

Level I Evidence	From systematic review or meta-analysis of all relevant randomized controlled trials (RCT's), or evidence-based clinical practice guidelines based on systematic reviews of RCT's
Level II Evidence	From at least one well-designed RCT
Level III Evidence	From well-designed controlled trials without randomization
Level IV Evidence	From well-designed case-control and cohort studies
Level V Evidence	From systematic reviews of descriptive and qualitative studies
Level VI Evidence	From single descriptive or qualitative study
Level VII Evidence	From the opinion of authorities and/or reports of expert committees

Adapted from Melnyk & Fineout-Overholt, 2005, p. 10.

APPENDIX B

What's the Right Weight for My Child?

Be part of an important quality improvement project from February 11, 2019 to March 8, 2019.

- Is your child between 3 and 12 years of age?
- Do you have concerns about your child's weight?
- Do you want to change your child's eating habits?

If you answered YES to any of these questions, you may be eligible to participate in a weight management quality improvement project.

The purpose of this quality improvement project is to assess parental perceptions of their child's weight and readiness to change lifestyle behaviors. This project will consist of completion of a questionnaire and an interview. No medications will be given, and your child's care will not be affected based on your participation in the project.

This study is being conducted at the PPCC in rural Texas.

Please call Leticia Cole (972) 937-XXXX for more information

APPENDIX C

Recruitment Script for

Parental Awareness of Childhood Obesity: A Quality Improvement Initiative

Hello, my name is Leticia Cole. I would like you to invite you to participate in a quality improvement project taking place here at the PPCC from February 11, 2019 to March 8, 2019.

The purpose of this quality improvement project is to assess parental perceptions of their child's weight and readiness to change lifestyle behaviors. This project will consist of completion of a questionnaire and an interview. No medications will be given, and your child's care will not be affected based on your participation in the project.

Would you like to participate in the project?

APPENDIX D

Informed Consent

I..... voluntarily agree to participate in this QI project.

I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any changes in my care at the clinic.

I understand that I can withdraw permission to use information from my interview, in which case the information will be removed.

I was told the purpose of the project and could ask questions about the project.

I was told that to be part of the project I would need to complete a questionnaire and that my answers would be collected and summarized.

I understand that there would be no direct benefit from being part of the project.

I understand that all information I provide for this project will be treated confidentially.

I understand that in any report on the results of this project my identity will remain anonymous. This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.

I understand that if I inform the DNP candidate that myself or someone else is at risk of harm, they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.

I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

LETICIA COLE MSN, RN, PNP-BC

Signature of participant

Signature of participant

Date

Signature of DNP candidate

I believe the participant is giving informed consent to participate in this project

Signature of DNP candidate

Date

APPENDIX E

Questionnaire

1. Date: _____
2. Date of birth of the child: _____
3. Child's sex: Male Female
4. Accompanying parent/person Mother Father Other
5. Child's weight: _____
6. Birth weight: _____
7. Child's height: _____
8. Birth size: _____
9. Premature birth: yes no _____ pregnancy week
10. Delivery mode: spontaneous birth medical induction of labor
 Caesarian section infections
 Vacuum extraction others _____
11. Complications during pregnancy: None eclampsia
 Gestational diabetes HELLP-syndrome
12. Was your child breastfed? Yes No How long? _____
13. Does your child suffer from any chronic disease? Yes No
 What disease?
14. Father's weight: _____
15. Father's height: _____
16. Estimated father's weight status is:

underweight average weight overweight

17. Estimated father's height is: short average tall

18. Mother's weight: _____

19. Mother's height: _____

20. Estimated mothers weight status is:

underweight average weight overweight

21. Estimated mother's height is: short average tall

22. Do you think your child is: underweight average weight overweight

23. Do you think the child's height is: short average tall

24. Highest degree of school education of the mother: _____

25. Highest degree of school education of the father: _____

26. Is your child: first born last born

27. Number of siblings: _____

28. Does/Did your child go to kindergarten? _____

Adopted from: Nemecek, D., Sebelefsky, C., Woditschka, A., & Voithl, P. (2017, December 22).

Overweight in children and its perception by parents: Cross-sectional observation in a general pediatric outpatient clinic. *BMC Pediatrics*, 17, 212–222. doi:10.1186/s12887-017-0964-z

APPENDIX F

Permission to Use Questionnaire

From: <d.nemecek@aon.at>

Date: Tue, Nov 20, 2018, 1:35 AM

Subject: AW: Permission to use questionnaire

To: Leticia Cole <lcole1@twu.edu>

Feel free to use the questionnaire in your research.

Kind regards

Daniela Nemecek

---- Leticia Cole ----

My name is Leticia Cole, and I am a nurse practitioner working with in a pediatric primary care office in Waxahachie, Texas, U.S.A. I am currently involved in a quality improvement project to assess parental perceptions of the overweight child. I would like to use the questionnaire used in the study titled Overweight in Children and its Perception by Parents: Cross Sectional Observation in a General Pediatric Outpatient Clinic. I kindly request you to please grant me permission to reproduce the questionnaire in my paper. Thank you very much.

Warmest Regards,

Leticia L. Cole, MSN, PNP-BC

214-356-8396

Lcole1@twu.edu

APPENDIX G

Childhood Obesity



OVERVIEW

Obesity is defined as having excess body fat. Obesity is a major preventable public health problem that is expected to increase over the years. The CDC accounts for approximately 12.7 million children and adolescents being affected by childhood obesity. You can help by promoting strategies to prevent childhood obesity.

Call our friendly staff for more information on nutrition, physical activity, and weight management. Our experienced team of providers are looking forward to discussing your healthcare needs.

CONTACT

PHONE:
972-937-XXXX

WEBSITE:
XXX.COM

CHILDHOOD OBESITY FACTS

CAUSES

Consuming more calories from foods and beverages than the body uses for healthy functioning, growth, and physical activity can lead to extra weight gain over time.

Genetics
Metabolism
Short Sleep Duration
Eating Habits
Physical Activity Behaviors
Environment

LONG TERM PHYSICAL EFFECTS

Being overweight or obese increases a child's risk for chronic diseases such as:

Asthma
Sleep Apnea
Bone and Joint Problems
Type 2 Diabetes
Risk for Heart Disease

SOCIAL AND EMOTIONAL EFFECTS

Overweight children are more susceptible to social and emotional difficulties such as:

Social Isolation
Depression
Lower Self Esteem

APPENDIX H

Healthy Lifestyles

HEALTHY



Obesity is defined as having excess body fat. Obesity is a major preventable public health problem that is expected to increase over the years. The CDC accounts for approximately 12.7 million children and adolescents being affected by childhood obesity. You can help by promoting strategies to prevent childhood obesity.

Treatment for obesity will include lifestyle changes. Dietitians and healthcare providers can help you design a safe, healthy, effective weight loss program for your child.

Call our friendly staff for more information on nutrition, physical activity, and weight management. Our experienced team of providers are looking forward to discussing your healthcare needs.

CONTACT

PHONE:
972-937-XXXX

WEBSITE:
XXX.COM

FOCUS ON HEALTH

HEALTHY DIET

- fruits, vegetables, whole grains, and beans.
- fat-free or low-fat milk products.
- lean meats, poultry, fish, eggs or egg whites, nuts, seeds, and soy foods.
- low in saturated fats, trans fats, cholesterol, salt, and added sugars

EXERCISE

- Walk
- Jog
- Swim
- Aerobics
- Weight training

RESOURCES

<https://www.choosemyplate.gov/>

<http://www.ymca.net/>

<https://www.superhealthykids.com/>

<https://parentsforhealthykids.org/>

<https://www.cdc.gov/bam/index.html>

TEXAS WOMAN'S UNIVERSITY-GRADUATE SCHOOL
CERTIFICATION OF FINAL EXAMINATION

4/8/19
Date of Examination

To the Dean of the Graduate School:

The undersigned have on this date examined (Name of Candidate and ID#):

Leticia Cole 7/9/25 4/8/19

for the degree of: DNP

and hereby certify that the examination has been successfully completed. This

☐ professional paper ☐ thesis ☐ dissertation ☒ scholarly clinical project

has been reviewed by each of us and is approved.

Major Professor [Signature] Linda Koenig [Date] 4/8/19
[Type Name]

Member [Signature] D. Susan Chancy [Date] 4/8/19
[Type Name]

Member	[Signature]	[Date]
	[Type Name]	

Member	[Signature]	[Date]
<i>(if appropriate)</i>	[Type Name]	

Chair/Director/Associate Dean [Signature] Lisa Sharp [Date] 4-9-19
[Type Name]

According to departmental records, this student has met all requirements for graduation.

Linda Aoussel
Major Professor

NOTE: If filing a Professional Paper please attach a copy of the TITLE PAGE.

In accordance with Leg. HB 1922, an individual is entitled to: request to be informed about the information collected about them; receive and review their information; and correct any incorrect information.