Childhood Overweight and Obesity

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Abstract

Childhood overweight and obesity has become a major health issue in recent years. There are many risks associated with overweight and obesity and the effects can be seen throughout the lifespan. The purpose of this paper is to evaluate the effectiveness of measuring body mass index (BMI) of children ages 6-12 years at each doctor visit. It is hoped that by providing the parent with the child’s BMI and education regarding healthy lifestyle modifications the concern of the parent will be increased. This goal of creating parental concern is to increase parental involvement in the prevention and management of childhood overweight and obesity.

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**Introduction**

Childhood obesity has become a public health crisis and the rates of childhood obesity have drastically increased in recent years. Moore, Harris, and Bradlyn (2012) indicate that the prevalence of childhood obesity has reached epidemic proportions in the United States alone. According to a recent systematic review by Bleich, Segal, Wu, Wilson and Wang (2013), the childhood obesity epidemic seems to be leveling off. Although the problem appears to be stabilizing, it is vital that the management and prevention of overweight and obesity stay a priority. This is because historically, periods of stability have preceded intense increases in the prevalence of obesity.

 Obesity continues to be a public health concern among the pediatric population. One third of children and adolescents in the United States are considered overweight or obese (Moore et al., 2012). Childhood obesity is recognized as a priority because obese children are more likely to become obese adults and obesity in adulthood is likely to be more severe if they have been obese during childhood. Adult obesity is associated with a number of serious health conditions which lead to increased morbidity and mortality rates (Center for Disease Control and Prevention, 2012).

 Overweight and obese children are more likely to face a lifetime of health issues including shorter life-expectancy, physical and emotional limitations, cardiovascular disease, stroke, diabetes, certain cancers, fatty liver disease, sleep apnea, asthma, joint disorders, mental health issues, and low self-esteem (Long, Mareno, & Wilson, 2012). These risks can affect multiple aspects on an individual’s life. Risks associated with physical health can have long-term effects and may require ongoing medical treatment and management. Risks associated with poor emotional health have been linked to poor academic performance and having fewer friends in children. Obesity also has on impact on social health. Obese children are more likely to be subjected to teasing, bullying and discrimination (Center for Disease Control and Prevention, 2012).

 Prevention and treatment of childhood obesity can take place in many aspects of life including individual, family, school, and community. Parental involvement has been found to have successful results in the treatment of childhood obesity. Parents can have a profound influence on the diet and physical activity of their child through the promotion and exposure of healthy food options, regular physical activity, and limited sedentary time (Moore et al., 2012).

 In order for parents to become involved in the management of their child’s weight, the parent’s level of concern must be increased (Moore et al., 2012). Health care providers are responsible for increasing parental awareness and concern about their child’s weight and providing education to motivate the parents to become more involved. Body mass index (BMI) is a factor that has been associated with increasing parental concern about their child’s weight. Once the concern of the parent has been increased, parents must be provided with proper education concerning the risk factors associated with obesity and tools to manage their child’s weight (Moore et al., 2012).

 BMI is the most widely accepted means for determining overweight and obesity in children in the United States (Hopkins, DeCristofaro, & Elliot, 2011). It is a reliable indicator of body fat for most children. BMI is calculated from a child’s weight and height and is age and sex specific. For children, after BMI is calculated it is plotted on a growth chart to obtain a percentile ranking as it relates to others of the same age and gender (Center for Disease Control and Prevention, 2012). Overweight is defined as a BMI at or above the 85th percentile and below the 95th percentile for children of the same age and sex. Obese is defined as a BMI at or above the 95th percentile for children of the same age and sex. These measures correlate with the adult definition of overweight and obese (Hopkins, DeCristofaro, & Elliot, 2011).

 The prevalence of childhood obesity and continued obesity in the transition into adulthood will add a significant burden to our healthcare system. With increasing costs of health insurance and decreasing funds available in the healthcare system, we must take action to produce a healthier population.

# PICO Question

 In overweight and obese children ages 6-12 years-old, how does providing parental education in conjunction with the child’s BMI compared to providing parental education with no BMI affect the weight of the child?

 The population chosen is children ages 6-12 years-old who are overweight or obese as indicated by their current BMI. The intervention is providing the parent of the child with education along with the child’s current BMI in an effort to increase parental awareness and concern regarding the child’s weight. The comparison is the current accepted practice of providing the parent of the child with education regarding interventions promoting healthy weight, but not providing them with the child’s current BMI. The desired long-term outcome is decreased body weight and therefore decreased BMI. Since childhood is a time of rapid growth, no significant change in body weight with an increase in height resulting in a decreased BMI is also a desirable outcome. Desirable short-term outcomes can include, but are not limited to, BMI recorded on each patient’s chart, increased parental awareness of health risks associated with overweight and obesity, and increased adoption of health promoting behaviors. The time frame for the primary outcome would ultimately be one year which is the usual time between well child visits.

# Framework

 There are multiple conceptual models available to help guide clinicians’ transition to evidence-based practice (EBP). These models are a framework of ideas guided by clinical expertise. A series of steps or phases are followed to discover the best practice. One model that has been effective in including planned change was purposed by Rosswurm and Larrabee (Melnyk & Fineout-Overholt, 2011). The Model for Evidence-Based Practice Change was chosen for this project. This model has been revised in recent years to help promote the adoption of a new practice. It includes six steps aimed at guiding nurses and managers through an evidence based change (Thurston and King, 2004).

## Step One

 Assess the need for change in practice (Melnyk & Fineout-Overholt, 2011). This is done by identifying the current methods of treatment and management of overweight and obese children and identifying problems based on the current accepted practices.

## Step Two

 Locate the best evidence (Melnyk & Fineout-Overholt, 2011). In this step it is beneficial to use the identified problems in treatment and management of overweight and obese children to conduct scholarly research. Factors that contribute to overweight and obesity such as parental education, age, sex, race, ethnicity, primary language, and socioeconomic status must be taken into consideration.

## Step Three

 Critically analyze the evidence (Melnyk & Fineout-Overholt, 2011). The information that has been gathered should be critiqued to judge whether the body of evidence is of sufficient quantity and strength to support a practice change.

## Step Four

 Design practice change (Melnyk & Fineout-Overholt, 2011). This is done by designing a plan to implement change in current practice based on research. The goal is to decrease the prevalence of overweight and obesity in children in order to decrease associated morbidity and mortality.

## Step Five

 Implement and evaluate change in practice (Melnyk & Fineout-Overholt, 2011). The plan designed during step 4 is implemented in a pilot study. During this step the evaluation of process, outcomes and costs are used to develop conclusions and recommendations. Feedback from those expected to use the new practice and from those promoting the use of the new practice is used to make adjustments in the implementation plan.

## Step Six

 Integrate and maintain change in practice (Melnyk & Fineout-Overholt, 2011). In this final step the integration and maintenance of the desired change should be achieved through monitoring outcomes, providing ongoing education, disseminating information and encouraging communication to promote evidence-based change.

# Review of Literature

 A comprehensive literature review was conducted in order to provide current evidence based information. The search was conducted utilizing the Auburn University Library website. The databases chosen include Academic Search Premiere, CINAHL, ERIC, and MEDLINE. Results were limited to full text, scholarly (peer reviewed) journals published within the last five years. Terms used in a variety of combinations for the search include childhood, children, overweight, obesity, obese, parental awareness, parent involvement, parents, prevention, and body mass index.

 Literature focusing on the management of childhood obesity in the community setting has drastically increased. The purpose of this systematic review by Bleich et al. (2013) was to evaluate the effectiveness of community-based childhood obesity programs in the United States and other high income countries. Studies were eligible for review if the intervention was primarily implemented in the community setting, had at least one year of follow-up, and compared results from an intervention to a comparison group (Bleich et al., 2013). Major findings of the study were that four of the nine studies which used combined diet and physical activity approaches reported significant reduction in adiposity and weight-related outcomes. The evidence suggests that combined interventions implemented in multiple settings like home, community, and school would be the most effective at preventing weight problems. A significant decrease in adiposity was found in programs that had longer follow-up periods and focused on middle school age children (Bleich et al., 2013).

 The importance of implementing early life strategies to prevent childhood overweight and obesity is becoming more and more evident. The aim of a systematic review by Pocock, Trivedi, Willis, Bunn, and Magnusson (2009) was to determine parental perceptions about behaviors to prevent overweight and obesity in children as well as what parents perceive to be barriers and facilitators to the healthy behaviors identified. Studies were included if they reported primary or secondary prevention measures. Studies with children with underlying medical conditions and studies relating to children older than 12 years of age were excluded. The outcomes revealed six organizing and thirty-two finer level themes that relate to child factors, family dynamics, parenting, knowledge and beliefs, extra-familial influences and resources and environment. Parental perception regarding behaviors to promote overweight prevention in children are often complex. Although parents are able to recognize factors that facilitate healthy behaviors, they are more likely to identify perceived barriers (Pocock et al., 2009).

 In the past 20 years obesity has become the most prevalent nutritional issue in the world and has emerged as a major contributor to chronic and noncommunicable diseases. The purpose of a clinical practice guideline by Lau et al. (2007) was to develop guidelines for the screening, prevention, and treatment of obesity, provide recommendations for interventions, provide material to health care providers, further the development of health policies, identify gaps in knowledge, and suggest avenues of research. The outcomes include the development, review, and revision of recommendations of clinical practice guidelines. Major findings include using BMI and waist circumference to determine the level and distribution of adiposity, using laboratory results to determine patients overall health, and the benefit of utilizing an interdisciplinary health care team to increase the success of managing and preventing obesity (Lau, et al., 2007).

 The objective of a clinical practice guideline by August et al. (2008) was to formulate practice guidelines for the treatment and prevention of pediatric obesity. The outcomes of the review include the development of recommendations based on evidence, value and preferences in the following areas: the problem with obesity, diagnosis of overweight and obesity, treatment of obesity (lifestyle, dietary, physical activity, psychosocial, pharmacotherapy, and bariatric surgery), prevention of obesity, and societal barriers. Major findings include defining overweight as having a BMI in the 85th-94th percentile and obese as BMI in at least the 95th percentile. The review recommends evaluating height velocity based on family traits and puberty stage, referral to a geneticist if a genetic syndrome is suspected, evaluation of comorbidities if BMI is in at least the 85th percentile, and prescribing and supporting lifestyle changes of dietary, physical activity, and behavioral areas (August et al., 2008).

 Behaviors that lead to overweight and obesity usually occur in the setting where parents are solely responsible for the child such as quality of food in the home. However, parents’ perceptions are generally not the focus of obesity interventions because the interventions usually target schools and environment. The purpose of a non-experimental cohort study by Akhtar-Danesh, Dehghan, Morrison, and Fonseka (2011) was to investigate parents of young children for their perceptions on the causes of obesity, the impact of childhood obesity on health, and the barriers to successful prevention of childhood obesity. The outcome of the study was that information on parents’ perception of childhood obesity was generated. Two factors emerged representing parents’ viewpoints. The parents were confident in delivering healthy nutrition and the families were focused on physical activity (Akhtar-Daneshet al., 2011).

 Parental concern has been found to be a key factor in motivating parents to monitor and regulate their child’s diet. The purpose of a descriptive, single, non-experimental cohort study by Moore et al. (2012) was to identify which factors elicit parental concern about their child’s weight and determine if that concern is directly related to actions to improve diet and exercise. Outcomes include identification of variables that result in parental concern regarding their child’s weight. The results of the study indicate that child gender, BMI weight category, and parental perception of weight influences the degree of concern a parent feels about his/her child’s weight. It also revealed that the concern a parent feels about child weight may influence them to take an active role in managing diet and physical activity levels. Other major findings of the study were that parental concern increases if the parent if able to accurately assess the child’s weight, however, parents often hove misconceptions about weight. Parents can increase their ability to assess weight through regular BMI screening, education, and feedback from health care providers (Moore et al., 2012).

 Studies have revealed that some primary care providers do not view childhood overweight and obesity as a priority when compared to other health issues. The purpose of a purposive sampling of articles by Hopkins et al. (2011) was to provide information on evidence-based interventions and clinical practice guidelines to assist the primary care provider in managing childhood obesity. The outcomes include providing insight into clinical practice guidelines for interventional and management approaches in healthy overweight and otherwise healthy obese children. Major findings include recommending the implementation of nonpharmacological interventions with multiple combinations of psychological, activity, family, diet, and maintenance interventions. It was found that activity interventions produced the best results when the intervention was intense, family interventions increased compliance, and behavioral interventions were more successful than psychological. The best results were seen with long-term follow up studies. Pharmacological interventions suggested being combined with diet and exercise and Orlistat had no significant benefit where metformin was effective in the short term. It was concluded that bariatric surgery is effective for weight loss and improved body image immediately and long term, but many complications are associated. Based on current guidelines, pharmacologic and surgical interventions are not to be considered until all other methods have failed (Hopkins et al., 2011).

# Critical Appraisal of Evidence

 The strongest evidence was supported by the systematic reviews and clinical practice guidelines that addressed interventions for childhood overweight and obesity. The systematic review by Bleich et al. (2013) provided evidence that combining diet and physical activity, implementing interventions in multiple settings, and utilizing longer follow-up periods yielded the best result. The strengths of the study include that programs from multiple countries were included increasing the validity of the study, multiple databases were used to retrieve articles, and information for future research was provided (Bleich et al., 2013). The significance of this study for my project is that some of the same interventions found to be successful in the community setting could also be used in the home setting with equal success.

 The systematic review by Pocock et al. (2009) determined that family dynamics, parenting style, knowledge, beliefs, outside influences, resources and environment contribute to parental perceptions of their child’s weight. Although parents are familiar with healthy behaviors, they were more likely to identify barriers. The strengths are that the review provides an overview of parental perceptions about behaviors to prevent childhood overweight and obesity. It is also beneficial that the review only included studies if the children were less than 12 years old and no other comorbidities were identified (Pocock et al., 2009). This study is significant for my project because it identifies parent’s ideas about childhood overweight and obesity. This study only included children less than 12 years which can be helpful as my project focuses on ages 6-12 years.

 The clinical practice guideline by Lau et al. (2007) recommends using BMI and waist circumference to determine adiposity, laboratory results to determine overall health, and using an interdisciplinary team to better prevent obesity. This article is significant to my project because the guidelines provide recommendations that directly correlates with the intervention aspect of my project.

 The clinical practice guideline by August et al. (2008) recommends evaluating comorbidities if BMI is in at least the 85th percentile and supporting diet, physical activity, and behavioral changes. This guideline is significant to my project because it is specific to the pediatric population and the guidelines will be useful in guiding the development of the intervention of my project.

 Additional studies also provided evidence that can be used to support practice changes. Although the level of evidence is not as high as a systematic review or clinical practice guideline, the information can be used to enhance the project. The cohort study by Akhtar-Danesh et al. (2011) examined parental perceptions of childhood obesity. It found that most families are confident in their ability to provide healthy foods and encourage physical activity. However, doing so may need to be prompted by a health care professional. This study is relevant to my project because it points out that parental awareness is an important factor in combating childhood obesity. It is also significant because it makes me ask: What aspects of childhood overweight and obesity should be addressed when educating parents?

 The cohort study by Moore et al. (2012) revealed that the concern a parent feels influences them to take an active role in managing their child’s weight. This concern can be increased by providing them with their child’s BMI. One strength is that the participants were from a rural state and my project will also be done in a rural state. This study is significant to my project because it explains the factors involved in increasing parental concern which is an important aspect of my project.

 The integrative literature review by Hopkins et al. (2011) provides a step by step tool for primary care physicians to follow in the management of childhood obesity and different methods of weight management interventions were explored. This study is significant to my project because it provides an excellent step guide for assessing and managing childhood obesity inside the office of the primary care physician. This will be effective in supplementing my information when I am ready to implement my evidence-based project.

# Recommendations for Evidence-Based Practice Project

 Based on the preceding critical appraisal the following recommendations are made for this project:

1. Calculation of child’s BMI at each doctor visit. Grade A Recommendation. The clinical practice guideline by Lau et al. (2007) recommends using BMI to determine the level of obesity.
2. Provide parents with their child’s BMI and educate them on the significance of this measurement. Grade B Recommendation. The cohort study by Moore et al. (2012) indicates that parental concern is influenced by knowing their child’s BMI weight category. It is also indicated that parental action is directly related to the concern they feel about their child’s weight.
3. Provide parents with education regarding lifestyle modifications in order to promote healthy weight. Grade C Recommendation.

# Clinical Setting Assessment

#  The clinical setting chosen to implement this EBP project is a pediatric clinic. The clinic is a single physician pediatric practice located in Anniston, Alabama. The primary contact at this setting will be the pediatrician’s nurse. Her responsibilities include measuring height, weight, and vital signs, giving immunizations, and providing education. Other individuals that work at the clinic include another nurse, the office manager, and receptionist.

#  The primary patient population served at this pediatric clinic is children ages birth to 16 years old. The staff estimates that they see approximately 100 to 125 total patients per week. Of those patients, only 25 of them fall into the population of interest for this project. The specific population of interest for this EBP project is children ages six to 12 years old.

#  The pediatrician and his nurse agree that childhood overweight and obesity are definitely major concerns. They also agree that this EBP project could prove to be beneficial in their practice. A problem they encounter quite often is helping parents to realize that their child either has or is at risk for having a weight problem. The nurse adds that there is a fine line between educating and offending a parent when it comes to their child. The current practice used in the clinic is the nurse measures the patients’ height and weight and plots it on the growth chart. If the physician identifies the patient as being overweight or obese, he calculates the body mass index (BMI). He then uses this information to provide verbal education to the parents. Often times, if the problem is significant, the physician will make a referral to a specialist such as a nutritionist. Patients who are referred to specialists are follow-up with, but parents often fail to adhere to the additional appointments.

#  This practice does not currently have any specific measures in place that supports a need for quality improvement or practice change in the area of childhood overweight and obesity. The practice also does not have any specific means of tracking their patients.

#  A major facilitator to implementing this EBP project is the staffs’ interest in the topic area. The staff indicate they are comfortable using the growth chart, but feel they could benefit from education on BMI. Another facilitator is that schools now require 12 year old students to have immunizations. This allows for more face time with patients. There were several barriers to implementing the project identified. The practice sees few patients over the age of five and this project focuses on children ages six to 12 years old. This practice also only treats insured patients. This drastically decreases the diversity of patients seen. A major barrier faced in this clinic is that after the age of five, children only have well child checkups every two years. Often parents fail to bring their child for the well child visit and only use the pediatrician for sick visits.

#  Implementation Plan

 The intervention selected for the chosen population is measuring BMI at each pediatrician visit and providing the parents with this information along with education on healthy lifestyle modifications. The expected outcome is to increase parental awareness of childhood overweight and obesity, therefore positively influencing the weight of the children who fall into this category. The evidence indicates that parental perception of their child’s weight is a major factor in influencing change. If the parent does not perceive their child as overweight or obese, they will fail to act. Providing the parent with the child’s BMI will allow them to better understand their child’s weight status. Providing the parents with education regarding lifestyle modifications will better equip them with the tools they need to promote healthy habits. According to information obtained in the needs assessment, this topic definitely needs to be addressed. Parents must be aware of their child’s health status in order to initiate change.

 In order to successfully implement the EBP plan, several steps will need to occur. The first step of importance is to increase the sense of urgency felt by the stakeholders. The project leader with guidance from the faculty advisor will be responsible for this step. It is estimated that this step will take several weeks. The resources needed for this step will include peer reviewed evidence that will be used to educate stakeholders on the significance if childhood overweight and obesity and interventions or practice changes that may be effective. The cost for this stage will primarily be the time the project leader dedicates to reviewing the literature. The nurse at the pediatric clinic has identified a need for change in the practice so she will be vital in getting others on board. The main barrier is that the physician is older and not interested in changing the way he has conducted his practice for years. In order to minimize this barrier, he must recognize the significance of the project. This will be accomplished through staff education. By getting the rest of the staff on board he will be more likely to accept the project.

 The second step is to select members of the team and identify their responsibilities while establishing a primary contact. The project leader will be responsible for this step. It is estimated that this will also take several weeks. The resources needed for this will be access to all employees at the pediatric clinic and the primary cost will be the time of the project leader and employees. A major facilitator to this step is that the nurses have expressed interest in the project. This will help to increase the willingness of the other employees. A barrier to this step is the employees’ busy work schedule. To minimize this meeting can be planned around the busiest times of day.

 The third step is to determine which patients to include in the project by reviewing patient data. The project leader, nurse, and pediatrician will be responsible for this step. It is estimated that this step will take several weeks to months. The resources needed will be patient charts with most recent height and weight according to their last visit. The primary cost will be time spent reviewing charts and calculating BMI. Facilitators to this step would be parents identified by the nurses and pediatrician as previously exhibiting concerns about child’s weight or parents who bring their child for each scheduled well-child visit. It would be beneficial to include these families because the follow-up would probably be more successful. Barriers would be that many parents do not identify their child as being overweight or at risk no matter what facts they are given. The population of interest in this project is children ages 6-12 years old. However, at this particular clinic, well-child visits are only scheduled every two years after the age of five. Many times parents do not adhere to this schedule and only bring their children when they are sick. To minimize these barriers it would be wise to include children whose parents are more proactive in their well-child assessments.

 The fourth step is to recruit patients to participate in the project and obtain consents from their parent or guardian. The project leader, nurses, pediatrician, office manager, and receptionist will all be involved in this step. It is estimated that this step will take several weeks to months. The resources needed for this step will be information to contact participants, consent forms, and information about the project to provide to the parent or guardian. The information the parents will receive at this point will be about the project in general. They will be informed about the intentions of the project, what is hoped to be accomplished, and what will be expected of them. The cost of printing consent forms and parental information will be included in the budget for this step. Facilitators for this step will be the pediatrician, nurses, office manager, and receptionist. The patients and parents at the clinic are familiar with each of these team members and are more likely to participate if approached by an individual they already trust. The team members will be used to contact the individuals to participate in the project. Barriers are that the parents are likely to be cautious about participating in such a project. To decrease this barrier they must be provided with possible benefits.

 The fifth step is the actual implementation of the EBP project. In this step height and weight will be measured and BMI will be calculated. Parents will be provided with the BMI and educational information on the risks associated with childhood overweight and obesity as well as tips for management. The nurses and pediatrician will be involved in this step. It is estimated that this step will take several months. The resources needed for this step include tools to measure height and weight, the equation to calculate BMI, and educational material to give to parents. The educational material will be provided in a pamphlet form that the pediatrician will supplement with verbal education. Parents will be provided with the opportunity which will further increase their understanding. In this step, a pre-project questionnaire can be administered by the nurse. The same questionnaire can be used several months later to measure the effectiveness of the intervention. The cost of printing pamphlets and questionnaires will be included in the budget for this step. Facilitators to this step will be the nurses and pediatrician who will be obtaining these measures and providing education. To maximize on this the information should be easily understood and all resources need to be readily available. Barriers will be the parents’ openness to the subject matter. To minimize this the topic will be approached with extreme sensitivity.

# Evaluation Plan

#  The primary goal of this project is to prevent and reduce childhood overweight and obesity. The preferred long-term outcome for the project is decreased body weight and decreased BMI for children measuring overweight or obese. Favorable results for the long-term aspect of the project can also be no significant change in body weight or appropriate weight gain with an increase in height, resulting in a decreased BMI.  The long-term data for this project will be gathered from patient medical records at the pediatrician’s office. Height, weight, and BMI will be measured at the child’s initial visit and then measured again at a follow-up appointment. Medical charts can be audited to determine if BMI is being recorded on each patient’s chart. Data will be gathered from existing medical records of individual participants.

#  A potential plan for tracking the outcome measure of the long-term aspect of the project will involve the nurse, pediatrician, and project leader. Information will be gathered by the project leader through chart audits before implementing the EBP plan. Participants will be determined based on their relevance to the topic of childhood overweight and obesity. The nurse will record the patient’s height and weight upon their initial visit after the project has begun. The pediatrician will calculate their BMI. This information will be recorded on the chart. At the follow up appointment the same process will occur. The project leader will once again audit charts to determine the effectiveness of the EBP plan. The data can be entered into an Excel spreadsheet making the information easier to manage. Once the project has been completed, the results can be disseminated using organizational reports with easy to read graphs.

# Small Test of Change

## Components of Small Test of Change

 Prior to implementing the project, site cooperation authorization was obtained and approval was received from the Institutional Review Board (IRB) at Auburn University. Participants were provided with an information letter and given time to ask questions regarding the project. They were assured that participation was voluntary there would be no way to identify individual responses.

 Participants were asked to complete an initial questionnaire. This was followed by education on calculating BMI, appropriately measuring height and weight, counseling parents, behaviors to achieve and maintain a healthy weight, the impact of childhood obesity, and parents’ ability to adequately perceive and prevent obesity. Education was provided both verbally and in the form of an informational brochure. Participants then completed the same questionnaire to determine the effectiveness of the education. The questionnaire used a Likert scale of 1 = strongly disagree to 5 = strongly agree.

## Budget

 The proposed budget for the small test of change is very small. The only monetary expenditure for the project was the cost of printing. This cost totaled approximately $20 and included printing stamped IRB protocols, informational letters, questionnaires, and informational brochures used for education.

## Evaluation

 All of the staff members at the pediatric clinic agreed to participate in the project resulting in a sample size of five. The only tools used to evaluate outcome measures were the pre- and post-questionnaires. Data from the questionnaires was entered into an Excel spreadsheet. It was then exported to Statistical Package for the Social Sciences (SPSS). In order to evaluate the short-term outcomes, responses from the pre-education and post-education groups were compared using the independent t-test.

## Project Timeline

 An anticipated timeline was used to record activities planned and a reflective log. Major components of the project were completed over a ten week period. Checkpoints were divided into two week intervals. Progress was recorded and reflected upon at each checkpoint. During the first two weeks the project was still awaiting approval from the IRB board. The initial abstract for the small test of change was completed. During the second two week period I received approval on my educational material from my EBP mentor. The following checkpoint is the time period in which I actually implemented the project with the staff. I had anticipated having the data entered into Excel and SPSS during this checkpoint but failed to do so until the next one. The final two week period was used to complete the poster and oral presentations.

## Findings

 Overall there was an increase in knowledge related to confidence to assess weight, confidence to counsel, confidence to calculate BMI, related health issues, treatment activities, and parental prevention, but the difference did not reach statistical significance (p < 0.05). However there was a statistical significance in changes in knowledge related to the procedure for wearing shoes and clothing (p = 0.040), procedure for scales (p = 0.027), impact of childhood obesity in the US (p = 0.040), treatment with diet (p = 0.040), and parental perception of their child’s weight (p = 0.004). There was no change in knowledge related to obese children’s self-esteem.

Figure 1.

|  |  |  |  |
| --- | --- | --- | --- |
|  | ***Pre Education***  | ***Post Education*** |  |
|  | **M ± SD** | **M ± SD** | **p-value** |
| Confidence |  |  |   |
| Assess Weight | 4.000 ± 0.717 | 4.800 ± 0.447 | 0.065 |
| Counsel | 3.600 ± 0.894 | 4.400 ± 4.548 | 0.126 |
| Calculate BMI | 3.400 ± 0.894 | 4.400 ± 0.548 | 0.066 |
| Procedural |  |  |  |
| Shoes / Clothing | 4.400 ± 0.548 | 5.000 ± 0.000 | 0.040 |
| Scales | 3.000 ±1.414 | 4.800 ± 0.447 | 0.027 |
| Knowledge |  |  |  |
| Impact in US | 4.400 ± 0.548 | 5.000 ± 0.000 | 0.040 |
| Health Issues | 4.200 ± 1.304 | 5.000 ± 0.000 | 0.207 |
| Self-esteem | 5.000 ± 0.000 | 5.000 ± 0.000 | Unable to compute |
| Treatment / Behavioral |  |  |  |
| Activities | 4.600 ± 0.548 | 5.000 ± 0.000 | 0.141 |
| Diet | 4.400 ± 0.548 | 5.000 ± 0.000 | 0.040 |
| Awareness |  |  |  |
| Parental Perception | 4.200 ± 0.447 | 5.000 ± 0.000 | 0.004 |
| Parental Prevention | 2.200 ± 1.095 | 2.600 ± 2.191 | 0.724 |

 Overall there was an increase from the pre-test to the post-test suggesting it is possible to increase the knowledge of staff at a pediatric clinic by providing them with education regarding childhood overweight and obesity. The most significant differences were seen in knowledge about accuracy of parental perception of their children’s weight and the proper procedure for using scales. The results suggest that the participants already had a solid knowledge base on most items, but gained important information in areas that will help them more effectively address childhood obesity in their clinical setting areas.

# Application to Overall Project

 The small test of change could be very beneficial in guiding the overall project if time and resources were available to reach the long-term goals. The small test of change did not involve contact with patients or charts. However, it was still difficult to find a time that was convenient for all of the participants to complete the education portion of the project. In the overall project, contact would be made with patients, parents, and charts. This would require time and cooperation of all members involved in the project. The staff would have to be willing to take the time to calculate BMI and provide education to parents. This could prove to be a problem during a very busy workday.

 Participants were recruited based on their employment at the pediatric clinic. Thankfully, all members of the staff were eager to participate in the small test of change. The overall project would involve recruiting patients and their parents. In today’s busy world, few people are interested in adding more tasks to their long list of responsibilities. Also, the overall project would evolve over a much longer period of time than the small test of change. Many times participants are eager to participate in the beginning but fail to follow through on the long-term goals.

 Using the timeline and reflective log were helpful in keeping the project on track. However, there were several tasks that failed to occur during the expected checkpoints. The overall project would require much more attention to time management. Failing to adhere to a schedule could prevent the project from being a success and long-term goals may not be met.

# Conclusions

 This EBP project concluded that providing appropriate education is an effective way to increase knowledge related to childhood overweight and obesity. A key learning experience has been to not assume that all individuals possess the same level of knowledge. Many participants failed to realize the impact that childhood obesity has on the United States. It was taken for granted that individuals already know how to treat and prevent weight problems. However, it was discovered that many individuals have not been provided with adequate education.

 Developing this EBP project has been a rewarding experience. The hard work and dedication needed over the last three semesters has proven my resilience and strengthened my character. I have learned how to utilize the most up to date evidence based information to enhance my clinical decision making. As an advanced practice nurse, I will be able to use the skills obtained throughout this process to provide my patients with the best care possible.

# References

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Appendix

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| **Evidence Grid:**  |
| **Article citation in APA format** **(10 points)****Level of evidence** | **Purpose of study/research questions** **(15 points)** | **Research elements:** **- Design****- Sampling method****- sample size****- Brief description of interventions (if any)****- outcomes measured****(30 points)** | **Major findings relevant to project** **(20 points)** | **Critique of validity, bias and significance for your project****(25 points)** |
| Bleich, S. N., Segal, J., Wu, Y., Wilson, R., & Wang, Y. (2013) Systematic review of community-based childhood obesity prevention studies. *Pediatrics, 132*(1), e201-e210. doi:10.1542/peds.2013-0886LOE: I | The purpose of this study was to systematically review the effectiveness of community-based childhood obesity programs in the United States and other high-income countries.  | Design: Systematic reviewSampling method: Searched Medline, Embase, PsychInfo, CINAHL, clinicaltrials.gov, and the Cochrane Library for relevant English-language studies. Studies were only eligible is the intervention was primarily implemented in the community setting, had at least 1 year of follow-up after baseline, and compared results from an intervention to a comparison group. Sampling size: 9 community-based studies were included. 5 randomized controlled trials and 4 non-randomized controlled trials. Outcomes: Effects of community-based prevention programs on childhood obesity. | 4 of the 9 studies which used combined diet and physical activity approaches reported significant reduction in adiposity and weight-related outcomes. 1 of the studies reported improvements in physical activity. The evidence suggests that combined interventions implemented in multiple settings like the home, community and school would be the most effective at preventing weight problems. A significant decrease in adiposity was noted in programs that had longer follow-up periods and focused on middle school age and younger.  | Weaknesses: 1. Many of the studies published in this area are of suboptimal study design which can contribute to bias. 2. A lack of published data from unsuccessful programs may lead to a publication bias. 3. Article selection was restricted to English-language articles. 4. The study was restricted to interventions primarily in the community setting which excludes the community as a secondary setting. Strengths: 1. A range of community-based childhood obesity programs from different countries were included. This is a strength for the validity of the study, but my project will take place in a rural area so this study may not relate to my area. 2. Multiple data bases were searched to identify articles. 3. The study provides information for future research strategies for researchers, clinicians, public health practitioners and policy makers. Significance for my project: 1. One of the studies included did review information about community-based interventions in conjunction with home interventions. 2. The same interventions found to be successful in the community could be used in the home setting with equal success.  |
| Lau, D.C., Douketis, J.D., Morrison, K.M., Hramiak, I.M., Sharma, A.M., & Ur, E. (2007, April 10). 2006 Canadian clinical practice guidelines on the management and prevention of obesity in adults and children (summary). *Canadian Medical Association Journal, 176*(8), s1-13. Retrieved July 16, 2013, from [http://www.cmaj.ca/content/176/8/S1.full.pdf+html](http://www.cmaj.ca/content/176/8/S1.full.pdf%2Bhtml)LOE: I | The purpose of this summary was to: -establish a process for developing evidence-based guidelines for the screening, prevention and treatment of obesity in Canada-to provide recommendations regarding application of the following interventions to individuals and populations-to disseminate material to a broad spectrum of health care providers-to assist in public health policy development-to identify gaps in knowledge and suggest a research agenda | Design: Clinical Practice GuidelinesSampling: Pre-specified process overseen by the Steering Committee. Specific chapters were delegated to content experts within the Expert Panel. Recommendations were appraised by an independent Evidence-based Review Committee who assessed whether the assigned LOE reflected the strength of the literature. Outcomes:Recommendations were developed, reviewed and revised through four joint meetings of Steering Committee and Expert Panel. Final draft was reviewed by Steering Committee and external stakeholders and experts including representatives from academia, industry and government and nongovernment officials. Assigned LOE from 1-5. Recommendations graded A-C.  | Measurement of BMI and waist circumference is the first step in determining the level and distribution of adiposity. Measuring of laboratory parameters are recommended to help determine overweight or obese patient’s health status and risk factors. To increase the success of managing and preventing obesity, it is recommended that a health care team for weight management be developed. It is then recommended that a weight management program be initiated and include dietary and lifestyle interventions, assessment by a nutrition health professional, assessment by an exercise health professional, assessment by a psychologist, and long-term monitoring of the patient.  | Weakness: 1. These guidelines were designed based on the need for intervention in Canada. 2. This is a summary of the clinical practice guidelines which includes multiple chapters.3. These guidelines used both BMI and waist circumference to determine level and distribution of adiposity. This is a weakness in relation to my project because I will only use BMI.Strengths:1. Identification of guidelines for preventing and treating obesity in children. Significance for my project:The Canadian clinical practice guidelines will be useful in developing the intervention part of my project.  |
| August, G., Caprio, S., Fennoy, I., Freemary, M., Kaufman, F., Lustig, R., …Montori, V. (2008). Prevention and treatment of pediatric obesity: An endocrine society clinical practice guideline based on expert opinion. The Journal of Clinical Endocrinology & Metabolism, 92(12), 4576-4599. doi:10.1210/jc.2007-2458LOE: I | The objective was to formulate practice guidelines for the treatment and prevention of pediatric obesity.  | Design: Clinical Practice GuidelineSampling: A Task Force was assigned and elected to use the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) method proposed by an international group with expertise in development and implementation of evidence-based guidelines.Outcomes: Recommendations made based on evidence, value and preferences in the following areas: the problem with obesity, diagnosis of overweight and obesity, treatment of obesity (lifestyle, dietary, physical activity, psychosocial, pharmacotherapy, and bariatric surgery), prevention of obesity, and societal barriers.  | Define overweight as BMI 85th-94th percentile and obese 95th + percentile. Recommends evaluating height velocity based on family background and puberty stage. Referral to geneticist if genetic syndrome is suspected. Evaluation of comorbidities if BMI in at least 85th percentile. Prescribing and supporting intensive lifestyle modifications including dietary, physical activity, and behavioral.  | Weakness: 1. No weaknesses or conflicts of interest were identified. The authors made it clear that the guidelines should be used for guidance and are only recommendations for certain areas of practice. They are not to be considered all inclusive and should not take the place of a health care professional’s expert opinion as it pertains to each unique situation. Strengths: 1. Paper is a high quality LOE that provides guidelines for the treatment of the pediatric specific population. Significance for my project: The clinical practice guidelines and my project are specific to the pediatric population. The guidelines will be useful in guiding the development of the intervention of my project.  |
| Akhtar-Danesh, N., Dehghan, M., Morrison, K., & Fonseka, S. (2011). Parents’ perceptions and attitudes on childhood obesity: A q-methodology study. *Journal of the American Academy of Nurse Practitioners, 23*, 67-75. doi:10.1111/j.1745-7599.2010.00584.xLOE: IV | The purpose of this study was to investigate parents of young children for their perceptions on the causes of obesity, the impact of childhood obesity on health, and the barriers to successful prevention of childhood obesity.  | Design: Non-experimental, cohort studySampling: Phase 1- parents attending a clinic for their well-baby checkup were surveyed. Phase 2- convenience sample of parents to receive Q-sample, Q-sort table, short demographic questionnaire and informed consent.Sample size: Phase 1- 20, Phase 2- 100Outcomes: Information on parents’ perception of childhood obesity.  | 33 parents (32 mothers and 1 father) completed the Q-sort table and demographic questionnaire. Mean age for parents and their children was 34.4 years (SD = 4.3) and 16 months (SD = 7.8). Based on self-reported weight and height of the 33 parents, 25 (75.8%) were normal weight (BMI 18-24), 7 were overweight (BMI 25-29), and 1 was obese (BMI ≥ 30). Participating parents had college/university level education. 2 factors emerged representing parents viewpoints: 1. Confidence in delivering healthy nutrition.2. Family physical activity focused. | Weaknesses: 1. Q-methodology is usually not generalizable to larger populations.2. All participants had high levels of education. 3. This study was conducted in a small community where environmental safety may not be an important issue. 4. The mean age for the children was 16 months where my project focuses on the age group of 6-12 years old. Strengths: 1. Q-methodology is used to identify diverse viewpoints and commonly shared views which is useful in research that explores perception. 2. The study found that parents were concerned about their children being overweight or obese as well as health consequences of obesity. Significance for my project:1. This study is relevant to my project because it points out that parental awareness is an important factor in combating childhood obesity. 2. It makes me ask: What aspects of childhood overweight and obesity should be addressed when educating parents? |
| Moore, L. C., Harris, C. V., & Bradlyn, A. S. (2012). Exploring the relationship between parental concern and the management of childhood obesity. *Maternal and Child Health Journal, 16,* 902-908. doi:10.1007/s10995-011-0813-xLOE: IV | The purpose of the study was to identify the factors associated with parental concern about child weight and determine if parental concern is associated with specific actions to improve diet and increase physical activity. | Design: Descriptive Study, Single, Non-experimental, cohort studySampling: Stratified random sampling of parents of students in kindergarten, 2nd, 4th, 5th, 7th, and 9th grade in West Virginia.Sample size: 1,500Methods: Parent interviews by trained personnel using an 82 item structured interview protocol addressing: demographics, parent perceptions, child physical activity, child/family diet, obesity knowledge, interactions with health care providers, and perceptions of the school’s role in childhood obesity prevention. Outcomes: Identification of variables that result in parental concern regarding their child’s weight. Of the 1,500 parents who participated, 95% were white, 74% were female, 90% married, 74% employed, 49% completed high school, 46% were college graduates, 52% provided information about daughters, 48% sons, the mean child age was 10.38 with a range of 5-16 years. Child BMI weight category (Wald = 12.95, P = .005), child gender (Wald = 11.96, P = .001), and parent perception of child weight (Wald = 78.70, P = < .001) were found to be significant variables in parental concern.  | 1. The results of the study indicate that child gender, child BMI weight category, and parent perception of child weight may influence the degree of concern a parent feels about his/her child’s weight, and that concern about child weight may influence parents to take an active role in managing their child’s diet and physical activity levels. 2. Accurate assessment of child weight increases parental concern, but parental misconception of child weight is common. 3. Regular BMI screenings, education, and feedback from health care providers is an excellent way to increase parent’s ability to assess weight.  | Weaknesses: 1. Participants were from a rural state which may decrease the generalizability. 2. The study used parental reports of their own and their child’s behaviors which may decrease its validity. Strengths:1. Participants were from a rural state and my project will also be done in a rural state. 2. The study shows that parental concern and their involvement in managing childhood obesity are directly related. Significance for my project:1. The study explains the factors involved in increasing parental concern which is an important aspect of my project.  |
| Pocock, M., Trivedi, D., Willis, W., Bunn, F., & Magnusson, J. (2009). Parental perceptions regarding healthy behaviors for preventing overweight and obesity in young children: A systematic review of qualitative studies. *Obesity Reviews, 11*, 338-353. doi:10.1111/j.1467-789X.2009.00648.xLOE: V | The aim of this article was to identify and synthesize qualitative research literature regarding parental perceptions about healthy behaviors to prevent overweight and obesity in young children. It also aims to inform those working with parents or caregivers about perceived barriers and facilitators for obesity prevention. The review sought to answer two questions: What are parental perceptions about healthy behaviors to prevent overweight and obesity in young children? What are the perceived barriers and facilitators to these healthy behaviors?  | Design: Systematic review of qualitative researchSampling method: Studies from any established qualitative research that explored parental or caregiver perceptions about behaviors to prevent overweight and obesity in children and/or barriers and facilitators to childhood overweight and obesity prevention. Studies were included if they reported primary or secondary prevention measures. Studies with children with underlying medical conditions and studies relating to children older than 12 years of age were excluded. Sample size: 21 studies were identified for review from the following databases: ASSIA, ChildData, CINAHL Plus, PsychINFO, PubMed, Scopus, and Web of ScienceOutcomes:Revealed 6 organizing and 32 finer level themes relating to child factors, family dynamics, parenting, knowledge and beliefs, extra-familial influences and resources and environment. | One study was conducted in the participant home, one on the hospital setting and the rest in the community setting. Nine studies were based in the USA, five in Australia, five in Canada, one in South America, and one in the United Kingdom. Participants included mothers, fathers, and grandparents. The participants were from a range of socioeconomic backgrounds. 62% of the children were less than five years of age. Parental perceptions about healthy behaviors for child overweight prevention are influenced at many levels and often in complex ways. A child’s food and exercise preferences were influenced by parental and peer role modeling and also by media and marketing and issues such as the influence of day care. The findings represented a range of parental views about barriers and facilitators for obesity prevention. Although parents suggested ideas to promote healthy child weight-related behaviors, such as eating and exercising together as a family or using popular children’s characters to advertise healthy foods, many of the views expressed related to perceived barriers.  | Weaknesses: 1. Publication and other selection bias threaten the validity of all systematic reviews, especially when searching for non-randomized controlled trials. 2. Studies from the English language were the only ones used. 3. The studies were not weighted according to quality. 4. Generalizability is uncertain because the studies were from a variety of countries. Strengths: 1. The review provides an overview of parental perceptions about behaviors to prevent overweight and obesity in young children which adds to the evidence base. 2. Studies were only included if there were no other comorbidities identified and if the children were less than 12 years old. Significance for my project: This study is significant for my project because it identifies parent’s ideas about childhood overweight and obesity. This study only included children less than 12 years which can be helpful as my project focuses on ages 6-12 years.  |
| Hopkins, K. F., DeCristofaro, C., & Elliot, L. (2011). How can primary care providers manage pediatric obesity in the real world? *Journal of the American Academy of Nurse Practitioners, 23,* 278-288. doi:10.1111/j.1745-7599.2011.00614.xLOE: V | The purpose of this study was to provide information regarding evidence based interventions and clinical practice guidelines for a toolkit utilizing a step management approach for the primary care provider (PCP) in managing childhood obesity.  | Design: Purposive sampling of articles to conduct an integrative literature review. Sampling method: Literature review conducted on evidence-based clinical trials, literature reviews and clinical practice guidelines.Outcomes: Provides insight into clinical practice guidelines for interventional and management approaches in healthy overweight and otherwise healthy obese children. Interventions were divided in 3 groups: nonpharmacological, pharmacological, and surgical approaches.  | Nonpharmacological interventions included multiple combinations of psychological, activity, family, diet, and maintenance interventions. Activity interventions yielded the best results when the intervention was intense. Family interventions increased compliance. Behavioral interventions were more successful than psychological. The best results were seen with long-term follow up studies. Pharmacological interventions also suggested diet and exercise. Orlistat had no significant benefit where metformin was effective in the short term. Bariatric surgery is effective for weight loss and improved body image immediately and long term, but many complications are associated. Based on current guidelines, pharmacologic and surgical interventions are not to be considered until all other methods have failed.  | Weakness: 1. It was out of the scope of this article to include children who are overweight or obese with comorbidities. 2. This study focused on the efforts of the PCP in managing childhood obesity, however, it is often too large a task to be completed in the office of the PCP and other resources must be utilized. Strengths: 1. The study does provide a step by step tool for PCP to follow in the management of childhood obesity. 2. Insight into different methods of weight management interventions were explored.Significance for my project: 1. This study provided an excellent step guide for assessing and managing childhood obesity inside the office of the PCP. This will be effective in supplementing my information when I am ready to implement my evidence-based project.  |