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Childhood Obesity Comorbitities Awareness Hospital-based Education

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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2017

Abstract

Childhood Obesity Comorbidities Awareness

Hospital-based Education Program

by

Sandra E McGrath

MSN, Walden University, 2012

BSN, Lakehead University, 1986

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

As childhood obesity continues to increase, so do the comorbidities and related health issues, putting youth at a greater risk of developing adult-related diseases such as hypertension, Type 2 diabetes, and cardiovascular diseases. Current literature indicates that healthcare organizations have a significant role in the fight against this epidemic, yet most children's hospitals have no policy to accomplish this task. The purpose of this project was to develop a program proposal for a hospital-based, sustainable obesity program that will aid in improving patient and family awareness of the importance of maintaining an ideal body weight to decrease the incidences of obesity related comorbidities in pediatric patients ages 2-19 with a Body Mass Index (BMI) greater than or equal to 30. Lewin's theory of planned change and the logic model were used as the theoretical framework to guide the change process for this project through its development. To that end, the proposal was accepted at the site by the executive leadership in consideration for full implementation and evaluation. Key stakeholders and content experts were brought together to create the proposal for the program which includes an algorithm to guide care. The results of this project, once adopted will promote positive change in the quality of life, decrease BMI to a healthy limit, improve overall population health, and reduce healthcare expenditure. Additionally, dissemination of results of the project may stimulate changes in other children's hospitals to adopt the measures of care in the fight against childhood obesity, and contribute to social change.

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Dedication

This DNP project is dedicated to my parents Eulin Lewinson, and Clinton McGrath, my beloved daughter Deneeka Moodie, my siblings Nathalie, Suzette, and Mervin, my niece, nephews, cousins, other family members and close personal friends. Thanks for your support and encouragements.

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Section 1: Nature of the Project

Introduction

Obesity and its comorbidities are currently on the rise, affecting 30% of America's children with a Body Mass Index (BMI) that falls in the 95th percentile for age and gender (Estrada et al., 2014). According to Flynn et al. (2006), this prevalence and issue have become an epidemic in developed countries such the United States, Britain, Canada, and developing countries like Egypt, Asia, and Africa. The Center for Disease Control and Prevention (CDC), in the 2011-2012 data, pointed out that 12.7 million children (which equates to about 17% of children 2-19 years old), fit in the current category of obesity with BMI greater than or equal to 30 (Center for Disease Control and Prevention [CDC], 2015).

The prevalence of childhood obesity is also evident in countries such as the United Kingdom and China. Public Health England reported the latest data on childhood obesity from the National Child Measurement Program (NCMP) that showed that in 2014-2015, 19.1% of children 10-11 were classified as obese, 14.2 % overweight, in children ages 4-5, 9.1 % were obese with 12.8% overweight, which places a large portion of their children at risk for obesity-related health issues (Public Health England [PHE], 2016). If childhood and adult obesity continues on its current path, the expenditure in total health care cost by 2030 is estimated to about $861 to $957 billion (American Heart Association [AHA], 2013). This will result in a significant negative impact on an already limited health care funds in the United States.

Addressing this health issue requires preventive efforts earlier in life and at all levels of the healthcare system using a multifactorial approach that is collaborative and coordinated (Frieden, Dietz, & Collins, 2010).The goal of this project was to develop a program proposal for a hospital-based sustainable program that will aid in improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity related comorbidities in hospitalized pediatric patients.

Problem Statement

Childhood obesity or being overweight affects over a third of children and adolescents in the United States (CDC, 2015). The prevalence of childhood obesity varies significantly by states and ethnicity, with higher incidences in underserved populations such as the one present in Florida. According to the 2007 Youth Risk Behavior Survey (YRBS) reported by the CDC, Florida-ranked 13th out of 50 states in the incidence of childhood obesity, with 11% of youths reported as obese (Trudnak, Melton, Simpson, & Baldwin, 2012). Additionally, the 2013 YRBS reported approximately 106,500 students (14.7%) were overweight (Florida Health, 2013). Unlike other states, Florida has been slow to change policies to address issues related to childhood obesity (Trudnak et al, 2012). With these statistics, it is evident that the children's hospital within the 750-bed tertiary hospital is not immune to this epidemic since it provides care for a diverse population of children ages 2-19 years old. A contributing factor to childhood obesity and its related comorbidities is the lack of knowledge and understanding of the importance of maintaining an ideal body weight and the availability of resources (Young et al., 2011).

The problem identified is the lack of hospital-based childhood obesity education programs aimed at improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidence of obesity related comorbidities in hospitalized pediatric patients ages 2-19 with a BMI equal to or greater than 30. Despite the increase in knowledge and recognition of the negative health-related consequences associated with obesity and substantial research available, the issue is still at the forefront and a major priority for healthcare organizations, policy makers, economists, and various governmental organizations (Craig, Felix, Walker, & Phillips, 2010). Globally, it is estimated that 155 million children can be considered overweight; of this number approximately 30-45 million fit into the obese category (Herouvi, Karanasios, Karayianni, & Karavanaki, 2012).

As obesity continues to increase, so do the chronic diseases associated with it. Surpassing, drug and alcohol abuse, childhood obesity has become the top concern for parents in the United States and other countries today, and steps must be taken to combat this crisis (AHA, 2014). The Healthy People 2020 (2016) indicated an increase in the incidence of obesity with one in six children and adolescents (16.2%) being obese. According to Howe, Wright, Landis, and Kisuule (2010), hospital admissions provide the ideal teachable opportunity to address the issues related to obesity and encourage behavioral changes. A hospital admission may be the trigger, and active participation in the newly developed outpatient multidisciplinary pediatric obesity program will be the primary strategy for reduction of childhood overweight and obesity and the focal point of this DNP project. The proposed program provides a comprehensive, approach to

diagnosing and treating obese children and adolescents through medical, psychological and nutritional support.

Childhood obesity places children at a higher risk of suffering from preventable noncommunicable chronic diseases including Type 2 diabetes, hypertension, musculoskeletal disorders, asthma, sleep apnea, polycystic ovary syndrome (PCOS), and depression (Estrada et al., 2014). Obese children are predisposed to become obese adults suffering from many chronic diseases associated with increased mortality rate of 40% (Craig et al., 2010). Obese children and adolescents tend to have more adverse health problems in comparison to counterparts with a normal BMI.

Treating the chronic health conditions associated with childhood obesity is costly, with an estimated $14 billion dollar price tag and rising (American Nurses Association [ANA], 2010). According to the report from agencies such as the National Conference of State Legislature, the total cost of obesity-related care approaches $150 billion annually, with taxpayers covering about half the cost from the contribution of Medicaid and Medicare, which amounts to approximately $60 billion dollars (National Conference of State Legislature [NCSL], 2014). Childhood obesity was once considered the responsibility of individuals and parents; however, it is now considered a social issue requiring the provision of environmental support and resources to ensure lifestyle changes (Trudnak et al., 2012). As a result, this health epidemic has attracted the attention of organizations such as the World Health Organization (WHO), CDC, ANA, and the Institute of Medicine who have recommended prevention strategies and supported policies to address childhood obesity(Craig et al., 2010). Childhood obesity is

not only a financial burden but also a great threat to the health and future of American children.

This doctoral project holds significance for the field of nursing practice by contributing to scholarship and increasing nursing awareness on the issues of obesity, thereby generating support for change. The project also aligns with the American Association of Colleges of Nursing (AACN)'s Essential V11 that focuses on Clinical Prevention and Population Health for Improving the Nation's Health (American Association of Colleges of Nursing [AACN], 2006). The essential component of any evidence-based practice is the integrations of theory, knowledge, and research to enhance care and improve patient outcomes. As scholar-practitioners, DNP nurses are in a position to bring changes to the bedside through multidisciplinary collaboration and transference of new knowledge. According to Rosswurm and Larrabee (1999), the literature supports the concept that evidence-based practices provide the platform for decreasing the gap between existing research and incorporating research into healthcare practice.

Purpose Statement

The purpose of this project was to develop a proposal for a hospital-based, sustainable obesity awareness program to address the identified issue and aid in improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity related comorbidities in hospitalized pediatric patients with a BMI equal to or greater than 30. The literature indicated that there is a significant gap in diagnosing and the provision of

strategies to decrease the incidences of obesity related comorbidities in healthcare settings. Young et al. (2011) pointed out that all children's hospitals have an important role in identifying children who are overweight and obese; mainly, to provide the needed resources and a safe environment conducive to healthy living. Unfortunately, most hospitals have no policy or programs in place to accomplish this task (Young et al., 2011). Existing programs and interventions are located in primary care settings and community-based settings including schools. This project will help to fulfill the current gap-in-practice, through evidence-based recommendations and interventions that can assist in the fight against childhood obesity and its related comorbidities. Additionally, information gained from the project will provide the evidence needed to develop similar programs in other children's hospitals. Undertaking this project proposal, aimed at improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity related comorbidities, has clear implications for social change in the organization and community.

Nature of the Doctoral Project

The rise in childhood obesity is due to a number of complex issues related to physical, social, and environmental risk factors. Regardless of which risk factors exist, childhood obesity has the potential for serious health consequences in children which progress into adulthood. Ogden, Carroll, Kit and Flegal (2014) reported that although the prevalence of obesity has remained stable as of 2012, 17% of adolescents and one-third of the adult population fit into the category of being obese. The authors alluded to the fact

that childhood obesity is the focus of many public health efforts in the United States today. The project program will provide standardized guidelines and recommendations to guide the care for obese hospitalized pediatric patients, based on the latest evidence-based tools. The goal was to develop a program proposal for the design of a hospital-based program that would aid in improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity related comorbidities in pediatric patients ages 2-19 with a BMI greater than or equal to 30. This was accomplished through the formulation of program proposal packet consisting of an algorithm for a treatment plan, PowerPoint presentation for staff education, and list of resources for patients in addition to a referral process for follow up in the multidisciplinary pediatric obesity outpatient clinic

An electronic chart review process was used for case finding to identify patients with BMI greater than or equal to 30, patients with existing comorbidities, and screening laboratory tests. Program development will include culturally individualized intervention plans developed during hospitalization. The approach that was used in this doctoral project was to convene a project team to identify and search the current literature for evidence-based information on guidelines and tools from the CDC, Robert Wood Johnson Foundation (RWJF), 5210 programs, and the Just for Kids program developed by the University of California School of Medicine. The team consisted of the DNP student, the pediatric dietician, a staff nurse, physician champion, and the administrator. Ongoing meetings were scheduled with the team to design the program with a linkage to

the multidisciplinary pediatric obesity clinic, develop an outline for educational components, implementation, and evaluation plan.

Significance

As BMI increases so does the risk of obesity related comorbidities, which is a major health threat to the childhood population. Childhood obesity has the potential for numerous serious physical and emotional consequences that can impact health into adulthood. The ANA highlighted the importance of hospitals and nursing in educating families and providing resources to decrease incidences of childhood obesity (ANA, 2010). This was also supported by Young et al. (2011) who pointed out that inpatient admissions provide the platform for educating and introducing resources and referrals to the outpatient program to patients and family on obesity prevention, especially to individuals who would not have sought out such resources on their own. Childhood obesity and its related comorbidities are preventable, and the magnitude of its impact cannot be ignored. Like other chronic care, prevention requires practice changes at all levels, including the inpatient settings.

Childhood obesity and related comorbidities are major health concerns in the United States and the world, threatening the health of the population and burdening the health care system(ANA, 2010). The majority of childhood obesity prevention programs are located in clinics, communities, primary care facilities, or schools with limited information on healthcare organizations contribution and involvement. Developing an evidenced-based project to address the issue allows for the provision of standardized care, thereby reducing inconsistency and providing quality care. Hyrkäs and Harvey

(2010) pointed out that today's healthcare organizations thrive on the implementation of evidence-based practices and innovations to meet the needs of the patient population. Organizations such as Transforming Our Community's Health (TOUCH) Foundation have provided the community with a grant award, partnered with local hospitals in Broward County on the healthy patients from birth to adulthood initiative aimed at reducing the incidence of childhood obesity, thereby decreasing healthcare cost and the long-term disabilities resulting from childhood obesity (De Lucca, Phillips, & Richter, 2013). Additionally, translation and dissemination of evidence into practice was an essential role of the DNP project and an example of efforts to implement change and improve patient outcomes and population health.

The implementation of the DNP project in a hospital setting will improve the current approach to addressing childhood obesity in an inpatient setting. The growing rate of childhood obesity and its link to chronic disease requires the development of practice guidelines that provides a multidisciplinary approach to care that addresses the identified gap in practice in the organization. This project will also be beneficial to the stakeholders through the provision of care that meets previously identified needs. Childhood obesity can be classified as a social problem, which has been identified by researchers, healthcare organizations, health professionals as a link to several chronic diseases, which, as it increases, will continue to burden the healthcare industry (Adlerman, Smith, Fried, & Daynard, 2007). According to the CDC (2015), adopting heath behavior changes through increased physical activities, lifestyle changes, and healthier eating habits has the potential to improve the quality of life, decrease weight and BMI, improve self-esteem,

and decrease risky behaviors in adolescents. The significance of designing this model of care will be evident in its transferability in providing evidence-based care in other organizations in the future. Additionally, fostering social change was accomplished through the development of an evidence-based model to improve patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity related co-morbidities.

Summary

This section provided an overview of the project problem, purpose, nature of the doctoral project, and its significance to healthcare and patient outcomes. Childhood obesity prevalence has tripled since the 1980's, and children and adolescents who are obese have a higher risk of developing obesity-related comorbidities (CDC, 2015). The nature of the problem was also addressed in this section. It is evident that healthcare organizations are now more aware that there is need to incorporate evidence-based practices that will influence behavioral changes and improve outcomes. Having plans in place focusing on narrowing the identified gaps in practice in diagnosing and providing strategies to decrease the incidences of comorbidities in healthcare settings is another step in achieving the goals of Healthy People 2020 initiative.

Section 2 of this paper presented the concept, models, and theories, relevance to nursing practice, local background, and content. The role of the DNP student and project team, and context related to the development of a hospital-based program to address the current gap in practice.

Section 2: Background and Context

Introduction

The problem identified was the lack of hospital-based childhood obesity education programs aimed at improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity related comorbidities in hospitalized pediatric patients ages 2-19 with a BMI greater than or equal to 30. The project question was derived from utilizing The Population, Intervention, Comparison, and Outcome (PICO) as a guide to formulate the practice focus question. According to Melynk and Fineout-Overholt (2005), formulating a PICO question aids in the accumulation of the best evidence and research that is relevant to the practice. The question for the DNP project was: Does a hospital-based obesity program aimed at improving patient and family awareness and understanding of the importance of maintaining an ideal body weight decrease the incidences of obesity related comorbidities in pediatric patients with a BMI greater than or equal to 30?

The purpose of this project was to develop a proposal for a sustainable program to address the identified issue and aid in improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity related comorbidities in pediatric patients ages 2-19. This section will also discuss Lewin’s change theory and the logic model that was used as a guide for developing the DNP project. Also, the project's relevance to practice, local background, and content, in addition to the role of the DNP student and the project team will be presented.

Concepts, Models, and Theories

According to Gawlinksi and Rutledge (2008), selecting the appropriate conceptual models and theoretical framework will not only allow for proper implementation of evidence-based practices in an organized process but also maximize time and available resources. Lewin's change theory will be used in the future implementation of the program to help staff with a process to identify patient's readiness to change and guide any further project development (Levasseur, 2001). Lewin's change model can be considered as a simple three step process, consisting of the following phases; unfreezing, changing/moving, and refreezing which helps to move changes at the organizational level (White & Dudley-Brown, 2013).

The first step, unfreezing, focuses on identifying the need for practice changes and the importance of the issue which is incidences of obesity related comorbidity in children, (Levasseur, 2001). The unfreezing stage incorporates strategies to aid in assessing the need for change and creates a sense of urgency. The change would be to understanding the use of the logic model, and developing the intervention to address the problem, and refreezing involves the adoption of the practice change and ongoing evaluation of the interventions (Levasseur, 2001). Refreezing would be evident in the development of a plan of care for patients identified as obese, providing the necessary resources and referral process thereby ensuring program sustainability. According to McEwen and Wills (2014), Lewin's change theory is best utilized when there is the need for planned changes such as designing a program to improve patient and family awareness and understanding of the importance of maintaining an ideal body weight to

decrease the incidences of obesity-related comorbidities. Levasseur (2001) indicated that this model provides an easy tool that is effective in process changes and one that is included in other models over the years.

The logic model was utilized in this project to build the program because of its ability to show the relationship between inputs, activities, outputs, and outcomes. According to Baxter et al. (2014), the logic model is an excellent tool that outlines the evidence and various theoretical assumptions to support the complexity required to ensure the program provides a significant impact on population health. The model was developed according to the concepts of system theory and has been utilized in numerous variations to explain the sequence of events by identifying and matching resources in program development (Kettner, Moroney & Martin, 2013). According to Savaya and Waysman (2005), its origins date back to 1997 with Suchman and 1972 with Weiss and has been used effectively in various formats in education, governmental management, performance management initiatives, and disease management.

Savaya and Waysman (2005) articulated that the logic model is a relatively simple tool that can be used as guide and structure in program development. According to Hodges and Video (2011), it is essential that both primary and secondary stakeholders are involved in the entire project development process, to ensure that guidelines are described, evidence assimilated, and conclusions disseminated. A schematic representation of the process was used to guide the team in the application of the components of the logic model during development, implementation, and evaluation

process of the program. The logic model for this project consisted of the following components: inputs, process, output, outcomes, and impact (See Figure 1)

Formative Evaluation		Process Evaluation	Outcome Evaluations	
Input/Resources	Activities	Output	Outcomes	Impact
Physician Champion Funds Mission, goals & objectives Program design Lewin's change theory Multidisciplinary team development Obesity prevention strategies Customize EMR for screening Examine current literature and existing programs	Extensive Chart review, laboratory screening, Focused Family history. Create pre/post assessment to measure knowledge changes Staff education On Lewin's change theory Develop program guidelines Create guideline for program implementation Create evaluation plan for team	Target population children 2-19 BMI≥ 30 Staff awareness of program Stakeholders & Healthcare providers Patient Education Materials Referral to outpatient obesity clinic Plan evaluation at 6 months and 12 months	Access to educational information on maintaining healthy lifestyle Behavioral changes Access to resources Family participation in physical activities Improved body image Standardized guideline for care	Lifestyle changes Improve quality of life Decrease in BMI Decrease incidence of obesity related co-morbidity Dissemination of findings and review

Figure 1 Logic model framework childhood obesity comorbidity awareness. logic model adapted from W.K.Kellogg Foundation, 2006.

Definitions

The following definitions were used to provide a better understanding of the terminologies used throughout this project:

BMI - Body mass index is a measure to assess body fat based on dividing weight in kilograms by the square of height using age and sex percentile to determine overweight and obesity (CDC, 2015).

Child and Adolescent – For the purposes of this paper, child and adolescent are defined as a population aged 2-19 years of age.

Childhood Obesity - The CDC (2015) defines childhood obesity as a BMI of 30 or above which is above the 95th percentile for children and teens of the same age and sex.

Childhood Overweight – A BMI between 25 and 30 which is at 85th and 95th percentile for children and teens of the same age and sex (CDC, 2015).

Relevance to Nursing Practice

Childhood obesity is a preventable health issue with both immediate and long-term consequences (Beal, 2016). Pediatric nurses in daily practices have the opportunity to develop strategies and plans to address, modify, or prevent these issues. According to Howe et al. (2010), the failure to address obesity and its related comorbidities during patient hospitalization is a lost opportunity to make an impact on the epidemic. Children admitted to the hospital who fall into the category of being obese should have documentation of the health issue addressed and plan of care implemented, similar to incidences of other chronic care diseases (Howe, 2010). The assumption is that staff will utilize the algorithm developed and resources provided when caring for the identified patients/family during hospitalization and make the necessary referral to the multidisciplinary pediatric outpatient clinic. The results from the model of care can be transferred to other hospitals to improve care for pediatric patients with obesity related comorbidities. Additionally, patients/families will become more knowledgeable about the incidences of obesity related comorbidities and make lifestyle and behavioral changes to maintain a healthy weight thereby decreasing their BMI. Gortmaker et al. (2015)

indicated that reducing BMI in childhood has the potential of leading to a lower adult obesity level and a decrease in adult inactivity, thereby reducing healthcare cost, disability, and mortality.

Strategies and standard practices that have been used in the past to address this gap in practice include the development and implementation of pediatric obesity care guidelines (POCG) at the Children's Hospital Colorado. These guidelines were developed to ensure that safe and optimal care were being provided to obese pediatric patients. According to Porter, Thrasher, and Krebs (2012), the POCG is being used as a tool to educate multidisciplinary teams, implementing changes related to work up for obesity related comorbidities, and refer identified patients to services. Another strategy focused on behavioral and family-centered interventions such as the Kids N Fitness, which have been successful in helping children reduce and maintain weight thereby improving their quality of life (Dreimane et al., 2007).

Local Background and Context

According to the CDC (2015), obesity rates have doubled in children and more than quadrupled in adolescents over the last 30 years. The AHA included obesity as the number one health concern among children in the United States surpassing the incidences of drug abuse and alcohol (AHA, 2011). Harper (2006) pointed out that in states like Florida in the year 2000, families living in poverty had a disproportionate number of children who are classified as obese, which resulted in higher governmental healthcare expenditure of about $3.9 billion of which Medicaid paid half. In addition to this issue Trudnak et al. (2012) reported that although schools are aware of their role in combating

this growing epidemic in Florida, they face barriers such as competition between budgetary needs health education nutritional needs. In light of these reports, it is essential that stakeholders in Florida work together in various capacities to decrease the impact of obesity and its related comorbidities on Florida's children. The setting for this project was the Children's hospital within a 750 bed Tertiary hospital with a level 1 trauma center, level 3 NICU, a level 1 PICU, a 53 bed Pediatric unit and the newly developed multidisciplinary pediatric outpatient clinic. As a safety net hospital, it serves a diverse population from various economic and racial groups that are usually affected by childhood obesity and its related comorbidities that would benefit from the proposed program.

Role of the DNP Student

As a clinical specialist and a pediatric nurse for over 25 years, I have had the unfortunate experiences of caring for pediatric patients who currently suffer from obesity related comorbidities at an early age. It is critical that, as a practitioner, I play a role in the fight against obesity, support the organizational goal of providing world-class care to the population we serve and contribute meaningfully to helping the children and family in the surrounding and immediate community. Childhood obesity is a major health concern which requires strategic planning and program development that best fits the needs of a vulnerable population. It is essential that I identify the gaps-in-practice by addressing the problem at an organizational level, research and identify appropriate interventions to address such issue, with the focus on improving outcomes and the health of the population.

My role in this program was to work with the project team to develop the proposal for the program, plan education for staff, and to identify an effective evaluation model /theory that aligns with the project goals and objectives. There were no foreseeable biases at the practicum site that would influence designing a program to aid in improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidence of obesity related co-morbidities. Once the program is instituted, identified patients will be referred to participate in the multidisciplinary pediatric obesity program which provides a comprehensive approach to treating obese children and adolescence through medical, psychological, and nutritional support. The results from this project will contribute to population health by bringing more awareness to the effects of obesity-related comorbidities, which will, in turn, improve the patients' quality of life, and decrease the healthcare cost related to treating obesity-related chronic illness.

Role of the Project Team

The success of the project was directly related to the early identification of the team members for the project which is paramount to ensure engagement and commitment and for establishing the credibility of the program. Developing a program that will increase awareness of childhood obesity comorbidity requires a multidisciplinary team approach. The stakeholders/ team members were individuals who are valuable and had vested interest in the fight against childhood obesity. The team included a physician champion (gastroenterologist), staff nurse, nutritionist/dietician, social worker/case manager, team leader/clinical educator and the administrator for the Children's Hospital.

The team also collaborated to develop the mission, goals, and objectives for the program, in addition to identifying the needs of the organization which highlighted the current gaps- in- practice. According to White and Dudley-Brown (2010), engaging stakeholders early in the project will ensure there are ongoing dialog and sharing of information that will ensure the significant support for a synergistic adoption of planned changes.

Having a clear mission statement not only drives the outcomes from the identified needs but also sets the standards and indicators to be addressed in the program (Hodges & Videto, 2011). A power point presentation presented to the team outlining the current statistic and impact on population health supported the credibility of the program, and brought further awareness to the magnitude of the issue, and its current financial burden. According to the National Criminal Justice Association [NCJA] (2016), team members assist in shaping of the program, ensures availability of resources, contributes to program success, and provides insights that have the potential of gaining organizational support

The roles of the team members were as follows:

- Team Leader/ Clinical Educator: functioned as the facilitator for the project to ensure collaboration among the interdisciplinary team members, expert, and resource to provide staff education.
- Staff Nurse: from the pediatric unit played a vital role in communicating the needs of the staff and understanding of current nursing workflow.
- Dietician/Nutritionist: acted as expert and resource for developing the patient nutritional plan.

- Physician Champion (Endocrinologist/ Gastroenterologist): primary role to communicate information to medical staff and provide patient follow care.
- Social Worker/ Case Management: were the experts and resources in identifying community resources available to incorporate inpatient discharge planning.
- Administrator: acted as the supporter for the program with linkage to the outpatient childhood obesity clinic.

The following timeline outlines the task and how long for the project team to accomplish the task required to develop the program using Lewin's model of planned change and the logic model. The project involved designing a proposal for a program that incorporated interventions and resources, aimed at improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity-related comorbidities in pediatric patient ages 2-19 with a BMI greater than or equal to 30. At the initial meeting the background, literature for the project issue, theoretical models, and framework was discussed, objectives mission and goals were developed. A timeline of five months to develop and educate the staff on the pediatric units once approved was determined by the team. The ongoing meetings facilitated by the student were held to collaborate, provide updates, and review progress. Budget establishment, methods of patient selection, intervention strategies, tools and education materials development, was discussed. The program planning, implementation process and developing an evaluation plan was also discussed during the scheduled meetings. A go-live date for the program was determined by the team leader,

which occurred after the student has fulfilled the developmental planning role of the project. An evaluation plan was also developed to be completed at six months and twelve months post implementation of the program. A comprehensive proposal was presented to the team for feedback and input in preparation for presentation to the Executive Leadership Team for approval.

Summary

In summary, Section 2 provided an overview of the concepts, models, and theories in addition to the relevance of this project development to nursing practice. The theory and model selected provided a guide and framework that will aid in the development, future implementation, collection and analysis of data to support the success of a hospital-based program that is aimed at address the current gap- in- practice. This relates to improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity related comorbidities in pediatric patients ages 2-19 with a BMI greater than or equal to 30. The local background and context, the role of the DNP student, and the role that was played by the Interdisciplinary project team was also highlighted in this section.

Section 3 will begin with addressing the practice focused question and sources of evidence from published outcomes and archival data that was utilized in addressing the practice question. Additionally, the evidence generated from the Doctoral Project, including an analysis and synthesis will be further explained and its transferability in other health care organization with the similarly identified problem.

Section 3: Collection and Analysis of Evidence

Introduction

The purpose of this project was to contribute to scholarship by developing a proposal for a hospital-based program to improve patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity-related comorbidities. Section 3 of this paper will further discuss the practice focused question and outline the sources of evidence used to develop the project. A proposed analysis and synthesis of the DNP project will also be discussed.

Practice-focused Questions

The increasing incidence of childhood obesity comorbidity in South Florida, supported by personal conversations with local pediatricians in Broward County, and the lack of interventions in place in the children's hospital to fulfill the gap-in-practice are the problems motivating this DNP project. A review of the organization's policies and a random review of 100 electronic medical records revealed that in 80 % of the cases of obesity related comorbidity were not addressed in pediatric patients admitted with a BMI greater than or equal to 30. According to a report by Young et al., (2011), hospitals have an important role in changing the current statistic in obesity related comorbidities in children. To address this problem, the following practice-focused question was formulated: Does a hospital-based obesity program aimed at improving patient and family awareness and understanding of the importance of maintaining an ideal body weight decrease the incidence of obesity related comorbidity in pediatric patients with a BMI greater than or equal to 30?

The purpose of this DNP project was to design a proposal for a sustainable program that will include practice guidelines, an implementation plan, and an evaluation plan to address the identified issue. This program will aid in improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity related comorbidities in hospitalized pediatric patients with a BMI of greater or equal to 30. A review of the current literature indicated that there is a significant gap in diagnosing and the provision of strategies to decrease the incidences of comorbidities in healthcare settings (Young, et al., 2014).

The project was developed to achieve the following objectives geared towards improving patient and family awareness and understanding the importance of maintaining an ideal body weight to decrease the incidences of obesity-related comorbidities in a safe hospital environment.

1. Determine and develop a method of assessing patient/families level of awareness of obesity comorbidities.
2. Develop guidelines to educate patient/family on healthy behaviors using an evidence-based practice model to guide care.
3. Develop a multidisciplinary approach to managing childhood obesity comorbidity in a hospital setting.
4. Develop program initiated in an inpatient setting to provide support, motivation, resources for the patient to make incremental changes to foster a healthier lifestyle and improve the quality of life after discharge.

A Gantt chart was developed by the project team to provide a timeline and overview of the process involved in developing this program.

Sources of Evidence

Early identification of the stakeholders and target population is essential in engaging and ensuring commitment. White and Dudley-Brown (2012) stated that engaging the participants early on in the project ensures constructive dialoguing and information sharing to support a synergistic adoption of proposed interventions. A purposive sampling was used to identify and target the particular group of interest. According to Hodges and Videto (2011), in purposive sampling, the researcher concentrates on the characteristic of a group of individuals of interest that will ensure the answers to the research question. My review of the hospital's policy revealed that there are no specific guidelines or policies about obesity prevention or education to aid in improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity-related comorbidities.

Existing provider and staff documentation were reviewed, and observation of current workflow process was done to identify the relevant gaps in the system. Observation allowed the investigator to witness behaviors and identify conditions, instead of relying solely on reports from others, It also provided an in-depth understanding of perceptions and beliefs related to the problem (Hodges & Videto, 2011). A chart review process was developed for case finding to identify patients eligible for the program that included those with BMI greater than or equal to 30, patients with existing comorbidities,

documented focused family history, laboratory values, and interventions provided during hospitalization.

Information on existing programs and interventions utilized to address the gap-in-practice was collected from governmental organizations such as the World Health Organization Commission on Ending Childhood Obesity (ECHO), Robert Wood Johnson Foundation (RWJF), Florida Children's Health Database, CDC, and Youth Risk Behavior Surveillance System (YRBSS). This information played an important role in developing the proposal for the future implementation and evaluation of the program. The program proposal developed for this DNP project was aimed at improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity related comorbidities in pediatric patients.

Published Outcomes and Research

A comprehensive literature search was conducted to obtain evidence on the topic of approaches used in childhood obesity prevention in a hospital setting. Inclusion criteria were established to determine which evidence supported the project. The literature reviewed considered the target population of children 2-19 years of age and treatment plans options for childhood obesity. Family-centered treatment models were also included in the search. Studies included are randomized controlled trials (RCT), systematic reviews, evidence-based guidelines, and theoretical models. Articles focusing on intervention to treat obesity in adults or geriatrics were excluded since the target population is children and adolescent. The following databases were used: CINAHL Plus, Pub Med, National Guidelines Clearinghouse, Medline, Cochrane Library, Google

Scholar, American Journal Pediatrics, Governmental organizations, and State websites. The following search terms; *child, obesity, adolescent, treatment plan, multidisciplinary, hospital, obesity related comorbidities, primary care, Lewin's theory,* and *logic model* were used looking at articles dating back 15 years. However, older articles were included if they were deemed relevant. The information obtained from these sources and presented here enhanced the development of a childhood obesity comorbidity awareness program proposal.

Young et al., (2011) evaluated children's hospitals and the extent to which they have policies in place to identify children who are obese and resources to provide care for this population safely. They surveyed 47 hospitals from the National Association of Children's Hospital and Related Institutions (NACHRI) through a web-based questionnaire asking pointed questions about the hospital environment, which included healthy food service options, physical activity, wellness programs, and policies to address obesity. The survey was completed by the medical directors of the obesity clinics or a knowledgeable individual in the organization. Results from 19 of the 47 hospitals were reported. Of these 19 hospitals, only 37 % had policies in place to identify children who were considered overweight or obese and were able to provide the appropriate treatment (Young et al., 2011). Only two hospitals offered support groups others had some mechanism in place that triggered referrals to weight management programs (Young et al.,2011). Of the remaining hospitals, 84% reported that they are taking steps to have healthier environments (Young et al., 2011). This survey highlighted that fact that there is a gap in providing appropriate care for children that are obese in children's hospitals.

Eneli et al.(2011) summarized the results of the NACHRI survey in 2008 that focused on the following four main topics: (a) perceived value of the obesity program; (b) funding mechanism; (c) administrative challenges; and (d) sustainability of programs and showed that administrators considered obesity programs to be an integral part of organizations' missions and strategic plans. The report also indicated that the hospital's responsibility to participate in obesity programs relies on the leader's ability to recognize and support the multidisciplinary approach needed to tackle childhood obesity at the organizational level (Eneli et al.,2011). The NACHRI survey also provided a platform to enhance communication and understanding among program developers to strengthen and sustain quality care and improve outcomes (Eneli et. al.,2011).This support the value of developing a program with a multidisciplinary approach to such as indicated in the proposal

Howe, Wright, Landis, and Kisuule (2010) reviewed the charts of 276 patients admitted to a hospitalist' service at John Hopkins Bayview Medical Center during a 1month period and found that 136 of the patients fit the category of obesity. Of the 136 obese patients, only 26 of these patients had documentation to substantiate obesity and a plan to address this issue (Howe, et al.,2010). This result showed that there is a lack of documentation to address obesity diagnosis and that as healthcare providers we are ignoring the opportunity to provide valuable teaching to patients that could influence behavioral changes. The authors indicated that weight loss and obesity management required similar behavioral modification techniques such as the ones utilized in smoking

cessation (Howe, et al., 2010). Having processes in place that identifies patient meeting the criteria is an essential component in the success of the proposed program.

The overwhelming concerns about the lack of appropriate interventions and guidelines in place to combat obesity in children led to the Children's Hospital Association FOCUS on a Fitter Future II (FFFII) assembling leaders from 25 leading pediatric centers across the country to collaborate to address the issue (Estrada et al., 2014). The group, after sharing information about their pediatric obesity centers' communication with colleagues, came to the conclusion that even with the vast number of children affected by obesity and its risk factors, there is insufficient training or resources to deal with the problem (Estrada et al., 2014). Also, the shortage of subspecialties has created hazardous situations for obese children (Estrada et al., 2014). Results of Children's Hospital Association FOCUS on Fitter Future collaboration and sharing of information over a 3year period led to the development of the consensus statements for addressing the comorbidities of childhood obesity. The consensus statements provided a practical tool to assist practitioners in the management of children who are overweight and obese, focusing on screening, interpreting abnormal results, and early treatment (Estrada et al., 2014). This article provides valuable information that included the management and care essential to program proposal, development and ensures continuation of care.

Prevalence of obesity in children is another theme that emerged during the literature review. Ogden, Carroll, Kit and Flegal (2014) reported that although the prevalence of obesity has remained stable since 2012, 17% of adolescents and one-third

of the adult population fit into the category of being obese. Ogden et al. alluded to the fact that childhood obesity is the focus of many public health efforts in the United States, with new regulations for food packaging and special nutritional programs by the Department of Agriculture. The major purpose of the study was to analyze the trends in childhood obesity and provide the latest national estimates focusing on data between 2003 and 2012 (Ogden et al., 2014). The analysis of the data was based on the results of the National Health and Nutrition Examination Survey (NHANES), a cross-sectional survey of 9,120 individuals in 2011-2012 (Ogden, et al., 2014). The results of this data showed there were no statistically significant changes in the prevalence of obesity among children and youths, a change from 13.9% to 8.4%; (P =.03), this also stressed the need for continual surveillance (Ogden, et al., 2014). Additionally, the authors noted that governmental organization such as the CDC, the Institute of Medicine, and the United States' surgeon general have continued to fund numerous interventions to address obesity at local community levels (Ogden, et al., 2014).

Singh and Kogan (2009) examined obesity prevalence and socioeconomic status of 46,707 immigrant US born children and adolescents ages 10-17 from 12 immigrant groups stratified by race or ethnicity and generation in the 2003 survey by the National Survey of Children's Health. Prevalence of being overweight and overweight was examined using logistic regression and showed a variation of 6(18%) in second-generation Asian immigrant children to 24(42%) for native-born, black, American children (Singh & Kogan, 2009). Additionally, when adjustment for age, gender, ethnicity, socioeconomic status, and involvement in physical activity was completed, it

showed that first-generation immigrant children had a 26% lower chance of being overweight or obese than native-born children (Singh & Kogan, 2009). The results of the study showed that substantial variation exists in the prevalence of obesity and overweight in ethnic immigrant groups in comparison to native-born counterparts (Singh & Kogan, 2009). This indicates that obesity prevention programs must be developed to target children at risk from both US-born and immigrant children, which represents a significant portion of the children in Broward County.

A study by Sacher et al., (2010) aimed at evaluating the effectiveness of using the Mind, Exercise, Nutrition, and Do (MEND) intervention program in a randomized controlled trial with 116 obese children with a BMI $\geq 98^{th}$ percentile in the United Kingdom. The children were assigned to either an interventional or a control group. Both parents and children were exposed to 18 2-hour education and physical activity sessions twice per week, in addition to being provided with a 12-week swimming pass (Sacher et al., 2010). Baseline measurement of waist circumference, BMI, body composition, physical activity level, sedentary activities, cardiovascular fitness level, and self-esteem was completed and followed up at 6 months (Sacher et al., 2010). A 12-month follow-up was also completed by Sacher et al. post intervention for both groups, which showed significant differences in baseline measurements of the control group in the components measured. At 6 months there was a z-score (-0.37; P <0.0001) reduction in waist circumference with a BMI z-score (-0.24; $P < 0.0001$) when comparing the intervention group to the control group (Sacher et al., 2010). The significance and effectiveness of the program was validated at the 12 month, with a mean attendance of 86%, a waist

reduction of z-score by 0.47 (P <0.0001), BMI z-score of 0.23(P <0.0001) with sustained results in cardiovascular fitness, physical activity and self-esteem (Sacher et al., 2010). The results indicated that programs such as the MEND support the recommendations that multicomponent interventions are effective in addressing childhood obesity and is also appealing to families.

A few articles featured hospital-based programs, such as Porter, Thrasher, and Krebs' (2012) study which examined the safety of obese pediatric patients in freestanding children's hhospitals. The team developed a needs assessment survey to identify the gaps in practice and evaluated available literature from which they developed clinical guidelines, POCG, related to safety and care of obese children in hospitals (Porter, et al., 2012). The tool provides a basis to assist multidisciplinary teams in other Freestanding children's hospitals in implementing changes to ensure the institution is adequately prepared for treating obese pediatric patients (Porter, et al., 2012).

Also in the hospital setting, Dreimane et al. (2007) examined the effectiveness of Kids N Fitness lifestyle program for overweight children aged 7 to17 consisting of 12 90-minute sessions in an outpatient setting. The 417 subjects from the original enrollment were referred to the program from the hospital, community physicians, schools, and self-referrals met the eligibility criteria of; age 7-17, BMI $\geq$, 85th percentile, no physical limitations, and parental involvement (Dreimane et al., 2007). At the completion of the study, only 264 participants (63%) attended at least half of the sessions, 137 female and 127 male were included in the cohort study (Dreimane et al., 2007). The study included an 8- and a 12-weekintervention program over a 6 year period that included nutrition

education, exercise, behavior, and family involvement. The results of the study showed that the Kids N Fitness program resulted in reduced BMI, *z*-scores and an improvement in emotional well-being correlated with a weight loss of (p=0.005) (Dreimane et al., 2007). In light of the identified limitations of the study, the low retention rate, low attendance in both the 8- and 12-week sessions, and the socioeconomic status of the participants, the result still showed marked positive health outcomes, which supports the concept that lifestyle enhancement and family involvement can aide in the fight against childhood epidemic (Dreimane et al., 2007). This supports the linkage to the outpatient obesity clinic in addition to the resources provided in the proposal.

Another study by Speroni, Tea, Earley, Niehoff, & Atherton (2008) evaluated the effect of the hospital-based intervention program Kids Living Fit for children ages 8-12 with BMI greater than or equal to 85th percentile. This study consist of 32 participants and used a convenience sampling of participants who were able to read and write English. Additionally, participants had to pay $100 fee to participate in the program. The Kids Living Fit program incorporated exercise and nutritional education with a focus on lifestyle choices, nurses' recorded height, weight, and waist circumference of participants at baseline, Week 12, and Week 24 (Speroni, et al., 2008). The study also utilized the CDC online BMI calculator for participants' scores (Speroni, et al., 2008). Individuals participated in a weekly 1-hour exercise program focusing on aerobics, dance, and engaging muscle groups in addition to the reinforcement of healthy lifestyle changes by a fitness trainer (Speroni et al., 2008). Nutritional education included a food diary and participation in group meal planning incorporating healthy choices. The results from

showed an overall mean decrease in average BMI from baseline to 12 weeks of (-0.4) and (-0.6) at 24 weeks, the mean percentile was also decreased by (-0.6 and -0.9) respectively with a percentile reduction of waist circumference from baseline (35.5 inches) to (35.0 inches) a (-0.5) difference at Week 12 and decrease to (34.8 inches) (-0.7) over the 24-week period (Speroni et al., 2008). A follow-up BMI calculated using the Z-score indicated that no values were more than two standard deviations from the mean (Speroni et al., 2008). Additionally, participants were also analyzed according to their baseline risk of being overweight (85^{th}-95^{th} percentile) and or classified as obese ($\geq 95^{th}$ percentile) this showed a decrease in both BMI and waist circumference (Speroni et al., 2008).The study had some limitations as identified by the authors, such as the sample size, cost for participating, lack of control group, and weekly program follow-ups due to family and social constraints (Speroni et al., 2008). Even with the identified limitations, the study not only further validated the benefits of hospital-based programs ability to target a population at risk for future health issues ,but also the opportunity to target individuals who may be reluctant to participate in other programs due to fear of being singled out (Speroni et al., 2008).

Some studies focused on the detrimental effects of obesity in children. As an example, Freedman et al. (1999) reported on the result of seven cross-sectional studies done in the Bogalusa Heart Study of 1973-1994 that included 9,167 participants ages 5-7, examining the relationship of overweight to risk factor levels in this age group. The result showed that a large portion of these children, about 58%, had at least one risk factor and when using overweight as a method of screening, the conclusion could be made that 50%

of school children suffer from two or more risk factors such as asthma and diabetes (Freedman et al. 1999). Further review showed that the AHA (2014) indicated that obesity is currently causing health problems that are usually seen only in adults, such as hypertension, type 2 diabetes, elevated lipid and cholesterol levels. In addition, the psychological impact of obesity is currently resulting in lower self-esteem problems and behavioral consequences in children.

Byington, Keene, and Samples (2008) completed a descriptive epidemiological literature review in addition to an analytic epidemiology review of current literature summarizing and evaluating hypotheses and the effectiveness of the interventions used in public health to target this global issue. The authors provided information relating to the prevalence, causes, and effects of childhood obesity through the literature review. By examining and evaluating the available literature on targeted intervention for childhood obesity, the authors identified that the most effective interventions were ones with family/ parental unit involvement. Children usually rely on parents/caregivers to provide meals and opportunities to participate in any form of physical activity. The results from the epidemiological overview of successful evidence-based interventions provide sufficient evidence for Byington et al.(2008) to conclude that childhood obesity is greatly affected by parental behavior, therefore choosing strategies to modify parental behaviors will be effective in addressing obesity in children and adolescents.

In addition to articles on obesity prevalence and prevention strategies, the literature review identified a few articles about how the electronic medical records can assist in the fight against childhood obesity. One such study is by Savinon, Smith Taylor,

Canty-Mithcell, and Blood-Siegfried (2012), which investigated if customizing the electronic medical record (EMR), using evidence-based practice guidelines to assist with screening, prevention, and treatment of childhood obesity in children age 7-18 would improve practitioners ability to better screen and diagnose children that are obese. A retrospective review of records before and after customization of EMR, focusing on documentation of BMI, growth charts, and a scoring questionnaire was conducted in a community health center in North Carolina. The setting was a federally funded private practice with Medicaid, private insurance, and uninsured pediatric patients from varying ethnic background (Savionon, et al., 2012). A sample of 74 medical records was reviewed, 40 were written, and the remaining 34 were electronic. Prior to the implementation of the EMR only 2.6% of their 421 patients was diagnosed as obese or overweight which was well below the 32% rate identified in the 2009 survey done by the state and also the national rates(Savionon, et al., 2012) The study showed that after the implementation of the EMR documenting accurate BMI, completing growth chart , and completing risk assessment questionnaires occurred about 62% of the time, an increase of about 94% in plotting the BMI on the growth charts, and an overall increase from 3%-12% in diagnosing obesity(Savionon, et al., 2012). The results from the study showed only a slight increase. However, it demonstrated that customization of EMR using clinical guidelines, improves practitioners frequency and adherence to screening recommendations, in addition to more specific documentation and referral process for obese children (Savionon, et al., 2012). Having accurate screening and earlier diagnosis leads to developing appropriate interventions to decrease childhood obesity prevalence

Evidence Generated for the Doctoral Project

The target population included hospitalized pediatric patients ages 2-19 with a BMI greater than or equal to 30 and staff nurses working in the pediatric units. Developing a successful program requires that all components work synergistically to ensure that it contributes to the growth and wellbeing of the population. The following steps were taken in the development of this proposal for the obesity program:

1. Assembled a multidisciplinary team of primary stakeholder's, individuals with vested interest in the project:
2. Guided the team through a literature review of relevant evidence.
3. Developed practice guidelines using evidence-based literature.
4. Developed algorithms for a plan of care for pediatric patients with BMI greater than or equal to 30.(Appendix A)
5. Developed PowerPoint presentation to be used for proposal and staff educational. (Appendix C)
6. Developed an evaluation plan to be conducted at 6 and 12 months post implementation by the team leader.
7. Developed a list of resources for patient and family.(Appendix B)

An exhaustive literature review was completed to be presented to the project team and stakeholders for review. This information was used in the proposal for the program design, development, implementation plan, and outline the training program ensuring that it aligns with the facilities mission and vision. Establishing how the program fits into the overall strategic goal of the organization was an important role of the team. The team was

provided with the literature relating to the theoretical framework to be utilized; in addition to any potential restraining forces and barriers will be identified early in the process.

The goals of the proposed program are to:

1. Promote healthier eating habits and a reduction in the behaviors that encourage weight gain.
2. Provide support, motivation, and resources for patient/ families to make incremental changes to foster a healthier lifestyle through referral to the newly developed Multidisciplinary Pediatric Obesity Clinic.
3. Improve the quality of life evidence through the decrease in BMI below or equal to 25 accompanied by an absence of obesity related co-morbidities.

In abiding with the requirement of human subjects' protection and institutional review boards, the project proposal was submitted to both Walden University Institutional Review Board (IRB) and the Organizations (IRB).However, due to the nature of the project IRB approval was not required from the organization. Hodges and Videto (2011), pointed out that projects that require data collection from individuals, including needs assessment and evaluation, will require permission to proceed. All participants' privacy and confidentiality were protected during the development of the proposal for the program.

Analysis and Synthesis

The results extracted from current documentation in the electronic chart were reviewed and analyzed by the project team to identify existing patients that meet the

criteria for the program. This information was used to develop a structured program that addresses patient needs, treatment, educational follow-up in collaboration with a multidisciplinary team including; nutritionist, endocrinologist, psychology, social worker and administrator. Referral to the Pediatric Obesity Clinic and information on how to access locally available resources in addition to list of free web sites was developed for the team to be provided to the identified patients.

Evaluation

An effective evaluation for a project aimed at improving patient and family awareness and understanding the importance of maintaining an ideal body weight to decrease the incidences of childhood obesity-related comorbidities in pediatric patients will ensure that the activities, goals, and objectives of the project accomplished the expected outcomes. Friis and Sellers (2009) stated that a program evaluation allows for review of the effectiveness of the program, monitors quality, and ensures the use of evidence-based practices. According to Hodges and Videto (2011), when evaluating a program answers to the following must be addressed and answered the implementation, effectiveness, efficiency, cost-effectiveness, and the attrition rate. There will be both formative and impact evaluations used in this project. Formative evaluation is used when seeking information or for the development and improvement of a particular program to determine if the interventions met the goals and objectives (Bartholomew, Parcel, Kok, & Gottleib, 2006). According to Hodges and Videto (2011), the impact evaluation evaluates the extent to which the project achieved its short-term outcomes. The approach that would best guide this evaluation process is the logic model as it provides a visual map

depicting the relationship of the activities involved in the program development and the entire life of the program (W.K. Kellogg Foundation, 2006)(See figure 1). As indicated the role of the DNP student was to work with the project team to design the program, complete a proposal with necessary changes, feedback, and approval for implementation in the pediatric units at the hospital.

The program impact should be evaluated at 6 months and 12 months post implementation by the project team. The following questions were developed to be used by the project team in the evaluation process when monitoring the effectiveness of the program.

1. Was the program implemented as designed?
2. What changes could be made to improve the program?
3. What were the challenges experienced with implementation?
4. How well did the participants achieve their outcome such as a decrease in BMI and decrease of an inpatient admission for obesity related co-morbidities?
5. How did the patient outcome change after program implementation, relating to the percentage of patients identified and referred to the outpatient obesity program?

6. The length of time participants formally enrolled in the outpatient program remained in order to achieve their goals?

Additional data for the team to analyze would include identifying the specifics for each category to determine if overall compliance was greater than a predetermined benchmark of 75 %, (currently there is no national standard set for such program) by looking at:

1. What percentage of individuals remaining in the program at 6 month and 12 month period?

2. What percentage of participantsaccomplished 75 % of program goals?

3. What percentage of individuals identified and referred to the Outpatient Clinic that remained in the program?

Summary

This section provided the opportunity to restate the problem, purpose, and goals, and outlined the sources of evidence that will guide the project. Designing a hospital-based program to improve patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity related comorbidities in patients with a BMI of greater than or equal to 30 will fulfill the existing gap-in-practice. The strategies that were developed have the potential of decreasing the incidences of chronic diseases and early death in the adult population as a result of obesity in childhood. Additionally, having obesity programs add value to children's hospitals by meeting the needs of the patients and their families, healthcare

providers, and supports healthy lifestyle thereby preventing future health problem in children (Eneli et al., 2011). Section 4 of this paper will discuss the findings and implications, recommendations, the contribution of the doctoral project team, in addition to the strengths and limitation of the project.

Section 4: Findings and Recommendations

Introduction

Childhood obesity remains a major health concern affecting over 155 million children globally (Herouvi et al., 2012). The problem identified is the lack of hospital-based childhood obesity education programs aimed at improving patient and family awareness and understanding. Additionally, there is also the lack of knowledge in maintaining an ideal body weight, to decrease the incidences of obesity related co-morbidities in hospitalized pediatric patients ages 2-19 with a BMI greater than or equal to 30. The practice-focused question that was developed for the DNP projects is: Does a hospital–based obesity program aimed at improving patient and family awareness and understanding of the importance of maintaining an ideal body weight decrease the incidences of obesity related comorbidities.

A systematic literature review was conducted using the simultaneous CINAHL/Medline, Pub Med, Cochrane Library, Google Scholar, American Journal Pediatrics, Governmental Organization, and State websites with a combination of the following search terms*; child, obesity, adolescent, treatment plan, multidisciplinary, hospital,* and *obesity related comorbidities*. Literature from the systematic review showed success in establishing childhood obesity program in various organizations. The theoretical frameworks used for the DNP project include Lewin's change theory and Kellogg's logic model to develop the proposal and guide the project team. In Section 4 of this paper, the findings and potential implications, recommendations, contribution of the doctoral project team, and strengths and limitations of the project will be discussed.

Findings and Implications

As this was a developmental project, it was not implemented; therefore, there are no available findings. The project focused on the development of a comprehensive, evidence-based proposal for a hospital-based childhood obesity comorbidity awareness program for a children's hospital in a local community. An implementation and evaluation plan as previously described was presented as a recommendation to the organization's executive leadership team to verify the feasibility, appropriateness, and applicability. The feedback received from the executive leadership team was positive and promising.

The development of the proposal for an evidence-based childhood obesity awareness program yielded several implications as it relates to practice, research, and social change. The project, when implemented, has the potential to address the gap in practice in this organization as it relates to identifying and addressing obesity in pediatric patients 2- 19 years old. Having a plan of care in place to address and fulfil the role of children's hospitals in the fight against childhood obesity will be proactive in increasing the awareness about the concerns of obesity related comorbidities. Adoption of an evidence-based practice model, coupled with an algorithm (Appendix A), detailing the process and clinical decision provides a clear and concrete method for influencing nursing practice change. Additionally, the project aligns with the Institute of Medicine's goal of having 90% of patient care decision based on evidence-based practices (Nurse.com, 2012). The successful implementation and dissemination of the project, in

addition to improving practice, may lead to implementation and adopt other evidence-based practices in the pediatric areas of the institution.

Recommendations

The recommendations are based on the identified limitations for the future proposed implementation of the program. Included in the proposal was the recommendation for developing the project team that would be responsible for the implementation, evaluation, and ongoing monitoring of the program as this was a developmental project. Completing and piloting the program once the changes have been made to the EMR, staff education regarding a change in workflow, and new referral process is another recommendation for the program. Additionally, further research is recommended regarding referrals and reimbursements to ensure there is adequate coverage, especially for the economically challenged population.

Contribution of the Doctoral Project Team

As this was the development of a proposal and time limitations the contribution of the doctoral projected was limited. The project team only had two formal meetings with multiple meetings and correspondence by phone. This was due to a number of conflicts relating to participants' schedules and their availability once IRB approval (11-18-16-0185983) was received and the presentation of the proposal to the organization's Executive Leadership team. The established project team will be responsible for the future implementation, evaluation and ongoing monitoring of the obesity program.

Strengths and limitations of the project

There are several strengths and limitations of this project. The program proposal was based on current evidence-based literature, which serves as one of the major strengths of the project. Another, strength of the project is that the model of care can be transferred to other hospitals to improve care for pediatric patients with obesity related comorbidities thereby improving the quality of care and patient outcomes. Additionally, the project contributed to the health of a specific population thereby satisfying the AACN Essential V11 (AACN, 2006).

An identified limitation was the inability to pilot the program once acceptance was obtained from the executive leadership team. Another limitation is that the program could require financial and resources customizing the EMR require administrative approval. The referral process for patients meeting the established criteria for the outpatient multidisciplinary obesity as it relates to reimbursement is a limitation since there is currently no existing reimbursement model in place. Other confounding factors such a patient's economic status, staff engagement, culture, and willingness to incorporate changes into everyday practice could pose as potential limitations.

Summary

This section provided the opportunity to restate the local problem and, the gap in practice that was used to develop the practice-focused questions and explained the purpose of the doctoral project. Findings, implications, recommendations, strengths, and limitations of the project were highlighted. In Section 5 the dissemination plan for this

project, in addition to completing and analysis of self with a summary statement of the doctoral project will be described.

Section 5: Dissemination Plan

Disseminating scholarly projects is a hallmark of the scholarly practitioner and provides the opportunity to implement guidelines and solutions to many of today's healthcare challenges. The effective presentation of scholarly knowledge is critical and requires careful thought, logical format, and a clear focus. According to Hand (2010), identifying the target audience and choosing the method of dissemination is an essential in the planning and preparation of the presentation. It is important that projects are reported to stakeholders, the academic community, and organizations with-similar demographics. Project information and results dissemination can be beneficial and easily translated to other children hospitals having similar gaps in practice.

Dissemination through PowerPoint presentation

A PowerPoint presentation was the method of choice for presenting the proposal for a childhood obesity comorbidity awareness hospital-based program with handouts to the organization's executive leadership team. Shepherd (2006) pointed out that the use of PowerPoint presentations has evolved over time with the use of multimedia technology and provide an array of visual animations that can enhance the speaker's effectiveness. Concentrating on delivering a consistent message throughout the presentation will engage the audience, thereby increasing and enhancing their understanding of the issues related to the growing epidemic of childhood obesity (Pugsley, 2010).

Dissemination through Poster Presentation

Another effective method of dissemination of this DNP project is through a planned poster presentation at the annual South Florida Nursing Consortium. According

to Forsyth, Wright, Scherb, & Gaspar (2010), poster presentations provide up to the minute information, informs about changes in process and outcomes, in an open forum concept, electronically on list serves, and websites without being bound by time constraints. Conference presentations provide major benefits, particularly in being able to reach a larger audience.

Dissemination through Publication

Publication in an academic nursing journal is another method for the project dissemination. An abstract or article written in a peer-reviewed journal such as the *Journal of Pediatric Nursing* or *Journal of Obesity Care* would be an ideal method to discuss the development of an evidence-based inpatient program proposal addressing in obesity program aimed at improving patient and family awareness and understanding of the importance of maintaining an ideal body weight decrease the incidences of obesity related comorbidities. Both journals have the ability to reach nurses and leaders who are involved in improving the quality of care and increasing patient outcomes.

Analysis of Self

The past 2 years of doctoral education has expanded my engagement in a higher level of academic activities which included program planning and development. Developing a program proposal for a hospital-based program that is aimed at improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity related co-morbidities in pediatric patients ages 2-19 with a BMI greater than or equal to 30 has been a valuable experience

The experiences have supported my development and growth as a practitioner, scholar, and project developer.

As a Practitioner

By involving in clinical research and assimilation of the information to develop solutions to address common health issues provided the opportunity for this writer to develop as a scholar-practitioner and fulfil Essential III as defined by the AACN for the DNP practitioner (AACN, 2006). The doctorate preparation provided me with a better understanding of the leadership role. Throughout my experiences, I was able to see the leadership role and it multidimensional complexity in a new light. My leadership skills and experience with group dynamics were limited; I now have better appreciation for the different leadership roles, increased my knowledge base, strengthened my ability and confidence in systems thinking

As a Scholar

Scholarship, as defined by the AACN includes activities that support the advancement of the nursing profession through rigorous inquiry that is significant in areas of teaching, research, peer-review and provide results that can be replicated (AACN, 1999). Through course work and the development of the evidence-based obesity program proposal for the DNP project, I have been able to contribute to nursing scholarship. In preparation for the program proposal, I have increased my ability to comprehend better, appraise, and interpret available literature on childhood obesity epidemic and its effect on the pediatric population. Sharing information at conferences and through publication, thereby generating new knowledge to improve practice and

encouraging professional growth further displays my role as a scholarly practitioner and change agent. Zaccagnini and White (2011) pointed out that the cornerstone of the DNP prepared nurse is able to translate research findings into practice in order to improve patient outcome and practice.

As a Project Developer

The process and development of the DNP project, although challenging, has provided valuable a learning experience in areas of project development; the importance of planning, prioritization, reviewing, and incorporating evidence-based practices into scholarly programs. The opportunity to present the program proposal to the executive leadership team has facilitated an improved level of confidence in my ability to engage in future program development. Additionally, I discovered the translation of evidence into clinical practice requires planning, availability of resources, and commitment as a DNP practitioner.

Summary

Developing a proposal for the development and implementation of an inpatient obesity program aimed at improving patient and family awareness and understanding of the importance of maintaining an ideal body weight to decrease the incidences of obesity-related comorbidities provided a model of care that is transferable to other organization. The algorithm and list of resources will help in early identification of patients meeting criteria and ensure the provision of appropriate interventions. A PowerPoint developed for the dissemination of the proposal will educate staff on the current childhood obesity statistic, and the impact on the health of the pediatric population age 2-19. Additionally,

it will also bring further awareness to the magnitude of the problem. The program fulfills the identified gap-in-practice, contributes to the positive patient outcome and supports the growth and development of this DNP graduate.

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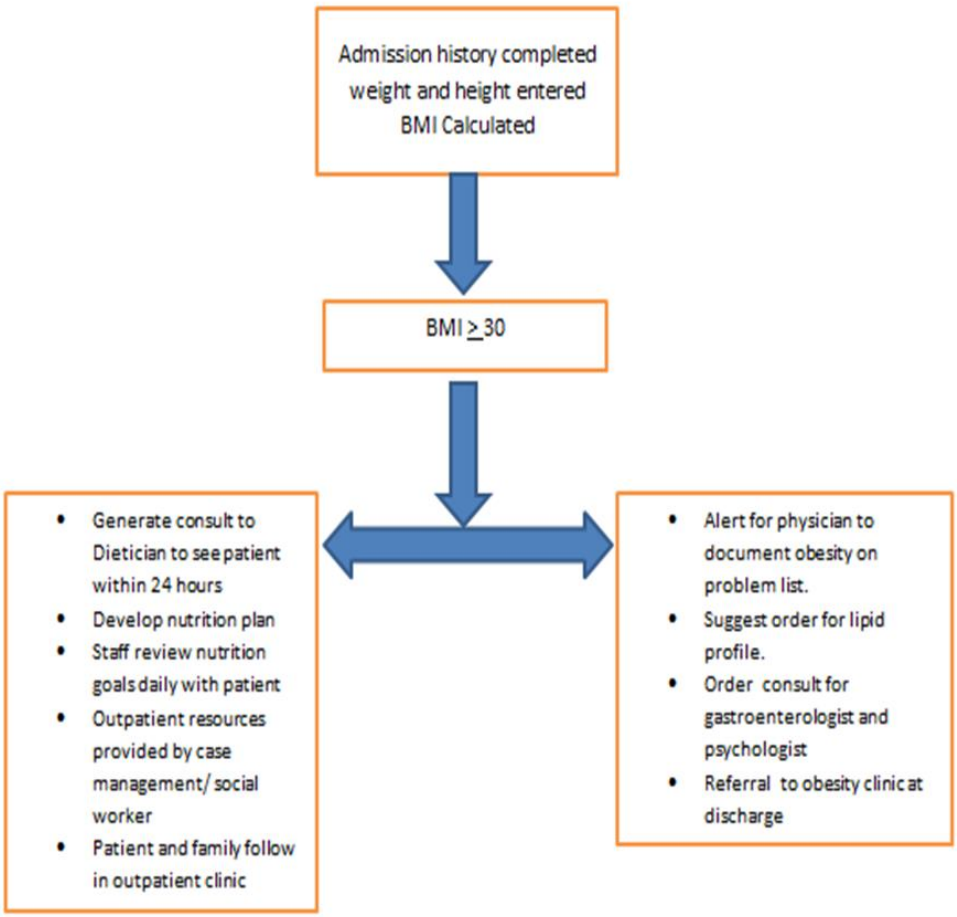
Appendix A: Childhood Obesity Algorithm



Appendix B: Childhood Obesity Websites

Resource Information to assist parents in developing healthier lifestyle.

1. BAM! Body and Mind –www.bam.gov/
2. Childhood Obesity Prevention Program lets go Main http://www.letsgo.org/
3. http://www.letsmove.gov/.
4. DHHS, AIM for a Healthy Weight. https://www.nhlbi.nih.gov/files/docs/public/heart/AIM_Pocket_Guide_tagged.pdf
5. Finding Your Way to a Healthier You: Based on the Dietary and Guidelines for Americans (U.S. Department of Health and Human Services, and U.S. department of Agriculture) http://www.health.gov/dietaryguidelines/dga2005/document/pdf/brochure.pdf.
6. Kids Health Web Site-America's most popular site for kids health.http://www.kidshealth.org
7. Kidnetic-www.kidnetic.com/
8. Max's Magical Delivery .http://www.ahrq.gov/child/dvdobesity.htm.
9. Shape Up America-www.shapeup.org.
10. Smart-Mouth.org-www.cspinet.org/smartmouth/
11. Verb-It's what you do-www.verbnow.com/
12. 5210 Let's Go! • Florida Department of Health. www.5210letsgo.com

Appendix C Power Point for Dissemination

Childhood Obesity Comorbidities Awareness Hospital-based Program

Sandra E McGrath MSN
DNP Program

Background

- Childhood obesity rates have dramatically increased in the United States and other developing countries (Trudnak, Melton, Simpson, & Baldwin, 2012.
- Globally155 million children can be considered overweight
- 30-45 million fits into the obese category (Herouvi, Karanasios, Karayianni, & Karavanaki, 2012)

Background

- 30% of American children are affected by obesity (Estrada et al., 2014).
- In 2011-2012 ;12.7 million children fits in the category of obesity with BMI greater than or equal to 30 (Center for Disease Control and Prevention [CDC], 2015).

Background

- Childhood obesity prevalence varies significantly by state and ethnicity.
- Higher incidence in underserved population
- Florida currently ranked 13th out of 50 states in the incidence of childhood obesity(Trudnak, Melton, Simpson, & Baldwin, 2012

Contributing Factors

- Decrease knowledge
- Lack of understanding importance of maintaining ideal body weight
- Lack of available resources
- Physical and social factors
- Environmental risk factors

Problem

- Lack of hospital-based childhood obesity education programs aimed at improving patient and family awareness and understanding.
- Lack of knowledge for maintaining an ideal body weight, to decrease the incidence of obesity related co-morbidities in hospitalized pediatric patients ages 2-19 with a BMI greater than or equal to 30.

Purpose

- The focus of this project is to develop a sustainable program to address the identified issue childhood obesity in hospitalized children.
- The business impact of this issue is improve family awareness and understanding of the importance of maintaining an ideal body weight.
- The social impact of this project is to establish understanding and recommendations to guide the care for obese hospitalized pediatric patients.

Nature of the Project

- Gap in practice
- No hospital policy on obesity
- Insufficient hospital based program to address childhood obesity
- Few existing programs and intervention
- Only community or school based program in surrounding area.

Research Design

- Examine current literature for evidence-based information on guidelines and tools
- Review information from CDC
- Robert Wood Johnson Foundation (RWJF)
- 5210 program
- Just for Kids program developed by the University of California School of medicine

Project Goal

- Design proposal for a hospital-based program
- Formulate treatment plan with an algorithm
- Provide Staff education
- Patient/ family education
- Resources and referrals
- Follow-up in the multidisciplinary clinic

Theoretical Framework/ Models

- Lewin's change theory, best utilized when there is the need for planned changes such designing a program to improve patient and family awareness and understanding (Levasseur, 2001). .
- Stages include:
- Unfreezing:- assessing need for change and importance.
- Changing: moving, understanding the use of the logic model
- Refreezing: adoption of practice change

Theoretical Framework/ Models

- The logic model will be used to build program
- Provides visual systematic presentation of the relationship among input, activities, output and outcomes (W.K. Kellogg Foundation 2004).
- Useful schematic tool for formative, process and outcome for program evaluation.

Logic Model Framework Childhood Obesity Comorbidity Awareness

Formative Evaluation		Process Evaluation	Outcome Evaluations	
Input/Resources	Activities	Output	Outcomes	Impact
Physician Champion Funds Mission , goals & objectives Program design Lovin's change theory Multidisciplinary team development Obesity prevention strategies Customize EMR for screening Examine current literature and existing programs	Extensive Chart review, laboratory screening. Focused Family history. Create pre/post assessment to measure knowledge changes Staff education On Lovin's change theory Develop program guidelines Create guideline for program implementation Create evaluation plan for team	Target population children 2-19 BMI≥ 30 Staff awareness of program Stakeholders & Healthcare providers Patient Education materials Referral to outpatient obesity clinic Plan evaluation at 6 months and 12months	Access to educational information on maintaining healthy lifestyle Behavioral changes Access to resources Family participation in physical activities Improved body image Standardized guideline for care	Lifestyle changes Improve quality of life Decrease in BMI Decrease incidence of obesity related co-morbidity Dissemination of findings and review

Setting and Data Collection

- The population: Pediatric patients ages 2-19 with a BMI greater than or equal to 30.
- The sample size will consist of pediatric patients admitted to the children's hospital
- An electronic chart review.
- Identify patients with BMI greater than or equal to 30.
- Patients with existing comorbidities.
- Laboratory screening tests

Project

- Assemble a multidisciplinary team of primary stakeholder's.
- Guide the team through a literature review of relevant evidence.
- Develop practice guidelines using evidence-based literature.
- Validate guidelines using external expertise.
- Develop implementation and educational plan.
- Develop a plan for evaluation to be conducted at 6 and 12 months post implementation

Goals

- Promote healthier eating habits and a reduction in the behaviors that encourage weight gain.
- Provide support, motivation, and resources for patient/ families to make incremental changes to foster a healthier lifestyle through referral to the newly developed Multidisciplinary Pediatric Obesity clinic.
- Improve quality of life evidence through the decrease in BMI below or equal to 25 or 85th percentile for age and gender accompanied by absence of obesity related co-morbidities.

Algorithm

Childhood Obesity Websites

Resource Information to assist parents in developing healthier lifestyle.

1. BAM! Body and Mind –www.bam.gov/
2. Childhood Obesity Prevention Program lets go Main http://www.letsgo.org/
3. http://www.letsmove.gov/.
4. DHHS, AIM for a Healthy Weight.
   https://www.nhlbi.nih.gov/files/docs/public/heart/AIM_Pocket_Guide_tagged.pdf
5. Finding Your Way to a Healthier You: Based on the Dietary and Guidelines for Americans (U.S. Department of Health and Human Services, and U.S. department of Agriculture)
   http://www.health.gov/dietaryguidelines/dga2005/document/pdf/brochure.pdf.
6. Kids Health Web Site-America's most popular site for kids
   health.http://www.kidshealth.org
7. Kidnetic-www.kidnetic.com/
8. Max's Magical Delivery .http://www.ahrq.gov/child/dvdobesity.htm.
9. Shape Up America-www.shapeup.org.
10. Smart-Mouth.org-www.colgate.com/smartmouth/
11. Verb-It's what you do-www.verbnow.com/

Possible Areas for Evaluation

- Was the program implemented as designed?
- What changes could be made to improve the program?
- What were the challenges experienced with implementation?
- How well did the participants achieve their outcome such as decrease in BMI and decrease of inpatient admission for obesity related co-morbidities?
- How did the patient outcome change after program implementation, relating to number of patient identified and referred to the outpatient obesity program?
- The length of time participants formally enrolled in the outpatient program remained in order to achieve their goals?

Analysis of Findings

Identify the specifics for each category and determine if the overall compliance is greater than a predetermined benchmark of 75%*

- percentage of individuals remaining in program at 6 month and 12 month period
- percentage of participants that accomplished 75% of the program goals.
- Length of time participants remained in program.
- Percentage of individual identified and referred to outpatient clinic who remained in program.

*No national standard set for such program

Results

- Potential results includes:
- Patients/families more knowledgeable about the incidences of obesity related co-morbidities
- life style and behavioral changes to maintain a healthy weight.
- Decrease BMI in children ages 2-19.
- Improve patient outcomes related to obesity care in children's hospital
- Improve patient and staff satisfaction,
- Decrease healthcare cost for childhood obesity.

Implications for Evidence–Based Practice

- The results from the model transferred to other hospitals to improve care for pediatric patients with obesity related co-morbidities.
- Children with BMI above 95th percentile having documentation of obesity as health issue
- Implementation of Plan of care (similar to other chronic care diseases).
- Tools and resources to educate identified patients/family during their hospitalization
- Referrals to the multidisciplinary pediatric outpatient clinic.

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