AN EVIDENCED-BASED OBESITY PREVENTION AND MANAGEMENT PROTOCOL FOR CHILDREN IN A COMMUNITY-BASED ORGANIZATION: A QUALITY IMPROVEMENT PROJECT

DNP PROJECT PRESENTATION

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INTRODUCTION

- Childhood obesity is a complicated public health issue that affects first-world countries globally (Ling et al., 2014). It is one of the primary causes of preventable youth mortality, chronic disease, and economic health costs, with poor diet and physical inactivity being significant contributors. Since obese children grow up to be obese adults if they are not treated, they develop severe chronic diseases that not only lead to further health problems and other illnesses but are also expensive to treat.
- This quality improvement project enhances the services already being received in the community-based organization and will target the rising childhood obesity rates in the Flatlands and Canarsie area of Brooklyn New York.
- BMI screening and the implementation of the “5210 Children’s health and Nutrition Initiative” clinical guidelines were developed by the American Academy of Pediatrics will be implemented.
- The “5210” clinical guideline is a patient-centered technique that encourages families to adopt healthier lifestyles. This guideline is intended to make the concept of lifestyle modifications engaging to motivate young children to participate in healthy behaviors.

PROJECT QUESTION & AIMS

- PICOT Question: For children that attend the community-based organization in Brooklyn, New York, will the implementation of provider education/training on BMI screening protocol along with the application of the 5210 Health and Nutrition initiative event prevent the risk of childhood obesity in a five-week period?
- Aims:

1. To create a sustainable quality improvement protocol that will prevent and manage childhood obesity in a community-based organization.
2. To apply the Donabedian Framework at the project site as a tool for implementing the “5210 Children’s Health and Nutrition Initiative”.

PRACTICE SITE: URBAN COMMUNITY BASED ORGANIZATION

- This project was implemented in Brooklyn which is a mixed socioeconomic community that exhibits disparate rates of obesity. The community-based organization provides resources to the underserved population of the Brooklyn Canarsie area, where the childhood obesity rate is one out of every five children (Hinterland et al., 2018). The site has 2 Physicians, 4 Registered Nurses, the Program Director, a Site Manager, two Physician Assistants and 3 Nurse Practitioners.

- Childhood obesity is a national health problem (Smith et al., 2020). In 2016, approximately 340 million children and adolescents between 5 and 19 years of age were classified as overweight or obese worldwide ("Obesity and Overweight," 2021). National statistics from 2017-2018 show high rates of obesity among children between 6 and 19 years of age as well. Obesity prevalence in the United States was 20.3% among 6- to 11-year-olds and 21.2% among 12- to 19-year-olds ("Childhood Obesity Facts," n.d.). In New York, the rate was 10.7% among children aged between 10 and 17 years ("New York," n.d.).

PRACTICE PEARLS

Childhood obesity is prevalent in Brooklyn, New York where the community-based organization is located. Many factors contribute to childhood obesity, such as poor diet, sedentary lifestyle, genetics, and family life.

Per the CDC, obese children are more likely to become obese adults (2021). Adult obesity is linked to an increased risk of heart disease, type 2 diabetes, and cancer, among other significant health problems. The project site does not currently have a standardized method for prevention and treatment of childhood obesity.

The prevention and control of obesity entails screening children to establish if they are low, moderate, or high risk for obesity using a BMI screening tool and creating a supportive environment that promotes healthy lifestyles through practices, such as healthy eating behaviors and regular physical exercise. The project will focus on BMI screening of children using a tool and implementing the 5210 pediatric obesity initiative.

PROJECT OBJECTIVES

To cover 70% education of staff (Physicians, Nurses on the 5210 guidelines), including the program director and a stakeholder, two physician assistants, two medical doctors, and five nurse practitioners.

To implement a BMI screening and 5210 initiative protocol to achieve obesity prevention and management.

To capture the number of children that come to the “5210 Children’s Health and Nutrition initiative” events.

To audit the number of children that attended the “5210 Children’s Health and Nutrition initiative” events and the number of children that were given appropriate handouts and materials.

To identify children with elevated BMI and refer accordingly to PCP.

To enhance family/guardian involvement in managing child obesity. Through a chart review process conducted by project lead to ensure providers are complying, this objective aims to enhance the implementation of the 5210 initiatives by educating at least 70% of the attending families/parents. Audit tools will be reviewed will be conducted to determine whether the providers achieve this goal.

REVIEW OF LITERATURE EXPLORATION OF THEMES AND SUB-THEMES OF THE DNP PROJECT

- The 5-2-1-0 family tool aid was found to be utilized by 82 percent of practitioners working with families
- The search strategy aimed to identify published articles and books about evidence-based obesity prevention among children. The selected online databases were peer-reviewed and entailed nursing journals. The search engines included MEDLINE, EBSCOhost, APA PsycINFO, Google Scholar, and Cochrane Library.
- after implementation of the 5210 initiatives, data from before and after the intervention were examined, which revealed considerable and statistically significant changes in physicians' documentation of body mass index (BMI) and BMI percentile (from 38% to 94%). Physicians' understanding of optimum weight and their ability to detect children at risk of becoming overweight improved as well (Sanyaolu et al., 2019). Primary care providers indicated a positive response to this program stating they felt a more effortlessness discussing diet, physical activity, screen time, and sweetened drinks with patients, as well as assisting overweight patients and their families in setting behavioral goals (2018).

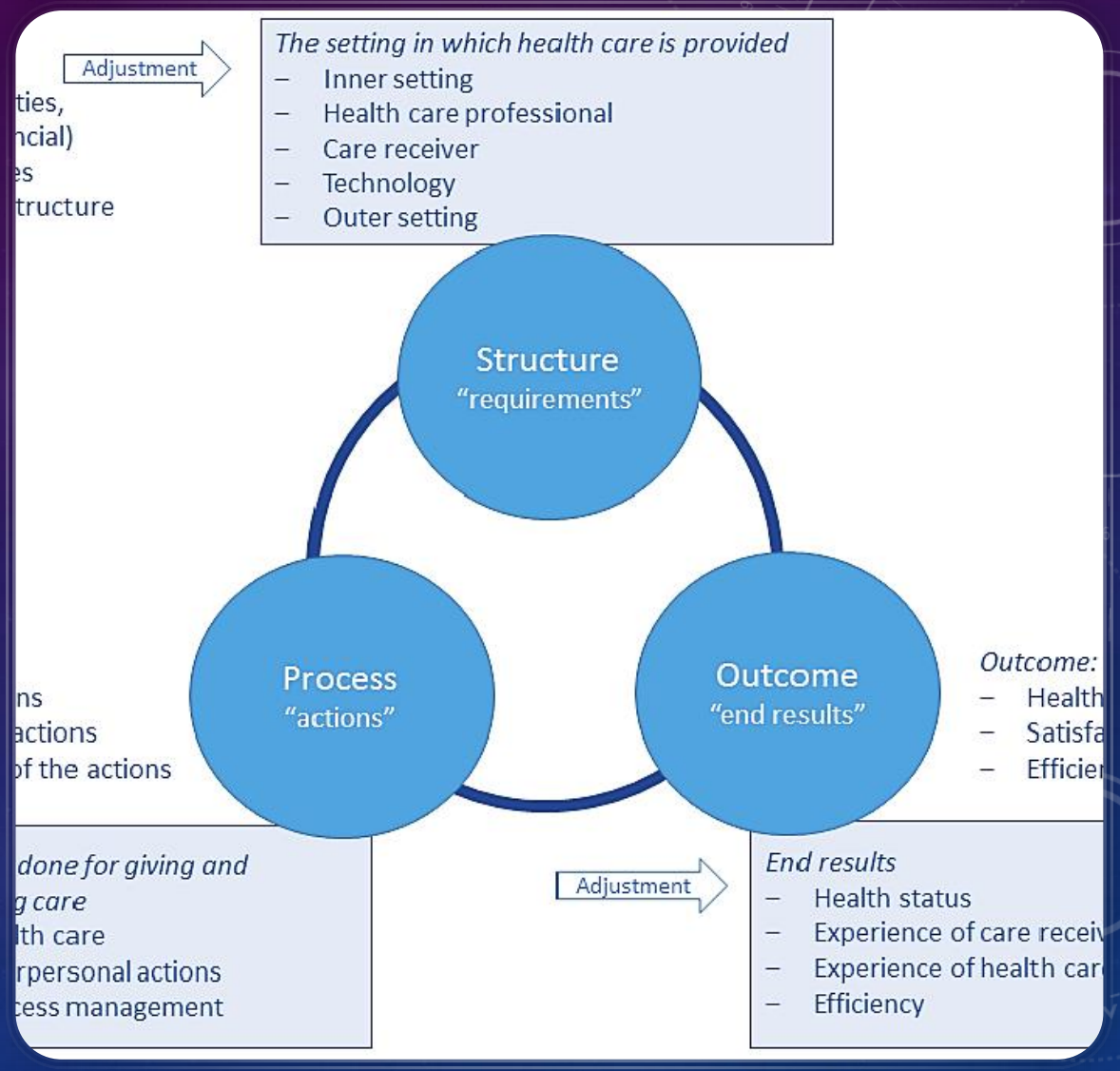
REVIEW OF LITERATURE CONT'D

- Common themes that emerged from the articles were the environmental influence of obesity, the role of parents and their knowledge, the relationship between obesity and race, possible interventions, and implications for public health. The studies agreed-upon common concepts; for instance, morbidity and mortality rates are prevalent among children with obesity. Additionally, parents play a central role in the lifestyle modification and encouragement of children with obesity. Also, parents offer psychological support to children who might be experiencing peer bully due to their bodies (Robinson et al., 2017).

THEORETICAL MODEL: THE DONABEDIAN FRAMEWORK

- Donabedian Framework assess the quality of care with three correlated concepts which are:

1. The structure of care
2. The processes of care
3. And health outcomes



THEORETICAL FRAMEWORK

- Avedis Donabedian developed a theoretical model for the assessment of care quality with enough flexibility to be adopted and implemented in multiple settings. The framework is based on three correlated concepts, the structures of care, the processes of care, and health outcomes (see *Appendix 1*) (McDonald et al., 2007).
- Firstly, the structures of care entail the diverse organizational and physical aspects that define different healthcare settings, such as personnel/practitioners, financial and operational processes, and facilities and infrastructure (LoPorto, 2020; McDonald et al., 2007).
- Secondly, patient care processes are the mediating factors between the structures of care and health outcomes since they are reliant on the healthcare setting (i.e., structures of care) to ensure effective care coordination and delivery using the appropriate mechanisms and resources (McDonald et al., 2007). Moreover, processes enable the improvement of patient health via approaches such as functional restoration, recovery promotion, patient satisfaction, and survival, which constitute health outcomes (Berwick & Fox, 2016; LoPorto, 2020; McDonald et al., 2007).
- Accordingly, these processes of care utilize healthcare settings (structures of care) to deliver optimal health outcomes.

PROCESS OF CARE

- The theoretical framework applies to the processes and structures involved in childhood obesity management at the project site. Prior to project implementation there was an evident lack of tailored obesity prevention and at the Brooklyn Community Based Organization.
- The poorly coordinated and fragmented nature of care for obese children (or those at risk), alongside the evidence indicating that healthcare system aspects are linked with the improvement of child obesity outcomes, are rectifiable, thereby highlighting opportunities for process improvement via mechanisms such as effective protocol , and preventive care (LoPorto, 2020; Voyce et al., 2015). Regarding the process, healthcare, and interpersonal actions (such as creating better rapports with the patients to gain trust and embrace the initiative's goals) were considered for the framework (Tossaint-Schoenmakers et al., 2021).

IMPLEMENTATION

- The quality improvement project was completed by the DNP student in five weeks and achieved all project objectives. The "5210 Children's Nutrition and Health Living Initiative" intervention consisted of a provider training followed by implementation of BMI screening and the 5210 Children's health and Nutrition initiatives, targeting obesity in children of the community.
- Prior to the first week of implementation, the project manager flyers and a signup sheet for provider training will be posted throughout the community-based organization. The signup method is through usage of a "QR code" that is on the flyer (Appendix F) and is directly linked to my email. With this method of signup, I can obtain provider email in order to send them the zoom training information with meeting ID and password. This will give a total number of signed up providers. This training will be available on Feb 27th at 12 noon and Feb 28th at 1pm for 1 hour each to accommodate provider schedules.
- I will train and educate the providers to implement an algorithm at the site. In addition, to adopt and comply with the "5210 Children's Health and Nutrition Initiative" using the tools provided (see Appendix F and G). This will be executed over a four-to-five-week period beginning in March of 2022. During the provider training, an instructional PowerPoint presentation (Appendix H) will be shared to illustrate details of the "5210 Children's Nutrition and Health Living Initiative". This training educates providers on a simple to understand strategy that outlines precisely what is needed to keep children as healthy and physically active as possible. The education will highlight to the providers a focus on the tools which are instrumental to this initiative. The tools that will be utilized will capture the number of children that come to the event, all the children that were given appropriate handouts and materials, and children with elevated BMI that were referred to PCP. The providers will be introduced to the protocol (Appendix K) they will be utilizing for the "5210 Children's Nutrition and Health Living Initiative" events, which goes as follows:
- The DNP student remained on hand to engage with stakeholders and provided support to participants to ensure that each event ran well, to answer and address any issues that may arise. The institution of these guidelines continued through the second to fifth weeks of the project.

HEALTH AND NUTRITION EVENT ATTENDANTS/ RISK LEVEL AUDIT TOOL/PCP REFERRAL

Health and Nutrition Event Attendants/ Risk Level Audit Tool/PCP Referral						
Health Initiative Date:	Number of Children attending program:	Number of Children Low Risk for Obesity:	Number of Children Moderate Risk for Obesity:	Number of Children High Risk for Obesity:	Number of High-Risk Children referred to PCP:	Number of Children Received handouts/materials:
March 12th:						
March 19th:						
March 26th:						
April 2nd:						

STEP 2 OF THE "5210 CHILDREN'S HEALTH AND NUTRITION INITIATIVE :

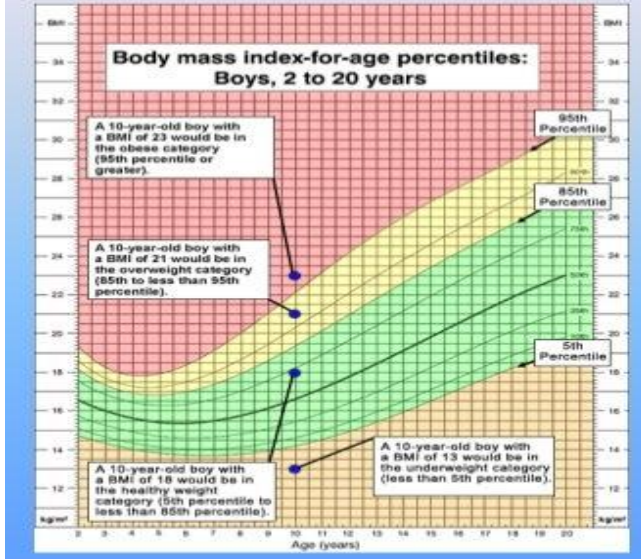
Provider measured child's height and weight and calculated BMI and document on form provided.

Provider will assist family and child on filling out 5210 worksheets provided in step 1.

CHILDREN'S BMI SCREENING AUDIT TOOL

Children's BMI Screening Audit Tool	
Date: _____ Participants Identifying Number: _____ Age: _____ Received handout and Materials_____	
Current Weight:	
Height:	
Estimated BMI:	
Risk Level (Low, moderate and high):	

The CDC BMI-for-age growth charts



STEP 3:

Based off results from step 2 provider will assess child's risk for obesity

Based off results of step 2 provider will make recommendations for health and nutritional changes, specifically if the child needs more fruits and vegetable intake, more exercise, less screen time and or less soda intake. Provider will refer child to PCP if BMI is high risk for obesity.

Provider will provide suggestions based off the "5210 Children's Health and Nutrition initiative" events and handout.

STEP 4:

- Provider answered any questions or concern of family and child.
- Provider supplied family and child with flyer of the remaining of health and nutrition event.
- The “5210 Children’s Nutrition and Health Initiative” events was held on March 12th, 19th, 26th and April 2nd. Each week, after parents/guardians provide consent (*see Appendix* L) for provider to conduct a BMI screen for each child, provider will identify if child is at low, moderate and high risk for obesity (*see Appendix D*). Children and parents will be educated on the “5210 Children’s Nutrition and Health Initiative” and will be provided with 5210 initiative tools (*see Appendix* D and E) and materials that can enhance healthy lifestyle. Any child identified as high risk for obesity will be referred to PCP (*see Appendix D*).
- The deployment of the “5210 Children’s Nutrition and Health Initiative” event guidelines took place during the second week of the project implementing phase. The site man

EVALUATION

- The quality improvement project was completed by the DNP student in five weeks and achieved all project objectives. After one week of project implementation, the goal of covering 70% of provider education was met, resulting in 100% provider compliance, and the project was determined to be successful. The implementation of a BMI screening and 5210 protocol to accomplish obesity prevention and management was completed, with 100% of the children who attended the event engaging in the BMI Screening process. One hundred percent of the number of children who attended the "5210 Children's Health and Nutrition Initiative" events, as well as the number of participants who received handouts, were recorded by the DNP student. The use of the 5210 Children's Health and Nutrition Event resulted in the identification of children with increased BMI who were then referred to their PCP for further evaluation. Audit tools were essential in capturing and assessing findings to determine the children's level of risk and refer them to appropriate services.

EVALUATION CONTINUED

- These results can yield insight into the general population in the study area (Brooklyn, NY) but cannot be extrapolated to other areas without additional review. The percentage of children at high risk of obesity is not to be generalizable beyond the Brooklyn area. Additionally, data collected did not specify the different characteristics of the participants, which limits its applicability in evaluating the defining qualities of populations considered at high risk of obesity. Thus, further studies could be necessary to specify such characteristics and put the intervention measures into better perspective.
- Project findings have significant implications for nursing practice involving children. Active nurse involvement in schools with the intention of controlling obesity could have positive outcomes in the fight against child obesity (Shirley et al., 2014; Tucker & Lanningham-Foster, 2015). Tomayko et al. (2021) observed that most obesity-prevention initiatives actively involve school programs. School involvement is essential since children spend significant time in schools, creating the opportunity for teachers and healthcare workers therein to implement obesity-prevention programs. Ultimately, knowledge of programs such as 5210 would make the caregivers and teachers involved in such environments effective in facilitating any envisioned outcome in obesity prevention.

EVALUATION CONTINUED

Practitioner training and commitment is integral to sustainable compliance with any change initiative. In particular, effectively implementing the 5210 program in the community depends on how well versed the nurse practitioners are with its principles (Polacsek et al., 2014). A focus on nurse training on the program and consequent follow-ups to supervise compliance could help create awareness of obesity prevention that requires minimum resource investment in households. A change in behavior and diet would be sufficient to maintain healthy weight for children, without the need for any financial investment.

The training event and data collected therein highlight the pivotal role of care providers in addressing obesity. However, advanced practice nurses have an even more critical role of ensuring that nurse practitioners have the required knowledge and skills to help society in dealing with obesity. Investing in programs, such as training seminars, that will provide the required training to nurse practitioners is one way of guaranteeing change in society by focusing on obesity prevention. Data in the Brooklyn CBO may not reflect the obesity prevalence in the country, but it highlights what could happen if care workers were committed to programs that directly address its existence.

CONCLUSION

- The population of children and guardians who received the 5210 training may not adequately exemplify reactions in the larger population. For instance, if there was an unusually high rate of risk of obesity in the sample, then there would be a corresponding rate of interest in the pamphlets availed by the caregivers. Thus, the selection bias may have distorted the data gathered from the exercise.
- Assumptions used in the analysis also present a limitation in applying the findings. Most notably, the analysis was based on the assumption that all those guardians and parents who took pamphlets with them intended to use them to apply the 5210 programs in their households. It may not be the case as they may have taken the pamphlet as courtesy. A follow-up anonymous questionnaire post interaction would have clarified their intentions for taking the pamphlets.
- Caregivers are only one of the different critical stakeholders in managing child obesity rates in society. Despite their compliance with directions to offer education to parents on how best to manage their children's weight, the parents would need to be dedicated in supporting healthy lifestyle changes for there to be any significant impact. If future practitioners focused on assessing parent compliance with such guidance as 5210 principles, then society would move a step closer towards completely eradicating childhood obesity. Such an exercise should also be conducted with significant attention towards choosing the study design and collecting data to avoid the limitations herein discussed.

CONCLUSION CONTINUED

- The 5210 Children’s Health and Nutrition initiative and BMI screening protocol is a sustainable quality improvement project. The community organization will incorporate the project plan to the already established health events that takes place every other month. This initiative will be an ongoing event to raise awareness on childhood obesity and its prevention and management.
- At the organization's location, the stakeholders will continue to provide educational materials to families on a weekly basis. These modifications are attainable and will continue to make a beneficial contribution to this community.
- Sustainability of the methods employed herein highlights its effectiveness if adopted for implementation. Notably, cost has often been one of the primary impediments to implementing any policy change proposals from any quality improvement project (Frantzeskaki et al., 2019). However, the exercise in Brooklyn only required minimal financial resources to facilitate the practitioner training process. Additionally, the exercise does not demand that the practitioner deviate much from their primary responsibility in providing care. Hence, such factors imply that it is highly sustainable as it only requires that caregivers be effective enough in providing care services to parents accompanied by children. The minimal initial cost requirement and lack of extensive demands to the caregivers increase the potential ease with which facilities could adopt the program as part of their service quality improvement measures.

DISSEMINATION

- Starting with week five of implementation, on April 9th, 2022, the project outcomes were disseminated to stakeholders via Zoom meetings and data collected from audit tool was shared via presentation method. Reinforcement with the community outreach center staff, as well as having handouts available for community members and families as center can benefit from increased distribution.
- Additionally, the participants reacted favorably to enhanced cooperation using the 5210 Children's Health and Nutrition Initiative protocol with provider referrals for children who exhibited moderate to high risk of childhood obesity.
- Results were discussed during meeting and suggestions for improvement were made. The final DNP project will be presented to TUN instructors and student colleagues on 6/15/2022 and submitted to the DNP repository. This writer has contacted Doctor of Nursing Practice to start the process of submitting a digital poster for 2022 digital poster presentation.

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