Reducing Childhood Obesity Utilizing a Nurse-Led Protocol in Primary Care Setting

By
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In partial fulfillment of the requirements for the Doctor of Nursing Practice

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Aim of the project

The overarching aim of the DNP project was to reduce childhood obesity thus preventing obesity in adulthood, which leads to morbidity and mortality

Prevalence of Childhood Obesity

19.3% of children are obese in the US.

Obesity prevalence is 13.4% among 2- to 5-year-olds, 20.3% among 6- to 11-year-olds, and 21.2% among 12- to 19-year-olds.

Affects about 14.4 million children and adolescents.

(CHILDHOOD OBESITY FACTS | OVERWEIGHT & OBESITY | CDC, 2021)

Factors causing childhood obesity

- Low socioeconomical status
- Low parental literacy
- Limited access to healthy food
- Lack of knowledge regarding healthy meal plans

AAP GUIDELINES, CYGAN ET AL,. 2014

Risks associated with childhood obesity

- Poor quality of life related to comorbidities
- Higher chances of developing Type 2 Diabetes, hypertension, musculoskeletal issues and cardiovascular issues.
- Mental health issues, substance use, eating disorders

(EPSTEIN ET AL., 2015A; FRENCH ET AL., 2018).

Current Recommendations

- Screening for obesity in children over six
- Intervene if diagnosed as obese
- Offer healthy diet counseling
- Behavioral counseling
- Encourage physical activity

(USPSTF RECOMMENDATION STATEMENT, 2010), (GORECKI ET AL., 2019; STAIANO ET AL., 2017).

Literature Review Aim

The literature review was to identify the current recommendations and guidelines by the Center for Disease Control (CDC), American Academy of pediatrics (AAP), National Association of Pediatric Nurse Practitioners (NAPNP), and US Preventive Services task Force (USPSTF) to identify and treat childhood obesity in primary care settings and the adherence to these guidelines.

Major Themes

Factors Associated with the Prevalence of Obesity	Lack of physical activity, poor nutritional habits, limited access to quality food, and lack of knowledge regarding obesity all contributed to childhood obesity.
Early Screening and Interventions at the Primary Care Level	Screening to identify obese, overweight and at risk for obesity ,early treatment plans and family-based interventions in primary care clinics help reduce the incidence of childhood obesity.
Barriers to Identifying Childhood Obesity	Lack of experience and education in using BMI, lack of simplified screening tools and financial reimbursement were all identified as barriers to identifying childhood obesity.

DEMIRCI ET AL. (2018) , (GORECKI ET AL., 2019), STAIANO ET AL. (2016)

Donabedian Model

The theoretical outline selected for the DNP project is the Donabedian model.

The Donabedian model is a conceptual model that supports surveying health services and assessing health care quality.

The Donabedian model has three components: structure, process, and outcomes that help the researchers to evaluate the quality of care provided to the patients

(MOORE ET AL., 2015).

Structure

The first component of the Donabedian model is structure. The structure includes all the aspects that affect the context of care delivery. The project site, policies, stakeholders, staff members who will implement the project, the screening protocol, and equipment needed for the project are part of the structural component.

(DONABEDIAN, 2003).

Process

Process in the Donabedian model is defined as a summation of all actions that are the framework for healthcare

The screening protocol for childhood obesity includes utilizing the screening tool and checklist, identifying or diagnosing obese or overweight children, identifying at-risk children for obesity or overweight, prescribing appropriate treatment plans and referrals

(DONABEDIAN, 2003).

Outcome

Outcomes can be viewed as one of the most critical quality indicators in healthcare. The outcomes are the effects of healthcare, such as a change in health status, behaviors, literacy, patient satisfaction, or quality of life related to their health.

The primary outcome evaluated was improvement in identifying obese or at-risk children and, if necessary, provide interventions.

The second outcome measured for the project was staff's knowledge of the current screening recommendations, changes in screening practices at the clinic, and the need for implementing the screening protocol.

The third outcome of the project was collecting data to assess staff members' adherence to the protocol.

(DONABEDIAN, 2003).

Practice site

The project was conducted at a family practice setting catering to low-income minority communities.

Increase in obese pediatric patients

Clinic had no protocol for screening, diagnosing or treating obese, overweight or at risk for patients.

No routine follow up to ensure adherence to treatment or lifestyle changes.

Population of interest

The direct population of interest included MDs, PAs, NPs, RNs, LPNs, and MAs.

The indirect population of interest is children at risk for being overweight or obese.

Project Objectives

- The project’s primary purpose was to create a protocol for screening and treating childhood obesity for children between 5 and 18 in a primary care setting.
- Provide education to staff members regarding the screening tool to improve identification and management of childhood obesity.
- Identification of children who are obese and at risk for obesity.
- Improve the participant knowledge of current obesity best practices and the DNP project protocol using a pre-and post-education questionnaire.
- Evaluate participant's compliance with the protocol using a chart auditing tool.

Tools used for the project

PPT for education

Protocol for screening and treatment for childhood obesity among patients from 5 to 18 .

Screening questionnaire, BMI calculator, blood pressure (BP) tables, an algorithm for assessment, diagnosis, treatment, selected goals and resources, a chart audit tool to verify compliance, and a pre-and post-test to evaluate participants' attitudes and understanding of best practices and the protocol.

Six Goals- Path to Success

An algorithm based on AAP guidelines.

Using BMI calculation to identify obesity.

Assessment using the screening tool and clinical judgement.

Prevention using motivation interview, counselling, diet and physical activity, resources, and one goal to achieve patients may choose from the protocol.

AAP GUIDELINES, CYGAN ET AL,. 2014

Guidelines for “Six Goals-Path to success”

Early identification and assessment of overweight, obese patients, and at-risk patients.

Use of body mass index, calculated for age and sex to determine weight status

Complete physical examination with evaluation of sleep, respiratory, gastrointestinal, orthopedic problems, endocrine disorders , and genetic syndromes

AAP GUIDELINES, CYGAN ET AL,. 2014

Guidelines for “Six Goals-Path to success

Evaluation of activity level, dietary habits, and family obesity/medical history

Use of family-centered counseling

Use of Motivational Interviewing.

AAP GUIDELINES, CYGAN ET AL,. 2014

Protocols

- BMI calculation during Intake
- Screening during Intake
- Participants to complete assessment and diagnose using the algorithm
- Counseling, motivational interview and guidance, provide resources
- Help patients and families to identify one goal from the protocol, provide educational material

AAP GUIDELINES, CYGAN ET AL,. 2014

Screening questionnaire highlights

Please answer the following questions. Do you suffer from any of these conditions? If Yes, Please explain.
a. Family medical history of diabetes, obesity, or cardiac diseases
a. Sleep problems
a. Respiratory problems
a. Gastrointestinal problems
a. Diabetes or Thyroid problems
a. Orthopedic problems
a. Genetic syndromes

Please answer the following diet/physical activity questions.
a. How much Fruit/vegetable do you eat per day/week? (ex: 1 cup, once a day, two times a week)
a. How many glasses of water do you drink per day?
a. How many hours of screen time do you have per day?
a. How many hours or minutes of physical activity do you have per day?
a. How much Sugared beverage do you have per day (Soda, pop, juices)?
a. How many meals do you eat outside per week?

Six goals to success

- Five fruits and vegetables a day
- Four Glasses of water a day
- Three low fat calcium servings a day
- Less than TWO hours of screen time a day
- One hour of physical activity a day
- Zero sugared drinks (Soda, Juice, Pop, Kool-Aid…)

Implementation highlights

- Implemented over five weeks
- Pre implementation data was collected, pretest followed by education and post test, introduction to the protocol and its components was done during week one.
- Protocol implemented during week two, three, four and five.
- Data collection and analysis done during end of week five.

Data Analysis and Evaluation

A paired T-test was used to evaluate the efficacy of the education provided using the pre and post test results by measuring the improvement in participants knowledge. A percentage calculation with a 95% confidence interval to calculate the compliance among participants while using the protocol. Complete compliance and partial compliance was evaluated.

Assumptions of a Paired T-test

The paired sample t-test has four main assumptions:

- The dependent variable must be continuous (interval/ratio).
- The observations are independent of one another.
- The dependent variable should be approximately normally distributed.
- The dependent variable should not contain any outliers.

Paired T test results

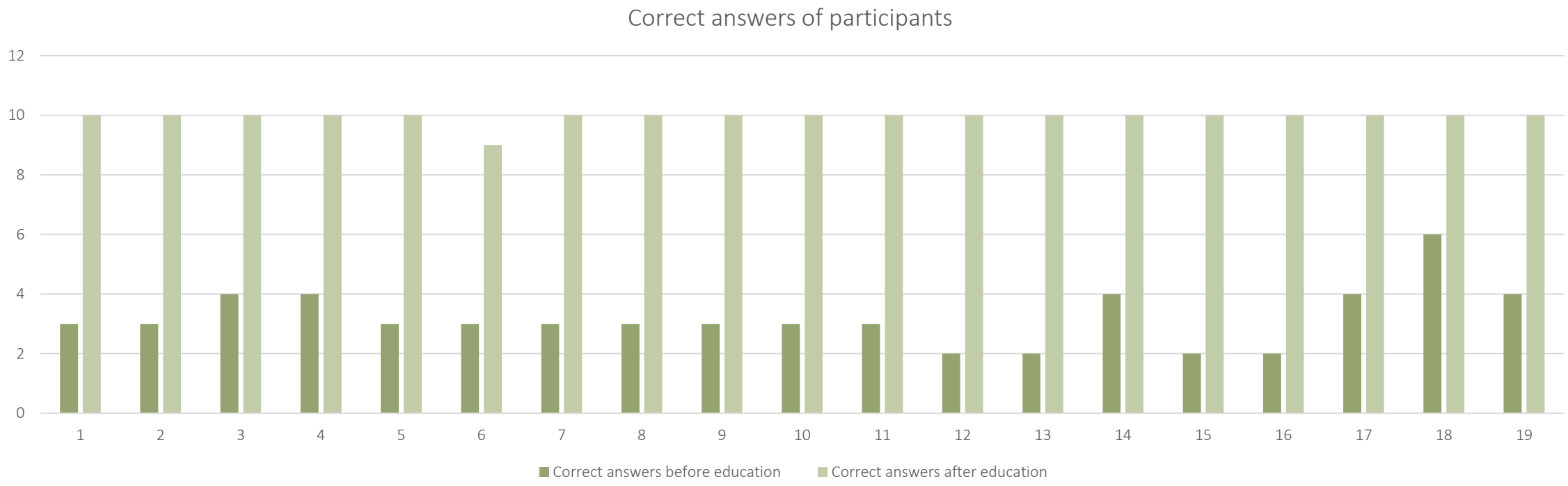
In a parametric test, like the paired t-test, the dependent variable is measured at intervals using a continuous scale.

There was an average 6.737 increase in correct answers during post-tests, showing a positive effect of education (*n- 19, p*-> 0.001).

The paired T-test showed a statistically significant improvement using education (p >.005).

There was no violation of the assumptions

(PALLANT,2016).



Pre and Post test results

Compliance results

Total charts analyzed-19 ,

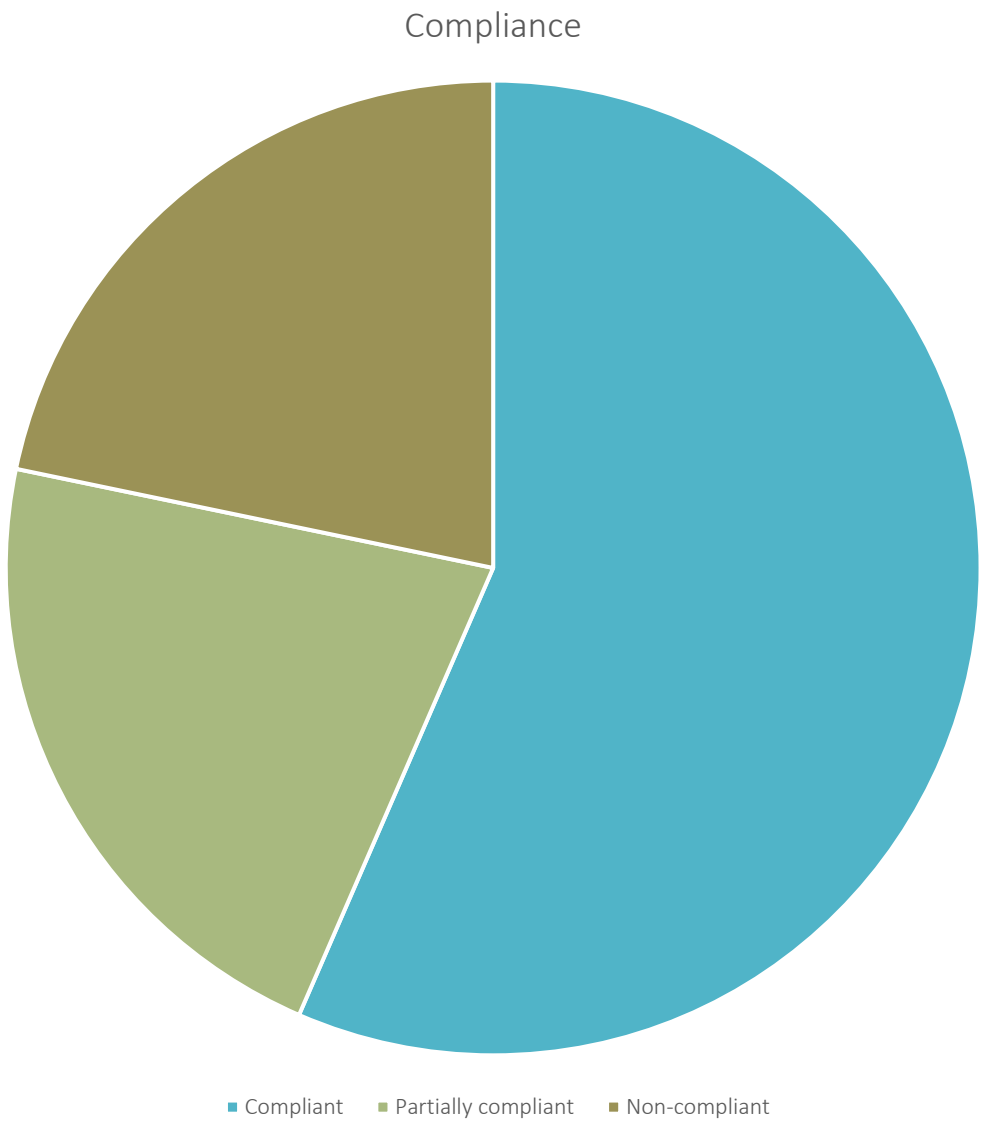
Fully compliant charts -9 (47%)

Partially compliant charts- 5, (26.3%)

Noncompliant charts- 5 (26.3%) .

Partial compliance was calculated using simple percentage calculation, where the charts had a BMI calculation, obesity diagnosis, and 50% compliance with the protocol.

Noncompliant charts were missing either BMI or a diagnosis along with less than 50% compliance with the protocol.



Compliance results

Limitations

Project design- The COVID -19 virus was a major setback for the project, as it affected participation in education, which significantly impacted compliance in using the obesity screening protocol at the facility.

Data Recruitment- Another limitation was decreased pediatric patients due to the pandemic and insurance changes.

Time constraint- There was not enough time for implementation and evaluation to assess the full potential of the new protocol

Ideas for Dissemination

Poster presentation during the StaRN (new RN graduate residency program) Instructor annual conference for Hospital Cooperation of America (HCA).

Publishing in the National Association of Neonatal Nurses (NANN)

DNP repository

TUN faculty and peers.

Conclusion

Childhood obesity is at rise and nurse led protocols to tackle childhood obesity in family practice settings are important. Proper training, set protocols and guidelines for staff members and adherence to the protocols will enable PCPs to identify and treat obese or overweight children. Screening allows the PCPs to propose proper approaches for weight loss, such as promoting physical activities and improving dietary intake, thus improving bodyweight management and reducing obesity-related complications. Six goals to success is a simple tool that can be implemented easily in clinics allowing families to select a goal that resonates with them to prevent childhood obesity and related complications. Further studies need to be done in this are to evaluate the full potential of this nurse led protocol and its efficacy in early identification and treatment of childhood obesity.

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