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Sheena Amos

University of San Diego, samos@sandiego.edu

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The Impact of the Family Nutrition and Physical Activity (FNPA) Tool with Diet and Physical Education on Obesity Awareness and Body Mass Index (BMI) of Overweight Patients

UNIVERSITY OF SAN DIEGO
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Beyster Institute of Nursing

DOCTOR OF NURSING PRACTICE PORTFOLIO

by

Sheena N. Amos, BSN, RN

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The Impact of the Family Nutrition and Physical Activity (FNPA) Tool with Diet and Physical Education on Obesity Awareness and Body Mass Index (BMI) of Overweight Patients

Sheena Amos BSN, RN

Razel Milo PhD, DNP, MSN, FNP-C, RN

University of San Diego

Author Note

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Abstract

Purpose

This evidence-based practice project aims to apply the Family Nutrition and Physical Activity (FNPA) tool with diet and physical education to increase obesity awareness and decrease body mass index (BMI) among overweight parents in the community. The FNPA screening tool is a behaviorally based assessment designed to allow parents to evaluate obesogenic environments and practices that may predispose their children to become overweight. The first goal was to recruit parents in the community and utilize the FNPA tool to assess and better understand their diet and physical activity levels. The second goal was to increase obesity awareness among these parents to adopt healthier lifestyles in the home to lower BMI.

Background

Childhood Obesity is a growing epidemic that has shown rates that have tripled over the last decade. The prevalence of obesity in 2018 was 42.4%, with people suffering from obesity having much higher medical costs annually than people with a healthy weight. Research has demonstrated significant relationships between childhood and parental obesity while indicating maternal obesity as a predictor of childhood obesity. The United States has an essential issue as over one-third of children are overweight or obese. Many conflicts and barriers have limited the ability to combat childhood obesity, with a consistent limiting factor being the carryover of lessons learned in the homes. Parental engagement is a significant barrier in some households, making it difficult to maintain these learned behaviors past school hours.

Project Plan Process

The FNPA tool was utilized in a community-based setting to apply education-based intervention impacting health. The FNPA tool provided health professionals with an easy

screening tool to facilitate awareness and counseling for obesity prevention in parents than the current standard of care. A follow-up assessment was performed to assess both changes in BMI and scores on the FNPA scores.

Evaluation of Outcomes

The FNPA tool demonstrated to be an easy tool to educate families. Most families with improvement in FNPA scores demonstrated improved BMI in their children. Of the families with improved FNPA scores, 86% of their children fell within a healthy BMI range. Therefore, increased utilization and education of the FNPA tool in any setting may decrease obesity in parents and children.

Conclusion

The project outcomes identify families at risk for overweight children and a trigger to enhance education to combat obesity in these households. Healthcare providers should reinforce resources to combat obesity in their patients. We must take a stand to protect our future and ensure they are set up for a healthy and safe life.

Keywords: Family Nutrition and Physical Activity Tool, Obesity, Childhood Obesity, Obesity Prevention

Introduction

Obesity is a national epidemic that continues to be a growing problem. A decade ago, no state had an adult obesity rating at or above 35% based on 2021 data from the Centers for Disease Control. Still, nineteen states are above that mark and continue to grow (*State of Obesity 2022: Better Policies for a Healthier America - Tfah, 2022*). Obesity is closely associated with many diseases, including type 2 diabetes, heart disease, stroke, and certain types of cancers, among other conditions. According to National Center for Health Statistics (2019), obesity is estimated to increase U.S. healthcare spending by more than \$173 billion annually, with an estimated \$1,861 higher medical costs for adults who had obesity than people with a healthy weight.

Childhood obesity is a growing epidemic that has shown rates that have tripled over the last decade (Hollar et al., 2019). The United States has a significant issue as over one-third of children are overweight or obese (Chuang et al., 2016). As with most conditions, if a child suffers from obesity in childhood, they are much more likely to suffer from obesity into adulthood, creating even more health concerns. The significant contributing factor to the obesity epidemic is an obesogenic environment contributing to overeating and a sedentary lifestyle (Jackson et al., 2020).

Many conflicts and barriers have limited the ability to implement change in schools in the fight against childhood obesity. One noticeable change has been the lack of teacher/instructor education on various training efforts on obesity in schools, which has led to teachers' assistance in implementing programs combatting childhood obesity (Chuang et al., 2016). Another consistent limiting factor is the carryover of lessons learned in the homes. Parental engagement is a significant barrier in some households, making it difficult to maintain these learned

behaviors past school hours. Also, some parents are in denial about their children's weight issues and resist discussing those issues with their children or others (Blanchette et al., 2019). Adults can decide their level of physical activity and dietary choices; however, children do not have complete control over those behaviors (Merlo et al., 2020). Therefore, parental engagement and a healthy environment are essential in combatting childhood obesity.

Finally, there is believed to be a barrier with some physicians as they consider their role is not vital in the fight against childhood obesity and feel they need the support of other medical providers (Rhee et al., 2018). There are multiple options to intervene to combat childhood obesity, and implementing different tools to educate at all levels is vital.

Evidence-Based Practice Model

The John Hopkins Nursing Evidence-Based Practice (JHNEBP) model allows for integrating and implementing the best available evidence while considering internal and external practice influence (Melnyk, B & Fineout-overholt, E, 2014). The JHNEBP models simple practice questions, evidence, and translation process, allows nurses of varying educational backgrounds to use the tool and allows for the development of the process along the way. The model allows for the engagement of patients to get them to fill out the FNPA tool so the medical staff can better educate them on healthier lifestyles. Also, the model considers internal and external factors and implements a final translation phase developed around constructing an implementation plan and developing communication to adopt the appropriate changes to implement the FNPA tool into the desired setting.

Evidence-Based Practice Project Plan Process

Practice Setting

The FNPA tool was implemented in Southern California, a community where many families have children under eighteen years old. More than 95% of the population is above the poverty level and is Caucasian. A Doctor of Nursing Practice (DNP) student provided the FNPA tool to volunteers who had school-aged children and were admittedly overweight.

Project Process

Over three months, the FNPA screening tool was implemented for parents or family members who volunteered to participate in the evidence-based practice (EBP) project. The adult family members completed the 20 item-screening tool related to 10 factors (family meal patterns, family eating habits, food choices, beverage choices, restriction/reward, screen time behavior and monitoring, healthy environment, family activity involvement, child activity involvement, and family routine) based on a four-point scale with a lower FNPA score representing a more obesogenic environment (Lee et al., 2022). After the FNPA tool was completed, all children of the families taking part in the EBP project who were between two and eighteen years old had their height and weight taken and documented, to include gender and age, by the DNP student.

All families received a summary sheet with recommended practices from the American Academy of Pediatrics (AAP) and the American Dietetic Association. All families were scheduled to return after 12 weeks. At the follow-up assessment, the FNPA tool was administered again, and the children's weight was taken to compare the FNPA and BMI scores.

Ethical Considerations

The University of San Diego Institutional Review Board approved the project before implementation. The volunteers' information was de-identified to maintain confidentiality.

Cost Benefit Analysis

The cost of using the FNPA tool is minimal. Once staff are trained on using the tool, the only cost remaining is just providing the documentation with the education. Therefore, for every dollar spent, there is a \$10.25 cost avoidance. To put that into perspective, improving the BMI and health of four children would potentially have a cost savings of \$5,716, resulting in a 925% return on investment. The financial aspect doesn't include the more critical factors of improved health and childhood obesity prevention.

Evaluation of Outcomes

Based on the Yee et al. (2015) study, parents and families who completed the initial and 12-week follow-up FNPA assessments had their scores compared to evaluate lifestyle modifications and placed into the respective tertiles. The children who also completed both assessments had BMIs assessed for levels of obesity utilizing the CDC's BMI percentile calculator for children and teenagers. CDC reports that a healthy BMI percentage is considered between 5 and 85%, with those under 5% BMI considered underweight, those 85% to 94.9% are considered overweight, and children with a BMI percentage of 95% or greater are classified as obese (Centers for Disease Control and Prevention [CDC], 2022).

There were 20 families (20 adults, 27 children) who took part in the initial intake. At the 12-week follow-up, 11 families (11 adults, 18 children) completed the comparison FNPA scores and BMI assessments. Of the 11 families that returned, 7 of the parents had improved scores on the FNPA tool on their follow-up session compared to their initial sessions, as demonstrated in Figure 1. Of the 18 children who performed both assessments, ten were not at a healthy BMI at the initial evaluation based on CDC assessments. On the follow-up assessment, 4 of the 18

children were not measured to have a healthy BMI. Of the seven families who had improved FNPA scores, six had a child go from an unhealthy BMI to a healthy BMI, an 86% improvement.

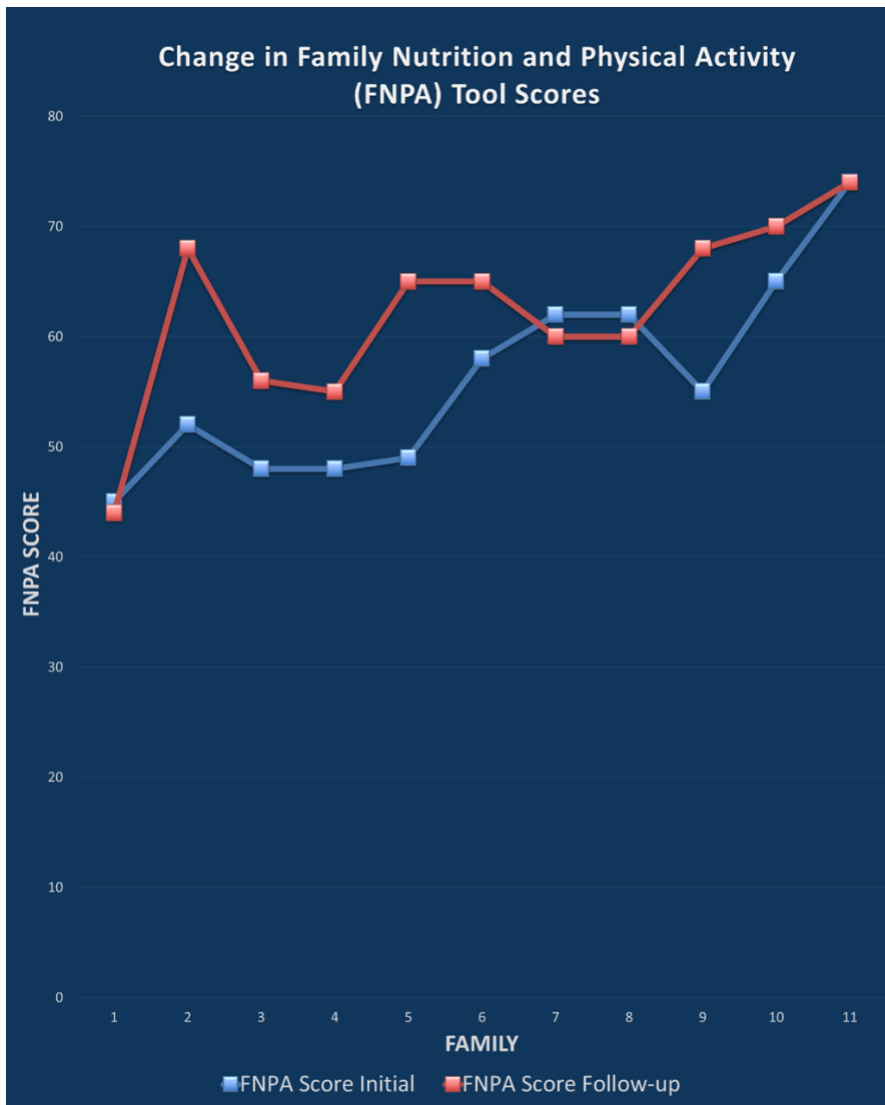


Figure 1: FNPA scores at the initial assessment and at the three-month follow-up.

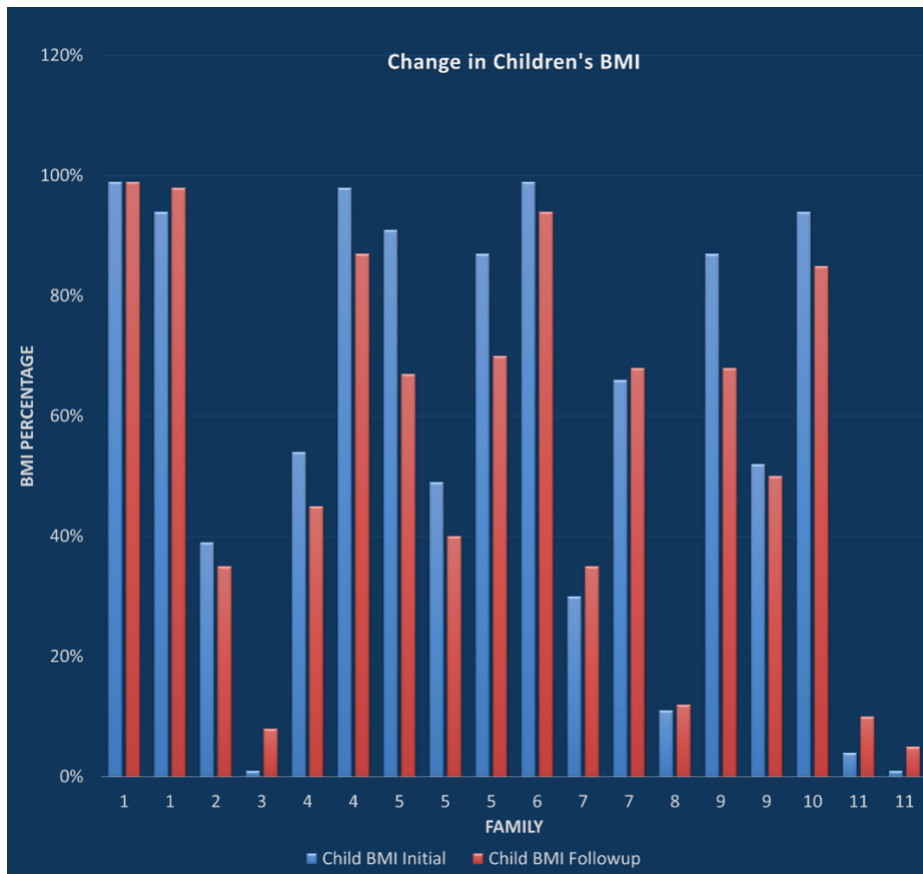


Figure 2: BMI percentages for each child who had a parent fill out the FNPA tool. The family group number corresponds to the parent with the same number in Figure 1.

Discussion

There is a global concern for childhood obesity, and the health concerns these children will face into adulthood. Many have discovered that childhood obesity can impact multiple parts of a child's life, including immediate health, educational attainment, mental health, and quality of life (Lee et al., 2022). The FNPA assessment could be a vital tool to provide multiple factors predisposing children to obesity, including parenting practices, child behaviors, and home environmental characteristics (Lee et al., 2022). The FNPA tool utilized in this EBP project demonstrated an easy way to get a quick assessment while educating parents. Evaluating

outcomes proved beneficial in improving parents' knowledge and the BMI of the children in these households.

Not only do parents and children share approximately 50% of their genes, but many live in the same environment, eat the same meals, and do the same activities, which can directly correlate with similar BMIs and obesity status (Classen & Thompson, 2016). A 2022 meta-analysis by Lee et al. reviewed 23 studies and determined that children with obese parents were 1.97 times more likely to be obese than those without obese parents. Lee et al. (2022) also determined that when both parents were obese, their children were more likely to be obese than those with only one obese parent. One study also determined maternal obesity was more predictive of infant obesity, while paternal effects on obesity would not be seen until 3 to 4 years of age (Godfrey et al., 2017). Also, BMI assessments were not performed on parents, but a visual assessment of weight would demonstrate validation that obese parents did appear to have children that were obese.

There was a goal set by the U.S. Task Force on Childhood Obesity to reduce prevalence to 5% by 2030 (Finkelstein et al., 2014). To stop the rising obesity rates in our children, we must change how targeting childhood obesity. As demonstrated by this EBP project, the FNPA tool is an easy tool that can be integrated into any practice setting, school, and community. Based on the data from this EBP project, of the five families with children in the obese category, 80% had some of the lowest scores compared to the other families demonstrating that the FNPA is indicative of an obesogenic environment and should be utilized in our practice. Another reason to consider using the FNPA tool is that studies have demonstrated that higher-income countries have a stronger correlation between parental obesity with childhood obesity (Lee et al., 2022).

There is a known correlation between obesity and higher medical costs. Recent studies in the U.S. determined that the incremental lifetime direct medical costs for a child with obesity compared to a healthy child were up to \$19,350. Therefore, determining a way to combat childhood obesity is substantial cost savings for families and curbing the cost of medical care.

Limitations

The EBP project presented here comes without limitations. The parents filling out the FNPA was a self-report, which is known to have limitations since there is no other verification. Much of the population was primarily Caucasian and of the middle to upper class. Also, 45 percent of the families were lost to follow-up. Finally, a short follow-up period prevents the assessment of potential FNPA scores and BMI percentage changes over time.

Conclusion

The FNPA is a cost-effective way to both assess for obesity risks as well as educate families on the many factors influencing obesity in the home. The current EBP project demonstrates the ability to use the FNPA tool in a community setting and successfully improve BMI among children. The EBP project demonstrates that integrating routine BMI screening and a parental assessment of family practices, child's behavior, and home environmental risk factors in clinical decision-making effectively improved weight outcomes in children.

Practice Implications

The link of obesity to a multitude of other health conditions as well as the increased cost to families when they have obese children, are both drivers demonstrating the need to assess for an obesogenic environment in the home. Having the FNPA tool as a primary assessment tool in practice not only has no significant cost but is also a way to better educate patients about a healthy lifestyle in the home and everything involved in having a less obesogenic home.

Therefore, the nursing community must proactively assess patients with the FNPA tool to stop a growing epidemic and ensure our future leaders can live a long and healthy life.

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