

Healthy Habits for Teens: Changing the Trajectory of Obesity

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Abstract

Teenage obesity is an increasing concern throughout the world. Providers and communities need to engage in programs that address this concern. Childhood obesity often precedes obesity throughout the entire lifespan. Healthy People 2030 encourages the reduction of sugary beverages among children ages 2-18 and suggests an increase in physical activity for the population. This project sought to provide an avenue for teens to make a life-long impact on their overall health by changing diet, increasing exercise and developing a rapport with their healthcare team. Participants were invited to join a six-week program through zoom, where educational sessions were provided regarding healthy eating, nutrition, and exercise. Although the project had limited participation, changes were observed by the participants; therefore, an online fit camp program is an option for participants to gain insight and the tools necessary to change the trajectory of their health. A program such as this also allows for collaboration among various disciplines to enhance patient care while addressing the obesity problem in local communities as well as nationally.

Keywords: increased body mass index, BMI, obesity, adolescents, fit camp program, online program, teenage obesity, healthy weight, bodyweight, obesity treatment

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Section I. Introduction

Background

The project site has been an active pediatric practice in the community since 1999. Their mission statement has described the practice's desire "to provide comprehensive, patient-centered healthcare for babies, toddlers, children, and adolescents to build a future generation of healthy, happy kids" ([Project site], n.d.). The practice aims to put patients' needs and parents' concerns at ease by providing specialized attention and complete medical treatment for all childhood illnesses and conditions. They also strive to educate parents about child development, chronic diseases, proper nutrition, and the need for ongoing maintenance of healthy habits throughout their growth.

The practice offers the community many "extra" resources, including an International Board-Certified Lactation Consultant (IBCLC), an online breastfeeding support group, and parenting/child-rearing educational classes. In addition to these programs, the practice offers a free fit camp for children ages 6 to 12 and a Healthy Families online support group. The practice also provides care for patients through age 21 if they are enrolled in college. Once they join the workforce or graduate, providers assist them with transitioning to adult care ([Project Site], n.d.).

Organizational Needs Statement

Obesity is one of the leading healthcare costs in the world. Per the Obesity Action Coalition (n.d.), one in three children are diagnosed with obesity or overweight. As a direct result of obesity, children face many chronic diseases, including diabetes, hypertension, heart disease, and sleep apnea (Obesity Action Coalition, n.d.). Lack of physical activity, a contributor to obesity, is the fourth major risk factor of mortality globally, making little or no physical activity a global problem (Rahimian et al., 2018). In a recent study that followed adolescents for 30

years, those with obesity were at a significantly higher risk of cardiovascular disease throughout their lifespan when compared to their peers (Ryder et al., 2020). Over 30% of children ages 10–17 in North Carolina have a body mass index (BMI) classified as overweight or obese.

Communities and clinicians must recognize this as a significant healthcare concern and strive to implement changes in the overall rate of obesity (North Carolina Institute of Medicine [NCIOM], n.d.b).

Healthy People 2030, an initiative of the Office of Disease Prevention and Health Promotion (ODPHP) of the U.S. Department of Health and Human Services, has included the goal of “reducing overweight and obesity by helping people eat healthily and increase physical activity” (ODPHP, n.d.c). The guidelines aim to decrease obesity rates to 15.5% from 17.8% for children ages 2 to 18. Research has shown that using multiple behavioral modification techniques programs helps reduce childhood obesity (ODPHP, n.d.c). Therefore, programs should focus on several areas of improvement for families and patients.

Another goal of Healthy People 2030 is to reduce sugary beverage consumption among those ages 2 and up. Ideally, in 2030 the percentage of calories consumed from sugary beverages will have decreased to 11.3%, down from 13.5% consumption in 2016 (ODPHP, n.d.b). Sugary beverages have been shown to increase obesity throughout the lifespan. High-school-aged students have been found to consume more than 15% of their daily energy intake from sugary beverages. Ebbeling et al. (2012) found a reduction in sugary beverages was possible through educational intervention. At one-year post-session participation, the study participants with educational intervention showed decreased consumption compared to the control group. NCIOM also aims to reduce sugar-sweetened beverage consumption significantly (NCIOM, n.d.b).

Sugar-sweetened beverages are non-diet soda, fruit drinks, Kool-Aid, lemonade, sports drinks, and sweet tea (NCIOM, n.d.b).

The percentage of students in high school who were physically active 60 minutes or more in 2017 was 26.1% (ODPHP, n.d.a). Healthy People 2030 aims to increase activity levels among this population and reduce obesity by 20–36%. August et al. (2008) describe the rationale for 60 minutes of daily physical activity for teens as this provides teens with the ability to maintain an ideal weight. To achieve this benchmark, providers must address obesity with the teenage population (ODPHP, n.d.a). Currently, NC is tied at number 40 in the nation for population access to local parks or recreational areas (NCIOM, n.d.a). Ideally, the state would like to increase access to exercise opportunities, thus enhancing the population's overall health (NCIOM, n.d.a). As Stankov and colleagues (2012) described, adolescent teens defined as obese are at a much higher risk of entering adulthood as obese. One of the best interventions for obesity during this period is physical activity (Stankov et al., 2012).

Although this practice offers a fit camp program for ages 6–12, they have identified adolescents as a group with limited programs available for patients with high body mass indexes (BMI). Data collection from the office reveals that in 2019, over 260 patients ages 13–18 were identified as having a BMI greater than the 85th–94th percentile (overweight). This number also included those with a BMI greater than the 95th percentile (obese) (Athena: CHS BMI Report, n.d.).

It is the policy of the practice for all patients to have yearly well visits. According to Athena (n.d.) data, 1,415 teenage well visits occurred in 2019. If one assumes all patients diagnosed as overweight or obese had a yearly well visit in 2019, the percentage of patients with these conditions would be 18.9% (Athena, n.d.). Compared to the state and national averages,

this patient group falls within a similar range as those identified as overweight or obese, thus confirming the importance of providers pursuing weight-management education for adolescent patients within the practice and community.

Problem Statement

With the increase in obesity in North Carolina, as evidenced by the state ranking 18th in the nation for obesity and 15.4% of all high school students diagnosed as obese (State of Childhood Obesity, n.d.), the need for adolescent patients to receive more education is evident. In addition, resources to change the trajectory of obesity are recognized as necessary. Currently, the practice does not offer formal education to adolescent patients.

Purpose Statement

Recognizing the need to assist adolescent patients with obesity, the project leader developed a program titled “Healthy Habits for Teens: Changing the Trajectory of Obesity.” This program aimed to improve patients’ willingness to make lifestyle changes by providing educational sessions, physical activity sessions, and support for teens ages 13–18. Participants were asked to complete pre and post questionnaires regarding lifestyle changes, participation, and barriers. The project leader evaluated class attendance rates and overall compliance.

Section II. Evidence

Literature Review

Studies included in the literature review were selected based on several criteria. Multiple searches were conducted, focusing on various terms pertinent to the project. Initial literature reviews were conducted through the University Library One Search database. The only term utilized during the initial search was *pediatric obesity*, which resulted in over 360,000 articles. This search was narrowed down by including only the last five years, which resulted in over 38,000 articles. It was decided pediatric obesity was too broad of an examination given the various aspects of this disease, and that search was abandoned.

The reviewer narrowed the topic to focus solely on adolescent obesity, which was still too broad, with over 47,000 articles. These results were limited by utilizing articles only in the last five years and adding the following search terms: adolescents, body mass index, body mass, body weight, obesity, obesity treatment, and intervention. This resulted in over 16,000 articles that search was deemed still too large given the complexity of the disease. Inclusion criteria was then narrowed for the articles to include full-text articles, English language, and participants ages 13-18.

Articles were selected based on terms, including programs for adolescents, online, web-based intervention, self-monitoring, teen, and lifestyle programs. However, most of the articles found did not utilize an online intervention for obesity. Most programs found utilized in-person, community, or school-setting interventions. The focus of the literature was then narrowed again to examine intervention programs through online platforms, social media, and web-based with articles selected from the last five years.

Later, the reviewer searched for online education regarding obesity for teens through the One Search Database. The search was narrowed by including articles within the last five years, resulting in over 1,500 articles. Results were restricted to include the following terms: adolescent, teen, and online intervention. Upon further elimination, the reviewer restricted the articles based on full text available, obesity treatment, and weight management. Out of the 62 articles found, twelve papers were pertinent and utilized for the project. This was further narrowed to seven articles after evaluating their relevance to the project and removing those deemed repetitive by the reviewer (Appendix A). Articles were evaluated and selected based on Melnyk and Fineout-Overholt's Levels of Evidence (Upshaw-Owens, 2019). Although there is some literature to support the utilization of an online program to educate and change the health habits of teens, it is still limited even though we live in such a technology-driven society (Appendix B).

Current State of Knowledge

Throughout the literature, common themes were discussed regarding various interventions, such as in-person support groups, text messaging/online groups, and school-based programs. One can identify programs that focus on behavioral modifications as the most vital aspect to promote a change in the trajectory of obesity (Partridge et al., 2020). It is critical to recognize the uniqueness presented by teens when addressing obesity through any program—and online programs are no exception (Van Dyck et al., 2019).

James et al. (2018) addressed the rationale for community-program decision-makers to seek out the adolescents' thoughts on activity preferences before implementing new programs. It is also imperative that clinicians recognize unique needs when comparing rural and urban settings regarding the development of ongoing programs (Pfledder et al., 2021). Clinicians

should examine technology options and review current social media platforms and apps to enhance obesity-management programs and create new opportunities for participants (Van Dyck et al., 2019).

Current Approaches to Solving Population Problem(s)

Common approaches to addressing obesity in adolescents include online support groups, texting, and in-person sessions. In-person educational sessions remain one of the most common avenues utilized by providers and groups (Klassen et al., 2018). For this project, the focus was on available online options. Given that the practice has held a successful online program for children ages 5–12, this seems to be an appropriate option for the teens at the clinic ([Site Champion], personal communication, June 25, 2021). A standard course of action involves utilizing text-messaging behavioral interventions. Based on the review of articles, it is essential to recognize that text messaging is often combined with in-person sessions (Ludwig et al., 2018; Partridge et al., 2020). Social media platforms have also been utilized for teen-obesity interventions and are usually used congruently with other modalities (Klassen et al., 2018; Ramalho et al., 2020; Van Dyck et al., 2019). Although limited evidence supports each topic, the reviewer was able to find these as specific and emerging themes within the literature.

Ludwig et al. (2018) reviewed the utilization of SMS (short messaging service) to change physical activity and sedentary lifestyles among teens. It is essential to recognize that most studies solely focused on physical activity and did not address the inactive lifestyle component. Ludwig et al. (2018) identify an inactive lifestyle as sedentary. The researchers pointed out a clear need for additional studies to address the utilization of text-messaging programs within the adolescent population. In addition, they suggested future studies have more apparent objective

outcome measurements, formulate a plan for long-term follow-up interventions, and send at least three or more SMS per week to encourage physical activity (Ludwig et al., 2018).

One ongoing study by Partridge et al. (2020) has sought to utilize scheduled text messages four times a week for six months in addition to their regularly scheduled in-office interventions. Participants in both the control and study groups received the same health counseling within the clinic. However, those in the study group received additional support through text messages as scheduled above. Participants will be monitored throughout the program and one-year post-study.

The most common social media platform utilized throughout the literature was Facebook (Klassen et al., 2020; Van Dyck et al., 2019). Although this social media platform is prevalent, the studies reviewed did not fully indicate social media as the only component of the program (s) that engaged teens. Klassen et al. (2018) discussed this as a potential for further research and encouraged others to consider utilizing social media regarding obesity interventions for patients to assist with management of their chronic condition. Their systematic review of 21 studies found teen engagement in social media aspects of programs ranged from 3% to 69% (Klassen et al., 2018).

Ramalho et al. (2020) utilized a combination of a web-based approach, Facebook, and monthly chat sessions. This program is unique because it was geared to be an option for those of a lower socioeconomic status. Participants were all undergoing ambulatory treatment in public hospitals and had access to social media a minimum of three times per week. Participants were invited to chat with a team member for 20–30 minutes once a month via Facebook messenger. Interestingly, the study found that female participants demonstrated higher disturbed eating behaviors, impulsive behavior, and were less active. This finding indicates that more research

and interventions to target gender differences are necessary when implementing youth weight reduction programs (Ramalho et al., 2020).

A study utilizing focus groups by Van Dyck et al. examined teenagers' perspectives on using Facebook versus text messaging to promote physical activity. This study brought to light essential concepts to consider when creating any weight-management program for teens. The focus group suggested creating a Facebook group page to share information and make connections. In addition, the group supported the utilization of text messaging for reminders of physical activity, and many even stated they preferred this method over other options such as Facebook messenger. Teens discussed the utilization of autonomy and stressed the importance of making their own activity goals and the desire for a reward system for completing the program (Van Dyck et al., 2019).

Mobile health technologies offer another way to increase physical activity among adolescents. Technology is a rapidly growing and quickly evolving area. Lee et al. (2019) examined 13 articles for efficacy and effectiveness in increasing physical activity among adolescents who utilized a combination of texting and apps. Five articles of Lee et al.'s (2019) review demonstrated a significant improvement in physical activity. Their review stressed the importance of developing apps with behavioral modification programs, including physical fitness courses. Unfortunately, most of the articles reviewed did not have interventions that lasted longer than 12 weeks. Thus, future interventions need to be evaluated for more extended periods with the hope of observing long-term weight management (Lee et al., 2019).

A current study in progress examined the impact of adding self-monitoring through mobile health apps, online video platforms, caregiver podcasts, dietary and physical-activity tracking programs, and participants' current in-person obesity-management program (Moore et

al., 2020). Participants will complete baseline measures and then be randomized to self-monitoring interventions with follow-up at three and six months. The researchers hope to enhance the number of patients served by their clinic and improve overall outcomes. (Moore et al., 2020).

Evidence to Support the Intervention

Given the receptiveness of adolescents to technology, the project site believes an online platform is the ideal setting for obesity education to take place (Klassen et al., 2018; Moore et al., 2020; Van Dyck et al., 2019). Klassen et al. (2018) found that teens may not desire to share information on their own personal social media pages but are receptive to communicating in a private group setting. Ramalho et al. (2020) conducted a web-based program via Facebook that incorporated scheduled chats to address teen obesity in Portugal, which was received well by participants. A focus-group study by Van Dyck et al. (2019) found teens were very receptive to online interventions via social media and daily text-message reminders. Given the practice has held a successful fit camp program for younger ages via the Zoom platform and a private Facebook group through the practice's page, the owners have agreed to utilize this platform for this project ([Site Champion], personal communication, June 25, 2021).

Evidence-Based Practice Framework

Pender et al.'s (2011) Health Promotion Model (HPM) was utilized. Although the HPM has not been used often in adolescent obesity studies, it has the potential to thoroughly address this population (Srof & Velsor-Friedrich, 2006). The HPM is one of the most common models utilized in nursing practice (Eren Fidanci et al., 2017).

Reviewing childhood obesity studies produces a common theme: changing health behaviors is vital and more important than losing weight. Pender et al. (2011) promoted the HFM

model to understand the determinants of health and guide changes for overall health behaviors. The HPM focuses on achieving a higher level of wellness through behavioral changes and allows clinicians to work closely with patients to help them make choices that will hopefully impact and improve their overall well-being. Adolescents are a unique population with specific health challenges (Christon et al., 2018). As teens are looking to develop their own identities separate from their family members and find their place among peers, the HPM allows them to express themselves while making health-oriented changes. HPM also encourages self-initiation of change (Pender et al., 2011). Utilizing this model provides participants the autonomy they desire while helping to achieve lifelong health promotion (Alderman et al., 2019).

Ethical Consideration and Protection of Human Subjects

It is essential to consider all participants may be of different socioeconomic statuses. Thus, some may have limited access to the internet or devices to utilize an online program. Participants in rural areas may face challenges with internet access, limiting their participation. Although this may impact participants who desire to join the group, it should not affect the overall target of the project. Participants need to be informed that opting not to participate in this program will not impact their care at the practice.

Participants who agree to participate in online Zoom sessions will be allowed to leave their video off if they so choose. Instructors will give participants safety guidance before the exercise sessions and throughout. Participants may opt to limit or modify movements based on their physical abilities. Parents will be invited to have access to the Zoom sessions, and those sessions will be password protected to allow for additional cybersecurity for participants. However, as noted by Lee et al. (2019), technology is ever-changing. This may present a potential issue should the Zoom platform change during or near the start time of the online

educational sessions, resulting in a participant being unable to experience the program fully or having unexpected difficulties with the online platform (Lee et al., 2019).

Children may also exhibit low self-esteem or depression and a lower quality of life in conjunction with obesity (Sahoo et al., 2015). The clinicians and participants need to provide resources should any mental health problems or concerns arise. Given the participants will be seen through the office for routine care, clinicians in practice should administer the PHQ2 and subsequent PHQ9 screening tool yearly. The PHQ2 and PHQ9 are standardized screening tools utilized for screening for depression (Sahni and Agius, 2017). Clinicians should not recommend the program to patients they deem unfit or unable to participate based on their emotional and physical well-being, even with modifications.

There is no formal IRB process utilized at the practice for the project. Therefore, to prepare for final approval from the university, the project lead completed the online Collaborative Institutional Training Initiative (CITI) modules and reviewed the information provided in the course work and the textbook for the Doctor of Nursing Practice (DNP) studies program. A review and completion of the Institutional Review Board (IRB)/Quality Improvement (QI) Program Self Certification Tool Guidance took place with subsequent confirmation that the project met the criteria for QI, not requiring IRB review per the University guidelines (Appendix C).

Section III. Project Design

Project Site and Population

The pediatric office utilized for the project sees patients from birth to 21. For this project, the population was narrowed to 13–18 years old with a diagnosis of obesity or elevated BMI (>85th percentile) per Center for Disease Control (CDC) guidelines. Hence, all patients with a BMI greater than the 85th percentile were invited to participate in the program (Child and Adolescent Health Measurement Initiative, 2016).

Description of the Setting

The pediatric practice serves patients primarily in North Carolina, focusing on the county of location, although some patients travel from various counties. Patients are provided general pediatric care focusing on wellness, disease prevention, and growth and development. Children are typically seen from birth to age 21 ([Project Site], n.d.). The practice currently has one full-time nurse practitioner who is board certified in lactation, two part-time physician assistants, two full-time physicians, and two part-time board-certified physicians in pediatrics ([Site Champion], personal communication, June 25, 2021).

Description of the Population

The clinic serves over 9,000 active patients and has a 23% ratio of Medicaid patients, with the remainder covered by various insurance plans ([Billing Coordinator], personal communication, August 15, 2021). The clinic demographic consists of 40% white children, 30% African American, and 30% other ethnic groups ([Billing Coordinator], personal communication, June 25, 2021). Common diagnoses among the patients are asthma, obesity, overweight, eczema, and allergies ([Billing Coordinator], personal communication, June 25, 2021). In the primary

county serviced by this practice, the adult obesity rate is 72.7%, with one in three children suffering from obesity (Centers for Disease Control and Prevention, 2013).

Project Team

The project team consisted of the project lead, project site champion, and faculty advisor. The project lead was responsible for the overall design and implementation of the project. In addition, the project lead was accountable for utilizing the project site champion and faculty advisor as a resource and for implementation suggestions. The project lead, a family nurse practitioner, and certificate of advanced education in obesity medicine led sessions and was responsible for coordinating the program and the data collection ([Site Champion], personal communication, 25 June 2021).

One owner of the practice served as the site champion. The project site champion oversaw the project and helped the project lead implement and make necessary changes to the project's overall flow. The faculty advisor served as a liaison and advisor throughout the project lead's design, implementation, and post data analysis. The faculty advisor also offered suggestions and encouraged critical thinking regarding the project.

Patients were recruited by providers and clinical staff within the practice. Other local professionals were brought in to help lead sessions; this included a nutritionist, yoga instructor, boxing coach, and Zumba instructor. The front desk supervisor, front desk staff, and clinical team leaders helped promote the project among the patients and parents.

Project Goals and Outcome Measures

The project aimed to encourage teens to make two lifestyle changes that will ultimately impact their overall health. The project aims to engage participants in becoming focused on overall health and wellness to incorporate this into their lifestyle. Through participant-reported

answers to the end-of-program questionnaire, the project assessed whether there was an increase in physical activity, an increase in water intake, an increase in green vegetable consumption, and a decrease in sugary beverage consumption.

Description of the Methods and Measurement

Participants were given a pre and post questionnaire with questions and answers to determine their willingness to change by participating in the program. Participants were asked how often they consume sugary beverages, vegetables, water, and exercise each week as a family unit. This information was also collected post-program. Information was analyzed to evaluate the program's effectiveness and desire to change. A data collection tool was used (Appendix D: Data Collection Tool) to record how many individual sessions were attended and how many participants completed the entire program.

Discussion of the Data Collection Process

Participants were assigned a number as they signed up through the Google document. These data were kept secure via the clinic's password-protected computer and locked in the project lead's office. Data were de-identified and included height, weight, BMI, age, and the pre and post questionnaires answers regarding the changes and modifications implemented by participants. Data were tracked regarding how many patients signed up, what ages signed up, how many completed the full six weeks, and how many participants were present each night. Data were entered onto the data collection tool for analysis (Appendix D and Appendix E). Data were then summarized by participants' answers in both the preprogram and post-program questionnaires.

Implementation Plan

The project began with two educational sessions with the clinical team, front desk staff, and the providers before distributing flyers (Appendix F) to potential participants in the clinic. This occurred six weeks before the first online session and continued until two days before the initial session or when twenty participants signed up. The flyers had a QR Code and linked participants to a Google sign-up sheet. Participants were asked to complete basic demographic information (name, age, and email) and provide their BMI, height, and weight. They were asked five questions in the pre-evaluation (Appendix G). Parents were asked to sign a virtual consent for their child's participation at the bottom of the sign-up document (Appendix G).

Six weeks after the flyer distribution, the group met virtually via Zoom on Tuesday evenings at 7 pm. Participants had the opportunity to win free prizes through the scheduled sessions. Sessions included Zumba, yoga, boxing, and healthy eating classes with various community liaisons and an obesity medicine specialist (Appendix H). After the course ended, each participant received a certificate of completion (Appendix I) via secure email and were awarded donated prizes obtained by the project lead with a monetary value of under ten dollars for completion of the course.

Timeline

The project began with staff being provided information on the project, details on signing up, and flyers distributed in the clinic. Six weeks after the initial meeting with staff and providers, the program began. Email reminders were sent out two weeks and two days before the program started, and weekly reminder emails were sent on the Monday prior to the session the following evening (Appendix J). At the participant's request, a Fit Tracker and a Water Tracker tool were created and sent out during week two (Appendix K; Appendix L). Thank-you emails

were sent out to the participants at the close of the last session and included a follow-up survey link (Appendix M) and information on how to join the practice's future healthy-teen events. As modifications were made to the program based on the availability of session leaders, a new timeline was created (Appendix N).

Section IV. Results and Findings

Results

Seven teens signed up to participate with an age range of 13-18, and all seven completed the preassessment survey (Appendix O). The pre-survey results indicate that four (57%) of those who signed up eat vegetables daily, and two (28.5%) reported eating vegetables once a week. Two (28.5%) exercised once a week and five (71%) reported exercise 2–3 times a week. Two (28%) of the participants reported drinking sweat tea or soda at least 2–3 times a week and three (42.8%) reported drinking once a week.

No participants completed all the zoom sessions, and two of the seven (29%) attended three or more sessions. Three (43%) participants did not participate in any sessions. Two teens (29%) came to the extra session, offered at the participant's request. Given the limited response of the participants at week three, the timing of the email reminders was changed to include a reminder 3 hours before the start of the program. This did result in one additional participant during the following weeks (Appendix P).

Changes in the course program's original outline and changes made throughout the program, including adding another session, were documented, and monitored (Appendix N). These changes were necessary due to various presenters' schedules and one emergency. One session was rescheduled due to technical issues with the zoom platform the night of the program. Participants asked the project lead to adapt some of the materials to include weight training at home, which was added.

Only two participants completed the post-evaluation, and their responses were compared to their pre-evaluations (Appendix Q). Both indicated they never exercised with their families and now exercise a minimum of two to three times a week with their family (Appendix R).

Additional participants did email the project lead with positive feedback regarding the program. One participant who did not complete the post-evaluation survey commented they were “willing to eliminate some sugar since hearing how sugar hides.” Feedback from another participant who did not complete the post-evaluation included “I have started exercising at least four times a week and am using the water tracker, and I have cut out soda” at a recent well visit. The clinician observed an improvement in this participant’s BMI.

Discussion of Major Findings

Incorporating participants’ interests into the program is vital to its success. Adapting programs and listening to teens to include their suggestions into any program is critical for its success. Providing some flexibility in the content allows for autonomy, thus promoting involvement (Ramalho et al., 2020). Provider involvement is crucial to the program’s success as they were primarily responsible for the recruitment phase of the program. The inclusion of providers promotes enhanced relationships, thus impacting overall patient care.

Eg et al. found adolescent participants who exercise with their family to be more successful in maintaining a healthy lifestyle (2017). The two who completed three or more of the sessions reported they now exercise with their family, which is vital to maintaining overall health. One of the participants who completed the program indicated exercising daily and decreased sugary beverage consumption. It is imperative to recognize one participant who participated in two of the six programs yet did not complete the post-assessment emailed the team leader, stating they are also participating in daily exercise and have cut down on sugary beverages.

Section V. Interpretation and Implications

Cost-Benefit Analysis

The annual direct costs of childhood obesity in the United States are estimated at \$14.3 billion (Obesity Action Coalition, n.d.). Each year, one child with obesity costs over 19,000 more healthcare costs than a child with a normal body mass index (BMI). The estimated annual health care costs of obesity-related illness are a staggering \$190.2 billion or nearly 21% of annual medical spending in the United States. (Obesity Action Coalition, n.d.).

The cost of the implementing the program was estimated to be \$728. When broken down, the cost per participant with seven participants averaged \$17 a session (Appendix S). Cost associated with the program includes advertising, personnel, and utilization of the online platform. Prizes were donated for this program. This would need to be added to the program's total cost if not donated for future courses. With more participants recruited and included, the average cost of the participants would decrease.

The site can consider utilizing students as volunteers for the program's continuation. Many programs require volunteer hours of their students, and the students in programs such as physical therapy, exercise physiology, and nursing can all be incorporated into the existing plan. Joint programs with local fitness groups may also allow the program to expand into other entities and continue in the current site. The utilization of open enrollment would also decrease the overall cost as flyers without dates could be printed and included in each patient room for participants to click on a QR Code to sign up.

Resource Management

Time spent in marketing, emailing reminders, staff education, communication with participants and speakers are all considerations for this program. The project lead spent five

hours a week completing these tasks. Each week the project lead spent time emailing reminders to the participants and emailing all participants after the session concluded. The project lead spent approximately three hours planning each weekly session with the various entities.

Instructors were emailed reminders and for confirmation a few days before their scheduled session. Instructors spent roughly two hours in both preparation and presentation each week.

Office staff spent thirty minutes twice a week adding the flyer to the patient packets.

Implications of the Findings

Implications for Patients

Participants reported they changed behavior in communication with the project lead during their online participation via email and during the zoom sessions. One participant reported feeling able to “make small changes” and “willing to eliminate some sugar since hearing how sugar hides.” Healthy People 2030 encourages a reduction in consumption of added sugars for ages 2-17. Ideally, in 2030 the percentage of calories consumed from sugary beverages will have decreased to 11.3% (ODPHP, n.d.b). Healthy NC 2030 has a target of 17.0% of youth who consume sugar-sweetened drinks (NCIOM, n.d.b). Program participants were given the opportunity to learn about the importance of decreased sugar in their diet. A decrease in sugar consumption is directly correlated with maintaining a normal body mass index (BMI) (Ebbeling et al., 2012). A healthier BMI leads to better overall health, a reduction of medical expenses during one’s lifetime, and a decrease in chronic diseases, including diabetes, cardiac disease, and cancer. Teen involvement in lifestyle changes is essential to create life-long healthy habits. Thus, it is critical to implement programs that encourage participant engagement (Partridge et al., 2020).

Implications for Nursing Practice

The project demonstrates a clear need for participants to be provided with the tools necessary to make important lifestyle changes; therefore, nurse practitioners (NP) must seek to incorporate these tools within daily well visits and offer more health focused programs within the community setting. Participants who formulate a better relationship with their provider are often more willing to see the provider as a resource to enhance their overall health. This changes the nurse practitioners' ability to change the patient's trajectory and overall health. Monsen et al. discuss the importance of interprofessional relationships among various disciplines to address critical factors in managing patients with obesity (2015). Collaboration with multiple disciplines provides patients with better overall continuity of care and allows the NP to troubleshoot challenging situations with other health care team members (Monsen et al., 2015). By working with other disciplines, the NP can help facilitate solutions to common exercise barriers, such as knee or joint pain. Primary care providers, especially NPs, are on the front line of identifying and combating obesity within the general population (Kessler, 2017).

Impact for Healthcare System(s)

This program can be implemented within other settings such as a physical therapy clinic or a local gym. Other practices can take the information gathered from this program and work to improve their patients' lives by offering similar sessions within their communities. A decrease in obesity will ultimately impact overall healthcare costs and enhance the lives of those who participate (Eg et al., 2017). Adolescent patients with obesity have a higher rate of obesity into adulthood which puts them at risk for multiple health problems. Safaei et al. discuss the long-term implications of obesity on the healthcare system and the patient (2021). Sahoo et al. point out that overweight teens have a much higher rate of developing Type II diabetes (2015).

Patients with Type II diabetes are more likely to be hospitalized or absent from work, thus resulting in a financial burden to the patient and the healthcare system (Andersson et al., 2020).

Mental health significantly impacts obesity. Patients with obesity have a 51% increased risk of developing depression in their lifetime (Tremmel et al., 2017). Depression costs over \$210 billion in the United States per year (Ma et al., 2019). Children who are obese have higher rates of weight bias and discrimination, which can lead to depression. Adolescents with obesity have a higher rate of depression, anxiety, and poor academic performance and have a greater risk of suicide when compared to peers who do not have obesity as a health concern (Tremmel et al., 2017).

A fit camp program allows the NP to address Healthy 2030 and NC Healthy 2030 goals to decrease sugary beverage consumption and increase physical activity among patients ages 2-18 (ODPHP, n.d.b). This program also addresses the Obesity Medical Associations' (OMA) Pillars of Pediatric Care by focusing on pediatric care's physical activity and nutrition aspects (Cuda et al., 2022). Addressing these standards impact the overall healthcare not only of pediatric patients but adults as well.

Sustainability

The project is sustainable for the practice. Costs of the flyers and mailings can be reduced if one creates an open enrollment module. Community involvement is already present in the clinic's current fit camp program for ages 5-12, which can be incorporated into the teen fit camp program. The site is offering another teen fit camp program in April of 2022 with a few adaptations. Additional survey questions are being offered to better understand participant's interest along with two in-person workout sessions to supplement the online sessions.

Other organizations can adjust the program for their population. The time of the providers and community volunteers must be considered and is the most significant expense in the cost analysis. The addition of volunteers would increase the potential for sustainability within the project site. Utilizing the tools provided, another organization can adapt and facilitate an online fit camp program for their community.

Dissemination Plan

Results of the project were shared with participants via email at the end of November 2021. The project results will be shared at the site's monthly provider and staff meeting in May 2022. The final paper of the project will be submitted to the University Scholarship Repository. A poster presentation of the project took place in April of 2022. An abstract to speak and present at the Obesity Medical Association (OMA)'s Fall of 2022 conference was submitted, and pending acceptance. OMA focuses on the better management of obesity and was selected based on the strong ties to the prevention and resolution of pediatric and adult obesity. Additionally, an abstract will be sent to the OMA's new obesity medicine journal for publication in the winter of 2023.

Section VI. Conclusion

Limitations

It is important to note that the site's data-collection software only allows for identifying patients with obesity/elevated body mass index (BMI). This may have created a limitation of the participants reached to inform them of the program. The software program could not specify if the patients were seen for well or sick appointments in the office. The site could not identify an exact percentage of patients in our practice with obesity (Athena, n.d.). A chart audit involving three patients seen during 2019 and 2021 revealed an elevated BMI; however, these patients were not seen in the practice in 2020 (Athena, n.d.). Therefore, it is essential to recognize that 2020 patient numbers could potentially present a less accurate picture of the health status of the patient population at the practice.

Another consideration is the timing for which providers began to code a patient's increased BMI consistently. This potentially did not allow the site to identify participants who met the criteria for being offered the program. At the end of 2019, providers at this practice began to document BMI on at least one visit during the calendar year as an incentive for payment with Blue Cross and Blue Shield of North Carolina (BCBSNC) and Medicaid. The participant may have had a well-visit before this protocol was initiated, and others may have joined the practice after 2019. Therefore, the data collected may not fully identify all clients at the practice with these diagnoses ([Billing Coordinator], personal communication, July 25, 2021).

Technology played a crucial role in the success of this project. However, there are limitations with any program utilizing an online platform. In rural parts of the country, the internet is often limited and can create a barrier to participation. (Lee et al., 2019). Though available free of charge, the Zoom platform may not always be reliable for participants or

instructors. This program experienced those limitations when the project lead could not access the online platform for one of the sessions; therefore, one session was missed, resulting in adding sessions. Connection issues may be challenging for participants to attend each session resulting in rescheduling.

Provider limitations during the project are essential to discuss. With the added challenges of COVID-19, the practice was unable to see as many well-child visits, which likely contributed to a limited discussion on BMI as this is typically the appointment where weight management would be discussed. The site also dealt with decreased well visits during the implementation time due to schedule changes necessary to meet the demands during a pandemic. During the recruitment phase, the site was short a provider directly related to an acute illness. Providers faced increased patient load and limited time to discuss additional resources for elevated BMI ([Site Champion], personal communication, November 8, 2021).

Limited participation among those who were contacted to register and those who registered cannot be ignored. It is imperative to evaluate the barriers faced by participants, including time, scheduling of the sessions, and limited internet usage. One participant had a family emergency which prevented the individual from joining the course one evening. Participants identified themselves as a barrier to completing the program due to motivational concerns. One should evaluate how to motivate the teens best to remain active during the six weeks. Rolling admission and a longer planned program would allow flexibility among participants to have higher rates of participation. It is also necessary to start advertising the program earlier as some participants found out about the sessions after the start of the six weeks. Most responses for participation came through the charting system text messages sent to all participants ages thirteen to eighteen years of age. However, given this was approved later in the

program's implementation phase, it impacted the involvement as many read the portal texts days after initiation of the program.

Recommendations for Others

Before implementing this program, it would be imperative to advertise it in the clinic year-round and organizations should include an outreach through secure text messaging to all eligible participants a week before the registration period ends. The implementation of text message reminders for participants before each of the weekly sessions would likely increase participation. Although this would require a secure text messaging system, participants reported preferring text messages versus emails. The respondents to the survey indicated this would be helpful to remind them of sessions and help them stay on target with their goals. This was also discovered by Van Dyck et al. (2019) in their research. One could also utilize this programing to implement healthy tips or educational components, which has been found to facilitate a better involvement of the participants (Chai et al., 2021).

Provider involvement and recruitment are critical to the success of this program. Education of the providers regarding how the obesity program for teens impacted participants and encouraged them to seek out more participants at all points of contact, for example, during sick visits and well-child visits, needs to be a primary focus. Chart audits and direct messaging of those patients who meet criteria would likely increase enrollment. The program is sustainable with making minor changes and implementing suggestions mentioned above. The need is great as patients and parents have asked for the program to continue, and others have asked to join the fit camp program.

The site should consider writing grants with the current kids' fit camp partner to offset the cost. Grants are available for teenage programs. Additionally, other grants are available

specifically related to pediatric obesity. The Centers for Disease Control (CDC) also allows grants to address social determinants of health.

It would also be essential to consider the implementation of a team-based planning committee consisting of representation from the various entities involved, which would ensure that the site has a more invested approach to the overall continuation of the program, thus creating stakeholder support. Adding a group of local providers to the program committee who are passionate about obesity medicine would allow one to increase the outreach into the community. In addition to creating a committee, one could consider forming a non-profit in the community with the central purpose of providing the fit camp to the current site and other practices within the local community.

Another important area mentioned previously regarding providing patients with text message reminders is that enhanced technology would benefit this program. Chai et al. (2021) found the utilization of social media for participants to connect was helpful in assisting families to maintain their overall health goals. The site currently manages a healthy kids Facebook group and could consider implementing a teen-specific “safe place” online to assist teens with obesity management.

Recommendations Further Study

A further study recommendation would include ways sites can implement technology to assist teenagers with weight loss. The utilization of technology for online classes and how teens respond to programs on various platforms should be explored. Text messaging through a secure system should be evaluated and incorporated into the current fit camp program. With an electronic medical records (EMR) system, it is imperative to consider surveying the practice population regarding which technology platform is preferred among users before starting the

next program. It would also be beneficial to survey participants regarding the utilization of tracker tools. Some participants may prefer an online way to track or an app instead of a printed tracker. Lee et al. (2019) found that teen participants prefer online tools overall in their research.

It would also be imperative to consider forming a separate online support group for ongoing assistance for teenagers to maintain healthy lifestyle choices. Platforms to be considered would include Instagram and Facebook. Another idea would be to consider a program that engages more family involvement. Chai et al. (2021) found families were receptive to programs that utilized family-focused technology to address overall healthy lifestyles.

Final Thoughts

Obesity is a concern among the teenage population. Providers need to seek creative ways to implement ways to change the overall health of their patients. The utilization of technology is very appealing to youth and has been found to assist in their broad healthy lifestyle choices. Implementing a fit camp program for teens via an online platform is an excellent way to utilize resources that appeal to teenage patients (Klassen et al., 2018). This program has the potential to be not only sustainable in practice but utilized within other communities and settings. By implementing programs such as this, nurse practitioners can lead initiatives to address the overall health of their patients, meet Healthy People 2030 goals, and impact the comprehensive healthcare system.

References

- Alderman, E. M., Breuner, C. C., & Committee on Adolescence. (2019). Unique needs of the adolescent. *Pediatrics (Evanston)*, 144(6), e20193150. <https://doi.org/10.1542/peds.2019-3150>
- Andersson, E., Persson, S., Hallén, N., Ericsson, Å., Thielke, D., Lindgren, P., Steen Carlsson, K., & Jendle, J. (2020). Costs of diabetes complications: Hospital-based care and absence from work for 392,200 people with type 2 diabetes and matched control participants in Sweden. *Diabetologia*, 63(12), 2582–2594. <https://doi.org/10.1007/s00125-020-05277-3>
- Athena: CHS BMI Report. (n.d.). *Overweight and obesity BMI measurements for adolescents from 2019 to 2020* [Unpublished raw data].
- August, G. P., Caprio, S., Fennoy, I., Freemark, M., Kaufman, F. R., Lustig, R. H., Silverstein, J. H., Speiser, P. W., Styne, D. M., Montori, V. M., & Endocrine Society. (2008). Prevention and treatment of pediatric obesity: An endocrine society clinical practice guideline based on expert opinion. *Journal of Clinical Endocrinology and Metabolism*, 93(12), 4576–4599. <https://doi.org/10.1210/jc.2007-2458>
- Chai, L. K., Collins, C. E., May, C., Brown, L. J., Ashman, A., & Burrows, T. L. (2021). Fidelity and acceptability of a family-focused technology-based telehealth nutrition intervention for child weight management. *Journal of Telemedicine and Telecare*, 27(2), 98–109. <https://doi.org/10.1177/1357633X19864819>
- Child and Adolescent Health Measurement Initiative. (2016). *2016 National Survey of Children's Health*. Data Resource Center for Child and Adolescent Health. <https://www.childhealthdata.org/browse/survey/results?q=4568&r=35&r2=7>

- Christon, L. M., Weber, A., Leshner, A., Crowley, N., Jones, M., Byrne, T. K., & Wedin, S. (2018). Transition readiness in adolescents with severe obesity presenting for bariatric and metabolic surgery. *Bariatric Surgical Practice and Patient Care*, 13(3), 98-102. <https://doi.org/10.1089/bari.2018.0012>
- Centers for Disease Control and Prevention. (2013). *Community profile: Pitt County, North Carolina*. https://www.cdc.gov/nccdphp/dch/programs/communitiesputtingpreventiontowork/communities/profiles/obesity-nc_pitt-county.htm
- Cuda, S., Censani, M., O'Hara, V., Browne, N., & Paisley, J. (2020). *2020–2022 Pediatric Obesity Algorithm® e-book*. Obesity Medicine Association. www.obesitymedicine.org/childhood-obesity.
- Ebbeling, C. B., Feldman, H. A., Chomitz, V. R., Antonelli, T. A., Gortmaker, S. L., Osganian, S. K., & Ludwig, D. S. (2012). A randomized trial of sugar-sweetened beverages and adolescent body weight. *The New England Journal of Medicine*, 367(15), 1407–1416.
- Eg, M., Frederiksen, K., Vamosi, M., & Lorentzen, V. (2017). How family interactions about lifestyle changes affect adolescents' possibilities for maintaining weight loss after a weight-loss intervention: A longitudinal qualitative interview study. *Journal of Advanced Nursing*, 73(8), 1924–1936. <https://doi.org/10.1111/jan.13269>
- Eren Fidanci, B., Albayrak, N., & Arslan, F. (2017). Assessment of a health promotion model on obese Turkish children. *The Journal of Nursing Research*, 25(6), 436–446. <https://doi.org/10.1097/jnr.0000000000000238>
- James, M., Todd, C., Scott, S., Stratton, G., McCoubrey, S., Christian, D., Halcox, J., Audrey, S., Ellins, E., Anderson, S., Copp, I., & Brophy, S. (2018). Teenage recommendations to

- improve physical activity for their age group: A qualitative study. *BMC Public Health*, 18(1), 372. <https://doi.org/10.1186/s12889-018-5274-3>
- Kessler, C. (2017). Weighing in on obesity management. *Journal of the American Association of Nurse Practitioners*, 29(S1), S1–S2. <https://doi.org/10.1002/2327-6924.12515>
- Klassen, K. M., Douglass, C. H., Brennan, L., Truby, H., & Lim, M. S. C. (2018). Social media use for nutrition outcomes in young adults: A mixed-methods systematic review. *The International Journal of Behavioral Nutrition and Physical Activity*, 15(1), 70.
- Lee, A. M., Chavez, S., Bian, J., Thompson, L. A., Gurka, M. J., Williamson, V. G., & Modave, F. (2019). Efficacy and effectiveness of mobile health technologies for facilitating physical activity in adolescents: Scoping review. *JMIR mHealth and uHealth*, 7(2), e11847–e11847. <https://doi.org/10.2196/11847>
- Ludwig, K., Arthur, R., Sculthorpe, N., Fountain, H., & Buchan, D. S. (2018). Text messaging interventions for improvement in physical activity and sedentary behavior in youth: Systematic review. *JMIR mHealth and uHealth*, 6(9), e10799–e10799. <https://doi.org/10.2196/10799>
- Ma, J., Rosas, L. G., Lv, N., Xiao, L., Snowden, M. B., Venditti, E. M., Lewis, M. A., Goldhaber-Fiebert, J. D., & Lavori, P. W. (2019). Effect of integrated behavioral weight-loss treatment and problem-solving therapy on body mass index and depressive symptoms among patients with obesity and depression: The RAINBOW randomized clinical trial. *JAMA: The Journal of the American Medical Association*, 321(9), 869–879. <https://doi.org/10.1001/jama.2019.0557>
- Monsen, K. A., Attleson, I. S., Erickson, K. J., Neely, C., Oftedahl, G., & Thorson, D. R. (2015). Translation of obesity practice guidelines: Interprofessional perspectives regarding the

- impact of public health nurse system-level intervention. *Public Health Nursing (Boston, Mass.)*, 32(1), 34–42. <https://doi.org/10.1111/phn.12139>
- Moore, J. B., Singletary, C. R., Skelton, J. A., Miller, J., David, P., Heboyan, V., De Leo, G., Turner-McGrievy, G., & Ip, E. H. (2020). The design of a clinical trial to increase self-monitoring of physical activity and eating behaviors among adolescents: Protocol for the ImPACT feasibility study. *JMIR Research Protocols*, 2020. doi:10.2196/18098
- North Carolina Institute of Medicine. (n.d.a). *Access to exercise opportunities*. Healthy North Carolina 2030. Retrieved April 11, 2022, from <https://nciom.org/wp-content/uploads/2020/01/Access-to-Exercise-Opportunities.pdf>
- North Carolina Institute of Medicine. (n.d.b). *Sugar-sweetened beverage consumption*. Healthy North Carolina 2030. Retrieved April 11, 2022, from <https://nciom.org/wp-content/uploads/2020/01/Sugar-Sweetened-Beverage-Consumption.pdf>
- Obesity Action Coalition. (n.d.). *Understanding childhood obesity*. Retrieved April 11, 2022, from <https://www.obesityaction.org/get-educated/understanding-childhood-obesity/what-is-childhood-obesity>
- Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services. (n.d.a). *Physical activity*. Healthy People 2030. Retrieved April 11, 2022, from <https://health.gov/healthypeople/objectives-and-data/browse-objectives/physical-activity>
- Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services. (n.d.b). *Reduce consumption of added sugars by people aged two years and over—NWS-10*. Healthy People 2030. Retrieved April 11, 2022, from <https://health.gov/healthypeople/objectives-and-data/browse-objectives/nutrition-and-healthy-eating/reduce-consumption-added-sugars-people-aged-2-years-and-over-nws-10>

Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human

Services. (n.d.c). *Reduce the proportion of children and adolescents with obesity—NWS-*

04. Healthy People 2030. Retrieved April 11, 2022, from

<https://health.gov/healthypeople/objectives-and-data/browse-objectives/overweight-and-obesity/reduce-proportion-children-and-adolescents-obesity-nws-04>

Partridge, S. R., Raeside, R., Singleton, A. C., Hyun, K., Latham, Z., Grunseit, A., Steinbeck, K.,

Chow, C., & Redfern, J. (2020). Text message behavioral intervention for teens on

eating, physical activity and social well-being (TEXTBITES): Protocol for a randomized controlled trial. *JMIR Research Protocols*, 9(2), <http://dx.doi.org/10.2196/16481>

Pender, N. J., Murdaugh, C. L., & Parsons, M. A. (2011). *Health promotion in nursing practice* (6th ed.). Pearson.

Pfledderer, C. D., Burns, R. D., Byun, W., Carson, R. L., Welk, G. J., & Brusseau, T. A. (2021).

School-based physical activity interventions in rural and urban/suburban communities: A systematic review and meta-analysis. *Obesity Reviews*, 2021, e13265.

<https://doi.org/10.1111/obr.13265>

[Project Site] (n.d.). *Mission*. Retrieved May 22, 2021, from [Site Website]

Rahimian, M., Mohammadi, M., Mehry, A., & Rakhshani, M. H. (2018). The predictors of

physical activity among health volunteers based on Pender's health promotion model.

Journal of Research & Health, 8(4), 305–312. doi:10.29252/jrh.8.4.305

Ramalho, S., Saint-Maurice, P. F., Silva, D., Mansilha, H. F., Silva, C., Gonçalves, S., Machado,

P., & Conceição, E. (2020). APOLO-teens, a web-based intervention for treatment-

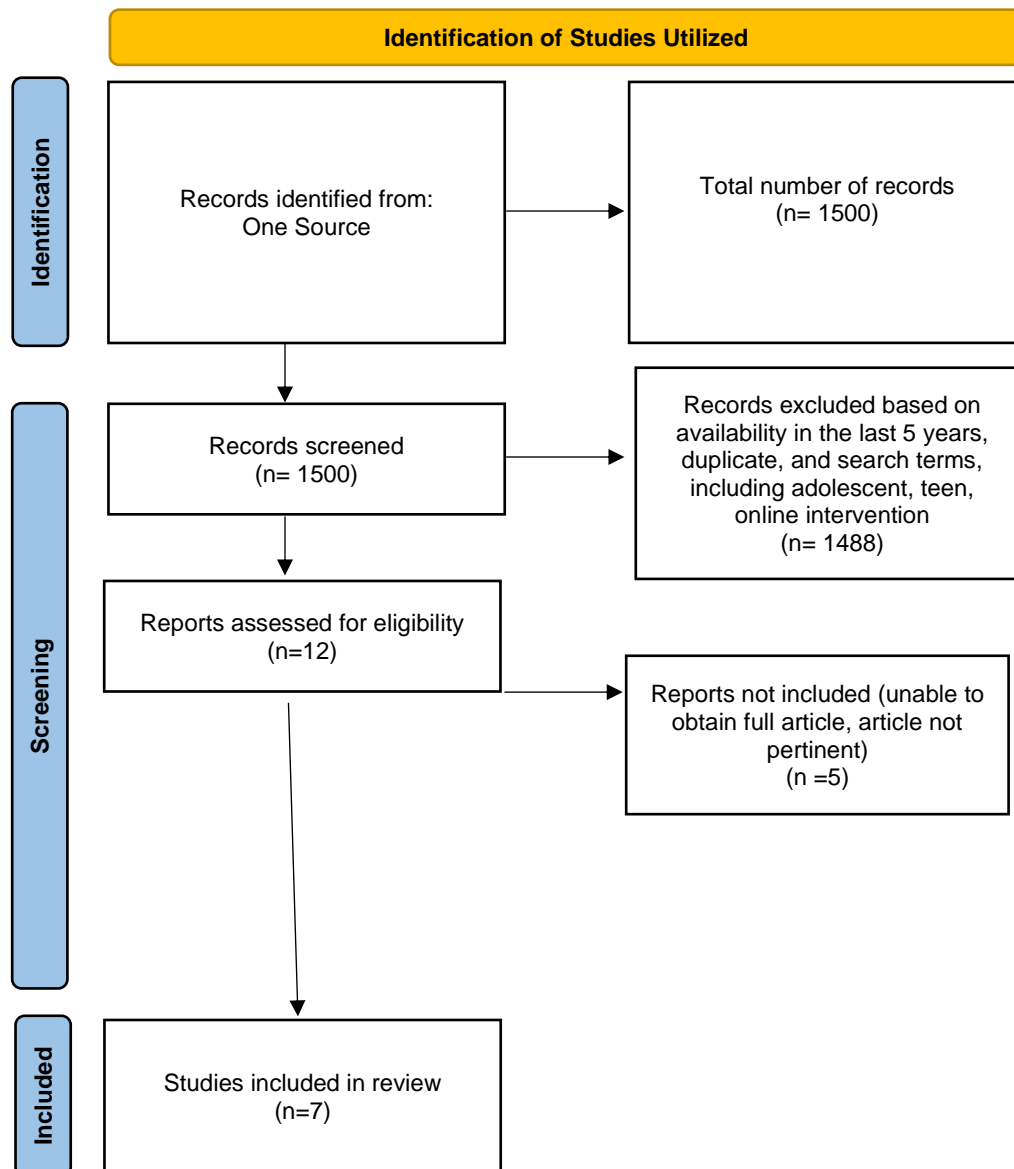
seeking adolescents with overweight or obesity: Study protocol and baseline

- characterization of a Portuguese sample. *Eating and Weight Disorders*, 25(2), 453–463.
<https://doi.org/10.1007/s40519-018-0623-x>
- Ryder, J. R., Xu, P., Inge, T. H., Xie, C., Jenkins, T. M., Hur, C., Lee, M., Choi, J., Michalsky, M. P., Kelly, A. S., & Urbina, E. M. (2020). Thirty-year risk of cardiovascular disease events in adolescents with severe obesity. *Obesity*, 28(3), 616–623.
[doi:10.1002/oby.22725](https://doi.org/10.1002/oby.22725)
- Safaei, M., Sundararajan, E. A., Driss, M., Boulila, W., & Shapi'i, A. (2021). A systematic literature review on obesity: Understanding the causes & consequences of obesity and reviewing various machine learning approaches used to predict obesity. *Computers in Biology and Medicine*, 136, 104754. <https://doi.org/10.1016/j.compbiomed.2021.104754>
- Sahoo, K., Sahoo, B., Choudhury, A., Sufi, N., Kumar, R., & Bhadoria, A. (2015). Childhood obesity: Causes and consequences. *Journal of Family Medicine and Primary Care*, 4, 187–192.
- Sahni, A., & Agius, M. (2017). The use of the PHQ9 self-rating scale to assess depression within primary care. *Psychiatria Danubina*, 29(Suppl 3), 615–618.
- Srof, B. J., & Velsor-Friedrich, B. (2006). Health promotion in adolescents: A review of Pender's health promotion model. *Nursing Science Quarterly*, 19(4), 366–373.
<https://doi.org/10.1177/0894318406292831>
- Stankov, I., Olds, T., & Cargo, M. (2012). Overweight and obese adolescents: What turns them off physical activity? *The International Journal of Behavioral Nutrition and Physical Activity*, 9(1), 53. <https://doi.org/10.1186/1479-5868-9-53>
- State of Childhood Obesity. (n.d.). *North Carolina*. Retrieved May 22, 2021, from <https://stateofchildhoodobesity.org/states/nc>

- Tremmel, M., Gerdtham, U., Nilsson, P. M., & Saha, S. (2017). Economic burden of obesity: A systematic literature review. *International Journal of Environmental Research and Public Health*, 14(4), 435. <https://doi.org/10.3390/ijerph14040435>
- Upshaw-Owens, M. (2019). Standardization: A concept analysis. *Medsurg Nursing*, 28(2), 132–134.
- Van Dyck, D., D’Haese, S., Plaete, J., De Bourdeaudhuij, I., Deforche, B., & Cardon, G. (2019). Opinions towards physical activity interventions using Facebook or text messaging: Focus group interviews with vocational school-aged adolescents. *Health & Social Care in the Community*, 27(3), 654–664. <https://doi.org/10.1111/hsc.12679>

Appendix A

Prism Diagram



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).

**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

Source: Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., et al. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. doi: 10.1136/BMJ.n71

Appendix B

Literature Matrix

Author	Year	Article Title	Theory	Journal	Purpose and take home message	Design/Analysis: Level of Evidence	IV DV or Themes: concepts and categories	Interv. Used	Sample Size	Sample method	Subject Charac.	Comments/critique of the article/method: GAPs
Klassen, K. et al.	2018	Social Media Use for Nutrition Outcomes in Young Adults: A mixed-methods systematic review.	N/A	<i>International Journal of Behavioral Nutrition and Physical Activity</i>	Using social media by young adults requires further study, concerns about public social media may impact engagement.	Mixed Methods Systemic Review: Level V	Utilization of Social Media among Adolescents to enhance and improve nutritional intake. Utilization of technology varied greatly among articles.	Mixed Methods Appraisal Tool	21 studies		Articles related to teens who need to improve nutritional intake.	Fear of social media utilization among teens, teens reluctant to utilize social media. More studies are warranted.
Lee, Alexandra, et al.	2019	Efficacy and Effectiveness of Mobile Health Technologies for Facilitating Physical Activity in Adolescents: Scoping Review.	N/A	<i>JMIR MHEALTH AND UHEALTH</i>	Various Technologies Exist. Changing Rapidly. Can provide improvement in physical activity among teens, but research limited, outcomes vary greatly.	Literature Review Level V	Adolescent utilization of Apps, technology for improving physical activity.	Literature Review of peer reviewed articles between 2008-2019	16 articles		Study of teens with unhealthy weight gain.	Emerging field to utilize mobile health interventions for obesity management. Limited Research on the efficacy and effectiveness, technology is changing rapidly, hard to keep up with various changes in apps, mobile programs, social networking.
Ludwig, K. et al.	2018	Text Messaging Interventions for Improvement in Physical Activity and Sedentary Behavior in Youth: Systemic Review.	N/A	<i>JMIR MHEALTH AND UHEALTH</i>	Text messaging is a tool utilized by many teens and may be beneficial for the purpose of changing activity levels, more research is indicated.	Systematic Review Level V	Adolescents and utilization of technology (text messaging) to improve Physical Activity.	Cochrane Collaboration's Risk of Bias Tool	13 studies		Using SMS to improve physical activity and sedentary behavior.	More research is needed as all articles incorporated minus one was shown to have some bias on one or more topic. Need to have more studies regarding the interventions (specific and effectiveness)
Moore, Justin, et al.	2018	A Clinical Trial to Increase Self-Monitoring of Physical Activity and Eating Behaviors Among Adolescents: Protocol for the ImpACT Feasibility Study	N/A	<i>JMIR MHEALTH AND UHEALTH</i>	Utilization of mobile apps, web-based training, caregiver podcasts, and youth animated videos as well as peer and professional support.	Level IV Cross Sectional-descriptive study	Teens responses to web-based training vs. office based training. IV: Training DV: Teens Response/Actions	Brennan MTT model	40	Randomization	Teens who attend the Obesity Clinic at the Brenner Children's Hospital.	Study has not concluded to date. Looking to evaluate which interventions were most helpful for teens.
Partridge, S., et al.	2020	Text Messaging Behavioral Intervention for Teens on Eating, Physical Activity, and Social Wellbeing (TEXTIHES): Protocol for A Randomized Control Study	N/A	<i>JMIR MHEALTH AND UHEALTH</i>	Limited options for interventions with teens with elevated BMI especially in Australia. Two groups to determine if text messages facilitate a change in BMI	Randomized study Level II	Two way text messaging programs with optional Telephone counseling and the improvement on outcomes of teens who are overweight. IV: TEXT messages DV: Teens Response	TEXTIHES program	130	Single blind randomized controlled trial	Teens who are overweight and living in Australia	Study has not concluded to date, published in early 2022
Ramalho, S., et al.	2018	Apolo-Teens, a web-based intervention for treatment seeking adolescents with overweight or obesity: study protocol and baseline characterization of a Portuguese Sample	N/A	<i>Eating and Weight Disorders</i>	Web-based program combining a self-monitoring App, Facebook, and monthly chat sessions.	LEVEL V Cross Sectional-descriptive study	IV: Web-Based program DV: Teens response	YAP (Youth Activity Protocol).	210	Randomization	Teens who are overweight and enrolled in hospital ambulatory treatment for obesity	Limitations of participants to be willing to open up through FACEBOOK Groups, fear of privacy concerns. Gender differences and work to assist families with limited food resources.
Van Dyck D., et al.	2019	Opinions towards physical activity interventions using Facebook or Text messaging: Focus Group Interviews with Vocational School aged adolescents	N/A	<i>Health and Social Care in the Community</i>	Teens are receptive to utilizing social media and text messaging to facilitate a change in their BMI	Qualitative Research Level VI	IV: Facebook/ Texting DV: Student's responses/Interviews	Interviews/questionnaires/ qualitative data analysis software	41		Teens, aged 12-14 located in Belgium	More research is needed, larger sampling size. Promising avenue to consider.

Appendix C

Quality Improvement/Program Evaluation Self-Certification Tool

Purpose: Projects that do not meet the federal definition of human research pursuant to 45 CFR 46 do not require IRB review. This tool was developed to assist in the determination of when a project falls outside of the IRB's purview.

Name of Project Leader: Ivy M. Bagley, MSN FNP-C IBCLC

Project Title: Healthy Habits for Teens: Changing the Trajectory of Obesity

Brief Description of Project/Goals: Recognizing the need to assist adolescent patients with obesity, the project leader will develop a program titled Healthy Habits for Teens: Changing the Trajectory of Obesity. This program will provide educational sessions, physical activity sessions, and support for teens wishing to change their health patterns. Participants will be asked to complete pre and post Likert scales on their comfort levels with making lifestyle changes with the information provided. The project leader will evaluate class attendance rates and overall compliance.

Will the project involve testing an experimental drug, device (including medical software or assays), or biologic?

☐ Yes

☒ No

Has the project received funding (e.g. federal, industry) to be conducted as a human subject research study?

Is this a multi-site project (e.g. there is a coordinating or lead center, more than one site participating, and/or a study-wide protocol)?

☐ Yes
☒ No

Is this a systematic investigation designed with the intent to contribute to generalizable knowledge (e.g., testing a hypothesis; randomization of subjects; comparison of case vs. control; observational research; comparative effectiveness research; or comparable criteria in alternative research paradigms)?

☐ Yes
☒ No

Will the results of the project be published, presented or disseminated outside of the institution or program conducting it?

☒ Yes
☐ No

Would the project occur regardless of whether individuals conducting it may benefit

☒ Yes
☐ No

professionally from it?

Does the project involve “no more than minimal risk” procedures (meaning the probability and magnitude of harm or discomfort anticipated are not greater in and of themselves than those

ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests)?

☒ Yes

☐ No

Is the project intended to improve or evaluate the practice or process within a particular institution or a specific program, and falls under well-accepted care practices/guidelines?

☒ Yes

☐ No

Based on your responses, the project appears to constitute Q.I. and/or Program Evaluation, and IRB review is not required because, in accordance with federal regulations, your project does not constitute research as defined under 45 CFR 46.102(d). If the project results are disseminated, they should be characterized as Q.I. and/or Program Evaluation findings. Finally, if the project changes in any way that might affect the intent or design, please complete this self-certification again to ensure that IRB review is still not required. Click the button below to view a printable version of this form to save with your files, as it serves as documentation that IRB review is not required for this project. 7/21/2021

Appendix D
Data Collection Tool

Session 6						
Session 5						
Session 4						
Session 3						
Session 2						
Session 1						
Question 5						
Question 4						
Question 3						
Question 2						
Question 1						
BMI						
Weight						
Height						
Age						
Number						

Appendix E**Outline of Evaluation Process**

Due by First Session	Pre Session Vitals	Record	Record	Due by the Friday after Last Session	Post Session Vitals
Questionnaire prior to starting	Have participant enter BMI, height, and weight on the initial questionnaire	Number of sessions attended	Did they complete the entire program?	Questionnaire post class	Have participant enter BMI, height, and weight on post-class questionnaire

Appendix F

Flyer for Recruitment



Healthy Teens Fit Camp

Come join us as we team up to become healthier!

Meetings Begin September 14 at 7pm

Thirty-minute sessions will take place weekly on Tuesday evenings via zoom for six

weeks. Prizes will be awarded for those who attend!

Sessions will include Yoga, Zumba, Boxing, and more!

Must be 13-18 to attend and patients at Children's Health Services and is limited to twenty participants. Sessions are in conjunction with Ivy M. Bagley, MSN FNP-C IBCLC, ECU DNP Student.

Click the Code to sign up!



Appendix G

Google Sign-Up Document

Healthy Teens Fit Camp

Sign up for the Healthy Teens fit camp program through CHS!

*** Required**

Email *

Your email

Name:

Your answer

Email Address:

Your answer

Date of Birth:

Date

Height:

Your answer

Weight:

Your answer

BMI (if known):

Your answer

How often do you eat green vegetables?

Once a week

2-3 times a week

Daily

Never

How often do you exercise?

Once a week
2–3 times a week
Daily
Never

Do you drink mainly water?

Once a week
2–3 times a week
Never
Daily

How often do you drink soda or sweet tea?

Daily
2–3 times a day
Once a week
Never

How often do you and your family exercise together?

Daily
2–3 times a week
Never
Once a week

I give permission for my child to participate in the online fit camp program. I understand that this program is being held with both Children's Health Services and Ivy M. Bagley MSN FNP-C IBCLC, ECU School of Nursing DNP program student. I agree for my child to participate in the online sessions via zoom, all of the information above will be collected, and participants will be given a number. They will not be identified through this project. Should I have concerns regarding the project, I agree to reach out to Ms. Bagley via email bagleyi97@students.ecu.edu. *

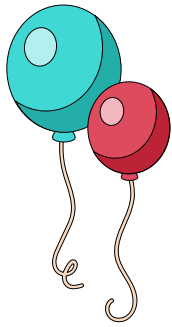
Your answer

Submit

Appendix H

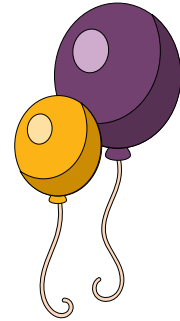
Outline of Project by Week

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Topic	Ice breaker activity, portion size discussion by local nutritionist	Food options with an OMA specialist, Zumba activity	Local chef cooking demonstration with a plant-based program	Self-esteem talk with a local psychologist	Yoga with a local instructor	Graduation night with boxing from a local instructor
Weekly Challenge	Information on personal walk to run program, walk 3 out of 7 days and try one new food	Try online Zumba classes two times during the upcoming week	Try a plant-based meal with their family unit	Encouraged to write a letter to themselves regarding their positive traits	Challenged to try yoga twice a week	Continue to work on changes
Follow-Up Information	Email with a walk to run program	Email with Zumba programs	Email with recipe for plant-based foods	Email information reminding participants about the walk to run program	Email with links to a free yoga workout	Email with certificate of completion and information to join future CHS programs

Appendix I: Certificate of Completion

Healthy Teens Fit Camp 2021

Congratulations!



We are so proud of your accomplishments in completing our Healthy Teens Fit Camp!
We are excited to be partners with you in your journey to
improve your health and wellness!



Signature

Date

Appendix J

Implementation Timeline

Time Frame	Clinical Staff	Providers	Community	Participants
Six weeks before the initiation	Meeting with the clinical staff to review the project and answer any questions	Meeting with the providers to review specific questions	Confirmation of community members involved in the weekly sessions	Flyers printed
Six weeks before the program				Flyers added to the office wellness packets, posted in the rooms, and in the well-check-in areas
Two weeks prior				Email reminders sent out to participants
Two days prior, or when the number reaches 20 participants				Registration closed. All participants randomly assigned a number and information added to the secure database
One week prior	Review with staff the program information	Review with providers the program information.	Confirmation of Community Members	Email sent to participants with the zoom session links
Two days prior				Reminder email sent to participants

Appendix K**Fit Tracker**

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Week 1							
Week 2							
Week 3							
Week 4							
Week 5							
Week 6							



FITNESS TRACKER for 6 weeks

“TODAY I GET TO WORK OUT”

Appendix L**Water Tracker**

Monday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tuesday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wednesday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thursday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Friday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saturday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sunday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Weekly Water Tracker—8 Glasses a Day!

Appendix M

Post Survey Google Document

Healthy Teens Fit Camp Program Evaluation

Thank you for participating in the fit camp program! We look forward to working with you in the future!

Email:

Name:

Email Address:

Date of Birth:

Month, day, year

Height:

Weight:

BMI (if known):

How often do you eat green vegetables?

- ☐ Once a week
- ☐ 2–3 times a week
- ☐ Daily
- ☐ Never

How often do you exercise?

- ☐ Once a week
- ☐ 2–3 times a week
- ☐ Daily
- ☐ Never

Do you drink mainly water?

- ☐ Once a week
- ☐ 2–3 times a week
- ☐ Daily
- ☐ Never

How often do you drink soda or sweet tea?

- ☐ Once a week
- ☐ 2–3 times a week
- ☐ Daily
- ☐ Never

How often do you and your family exercise together?

- ☐ Once a week
- ☐ 2–3 times a week
- ☐ Daily
- ☐ Never

What barriers prevented you from attending any or all the sessions?

*

How would you improve the fit camp program?

*

Did you have any technical issues that prevented your participation? If yes, what issues did you encounter?

*

Did the time of day work for you to attend? If not, when is a better time for us to host sessions?

Do you prefer an in person fit camp or online sessions?

☐ In-person

☐ Online

Would text message reminders to help you meet your health goals be beneficial?

☐ Yes

☐ No

☐ Unsure

If you did not attend the sessions, did you find the tools and videos sent throughout the program helpful?

☐ Yes

☐ No

Appendix N

Modified Timeline

	Week 1	Week 2	Week 3	Missed Week	Week 5	Week 6	Week 7
Topic	Ice breaker activity, portion Size discussion by local nutritionist	Food options with an OMA specialist, 10 min morning workout	Local chef cooking demonstration with a plant-based program		Weightlifting demonstration and safety information	Yoga with a local instructor	Graduation night with Zumba workout
Weekly Challenge	Information on personal walk to run program, walk 3 out of 7 days and try one new food	Try online morning workout classes two times during the upcoming week	Try a plant-based meal with their family unit	Email participants to continue working on fitness goals, provided several 10-minute workout options (online)	Encouraged to see how they can safely lift weights using household objects	Challenged to try yoga twice a week	Continue to work on changes, add in Zumba night
Follow-Up Information	Email with walk to run program	Email with morning teen workout programs	Email with recipe for plant-based foods, group information on 10-min workouts	Provided information on change in schedule and addition of extra week	Email information reminding participants about the walk to run, and weightlifting videos	Email with links to a free yoga workout	Email with certificate of completion and information to join future CHS programs

Appendix O

Pre-Program Questionnaire Results

	How often per week do you eat green vegetables?		How often do you exercise?		How often do you drink mainly water?		How often do you drink soda or sweet tea?		How often do you or your family exercise together?	
	n	%	n	%	n	%	n	%	n	%
Once a week	2	28.5	0	0	0	0	3	42.8	1	14.2
2–3 times a week	1	14.2	5	71.4	2	28.5	1	14.2	1	14.2
Daily	4	57	0	0	5	71.4	2	28.5	0	0
Never	0	0	2	28.5	0	0	1	14.2	5	71.4
Total	7	—	7	—	7	—	7	—	7	—

Appendix P

Attendance of Sessions

ID:	Session 1	Session 2	Session 3	CANCELLED	Session 4	Session 5	Session 6	EXTRA
5		X				X		X
3								
4								
10	X	X	X		Emailed Family Emergency	X		X
11								
1						X		
8								

Appendix Q

Results of Participants Who Completed the Survey/Program

	Participant 5		Participant 10	
	Pre-Program	Post-Program	Pre-Program	Post-Program
How often per week do you eat green vegetables?	Once a week	Once a week	Daily	Daily
How often do you exercise?	2–3 times a week	2–3 times a week	2–3 times a week	Daily
How often do you drink mainly water?	2–3 times a week	2–3 times a week	Daily	Daily
How often do you drink soda or sweet tea?	2–3 times a day	Once a week	2–3 times a day	Once a week
How often do you or your family exercise together?	Never	2–3 times a week	Never	Daily
Barriers to participation		Myself, scheduling commitments		Myself, being busy
How would you improve fit camp?		Maybe change to Thursday		I wouldn't
Would text messaging help you make healthier choices?		Yes		Yes
What day would you prefer for the session to be scheduled?		Thursday		Tuesday or Wednesday
Would you prefer to meet in person or virtually?		In person		Virtually
Were the tools helpful?		Yes very helpful		Yes
Was the video utilized helpful?		Yes		Yes

Appendix R

Comparison of Program Participants

	Pre-Program Results (n = 7)								Post Program Results (n = 2)							
	Never		Once a week		2–3x a Week (per day for soda)		Daily		Never		Once a week		2–3x a Week (per day for soda)		Daily	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
How often per week do you eat green vegetables?	0	0	2	28	1	14	4	57	0	0	1	50	0	0	1	50
How often do you exercise?	2	28	0	0	5	71	0	0	0	0	1	50	0	0	1	50
How often do you drink mainly water?	0	0	0	0	2	28	5	71	0	0	0	0	1	50	1	50
How often do you drink soda or sweet tea?	1	14	3	42	1	14	1	14	0	0	0	0	1	50	1	50
How often do you or your family exercise together?	5	71	1	14	1	14	0	0	0	0	0	0	1	50	1	50

Appendix S**Project Cost**

Item or Service	Cost
Advertising Costs for Flyers	\$35
Technology Costs for Zoom	\$45
Nutritionist	\$80
Psychologist	\$75
FNP for 6 nights of instruction (\$50/hour)	\$300
Zumba Instructor for one session	\$55
Yoga instructor for one session	\$30
Professional Chef for one session	\$45
Boxing Instructor for one session	\$50
Thank you notes	\$10
Postage to mail thank you notes	\$3
Total Cost of Program	\$728

Appendix T

Doctor of Nursing Practice Essentials

	Description	Demonstration of Knowledge
Essential I: <i>Scientific Underpinning for Practice</i>	<p>Competency—Analyzes and uses information to develop practice</p> <p>Competency—Integrates knowledge from humanities and science into context of nursing</p> <p>Competency—Translates research to improve practice</p> <p>Competency—Integrates research, theory, and practice to develop new approaches toward improved practice and outcomes</p>	<ul style="list-style-type: none"> • Worked to develop a new program for adolescent patients thorough evaluation of the literature • Focused on Pender’s Theory of Health Promotion
Essential II: <i>Organizational & Systems Leadership for Quality Improvement & Systems Thinking</i>	<p>Competency—Develops and evaluates practice based on science and integrates policy and humanities</p> <p>Competency—Assumes and ensures accountability for quality care and patient safety</p> <p>Competency—Demonstrates critical and reflective thinking</p> <p>Competency—Advocates for improved quality, access, and cost of health care; monitors costs and budgets</p> <p>Competency—Develops and implements innovations incorporating principles of change</p> <p>Competency—Effectively communicates practice knowledge in writing and orally to improve quality</p> <p>Competency—Develops and evaluates strategies to manage ethical dilemmas in patient care and within health care delivery systems</p>	<ul style="list-style-type: none"> • Worked to implement a program that is both cost-effective and effective in changing the course of adolescents and obesity • Utilized research and community partnerships to enhance patient care • Through the development of this program and the collaboration of others, we worked to advocate for improved care for adolescents in the clinic
Essential III: <i>Clinical Scholarship & Analytical Methods for Evidence-Based Practice</i>	<p>Competency—Critically analyzes literature to determine best practices</p> <p>Competency—Implements evaluation processes to measure process and patient outcomes</p> <p>Competency—Designs and implements quality improvement strategies to promote safety, efficiency, and equitable quality care for patients</p> <p>Competency—Applies knowledge to develop practice guidelines</p> <p>Competency—Uses informatics to identify, analyze, and predict best practice and patient outcomes</p> <p>Competency—Collaborate in research and disseminate findings</p>	<ul style="list-style-type: none"> • Completed literature review regarding the best practice for obesity management of adolescent patients • Evaluated literature with Melnyk Levels of Evidence • Collaborated with site as well as faculty to evaluate findings and work toward a plan for obesity management in the pediatric setting
Essential IV	Competency —Design/select and utilize software to analyze practice and consumer information	<ul style="list-style-type: none"> • Evaluated and discussed technologies available to

Information Systems— Technology & Patient Care Technology for the Improvement & Transformation of Health Care	<p>systems that can improve the delivery & quality of care</p> <p>Competency—Analyze and operationalize patient care technologies</p> <p>Competency—Evaluate technology regarding ethics, efficiency, and accuracy</p> <p>Competency—Evaluates systems of care using health information technologies</p>	<p>participants and examined the option of adding future technology to the program</p> <ul style="list-style-type: none"> • Reviewed ethical considerations of reaching out to participants via a secure text messaging system
	Description	Demonstration of Knowledge
Essential V: Health Care Policy of Advocacy in Health Care	<p>Competency—Analyzes health policy from the perspective of patients, nursing and other stakeholders</p> <p>Competency—Provides leadership in developing and implementing health policy</p> <p>Competency—Influences policymakers, formally and informally, in local and global settings</p> <p>Competency—Educates stakeholders regarding policy</p> <p>Competency—Advocates for nursing within the policy arena</p> <p>Competency—Participates in policy agendas that assist with finance, regulation and health care delivery</p> <p>Competency—Advocates for equitable and ethical health care</p>	<ul style="list-style-type: none"> • Provided leadership in development of this project as an ongoing program for the practice • Educated fellow peers and staff at the practice by presenting findings and rationale for implementing those changes
Essential VI: Interprofessional Collaboration for Improving Patient & Population Health Outcomes	<p>Competency—Uses effective collaboration and communication to develop and implement practice, policy, standards of care, and scholarship</p> <p>Competency—Provide leadership to interprofessional care teams</p> <p>Competency—Consult intraprofessional and interprofessional to develop systems of care in complex settings</p>	<ul style="list-style-type: none"> • Collaborated with local healthcare providers to develop the program • Led the team of various disciplines to implement educational tools that ultimately can change health habits, which will impact overall healthcare
Essential VII: Clinical Prevention & Population Health for Improving the Nation's Health	<p>Competency—Integrates epidemiology, biostatistics, and data to facilitate individual and population health care delivery</p> <p>Competency—Synthesizes information & cultural competency to develop & use health promotion/disease prevention strategies to address gaps in care</p> <p>Competency—Evaluates and implements change strategies of models of health care delivery to improve quality and address diversity</p>	<ul style="list-style-type: none"> • Created a program focused on health promotion and disease prevention that addresses a big gap in our healthcare system • Addressed Healthy People 2030 and Healthy NC 2030 • Addressed clinic health concerns

Essential VIII: Advanced Nursing Practice	<p>Competency—Melds diversity & cultural sensitivity to conduct systematic assessment of health parameters in varied settings</p> <p>Competency—Design, implement & evaluate nursing interventions to promote quality</p> <p>Competency—Develop & maintain patient relationships</p> <p>Competency—Demonstrate advanced clinical judgment and systematic thoughts to improve patient outcomes</p> <p>Competency—Mentor and support fellow nurses</p> <p>Competency—Provide support for individuals and systems experiencing change and transitions</p> <p>Competency—Use systems analysis to evaluate practice efficiency, care delivery, fiscal responsibility, ethical responsibility, and quality outcomes measures</p>	<ul style="list-style-type: none"> • Improved patient relationships with the participants • Utilized advanced clinical judgment to evaluate and reassess the resources available to participants and incorporate items participants requested to help achieve their goals • Helped participants recognize the importance of making lifestyle changes • Supported teens as they adopted healthy lifestyle habits
--	---	---