Implementation of Physical Activity as a Vital Sign in a Single Indigent Care Clinic

LaGary Carter

The University of Alabama

Capstone College of Nursing

Cassandra Ford, PhD, RN

Laura Guadiana Sanchez, MD

March 15, 2023

DNP Project

Table of Contents

Abstract

Introduction/Purpose: The scientific literature is replete with evidence supporting the overwhelming medical benefits of regular physical activity. The purpose of this project was to implement physical activity as a vital sign (PAVS) into clinical practice as an evidence-based secondary and tertiary intervention to prevent and mitigate disease sequelae within a single indigent care clinic.

Methods: All medical providers ($N = 7$) completed an anonymous Qualtrics survey to assess their level of knowledge and confidence regarding patient physical activity assessment and counseling. Targeted education and training sessions were delivered through email and on-site. The providers completed a second Qualtrics survey to assess any behavior changes following the educational interventions.

Results: Patient physical activity assessment and counseling was not a routine component of clinical practice. Following the educational interventions, most of the providers provided patients with written material regarding exercise benefits and recommendations in harmony with the PAVS and Exercise is Medicine® (EIM) platform. However, less than half of the providers indicated they had adopted the PAVS and EIM platform as part of their patient care.

Discussion: Targeted education and training interventions did not significantly mitigate PAVS practice barriers, along with internal or external bias held among medical providers. Physical activity continues to be an underutilized evidence-based intervention for the prevention and treatment of chronic disease. Further research is needed to determine how to effectively integrate physical activity assessment and counseling into clinical practice within a variety of healthcare settings.

Keywords: physical activity, vital sign, exercise medicine

Implementation of Physical Activity as a Vital Sign in a Single Indigent Care Clinic

Patients embrace feedback from their provider regarding physical activity. This positive reinforcement is enhanced if patients can partner with their provider by tracking and documenting their physical activity (De Guzman et al., 2022). Unfortunately, physical activity continues to be an underutilized evidence-based intervention for the prevention and treatment of chronic disease regardless of one's socio-economic status, race, culture, and ethnicity.

Background

In 2018, the U.S. Department of Health and Human Services (USDHHS) revealed that approximately $117 billion in annual healthcare costs and 10% of premature deaths are attributed to a sedentary lifestyle (USDHHS, 2018). Adults should engage in 150-300 minutes per week of moderate intensity aerobic exercise or 75-150 minutes per week of vigorous intensity aerobic exercise. Those with, or at risk for, chronic disease should consult their healthcare provider for appropriate guidance regarding a formal exercise regimen (USDHHS, 2018). The National Academy of Medicine (NAM) has endorsed physical activity as the new "vital sign" and recommends that physical activity counseling be incorporated into clinical practice (Pate et al., 2018). O'Conner et al. (2020), on behalf of the Agency for Healthcare Research and Quality (AHRQ), recommends that patients with risk factors for cardiovascular disease undergo behavioral counseling to adopt a healthy lifestyle through proper nutrition and regular physical activity.

According to the Centers for Disease Control and Prevention (CDC, 2021), Georgia residents rank among the least active compared to other states with a 27.4% prevalence rate. Lowndes County, Georgia has a population of 115,364 individuals with a mean household income of $42,441 per year and a 24.4% poverty rate. It is important to note that 14.9% of

individuals below the age of 65 are uninsured with 33.9% of family households without broadband internet service (U.S. Census Bureau, 2021). Based on national county rankings and roadmaps (2021) data, Lowndes County ranks 65th out of 159 counties in Georgia regarding positive health behaviors and outcomes. South Georgia Medical Center (2019), the local hospital, recently conducted a community health needs assessment and plan. The report revealed that Lowndes County ranks above the state and national average for adult obesity, physical inactivity, and poor to fair health outcomes. The purpose of this DNP project is to implement physical activity as a vital sign (PAVS) into clinical practice as a secondary and tertiary intervention to prevent and mitigate disease sequelae.

Problem Statement

Physical activity has been identified as a useful patient vital sign in healthcare (Kuntz et al., 2021). Advanced practice nurses should assess and prescribe physical activity as an evidence-based intervention to address the increased mortality and morbidity associated with a sedentary lifestyle (Thompson et al., 2020).

Organizational "Gap" Analysis of Project Site

Partnership Health Center (PHC) is a non-profit (501c3) clinic that provides primary care, basic dental care, and medication assistance to uninsured adults with an annual income below (300%) the federal poverty level. The socio-economic level of an individual is a fundamental catalyst for health literacy. There is a correlation between one's formal education level and health literacy. In addition, financial income is often a determinant of access to healthcare. However, it is important to note that health literacy is a modifiable variable relative to decreasing the health disparities associated with a low socioeconomic level (Stormacq et al., 2019). Increased health disparities and negative health outcomes tend to be the highest among

low-income individuals. The link between income and health must be broken to avoid an exacerbation of the health-poverty gap and further solidify existing socioeconomic driven health disparities. Additional factors that contribute to poor health outcomes include residential segregation based on income, limited access to technology, decreased economic mobility, increased healthcare costs, and extensive incarceration (Bor et al., 2017).

Exercise is a safe, affordable, and therapeutic medical intervention even among those with chronic disease unless contraindicated with certain medical conditions (Reid et al., 2021). Patients often assume they engage in sufficient amounts of exercise through normal daily activity or if their occupation is physically demanding. They also have other misconceptions about the safety and efficacy of regular exercise along with reporting barriers that impede their ability to become physically active. The PHC advanced practice providers do not assess patient physical activity nor do they routinely counsel patients about the role of physical activity as an evidence-based treatment intervention. It is incumbent upon the medical providers to adopt physical activity as a vital sign (PAVS) and appropriately prescribe exercise as a safe, free, and therapeutic intervention (Reid et al., 2021) in accordance with clinical practice guidelines and recommendations.

The theory-practice gap is a common metaphor within nursing academia and clinical practice that often lacks a clear and universal definition. Most nursing theorists agree that a conceptual analysis of the theoretical practice gap is comprised of antecedents, attributes, and consequences that impact provider competency and health outcomes. It is necessary to evaluate an organization for barriers that could impede advanced practice nurses from achieving their full scope of practice potential (Schirle et al., 2020). Internal or external organizational obstacles would also be an impediment to evidence-based clinical practice, positive patient outcomes,

quality improvement, and quality assurance initiatives. It is prudent to establish a collaborative bridge between the “knowing” in academia and the “doing” in clinical practice (Greenway et al., 2019). The purpose of this quality improvement project is to implement the evidence-based physical activity as a vital sign (PAVS) assessment and the Exercise is Medicine® global initiative into patient care.

Review of the Literature

A focused review of the scientific literature was performed utilizing Medline/PubMed and CINAHL online databases. The initial search yielded a substantially broad and diverse array of articles focused on physical activity. The search was narrowed by the following MeSH terms: physical activity, vital sign, and exercise is medicine. Systematic reviews, meta-analyses, randomized control trials, clinical practice guidelines, position statements, scientific advisory reports, and prospective clinical studies were included and reviewed. Peer-reviewed articles published within the last five years (2017-2022) were given the highest priority. Articles published more than five years ago were also considered depending on the historical contribution or precedent. It was beyond the scope of this scholarly project to briefly address the extensive secondary and tertiary impact of physical activity on a host of individual diseases and disorders within medicine. Therefore, the search focused on articles that provided a comprehensive summary of the benefits of physical activity within a healthcare setting.

Historical Background

The medicinal benefits of physical activity have been noted within the annals of civilization. Susruta was a physician in India between 800 -700 BC. He was an advocate of regular exercise to improve overall health. The Greek physician Hippocrates was credited with being the first physician to bestow a written prescription for physical activity to treat an

underlying disease. The ancient Chinese surgeon Hua Tuo prescribed exercises that mirrored animal movements to improve overall health. However, it was the Greek physician Claudius (129 – 210 AD) who established exercise as a vital tool in the practice of medicine (Tipton, 2014). The genesis of physical activity, as a therapeutic intervention, has been rooted in medicine. Physicians were the earliest pioneers of kinesiology as referenced through the ancient, medieval, and renaissance periods of medicine through the early 1900s of American history that formed our modern view of physical education. The major focus on the fitness component of physical education would eventually become overshadowed by the evolution of sports and athletic competition as the mainstay of physical education curricula towards the end of the twentieth century. This circumstance ultimately removed physical fitness from the realm of medicine to the pedagogy of athletics (Berryman, 2010).

The London Bus Study (Morris et al., 1953) is often regarded as the catalyst for further experimental peer-review research regarding the impact of physical activity on cardiovascular disease. The physical activity inherent to the role of bus conductors retrieving passenger tickets resulted in significantly less rates of cardiovascular disease compared to the sedentary attributes of bus drivers. A landmark study published three decades ago, revealed a significant reduction in all-cause mortality for men and women with a moderate to high level of cardiovascular fitness (Blair et al., 1989). The negative health consequences of physical inactivity continue to be a global pandemic that must be addressed from the highest levels of government down to local primary care providers (Anderson et al., 2016). To this end, the American Heart Association recently released a scientific statement encouraging the routine assessment and promotion of physical activity within healthcare settings (Lobelo et al., 2018).

The Exercise is Medicine® (EIM) global health initiative was established in 2007. It is the product of a joint venture between the American College of Sports Medicine (ACSM) and the American Medical Association (AMA). The foundational mission of EIM is to instill the routine assessment and prescription of physical activity in the clinical setting as an evidence-based intervention. The EIM platform currently extends to more than 40 countries worldwide. Unfortunately, the EIM mission has not been broadly embraced by medical providers and healthcare organizations in the United States (Thompson et al., 2020).

Clinical Practice Guidelines

Clinical practice recommendations and guidelines strongly recommend physical activity assessment and exercise counseling in clinical practice (Arnett et al., 2019; Lobelo et al., 2018). Regular physical activity has shown to be equal or superior to pharmacological interventions in treating over 40 diseases (Lobelo et al., 2018). Lifestyle choices and behavior modifications have a greater impact on health outcomes than healthcare access, genetics, and environmental factors (Thompson, 2020). The scientific literature is replete with evidence supporting the overwhelming medical benefits of regular physical activity (Posadzki et al., 2020; Thompson et al., 2020). The American Heart Association strongly encourages the assessment and promotion of physical activity in clinical practice since exercise is comparable or superior to medication in the treatment of more than 40 medical conditions (Lobelo et al., 2018). It is also prudent and timely to note that less than 10 minutes of weekly physical activity doubles the risk of hospitalization from COVID-19 infection, while a consistent sedentary lifestyle confers a 1.73 higher risk of intensive care admission and a 2.49 greater risk of death (Sallis et al., 2021). An abundance of systematic reviews of randomized control trials clearly demonstrate that regular physical activity and exercise are safe and significantly reduce all-cause mortality while also

enhancing quality of life (Posadzki et al., 2020). Reid and colleagues (2021) reiterate the fact that physical activity is a safe and effective intervention among those with long term or chronic medical conditions.

Clinical Practice Challenges

Ironically, many physicians do not feel competent or prepared to educate patients about lifestyle prevention measures to treat hypokinetic related diseases such as cardiovascular disease, type 2 diabetes mellitus, and obesity (Hivert et al., 2016). Nurse practitioners, and other front-line healthcare providers, also feel ill-equipped but are in an ideal position to reduce cardiovascular disease morbidity and mortality through physical activity counseling (Williamson et al., 2021). Unfortunately, most physicians fail to provide appropriate nutritional counseling and prescribe physical activity as a secondary and tertiary medical intervention (Hivert et al., 2016). Evidence-based clinical intervention and treatment should be the foundation of advanced practice nursing (Martin-Misener, 2021). It is incumbent upon nurse practitioners to fill this necessary void in patient care. Therefore, advanced practice nurses must learn and implement behavioral modification strategies to effectively motivate patients to adopt and maintain healthy lifestyle choices (Patnode et al., 2017; Segar et al., 2016). It is imperative that advanced practice nurses understand how to effectively counsel patients about physical activity and help them overcome barriers that are an impediment to regular exercise (AuYung et al., 2016; Jones et al., 2019; Omura et al., 2018; Sallis et. al., 2015; Segar et al., 2016).

Physical activity counseling and exercise prescription are poorly documented in clinical practice. Therefore, it is difficult to track the transfer of physical activity research into the healthcare setting (Hansford et al., 2022). Ironically, most physicians have not received any formal education or training regarding how to counsel patients about physical activity and

prescribe exercise accordingly. Therefore, they do not feel equipped or comfortable adopting physical activity as a treatment intervention (Cardinal et al., 2015). It is reasonable to conclude that most healthcare providers do not possess the knowledge and ability to adopt reliable and valid motivational teaching and learning patient counseling strategies (Kris-Etherton et al., 2021; Segar et al., 2016).

This reality is especially problematic since recent clinical guidelines strongly recommend the assessment of physical activity and exercise prescription in clinical practice (Arnett et al., 2019; Lobelo et al. 2018). Based on anecdotal experiences, advanced practice nurses often do not receive formal training in assessing and prescribing physical activity in clinical practice. This too is troubling.

Evidence-based Practice: Verification of Chosen Option

Nurse practitioners should incorporate the promotion of healthy lifestyle behaviors and holistic medicine into clinical practice. However, a nursing phenomenon exists in this regard based upon a review of the scientific literature, patient feedback, and diminished health outcomes observed during clinical practice and consultation with colleagues. Exercise is Medicine® and must be a regular component of evidence-based practice to prevent and treat a host of diseases and disorders that stem from a sedentary lifestyle (Thompson et al., 2020). Physical activity as the new vital sign (PAVS) is a valid tool to assess patient compliance with established clinical guidelines (Kuntz et al., 2021). It is therefore prudent to ask how the knowledge and confidence level of advanced practice providers, regarding established physical activity guidelines, will impact the efficacy of incorporating PAVS into clinical practice at a single primary care clinic serving the indigent population.

Theoretical Framework or Evidence-based Practice Model

There are several models that summarize the meticulous process for evidence-based clinical practice (e.g., PARIHS, Clinical Scholar, Johns Hopkins, etc.). The components of the quadruple aim model serve as the catalyst for evidence-based practice in healthcare. Efforts to develop and implement quality improvement and quality assurance measures are futile without genuine, intricate, and enduring nurse leaders (Jeffs, 2018). To this end, the quadruple aim practice model will be adopted to enhance patient satisfaction, improve patient health outcomes, reduce operational costs, and improve employment satisfaction among the advance practice providers (Bodenheimer & Sinsky, 2014).

The mission of Partnership Health Center (PHC) is unique in scope and provides a valuable service to the local community. However, the operational and financial constraints of PHC, combined with a high patient volume with complex morbidities, is a recipe for provider burnout and a sense of emotional futility. A positive factor is that most patients express sincere gratitude and appreciation for PHC since they have access to medical care with miniscule personal expense. A diagram of the quadruple aim model for the Partnership Health Center is included (Appendix A).

The providers will adopt the ESFT model (explanatory, social & environmental, fears & concerns, and therapeutic contracting) to promote culturally competent nursing care (Beard et al., 2015). To this end, the providers must first assess each patient's knowledge deficit regarding disease pathology and management. The next step will be to appropriately address any pedagogy and learning barriers that would inhibit trust and therapeutic communication. Once effective communication has been established, the provider should ask each patient to relay any perceived social or environmental obstacles to engaging in regular physical activity. For example, some

individuals may think they must pay for a gym membership. Many patients may surmise that their schedule does not afford sufficient time for formal exercise, or they are concerned about the safety of physical activity based on their health status. It is also reasonable that some people do not feel safe exercising outdoors. The provider would then discuss and suggest assorted options to address any patient concerns (e.g., home exercise program, free public transportation, safety of exercise, public/school walking tracks). Each visit must serve to build and strengthen a trusting partnership between the provider and patient through the bond of therapeutic communication. The medical setting must be a welcoming environment that empowers patients to express their feelings and personally contribute to their treatment regimen and positive health outcomes (Beard et al., 2015).

It is imperative that healthcare providers and educators display cultural competence when treating patients. This can be a complex undertaking since it involves various transcultural categories, values, and sensitivities. The medical providers must be conscious of this reality and strive to become familiar with the personal background of patients while adopting flexible teaching strategies to accommodate different learning styles through open and ethical discussions (Han et al., 2020). Reliable and valid motivational teaching and learning strategies should be utilized by healthcare providers (Kris-Etherton et al., 2021; Segar et al., 2016). A key factor to elicit change across a vast spectrum of behaviors is goal setting. A systematic review and meta-analysis (Epton et al., 2017) was conducted to evaluate the efficacy of goal setting relative to behavior change. The authors concluded that goal setting is particularly constructive when the goal is difficult, involves group participation, and is publicly expressed. Health literacy can be indicative of positive behavioral change. Buju et al. (2020) performed a systematic review to assess the relationship between health literacy and physical activity. Higher levels of health

literacy were associated with increased levels of physical activity. Ambiguity exists regarding the effectiveness of subjective and objective interventions to increase health literacy. Most studies rely on subjective data (e.g., surveys) compared to objective data (e.g., accelerometers) to ascertain the link between health literacy interventions and physical activity (Rudolf et al., 2019). The subscale or specific intervention to measure and evaluate the role of health literacy on physical activity often varies with unique strengths and limitations (Rudolf et al., 2019). Adherence to any health behavior change is multifactorial. Patient compliance is largely associated with educational achievement, financial income, mental health, along with internal values and beliefs concerning the proposed medical intervention. Therefore, it is important for providers to establish a trusting partnership with their patients through targeted physical activity counseling within a positive, respectful, and welcoming clinical setting. Patient adherence to physical activity is also enhanced when patients see the same provider during each patient visit without prolonged waiting and their support network is involved in the planning process (Stonerock & Blumenthal, 2017).

Goals, Objectives, and Expected Outcomes

The primary goal of this scholarly project was to implement physical activity assessment and counseling as a standard intervention in clinical practice. The medical providers completed an anonymous Qualtrics survey to assess their level of knowledge and confidence regarding patient physical activity assessment and counseling (October 1st – October 10th). Targeted educational voiceover power point presentations were delivered through email and on-site, based on the results obtained from the survey instrument. Electronic educational sessions were also delivered via email featuring articles and targeted power-point presentations for the medical providers to review at their convenience (October 10th – November 5th). The advanced practice

providers were educated about the Exercise is Medicine® global health initiative and the evidence-based secondary and tertiary benefits of regular physical activity. A protocol was developed to incorporate physical activity as a vital sign (PAVS) into the daily routine of patient care during each visit with a provider (November 3rd – November 11th). The advanced practice providers were then encouraged to counsel patients about physical activity over the next four weeks (October 23rd – November 13th). Afterwards, the providers completed a follow-up Qualtrics survey to assess any behavior changes relative to patient counseling about physical activity (December 5th – December 14th).

It was expected that some of the providers may have been reluctant to complete the Qualtrics survey. They also might have been hesitant to adopt PAVS into routine patient care based on personal bias, perceived patient barriers, time limitations, and other factors. However, all the providers agreed to participate in the research project. The medical providers were dedicated, compassionate, and embrace the mission of the Partnership Health Center to treat impoverished and uninsured patients. They also seemed to embrace evidence-based measures to enhance positive health outcomes. This reality should serve as the catalyst for future success.

Setting Facilitators and Barriers

An overview of the strengths, weaknesses, opportunities, and threats (SWOT) unique to the daily operations of the Partnership Health Center (PHC) is provided in Table 1. The PHC provides a valuable service within the community with the potential to expand its positive outreach. The PHC also faces many internal and external challenges that could jeopardize both the short- and long-term operations of the organization. The SWOT analysis is applicable to any organization. It is especially pertinent to the complex and multi-faceted aspects of healthcare (van Wijngaarden, 2012).

Methods

The mission of this scholarly project was to implement physical activity as a vital sign (PAVS) into routine clinical practice, at a single primary care clinic, for uninsured adults with an income below the federal poverty level. The catalyst for this initiative was the Exercise is Medicine® global health initiative.

Design

A cross-sectional survey was completed by the medical providers within a single primary care clinic serving an indigent adult population. The CDC's Five-Step Policy Process was utilized to deliver targeted educational sessions based on the survey results. The patients and medical providers accessed online and printed educational material (i.e., handouts) as an additional educational resource. The University of Alabama Institutional Review Board (IRB) approved this project. The clinical site is a standalone organization without an IRB. The executive director of the clinical site provided written approval and a letter of support for the project (Appendix C).

Subjects

The participants included nurse practitioners and physician assistants employed within the Partnership Health Center. The link for two separate Qualtrics surveys was sent via email to all medical providers. Written informed consent was voluntarily given by each provider to participate in all aspects of the study.

Measures

A partially modified version of the Promotion of Physical Activity by Nurse Practitioners survey (Buchholz & Purah, 2007; Grimstvedt et al., 2012) was completed. The questionnaire consists of specific questions and various response options within the categories of provider

demographics, practice patterns, knowledge, confidence, and educational preparation. The questionnaire was slightly modified to reflect current guidelines regarding physical activity assessment and exercise prescription recommendations, and to address the focus of the study.

Statistical Analysis

Descriptive statistics were calculated utilizing a combination of nominal and ordinal variables. Preliminary analysis (e.g., frequencies, percentages, mean, standard deviation) was performed within Qualtrics. The survey results were then exported to excel and uploaded into Intellectus Statistics™ software for additional data analysis. A Fischer's Exact Test was performed to examine whether the medical provider's credential (e.g., physician assistant or family nurse practitioner) and occupational experience were independent of their knowledge and confidence regarding physical activity assessment and counseling, along with PAVS implementation.

Project Design

This quality improvement project evaluated the competency and confidence of advanced practice providers regarding patient physical activity assessment and counseling in clinical practice. First, the providers completed an anonymous online Qualtrics survey to evaluate their aggregate level of knowledge, expertise, and application into patient care. Second, a targeted educational and process improvement protocol was developed in accordance with the Centers for Disease Control and Prevention five-step policy process model (CDC, 2021) by (1) recognizing that most patients exhibit a sedentary lifestyle (2) reviewing the scientific literature to determine the feasibility, cost, and efficacy of a PAVS policy (3) adopting strategies to educate and motivate patients to become more physically active (4) developing a plan and protocol to implement physical activity assessment and counseling into routine patient care and (5) officially

launching the protocol to implement physical activity as a vital sign (PAVS) as a standard clinical practice intervention. Third, the routine use of PAVS was assessed by the medical providers completing a second Qualtrics survey. The data was exploratory in scope and interpreted through descriptive statistical analysis.

Project Site and Population

Partnership Health Center (PHC) is a non-profit (501c3) clinic located in Valdosta, Georgia. The PHC provides primary medical care, basic dental care, and medication assistance to qualified individuals. The patient population is uninsured adults living below (300%) the federal poverty level. The medical providers consist of nurse practitioners and physician assistants with a family medicine physician serving as the medical director.

The initial seeds of PHC were planted roughly three decades ago through corporate health screenings. It eventually became evident that numerous people in the community are employed without any health insurance. Therefore, a significant need existed for a clinic to serve the indigent population to help mitigate adult morbidity and mortality. The PHC helps to decrease acute and chronic visits to the local emergency department by providing an alternative access to healthcare thereby decreasing non-reimbursed operational costs for the local county hospital.

The “McKinsey 7-S Model” is a widely known business evaluation template developed by Tom Peters and Robert Waterman roughly four decades ago. It is an appropriate organizational assessment tool for the healthcare setting (Grant, 2008). The “McKinsey 7-S” framework assessment tool consists of the following parameters: structure (tasks/duties), strategy (vision/mission), skills (capabilities), styles (climate/culture), staff (employees), shared values (core beliefs), and systems (services provided). Therefore, it is prudent to provide an overview of

the Partnership Health Center (PHC) utilizing the variables of this assessment tool. The organization is funded by private donations, small grants, and the local hospital (South Georgia Medical Center). The average patient pays $15.00 per visit or $120.00 per year (structure). The PHC provides healthcare to area residents with an income below (300%) the federal poverty level (strategy). The services include primary medical care, telemedicine, health education, basic dental care, and medical assistance to area residents with an income below (300%) the federal poverty level (skills). PHC is a 501c3 nonprofit organization with direct oversight administered by a board of directors and clinic director (style). The personnel consist of volunteers, administrative and office staff, medical assistants, nurses, registered nurses, nurse practitioners, physician assistants, and a physician (staff). The goal of the PHC is to provide high quality holistic care within a climate of teamwork and mutual respect (shared values). The daily operations include primary and chronic disease management, telemedicine, urgent care, basic lab work, and health coaching/education (systems).

It is reasonable to evaluate an organization regarding any existing barriers that could impede advanced practice nurses from achieving their full scope of practice potential (Schirle et al., 2020). Any internal or external organizational obstacles would also be an impediment to evidence-based clinical practice, positive patient outcomes, and quality improvement and quality assurance initiatives. Therefore, DNP prepared nurses must first conduct an internal organizational assessment before initiating any applied or integrative research. The McKinsey 7-S Model is a reliable assessment tool to expose unethical practices in healthcare (Wisniewska, 2021).

The target audience entailed nurse practitioners and physician assistants providing care to uninsured adults living below the federal poverty level within a single primary care clinic. The

medical providers and key stakeholders (i.e. donors, local hospital) are open to any low-cost, safe, and proven intervention that will improve patient health outcomes. The medical providers confidentially completed a Qualtrics questionnaire to assess their knowledge of physical activity assessment and exercise prescription recommendations based on clinical practice guidelines. Targeted educational and training interventions addressed any knowledge deficits among the providers based on data from the initial assessment. The weekly physical activity regimen of patients was recorded on a standard form during the triage phase of each visit and shared with the medical provider. The medical providers were then able to incorporate PAVS during each patient visit over the course of four weeks. Some of the medical providers were hesitant to adopt a new patient care policy due to time limitations and preconceived judgements regarding the efficacy of physical activity and patient compliance. In short, my approach was to demonstrate that PAVS is a clinical practice recommendation and guideline. Therefore, it is necessary to adopt PAVS to subscribe to the ideal of practicing evidence-based medicine. The staff and advanced practice providers were equipped with a variety of educational material from the Exercise is Medicine® website to share with patients. The educational material or handouts are available in multiple languages and earmarked to address a multitude of diseases and disorders.

Measurement Instruments

The goal of this project was to permanently mirror the methodology from a pilot study (Bowen et al., 2021) that incorporated PAVS into the EHR and patient care for African American patients at a single indigent care medical clinic. The purpose of the study was to determine if a physical activity counseling policy would enhance provider discussions by utilizing the Exercise is Medicine® global initiative as the blueprint for clinical practice. It was

determined that PAVS is a practical and evidence-based intervention to treat morbidity. However, it remains an underutilized strategy in the clinical setting.

This project adopted the questionnaire tool from a study conducted by Grimstvedt et al. (2012) that evaluated the knowledge, confidence, and clinical practice patterns of nurse practitioners (n = 240) and physician assistants (n = 78) regarding physical activity counseling. Grimstvedt and colleagues modified a previously published survey instrument (Buchholz & Purath, 2007) that examined the patient physical activity counseling trends of adult nurse practitioners (n = 148) randomly selected from the American Academy of Nurse Practitioners membership database (n = 1500). The original survey instrument (Buchholz & Purath, 2007) was approved for content validity by three nurse practitioners and three exercise physiologists well versed in physical activity counseling. However, the modified survey tool utilized by Grimstvedt and colleagues did not disclose content validity. The qualitative data (survey and responses) will be part of the triage process during each patient visit. Upon seeing the provider, each patient should be counseled about the importance of physical activity in their overall treatment regimen and given a specific exercise prescription based upon their medical status.

Physical activity as a vital sign (PAVS) survey instruments and electronic assessment tools, along with an abundance of healthcare provider and patient resources, are freely accessible through the EIM website. Common PAVS and EIM data collection instruments and tools have been utilized or referenced in recent clinical practice guidelines (Krist et al., 2022; Lobelo et al., 2018) and research studies (Bowen et al., 2021; De Guzman et al., 2022; Grant et al., 2014; Sallis et al., 2021; Wald & Garber, 2018). Preliminary studies support the validity of PAVS assessment within the electronic health record, but the reliability remains unclear due to limited studies involving a diverse population (Wald & Garber, 2018).

Written permission was obtained from the lead author (Buchholz et al., 2007; Grimstvedt et al., 2012) and the Copyright Clearance Center to fully or partially utilize the survey instrument based on the scope of this project (Appendix D). The author (Grimstvedt) also provided a copy of their respective survey instrument.

Data Collection Procedures

The primary data for this project was obtained from a survey instrument previously published in two separate peer-review publications. The study was conducted in accordance with Institution Review Board guidelines (Appendix E). The approved parameters of this research project include the utilization of educational tests such as a survey instrument. The identity of the human subjects or participants can be determined by identifiers as appropriate, and the corresponding data is recorded by the investigator. Personal identifiers were removed prior to data analysis to protect the anonymity of the human subjects.

Pre-intervention

An overview of the proposed project was presented to the Partnership Health Center's (PHC) executive director, medical director, and the director of clinical services over the course of two separate meetings. The stakeholders voiced their support going forward and the executive director submitted a letter of support (Appendix B). Written permission was obtained to utilize a previously published survey instrument (Appendix D).

Intervention

The survey questions were formatted into a Qualtrics survey. The Qualtrics survey link was emailed to all the medical providers in the clinic. Participation in the study was voluntary and written voluntary consent was obtained to complete the surveys and participate in the project. The clinical support staff were trained how to assess physical activity during the triage

phase of each patient visit. The medical providers received targeted educational powerpoint presentations delivered via email and in person. The educational content was developed, in part, to address any knowledge or skill deficits in accordance with the preliminary results from the survey. The entire staff was instructed on how to retrieve educational materials from the Exercise is Medicine® website. Patients received instructional material regarding physical activity, in their preferred language, to coincide with their primary diagnosis. The medical staff were encouraged to counsel each patient about physical activity over a period of four weeks and document the occurrence in the EHR.

Post-intervention

A comprehensive statistical analysis was conducted to evaluate the responses from the Qualtrics surveys. The results and conclusions of the project were written and presented to the medical providers, medical director, and the executive director of the clinic.

Data Analysis

The medical providers voluntarily and confidentially completed an electronic Qualtrics survey. The questionnaire consisted of specific questions and various response options within the categories of provider demographics, practice patterns, knowledge, confidence, and educational preparation. The questionnaire was slightly modified to reflect current guidelines regarding physical activity assessment and exercise prescription recommendations. Personal health information (PHI) was not collected. Institutional Review Board approval was obtained. Voluntary written informed consent was obtained from all participants.

The data included qualitative (ordinal) and quantitative (nominal) variables. Nonparametric and descriptive statical analysis was performed utilizing Qualtrics, Excel and Intellectus Statistics™ software (Ali & Bhaskar, 2016; Syvia & Terharr, 2018).

Cost-Benefit Analysis/Budget

There were no direct or indirect costs associated with this scholarly project. The pre-intervention, intervention, and post-intervention phase did not incur any costs related to provider time, operational equipment, or medical supplies. In addition, there was no financial cost extended to patients beyond the standard fee for each visit. The Partnership Health Center is an independent, non-profit 501c3 organization that serves the uninsured indigent adult population.

Insurance Perspective

The rationale of a fee-for-service (FFS) and pay-for-performance (P4P) model to justify insurance reimbursement continues to be under debate. The short and long-term efficacy of both payment models is equivocal at best. There are multiple caveats that impact how FFS and P4P patient care are delivered in inpatient and outpatient settings (Jia et al., 2021; Mathes et al., 2019). It is difficult to offer comprehensive patient care that meets (quality attainment) and exceeds (quality improvement) required benchmarks in a cost-effective fashion. Frankly, our current third-party payer system has little to no impact on morbidity and mortality (Jia et al., 2021; Mathes et al., 2019). Therefore, insurance companies should incentivize a capitation model of patient care that would financially motivate healthcare providers to prioritize lifestyle and behavior interventions to prevent disease and mitigate disease sequelae.

Timeline

The timeline for this scholarly project was approximately nine months in duration. The genesis for this project began with an observational analysis of routine patient care within the Partnership Health Center. Anecdotally, it became evident the medical providers did not typically assess patient physical activity patterns nor did they counsel patients regarding the importance of regular exercise based on evidence-based clinical practice recommendations. A

PICOT question was developed, based on the mission of the PHC, that culminated in a comprehensive review of the scientific literature and a formal DNP project proposal. Once the proposal was approved, the necessary documentation regarding human research subjects was submitted to the university IRB for review, recommendations, and approval. The intervention phase of the project included data collection, medical provider education, staff training, and a snapshot evaluation of the proposed evidence-based clinical practice guideline and recommendation. The post-intervention phase of the project involved data analysis, an interpretation of the outcomes, followed by a formal dissemination of the study results. A table summarizing the proposed timeline for the project is available for review (Appendix F).

Ethical Considerations/Protection of Human Subjects

The University of Alabama (UA) Institutional Review Board (IRB) approval was obtained prior to initiating the project. The proposed project enlisted aggregate data that did not include any personal health information or personally identifiable information. The methodology utilized an anonymous and voluntary questionnaire instrument. The guidelines and requirements pertaining to the Health Insurance Portability and Accountability Act of 1996 (HIPPA) are recognized though irrelevant to the scope of this project. The established standards of patient care were not interrupted or impeded during the project timeline. The electronic data and reports were stored on the HIPPA secure UA Box. Any printed or hard copy data was securely stored in a locked cabinet and destroyed upon completion of the project.

Results

Demographics

The participants included physician assistants ($N = 3$) and family nurse practitioners ($N = 4$). This encompassed all the advanced practice providers within the facility. The age of the providers ranged from 28 to 67 ($M = 42.9$, $SD = 11.62$) with an experience range of 1 to 28 years of clinical practice ($M = 9.36$, $SD = 9.02$).

Physical Activity Assessment and Counseling

The providers assessed physical activity equally for men and women ($M = 52.86$, $SD = 28.14$) ranging from 10 to 90 percent of patient visits. They also reported equally counseling men and women about physical activity ($M = 84.29$, $SD = 14.00$) ranging from 60 to 100 percent of patient visits. The providers unanimously revealed that certain risk factors prompt them to assess and counsel patients about physical activity. The top five risk factors were elevated cholesterol, overweight or obese based on body mass index (BMI), impaired fasting blood glucose, diabetes mellitus, and a family history of coronary heart disease. The most common recommendation regarding exercise duration and frequency was 30 minutes per day three times per week. The providers most often recommended walking as the primary mode of exercise followed secondly by resistance training and household or yard work. Most providers ($N = 4$) recommended patients exercise at a moderate intensity of 3-4 miles per hour. The most common method of physical activity counseling utilized by the providers was to discuss the benefits of physical activity with the patient. Among the providers, 57.14% routinely counseled patients to accumulate at least 30 minutes of moderate intensity physical activity on most days of the week while 42.86% of the providers failed to make this routine recommendation. The providers ranked a list of potential patient barriers for physical activity assessment and counseling. The top five

barriers identified were low patient financial income (*M* = 4.71, *SD* = 0.45), limited reading ability and health literacy among patients (*M* = 4.0, *SD* = 0.00), limited provider time during each visit (*M*= 3.86, *SD* = 1.25), limited patient access to resources such as a track or sidewalks (*M* = 3.86, *SD* = 1.25), language barriers (*M* = 3.57, *SD* = 0.90) and other treatment interventions are more important (*M* = 3.57, *SD* = 0.90), respectively. Among the providers, 68.43% reported being knowledgeable about patient physical activity assessment and counseling with 57.1% proclaiming to be confident in their ability to assess and counsel patients regarding physical activity. The providers did not use any type of evaluative cardiovascular fitness testing (e.g., six-minute walk test, etc.) in clinical practice. Body mass index was assessed during each patient visit.

Provider Training and Behavior

The majority (71.43%) of the providers did not receive preparation regarding physical activity assessment and counseling during their graduate education to become a physician assistant or nurse practitioner. The formal academic training received by the some of the providers (N = 2) consisted of the health benefits (27.27%) associated with regular exercise along with the recommended frequency (27.27%) and duration (22.73%) of physical activity. Most of the providers (85.71%) had not received any additional educational preparation or training surrounding physical activity recommendations beyond graduate school. Most of the providers (57.14%) were not familiar with the Physical Activity as a Vital Sign (PAVS) clinical practice recommendations and 71.43% were not familiar with the Exercise is Medicine® global health initiative and did not use either policy in clinical practice. Most of the providers reported engaging in moderate or vigorous intensity physical activity for a minimum of 30 minutes most days of the week.

Post-Intervention Survey Results

The providers assessed physical activity equally for men and women (M = 50.00, SD = 26.19) ranging from 10 to 90 percent of patient visits. This is a miniscule reduction compared to the preintervention survey (M = 52.86, SD = 28.14). They also reported equally counseling men and women about physical activity (M = 62.86, SD = 21.85) ranging from 30 to 100 percent of patient visits. This was a considerable reduction in physical activity counseling compared to the preintervention survey (M = 84.29, SD = 14.00) with an accompanying reduction in the preintervention range of 60 to 100 percent of patients being counseled per visit. There was a slight change in patient characteristics prompting providers to assess and counsel patients about physical activity. Most of the providers (85.71%) continued to use select risk factors as an incentive to assess and counsel patients about physical activity while 14.29% of the providers did so regardless of any characteristic or risk factor. The top five risk factors were elevated cholesterol, overweight or obese based on BMI, central obesity, impaired fasting blood glucose, and diabetes mellitus. A family history of coronary heart disease was replaced with central obesity as a key risk factor within the second survey. The providers ranked a list of potential patient barriers for physical activity assessment and counseling. The top five barriers identified were low patient financial income (M = 4.46, SD = 0.35), other treatment interventions are more important (M = 4.29, SD = 0.70), limited patient access to resources such as a track or sidewalks (M = 4.29, SD = 0.70), limited reading ability and health literacy among patients (M = 4.14, SD = 0.64), limited provider time during each visit (M= 4.00, SD = 1.31), and physical activity assessment and counseling are not a high priority (M = 3.00, SD = 0.93), respectively. The most common recommendation regarding exercise duration and frequency was 30 minutes per day on most days of the week. The providers most often recommended walking at an intensity of 3-4

miles per hour, as the primary mode of exercise, followed by household or yard work. The most common method of physical activity counseling utilized by the providers (85%) was to discuss the benefits of physical activity with the patient followed by providing the patient with written materials (71.43%). Most of the providers (85.72%) were familiar with the Physical Activity as a Vital Sign (PAVS) clinical practice recommendations and 85.71% were familiar with the Exercise is Medicine® (EIM) global health initiative that resulted in 42.86% and 28.57% implementing PAVS and EIM into clinical practice, respectively. Most of the providers reported engaging in moderate or vigorous intensity physical activity for a minimum of 30 minutes most days of the week.

Educational Intervention

Most of the providers (57.14%) agreed the educational interventions were informative and changed their perspective or opinion regarding the importance of physical activity as an evidence-based intervention in clinical practice. The other providers (42.86%) were unsure about the efficacy of the educational interventions. Two (28.57%) of the providers viewed less than one-fourth (< 25%) of the educational content, three (42.86%) reviewed two-thirds or more (75%-99%) of the material, and two (28.57%) individuals examined all the educational content.

A Fisher's exact test was conducted to examine whether the provider's credential (PA or FNP) and years of advanced practice experience were independent of their knowledge and confidence regarding physical activity assessment and counseling. The results of the Fisher exact test were not significant based on an alpha value of .05, and a designated *p* value, suggesting independence of one another. This implies that the observed frequencies were not significantly different than the expected frequencies (Table 2 – Table 9).

A Fisher's exact test was conducted to examine whether the provider's credential (PA or FNP) and years of advanced practice experience were independent of their familiarity with PAVS and EIM. The results of the Fisher exact test were not significant based on an alpha value of .05, and a designated *p* value, suggesting independence of one another. This implies that the observed frequencies were not significantly different than the expected frequencies (Table 10 – Table 13).

Interpretation and Discussion

The results from the initial survey indicated a knowledge and confidence deficit among the providers regarding PAVS and the Exercise is Medicine® (EIM) global health initiative. The professional credential, nor the years of advanced practice experience, influence a knowledge and confidence level implementing PAVS into clinical practice. Patient physical activity assessment and counseling were grossly lacking and not a routine component of clinical practice. There was a consistent pattern among the providers regarding the recommended frequency, intensity, duration, and mode of exercise. The national guidelines of 150 minutes of moderate intensity or 75 minutes of vigorous intensity exercise per week were not the standard recommendation of the providers. Physical activity assessment and counseling were equally administered to male and female patients though not as a mainstay treatment intervention. However, among both genders, there was a miniscule reduction in patient physical activity assessment and a noteworthy decline in exercise counseling following the educational intervention. The providers indicated on both surveys that other treatment measures were more important than physical activity as one of the key barriers to implementing PAVS into practice. They failed to prioritize a sedentary lifestyle as one of the main risk factors to prompt patient counseling regarding physical activity. A discussion surrounding the benefits of regular physical

activity remained the primary method of patient counseling. Following the educational intervention, most of the providers began to provide patients with written material regarding exercise benefits and recommendations in harmony with the PAVS and EIM platform. Albeit, within the second survey, less than half of the providers had adopted PAVS and EIM as part of their patient care. The limitations of this study include a small number of participants, finite participation of the medical providers in the education and training intervention and inferred confounding variables among the providers fostered by the uniqueness of the patient population and clinical setting. Most of the providers failed to value and incorporate PAVS into clinical practice even though they engage in regular exercise on a weekly basis. In the distant future, a longitudinal retrospective analysis could be conducted to compare physically active patients to sedentary patients regarding disease sequelae, emergency department visits, hospitalizations, and all-cause mortality.

Conclusion

The American Heart Association recently released a scientific statement encouraging the routine assessment and promotion of physical activity within healthcare settings since regular exercise is comparable or superior to medication in the treatment of more than 40 medical conditions (Lobelo et al., 2018). Exercise is Medicine® and must be a regular component of evidence-based practice to prevent and treat a host of diseases and disorders that stem from a sedentary lifestyle (Thompson et al, 2020). An abundance of systematic reviews of randomized control trials clearly demonstrate that regular physical activity and exercise are safe and significantly reduce all-cause mortality while also enhancing quality of life (Sallis et al., 2021). Exercise is a safe, affordable, and therapeutic medical intervention even among those with chronic disease unless contraindicated with certain medical conditions (Reid et al., 2021).

Physical activity counseling and exercise prescription are poorly documented in clinical practice. Therefore, it is difficult to track the transfer of physical activity research into the healthcare setting. Advanced practice providers often feel apathetic or ill equipped to reduce cardiovascular disease morbidity and mortality through physical activity counseling. Targeted education and training interventions may not significantly mitigate any practice barriers, along with internal or external bias held among medical providers. Physical activity continues to be an underutilized evidence-based intervention for the prevention and treatment of chronic disease regardless of one's socio-economic status, race, culture, and ethnicity. Further research is needed to determine how to integrate physical activity assessment and counseling effectively and routinely into clinical practice within a variety of healthcare settings.

References

Ali, Z., & Bhaskar, S. B. (2016). Basic statistical tools in research and data analysis. *Indian Journal of Anaesthesia*, *60*(9), 662–669. https://doi.org/10.4103/0019-5049.190623

Andersen, L. B., Mota, J., & Di Pietro, L. (2016). Update on the global pandemic of physical inactivity. *Lancet (London, England)*, *388*(10051), 1255–1256. https://doi.org/10.1016/S0140-6736(16)30960-6

Arnett, D. K., Blumenthal, R. S., Albert, M. A., Buroker, A. B., Goldberger, Z. D., Hahn, E. J., Himmelfarb, C. D., Khera, A., Lloyd-Jones, D., McEvoy, J. W., Michos, E. D., Miedema, M. D., Muñoz, D., Smith, S. C., Jr, Virani, S. S., Williams, K. A., Sr, Yeboah, J., & Ziaeian, B. (2019). 2019 ACC/AHA guideline on the primary prevention of cardiovascular disease: Executive summary: A report of the American College of Cardiology/American Heart Association task force on clinical practice guidelines. *Circulation*, *140*(11), e563–e595. https://doi-org.libdata.lib.ua.edu/10.1161/CIR.0000000000000677

AuYoung, M., Linke, S. E., Pagoto, S., Buman, M. P., Craft, L. L., Richardson, C. R., Hutber, A., Marcus, B. H., Estabrooks, P., & Sheinfeld Gorin, S. (2016). Integrating physical activity in primary care practice. *The American Journal of Medicine*, *129*(10), 1022–1029. doi.org/10.1016/j.amjmed.2016.02.008

Beard, K. V., Gwanmesia, E., & Miranda-Diaz, G. (2015). Culturally competent care: Using the ESFT model in nursing. *The American Journal of Nursing*, *115*(6), 58–62. https://doi-org.libdata.lib.ua.edu/10.1097/01.NAJ.0000466326.99804.c4

Berryman J. W. (2010). Exercise is medicine: A historical perspective. *Current Sports Medicine Reports*, *9*(4), 195–201. https://doi.org/10.1249/JSR.0b013e3181e7d86d

Blair, S. N., Kohl, H. W., 3rd, Paffenbarger, R. S., Jr, Clark, D. G., Cooper, K. H., & Gibbons, L. W. (1989). Physical fitness and all-cause mortality. A prospective study of healthy men and women. *JAMA*, *262*(17), 2395–2401. doi.org/10.1001/jama.262.17.2395

Bodenheimer, T., & Sinsky, C. (2014). From triple to quadruple aim: Care of the patient requires care of the provider. *Annals of Family Medicine*, *12*(6), 573–576. doi.org/10.1370/afm.1713

Bor, J., Cohen, G. H., & Galea, S. (2017). Population health in an era of rising income inequality: USA, 1980-2015. *Lancet (London, England)*, *389*(10077), 1475–1490. doi.org/10.1016/S0140-6736(17)30571-8

Bowen, P. G., Opoku-Agyeman, W., Clay, O. J., Gina, M., Mixon, V., Sen, B. P., Pisu, M., & Martin, M. Y. (2021). Promoting physical activity through policy at a single safety-net clinic: A pilot study. *Translational Journal of the American College of Sports Medicine*, *6*(2), 1-7. doi-org.libdata.lib.ua.edu/10.1249/tjx.0000000000000160

Buchholz, S. W., & Purath, J. (2007). Physical activity and physical fitness counseling patterns of adult nurse practitioners. *Journal of the American Academy of Nurse Practitioners*, *19*(2), 86–92. doi.org/10.1111/j.1745-7599.2006.00197.x

Buja, A., Rabensteiner, A., Sperotto, M., Grotto, G., Bertoncello, C., Cocchio, S., Baldovin, T., Contu, P., Lorini, C., & Baldo, V. (2020). Health literacy and physical activity: A systematic review. *Journal of Physical Activity & Health*, *17*(12), 1259–1274. doi.org/10.1123/jpah.2020-0161

Cardinal, B. J., Park, E. A., Kim, M., & Cardinal, M. K. (2015). If exercise is medicine, where is exercise in medicine? Review of U.S. medical education curricula for physical activity-

related content. *Journal of Physical Activity & Health*, *12*(9), 1336–1343. doi-org.libdata.lib.ua.edu/10.1123/jpah.2014-0316

Centers for Disease Control and Prevention (2021, June 6). *Adult physical activity prevalence maps*. ~~https://~~www.cdc.gov/physicalactivity/data/inactivity-prevalence-maps/index.html

Centers for Disease Control and Prevention (2021, June 6). *The CDC policy process*. ~~https://~~www.cdc.gov/policy/polaris/policyprocess/

County Health Rankings & Roadmaps. (2021, July 9). *Lowndes County, Georgia*. ~~https://~~www.countyhealthrankings.org/app/georgia/2021/rankings/lowndes/county/outcomes/overall/snapshot

De Guzman, K. R., Pratt, M., Hwang, A., & Linke, S. E. (2022). Patient feedback and evaluation measures of a physical activity initiative: Exercise is medicine program. *Family Practice*, cmab178. Advance online publication. doi.org/10.1093/fampra/cmab178

Epton, T., Currie, S., & Armitage, C. J. (2017). Unique effects of setting goals on behavior change: Systematic review and meta-analysis. *Journal of Consulting and Clinical Psychology*, *85*(12), 1182–1198. doi.org/10.1037/ccp0000260

Grant, P. (2008). "The productive ward round": A critical analysis of organizational change. *International Journal of Clinical Leadership, 16*(4), 193-201.

Greenway, K., Butt, G., & Walthall, H. (2019). What is a theory-practice gap? An exploration of the concept. *Nurse Education in Practice*, *34*, 1–6. doi.org/10.1016/j.nepr.2018.10.005

Grimstvedt, M. E., Der Ananian, C., Keller, C., Woolf, K., Sebren, A., & Ainsworth, B. (2012). Nurse practitioner and physician assistant physical activity counseling knowledge, confidence, and practices. *Preventive Medicine*, *54*(5), 306–308. doi.org/10.1016/j.ypmed.2012.02.003

Han, R., Koskinen, M., Mikkonen, K., Sjogren, T., Korpi, H., Koivula, M., Koskimaki, M., Lahteenmaki, M.-L., Sormunen, M., Saaranen, T., Salminen, L., Wallin, O., Kaariainen, M., & Koskinen, C. (2020). Social- and health care educators' cultural competence. *International Journal of Caring Sciences*, *13*(3), 1555–1562.

Hansford, H. J., Wewege, M. A., Cashin, A. G., Hagstrom, A. D., Clifford, B. K., McAuley, J. H., & Jones, M. D. (2022). If exercise is medicine, why don't we know the dose? An overview of systematic reviews assessing reporting quality of exercise interventions in health and disease. *British Journal of Sports Medicine*, bjsports-2021-104977. Advance online publication. doi-org.libdata.lib.ua.edu/10.1136/bjsports-2021-104977

Hivert, M. F., Arena, R., Forman, D. E., Kris-Etherton, P. M., McBride, P. E., Pate, R. R., Spring, B., Trilk, J., Van Horn, L. V., Kraus, W. E., & American Heart Association Physical Activity Committee of the Council on Lifestyle and Cardiometabolic Health; the Behavior Change Committee, a joint committee of the Council on Lifestyle and Cardiometabolic Health and the Council on Epidemiology and Prevention; the Exercise, Cardiac Rehabilitation, and Secondary Prevention Committee of the Council on Clinical Cardiology; and the Council on Cardiovascular and Stroke Nursing (2016). Medical training to achieve competency in lifestyle counseling: An essential foundation for prevention and treatment of cardiovascular diseases and other chronic medical conditions: A Scientific Statement from the American Heart Association. *Circulation*, *134*(15), e308–e327. doi-org.libdata.lib.ua.edu/10.1161/CIR.0000000000000442

Jeffs, L. (2018). Achieving the quadruple aim in healthcare: The essential role of authentic, complex, and resilient Nurse Leaders. *Nursing Leadership (Toronto, Ont.)*, *31*(2), 8–19. https://doi.org/10.12927/cjnl.2018.25607

Jia, L., Meng, Q., Scott, A., Yuan, B., & Zhang, L. (2021). Payment methods for healthcare providers working in outpatient healthcare settings. *The Cochrane Database of Systematic Reviews*, *1*(1), CD011865. doi-org.libdata.lib.ua.edu/10.1002/14651858.CD011865.pub2

Jones, M., Bright, P., Hansen, L., Ihnatsenka, O., & Carek, P. J. (2019). Promoting physical activity in a primary care practice: Overcoming the barriers. *American Journal of Lifestyle Medicine*, *15*(2), 158–164. doi.org/10.1177/1559827619867693

Kris-Etherton, P. M., Petersen, K. S., Després, J. P., Anderson, C., Deedwania, P., Furie, K. L., Lear, S., Lichtenstein, A. H., Lobelo, F., Morris, P. B., Sacks, F. M., & Ma, J. (2021). Strategies for promotion of a healthy lifestyle in clinical settings: Pillars of ideal cardiovascular health: A science advisory from the American Heart Association. *Circulation*, *144*(24), e495–e514. doi-org.libdata.lib.ua.edu/10.1161/CIR.0000000000001018

Kuntz, J. L., Young, D. R., Saelens, B. E., Frank, L. D., Meenan, R. T., Dickerson, J. F., Keast, E. M., & Fortmann, S. P. (2021). Validity of the exercise vital sign tool to assess physical activity. *American Journal of Preventive Medicine*, *60*(6), 866–872. doi.org/10.1016/j.amepre.2021.01.012

Lobelo, F., Rohm Young, D., Sallis, R., Garber, M. D., Billinger, S. A., Duperly, J., Hutber, A., Pate, R. R., Thomas, R. J., Widlansky, M. E., McConnell, M. V., Joy, E. A., & American Heart Association Physical Activity Committee of the Council on Lifestyle and

Cardiometabolic Health; Council on Epidemiology and Prevention; Council on Clinical Cardiology; Council on Genomic and Precision Medicine; Council on Cardiovascular Surgery and Anesthesia; and Stroke Council (2018). Routine assessment and promotion of physical activity in healthcare settings: A scientific statement from the American Heart Association. *Circulation*, *137*(18), e495–e522. doi.org/10.1161/CIR.0000000000000559

Martin-Misener R. (2021). Evidence-based approaches to supporting advanced practice nursing. *JBI Evidence Synthesis*, *19*(4), 749–750. doi-org.libdata.lib.ua.edu/10.11124/JBIES-21-00088

Mathes, T., Pieper, D., Morche, J., Polus, S., Jaschinski, T., & Eikermann, M. (2019). Pay for performance for hospitals. *The Cochrane Database of Systematic Reviews*, *7*(7), CD011156. doi-org.libdata.lib.ua.edu/10.1002/14651858.CD011156.pub2

Morris, J.N., Heady, J.A., Raffle, P.A.B., Roberts, C.G., and Parks, J.W. (1953). Coronary heart disease and the physical activity of work. *Lancet*, 265, 1111-1120. doi: 10.1016/s0140-6736(53)90665-5.

O'Connor, E. A., Evans, C. V., Rushkin, M. C., Redmond, N., & Lin, J. S. (2020). Behavioral counseling interventions to promote a healthy diet and physical activity for cardiovascular disease prevention in adults with cardiovascular risk factors: Updated systematic review for the U.S. preventive services task force. *Agency for Healthcare Research and Quality (US).* https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/healthy-diet-and-physical-activity-counseling-adults-with-high-risk-of-cvd

Omura, J. D., Bellissimo, M. P., Watson, K. B., Loustalot, F., Fulton, J. E., & Carlson, S. A. (2018). Primary care providers' physical activity counseling and referral practices and

barriers for cardiovascular disease prevention. *Preventive Medicine*, *108*, 115–122. doi.org/10.1016/j.ypmed.2017.12.030

Pate, R. R., D. Berrigan, D. M. Buchner, S. A. Carlson, G. Dunton, J. E. Fulton, E. Sanchez, R. P. Troiano, J. Whitehead, and L. P. Whitsel. (2018). Actions to improve physical activity surveillance in the United States. *NAM Perspectives.* Discussion Paper, National Academy of Medicine, Washington, DC. doi.org/10.31478/201809f

Patnode, C. D., Evans, C. V., Senger, C. A., Redmond, N., & Lin, J. S. (2017). Behavioral counseling to promote a healthful diet and physical activity for cardiovascular disease prevention in adults without known cardiovascular disease risk factors: Updated systematic review for the U.S. Preventive Services Task Force. *Agency for Healthcare Research and Quality* (US).

Posadzki, P., Pieper, D., Bajpai, R., Makaruk, H., Könsgen, N., Neuhaus, A. L., & Semwal, M. (2020). Exercise/physical activity and health outcomes: An overview of cochrane systematic reviews. *BMC Public Health*, *20*(1), 1724. doi-org.libdata.lib.ua.edu/10.1186/s12889-020-09855-3

Reid, H., Ridout, A. J., Tomaz, S. A., Kelly, P., Jones, N., & Physical Activity Risk Consensus group (2021). Benefits outweigh the risks: A consensus statement on the risks of physical activity for people living with long-term conditions. *British Journal of Sports Medicine*, bjsports-2021-104281. Advance online publication. doi.org/10.1136/bjsports-2021-104281

Rudolf, K., Biallas, B., Dejonghe, L., Grieben, C., Rückel, L. M., Schaller, A., Stassen, G., Pfaff, H., & Froböse, I. (2019). Influence of health literacy on the physical activity of working adults: A cross-sectional analysis of the TRISEARCH trial. *International Journal of*

Environmental Research and Public Health, *16*(24), 4948. ~~https://~~doi.org/10.3390/ijerph16244948

Sallis, R., Franklin, B., Joy, L., Ross, R., Sabgir, D., & Stone, J. (2015). Strategies for promoting physical activity in clinical practice. *Progress in Cardiovascular Diseases*, *57*(4), 375–386. doi.org/10.1016/j.pcad.2014.10.003

Sallis, R., Young, D. R., Tartof, S. Y., Sallis, J. F., Sall, J., Li, Q., Smith, G. N., & Cohen, D. A. (2021). Physical inactivity is associated with a higher risk for severe COVID-19 outcomes: A study in 48440 adult patients. *British Journal of Sports Medicine*, *55*(19), 1099–1105. doi-org.libdata.lib.ua.edu/10.1136/bjsports-2021-104080

Schirle, L., Norful, A. A., Rudner, N., & Poghosyan, L. (2020). Organizational facilitators and barriers to optimal APRN practice: An integrative review. *Health Care Management Review*, *45*(4), 311–320. doi-org.libdata.lib.ua.edu/10.1097/HMR.0000000000000229

Segar, M. L., Guérin, E., Phillips, E., & Fortier, M. (2016). From a vital sign to vitality: Selling exercise so patients want to buy it. *Current Sports Medicine Reports*, *15*(4), 276–281. doi.org/10.1249/JSR.0000000000000284

South Georgia Medical Center. (2019). Community health needs assessment and plan. www.sgmc.org/about-south-georgia-medical-center/

Stonerock, G. L., & Blumenthal, J. A. (2017). Role of counseling to promote adherence in healthy lifestyle medicine: Strategies to improve exercise adherence and enhance physical activity. *Progress in Cardiovascular Diseases*, *59*(5), 455–462. doi.org/10.1016/j.pcad.2016.09.003

Stormacq, C., Van den Broucke, S., & Wosinski, J. (2019). Does health literacy mediate the relationship between socioeconomic status and health disparities? integrative review. *Health Promotion International*, *34*(5), e1–e17. doi-org.libdata.lib.ua.edu/10.1093/heapro/day062

Sylvia, M. L., & Terhaar, M. F. (2018). Basic statistical concepts and power analysis. Clinical analytics and data management for the DNP (2nd ed., pp.11-25). Springer Publishing Company.

Thompson, W. R., Sallis, R., Joy, E., Jaworski, C. A., Stuhr, R. M., & Trilk, J. L. (2020). Exercise is medicine. *American Journal of Lifestyle Medicine*, *14*(5), 511–523. doi.org/10.1177/1559827620912192

Tipton C. M. (2014). The history of "Exercise Is Medicine" in ancient civilizations. *Advances in Physiology Education*, *38*(2), 109–117. doi.org/10.1152/advan.00136.2013

U.S. Census Bureau. (2021, July 9). *Lowndes County, Georgia*. data.census.gov/cedsci/profile?g=0500000US13185

U.S. Department of Health and Human Services (2018). Physical activity guidelines for Americans (2nd ed.). Washington, DC. https://health.gov/our-work/nutrition-physical-activity/physical-activity-guidelines

van Wijngaarden, J. D., Scholten, G. R., & van Wijk, K. P. (2012). Strategic analysis for health care organizations: the suitability of the SWOT-analysis. *The International Journal of Health Planning and Management*, *27*(1), 34–49. doi-org.libdata.lib.ua.edu/10.1002/hpm.1032

Wald, A., & Garber, C. E. (2018). A review of current literature on vital sign assessment of physical activity in primary care. *Journal of Nursing Scholarship: An official publication of Sigma Theta Tau International Honor Society of Nursing*, *50*(1), 65–73. doi-org.libdata.lib.ua.edu/10.1111/jnu.12351

Williamson, T. M., Moran, C., McLennan, A., Seidel, S., Ma, P. P., Koerner, M. L., & Campbell, T. S. (2021). Promoting adherence to physical activity among individuals with cardiovascular disease using behavioral counseling: A theory and research-based primer for health care professionals. *Progress in Cardiovascular Diseases*, *64*, 41–54. doi.org/10.1016/j.pcad.2020.12.007

Wisniewska, M.Z. (2021). Whistleblowing in health care organization: A comprehensive literature review. *Problemy Zarzadzania*, *19(4)*, 131-165. doi-org.libdata.lib.Ua.edu/10.7172/1644-9584.94.1

Table 1

Strengths (Internal)	Weaknesses (Internal)	Opportunities (External)	Threats (External)
Provides primary medical and dental care to the uninsured poor Offers patients free or low-cost medication assistance Open 7 days per week Dedicated & committed staff to the mission & vision Experienced staff & providers with the ability to "think outside the box." Telemedicine option Lowers healthcare expenditures for the local hospital Reduces primary care visits to the ED Addresses a community health needs assessment Diverse occupational & racial background of the board of directors	Must rely mostly on external funding sources The average patient visit is $15 or $120 per year which is below overhead operational expenditures Increased potential for provider burnout Limited referral network for preventive & diagnostic screenings High patient volume with chronic disease Average patient education level is low Patients have reduced social/family support Limited clinical space based on patient volume	Start a mobile clinic to reach rural residents Gather health data from mobile clinic to justify a new clinic(s) Partner with NP & RN faculty at the local university for additional providers Partner with other local nonprofit organizations (United Way, Rotary Club, Lion's Club, etc.) Partner with local CPAs as a tax deduction donation option for their clients Expand telemedicine delivery capacity	Limited patient transportation Competitive process for grant funding Decreased funding from the private sector Increased overhead costs to provide healthcare (supplies, equipment, etc.) Increased bureaucracy from the pharmaceutical industry to qualify for free or low-cost medication Increased economic inflation Apathy from local healthcare providers and the community

Table 2

Observed and Expected Frequencies

	Q4_APP_Credential		
Q6_1_ASSESS_PA_Women	Physician Assistant	Family Nurse Practitioner	*p*
40	2[0.86]	0[1.14]	.657
80	1[0.86]	1[1.14]	
30	0[0.43]	1[0.57]	
90	0[0.43]	1[0.57]	
10	0[0.43]	1[0.57]	

Note. Values formatted as Observed[Expected].

Table 3

Observed and Expected Frequencies

	Q4_APP_Credential		
Q6_2_Assess_PA_Men	Physician Assistant	Family Nurse Practitioner	*p*
40	2[0.86]	0[1.14]	.657
80	1[0.86]	1[1.14]	
30	0[0.43]	1[0.57]	
90	0[0.43]	1[0.57]	
10	0[0.43]	1[0.57]	

Note. Values formatted as Observed[Expected].

Table 4

Observed and Expected Frequencies

	Q4_APP_Credential		
Q7_1_COUNSEL_PA_Women	Physician Assistant	Family Nurse Practitioner	*p*
90	1[0.86]	1[1.14]	1.000
60	1[0.43]	0[0.57]	
100	1[0.86]	1[1.14]	
70	0[0.43]	1[0.57]	
80	0[0.43]	1[0.57]	

Note. Values formatted as Observed[Expected].

Table 5

Observed and Expected Frequencies

	Q4_APP_Credential		
Q7_2_COUNSEL_PA_Men	Physician Assistant	Family Nurse Practitioner	*p*
90	1[0.86]	1[1.14]	1.000
60	1[0.43]	0[0.57]	
100	1[0.86]	1[1.14]	
70	0[0.43]	1[0.57]	
80	0[0.43]	1[0.57]	

Note. Values formatted as Observed[Expected].

Table 6

Observed and Expected Frequencies

	Q6_1_ASSESS_PA_Women					
Q5_Experience_Years	40	80	30	90	10	*p*
1	0[0.29]	0[0.29]	0[0.14]	1[0.14]	0[0.14]	1.000
1.5	0[0.29]	1[0.29]	0[0.14]	0[0.14]	0[0.14]	
3	0[0.29]	0[0.29]	1[0.14]	0[0.14]	0[0.14]	
7	0[0.29]	0[0.29]	0[0.14]	0[0.14]	1[0.14]	
9	0[0.29]	1[0.29]	0[0.14]	0[0.14]	0[0.14]	
16	1[0.29]	0[0.29]	0[0.14]	0[0.14]	0[0.14]	
28	1[0.29]	0[0.29]	0[0.14]	0[0.14]	0[0.14]	

Note. Values formatted as Observed[Expected].

Table 7

Observed and Expected Frequencies

	Q6_2_Assess_PA_Men					
Q5_Experience_Years	40	80	30	90	10	*p*
1	0[0.29]	0[0.29]	0[0.14]	1[0.14]	0[0.14]	1.000
1.5	0[0.29]	1[0.29]	0[0.14]	0[0.14]	0[0.14]	
3	0[0.29]	0[0.29]	1[0.14]	0[0.14]	0[0.14]	
7	0[0.29]	0[0.29]	0[0.14]	0[0.14]	1[0.14]	
9	0[0.29]	1[0.29]	0[0.14]	0[0.14]	0[0.14]	
16	1[0.29]	0[0.29]	0[0.14]	0[0.14]	0[0.14]	
28	1[0.29]	0[0.29]	0[0.14]	0[0.14]	0[0.14]	

Note. Values formatted as Observed[Expected].

Table 8

Observed and Expected Frequencies

	Q7_1_COUNSEL_PA_Women					
Q5_Experience_Years	90	60	100	70	80	*p*
1	1[0.29]	0[0.14]	0[0.29]	0[0.14]	0[0.14]	1.000
1.5	0[0.29]	0[0.14]	1[0.29]	0[0.14]	0[0.14]	
3	0[0.29]	0[0.14]	0[0.29]	1[0.14]	0[0.14]	
7	0[0.29]	0[0.14]	0[0.29]	0[0.14]	1[0.14]	
9	0[0.29]	0[0.14]	1[0.29]	0[0.14]	0[0.14]	
16	1[0.29]	0[0.14]	0[0.29]	0[0.14]	0[0.14]	
28	0[0.29]	1[0.14]	0[0.29]	0[0.14]	0[0.14]	

Note. Values formatted as Observed[Expected].

Table 9

Observed and Expected Frequencies

	Q7_2_COUNSEL_PA_Men					
Q5_Experience_Years	90	60	100	70	80	*p*
1	1[0.29]	0[0.14]	0[0.29]	0[0.14]	0[0.14]	1.000
1.5	0[0.29]	0[0.14]	1[0.29]	0[0.14]	0[0.14]	
3	0[0.29]	0[0.14]	0[0.29]	1[0.14]	0[0.14]	
7	0[0.29]	0[0.14]	0[0.29]	0[0.14]	1[0.14]	
9	0[0.29]	0[0.14]	1[0.29]	0[0.14]	0[0.14]	
16	1[0.29]	0[0.14]	0[0.29]	0[0.14]	0[0.14]	
28	0[0.29]	1[0.14]	0[0.29]	0[0.14]	0[0.14]	

Note. Values formatted as Observed[Expected].

Table 10

Observed and Expected Frequencies

	Q4_APP_Credential			
Q29_1_Rank_PAVS_Knowledge	Physician Assistant	Family Nurse Practitioner	OR	*p*
2	1[1.29]	2[1.71]	0.55	1.000
1	2[1.71]	2[2.29]		

Note. Values formatted as Observed[Expected].

Table 11

Observed and Expected Frequencies

	Q4_APP_Credential			
Q29_2_Rank_EIM_Knowledge	Physician Assistant	Family Nurse Practitioner	OR	*p*
2	1[0.86]	1[1.14]	1.41	1.000
1	2[2.14]	3[2.86]		

Note. Values formatted as Observed[Expected].

Table 12

Observed and Expected Frequencies

	Q29_1_Rank_PAVS_Knowledge		
Q5_Experience_Years	2	1	*p*
1	1[0.43]	0[0.57]	1.000
1.5	0[0.43]	1[0.57]	
3	1[0.43]	0[0.57]	
7	0[0.43]	1[0.57]	
9	0[0.43]	1[0.57]	
16	1[0.43]	0[0.57]	
28	0[0.43]	1[0.57]	

Note. Values formatted as Observed[Expected].

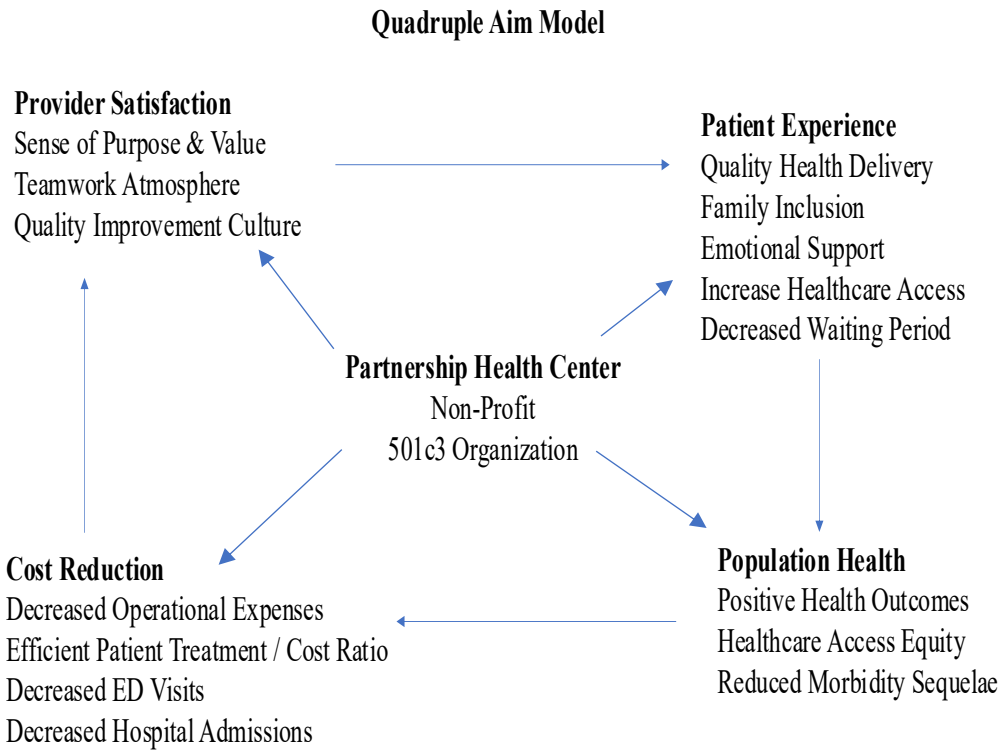
Table 13

Observed and Expected Frequencies

	Q29_2_Rank_EIM_Knowledge		
Q5_Experience_Years	2	1	*p*
1	0[0.29]	1[0.71]	1.000
1.5	0[0.29]	1[0.71]	
3	1[0.29]	0[0.71]	
7	0[0.29]	1[0.71]	
9	0[0.29]	1[0.71]	
16	1[0.29]	0[0.71]	
28	0[0.29]	1[0.71]	

Note. Values formatted as Observed[Expected].

Appendix A


Quadruple Aim Model
Provider Satisfaction
Sense of Purpose & Value
Teamwork Atmosphere
Quality Improvement Culture
Patient Experience
Quality Health Delivery
Family Inclusion
Emotional Support
Increase Healthcare Access
Decreased Waiting Period
Partnership Health Center
Non-Profit
501c3 Organization
Cost Reduction
Decreased Operational Expenses
Efficient Patient Treatment / Cost Ratio
Decreased ED Visits
Decreased Hospital Admissions
Population Health
Positive Health Outcomes
Healthcare Access Equity
Reduced Morbidity Sequelae

Appendix B

520 Griffin Ave.
Valdosta, GA 31602
229-245-0020
www.phcvaldosta.org

June 13, 2022

Cassandra Ford, PhD, MBA, RN, FAHA, FGSA
Capstone College of Nursing
The University of Alabama
650 University Blvd
Tuscaloosa, AL 35401

Re: LaGary Carter
DNP Project Proposal

Dr. Ford,

Please accept this letter as an endorsement of the DNP project being conducted at the Partnership Health Center (PHC). LaGary is a member of the PHC board of directors and serves on the clinical practice committee. The PHC values the role of physical activity as an evidence-based intervention to improve the health and well-being of our patients. We look forward to working with LaGary towards this endeavor.

Sincerely,

John Sparks
Executive Director

Appendix C

520 Griffin Ave.
Valdosta, GA 31602
229-245-0020
www.phcvaldosta.org

July 14, 2022

Dear UA Institutional Review Board,

I am writing to you as the Execute Director of the Partnership Health Center on behalf of Byron LaGary Carter, DNP student at the University of Alabama Capstone College of Nursing. The project entitled "**Implementation of Physical Activity as a Vital Sign in a Single Indigent Care Clinic"** is scheduled to be completed at our facility. We grant site approval for the project, but we do not have an IRB in place. We would like to defer the IRB approval process for the protection of human subjects to the University of Alabama. Feel free to contact me at 229-245-0020 or john.sparks@partnershiphc.org if I can provide any additional information.

Sincerely,

John Sparks
Executive Director
Partnership Health Center
520 Griffin Ave
Valdosta, GA 31601

Appendix D

From: Buchholz, Susan <buchho44@msu.edu>
Sent: Wednesday, May 25, 2022 1:36 PM
To: Byron LaGary Carter <bncarter@valdosta.edu>; jpurath@wsu.edu; Buchholz, Susan <buchho44@msu.edu>
Cc: kcurry@aanp.org
Subject: Re: Permission to Use Published Questionnaire in JAANP

Delivered From External Sender

Dear Dr. Carter,

One last email (I think).

1

Here are the PDF files of the original survey (not to be shared, but only to be used by you).

Our extension - appears to well enough described in the article that I think you can replicate that, if you so choose to do that.

Hope this helps.

Always glad to hear about physical activity work being done in our part of the health care world.

Take care,
Susan

From: Megan G <megan.grimstvedt@gmail.com>
Sent: Friday, June 10, 2022 1:29 PM
To: Byron LaGary Carter <bncarter@valdosta.edu>
Subject: Re: Permission to Utilize Published Instrument In Preventive Medicine

Delivered From External Sender

Hi Byron,
I apologize for not getting this to you sooner. I hope you find it useful and yes you may modify it as needed.
Best,
MG

Byron LaGary Carter

From: no-reply@copyright.com
Sent: Tuesday, May 24, 2022 3:03 PM
To: Byron LaGary Carter
Subject: Thank You for Your Order on Marketplace™

Delivered From External Sender

Marketplace™

Dear Byron Carter,

Thank you for placing your order on Marketplace™.

Order Summary:
Order date: 24 May 2022
Order number: 1224850
No. of items: 1
Order total: 0.00 USD

Billing Summary:
Payment method: Invoice
An invoice will be generated and emailed within 24 hours.

To view your order details, click the following link, sign in, and search for your order:
Manage Account.

How was your experience? Click here to give us feedback

Please do not reply to this message.

To speak with a Customer Service Representative, call +1-855-239-3415 toll free or +1-978-646-2600 (24 hours a day), or email your questions and comments to support@copyright.com.

Sincerely,

The CCC Marketplace Team

Tel: 1-855-239-3415 / +1-978-646-2600
support@copyright.com
Manage Account

CCC

Appendix E

THE UNIVERSITY OF ALABAMA | Research & Economic Development
Office for Research Compliance

August 10, 2022

To: Byron Carter
Capstone College of Nursing
The University of Alabama
Box 870358

From: Carpantato T. Myles, MSM, CIM, CIP
Director & Research Compliance Officer

Re: **Notice of Approval**

IRB Application #:	22-07-5763
Project Title:	"Implementation of Physical Activity as a Vital Sign in a Single Indigent Care Clinic"
Submission Type:	New
Approval Date:	August 10, 2022
Expiration Date:	August 9, 2023
Funding Source:	None
Review Category:	Exempt
Approved Documents:	Site approval, Signature Assurance, Questions, Recruitment

Dear Mr. Carter:

The University of Alabama Institutional Review Board has approved your proposed research. Therefore, your application has been approved according to 45 CFR part 46. *as outlined below:*

(2) Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:

(iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).

The approval for your application will lapse, as noted above. If your research will continue beyond this date, please submit the Continuing Review to the IRB as University policy requires before the lapse. Please note any modifications made in research design, methodology, or procedures must be submitted to and approved by the IRB before implementation. Please submit a final report form when the study is complete.

Please use reproductions of the stamped IRB-approved informed consent/assent form to obtain consent from your participants.

All the best with your research.

166 Rose Administration Building | Box 870127 | Tuscaloosa, AL 35401 | 205-348-8461 | rscompliance@ua.edu

Project Title: Implementation of Physical Activity as a Vital Sign in a Single Indigent Care Clinic

Informed Consent

Please read this informed consent carefully before you decide to participate in the study.

Consent Form Key Information:

Participate in a quality improvement initiative project to incorporate physical activity assessment and counseling into clinical practice.

- Complete 1-2 surveys to assess knowledge and confidence regarding physical activity assessment and counseling
- No information collected will connect identity with survey responses
- The medical providers will routinely receive educational material (articles, power points) via email to voluntarily review at their convenience.
- Routine onsite educational in-services will be offered to the medical providers during lunch regarding the Exercise is Medicine® global initiative and physical activity as a vital sign (PAVS). Your attendance is voluntary and optional.

- The weekly physical activity levels of patients (mode, frequency, and duration) will be assessed during the triage phase of each patient visit. This assessment and a general exercise prescription form will should be included in the summary documentation the patient receives for each visit with a provider.

Purpose of the research study: The purpose of the study is to implement physical activity as a vital sign (PAVS) into clinical practice at a single primary care clinic for uninsured patients living below (300%) the federal poverty level. Physical activity is now recognized as the new vital sign in healthcare based on recent clinical practice guidelines and recommendations. Exercise is medicine and should be utilized as an inexpensive, safe, and evidence-based intervention to prevent and treat a multitude of diseases and disorders.

What you will do in the study:

All the medical providers will be asked to voluntarily complete an electronic Qualtrics survey to evaluate their respective knowledge and confidence level regarding physical activity assessment and counseling. Participants will have the option to skip any question that makes them uncomfortable and can stop at anytime prior to submitting the survey. The medical providers will routinely receive educational material (articles, power points) each week via email to voluntarily review at their leisure and convenience. The medical providers will also have the option to voluntarily attend onsite educational sessions during the lunch period.

The goal is to assess the level of patient physical activity during the triage phase of each visit as a reminder for the medical providers to counsel patients about the importance of regular physical activity as part of their respective treatment regimen. A second Qualtrics survey may be utilized to reevaluate the knowledge and confidence level of the medical providers regarding patient physical activity assessment and counseling.

Project Title: Implementation of Physical Activity as a Vital Sign in a Single Indigent Care Clinic

Time required: The study will require approximately a total of 40 minutes of your time. The first survey will take approximately 20 minutes to complete. The second survey, if utilized, will also take approximately 20 minutes to complete. If the medical provider elects to engage in physical activity counseling, it should add less than 5 minutes to each patient visit.

Risks: There are no anticipated risks in this study.

Benefits: There are no direct benefits to you for participating in this research study. The study will help medical providers better understand the importance of patient physical activity assessment and counseling in healthcare as evidence-based professional clinical practice guideline and recommendation to help mitigate morbidity and all-cause mortality.

Confidentiality: Identifiers will be stripped so data cannot be linked to participants. Due to the small number of anticipated subjects, especially males, the question pertaining to sex/gender was eliminated from the original questionnaire to further protect confidentiality. The survey data will be collected electronically utilizing a secure network. Any printed hard copy data will be stored in a locked office in a locked filing cabinet. The information that you provide in the study will be handled confidentially. Your name and other information that could be used to identify you will not be collected or linked to the data. Because of the nature of the data, it may be possible to deduce your identity; however, there will be no attempt to do so and your data will be reported in a way that will not identify you.

Voluntary participation: Your participation in the study is completely voluntary. There are no punitive consequences if you choose not to participate.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty.

How to withdraw from the study: It may be impossible to withdraw once the survey(s) has been completed since the data is anonymous. If you want to withdraw from the study, email the primary investigator (LaGary Carter blcarter4@crimson.ua.edu or LaGary.Carter@valdosta.edu). There is no penalty for withdrawing.

Compensation/Reimbursement: You will receive no payment for participating in the study.

If you have questions about the study or need to report a study related issue please contact, contact:
Name of Principal Investigator: LaGary Carter
Title: DNP Student
Department Name: Capstone College of Nursing, The University of Alabama
Telephone: 229-834-7738 (cell)
Email address: blcarter4@crimson.ua.edu or LaGary.Carter@gmail.com

Faculty Advisor's Name: Cassandra Ford, PhD, MBA, RN, FAHA, FGSA
Department Name: Capstone College of Nursing, The University of Alabama
Telephone: 205-348-6639
Email address: ford039@ua.edu

Project Title: Implementation of Physical Activity as a Vital Sign in a Single Indigent Care Clinic

If you have questions about your rights as a participant in a research study, would like to make suggestions or file complaints and concerns about the research study, please contact:
Ms. Tanta Myles, the University of Alabama Research Compliance Officer at (205)-348-8461 or toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach Website at http://ovpred.ua.edu/research-compliance/prco/. You may email the Office for Research Compliance at rscompliance@research.ua.edu.

Agreement:

☐ I agree to participate in the research study described above.

☐ I do not agree to participate in the research study described above.

Signature of Research Participant Date

Print Name of Research Participant

Signature of Investigator or other Person Obtaining Consent Date

Print Name of Investigator or other Person Obtaining Consent

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 8/10/22
EXPIRATION DATE: 8/9/23

Hello,

My name is LaGary Carter. I am a DNP student at The University of Alabama within the Capstone College of Nursing. I would be sincerely grateful for your voluntarily participation in my research project titled *"Implementation of Physical Activity as a Vital Sign in a Single Indigent Care Clinic."*

The purpose of the study is to implement physical activity as a vital sign (PAVS) into clinical practice at a single primary care clinic for uninsured patients living below (300%) the federal poverty level. Physical activity is recognized as the new vital sign in healthcare based on recent clinical practice guidelines and recommendations.

The methodology will require you to complete a Qualtrics survey to evaluate your respective knowledge and confidence regarding patient physical activity assessment and counseling. It may be necessary for you to complete a total of two electronic questionnaires at your leisure and convenience. Each questionnaire will take approximately 15-20 minutes to complete.

You will receive routine educational emails consisting of peer-review articles and power-point slides to review at your leisure. In addition, on-site educational sessions will be held during the lunch period on a scheduled basis for you to attend on a voluntary basis. Every effort will be taken to strictly maintain your confidentiality. Your participation is fully voluntary with no punitive or negative consequence should you elect not to participate. You are also free to withdraw from the study at any time, but any previously submitted data could remain as part of the study due to your anonymity. Your participation in this study would make a valuable contribution to the furtherance of clinical practice recommendations and guidelines regarding physical activity as a vital sign.

LaGary Carter

Appendix F

Phase	Task	Timeline
Pre-intervention	An overview of the proposed project was presented to the Partnership Health Center's (PHC) executive director, medical director, and the director of clinical services	May 13, 2022 May 19, 2022
Pre-intervention	The stakeholders voiced their support going forward and the executive director has submitted a letter of support	June 13, 2022
Pre-intervention	Written permission was obtained to utilize a previously published survey instrument in two different peer-review journals.	May 24, 2022 May 25, 2022 June 10, 2022
Pre-intervention	The published survey instrument was transferred into a Microsoft word document and a Qualtrics Survey	May 31 – August 2, 2022
Pre-intervention	DNP Project Proposal Approval & IRB Approval	July – August 15, 2022
Pre-intervention	All the medical providers were asked in person to (recruiting script) to participate in the study and given an informed consent form. Consent forms were collected at that time if the provider agrees or declines to participate. The consent form was left with the provider and collected roughly two days later if the provider preferred to further think about their decision.	September 1 – September 29, 2022
Intervention	The Qualtrics survey link was emailed to consenting medical providers.	October 1 – October 10, 2022

Intervention	The medical providers received targeted educational material (peer-review articles, power points) delivered via email and onsite in person educational sessions to address any knowledge or skill deficits in accordance with the preliminary results from the survey.	October 10 – November 5, 2022
Intervention	The clinical support staff (RNs and MAs) was trained to document patient physical activity levels (mode, frequency, duration) on a weekly basis on a designated form as part of the patient visit summary.	September 11 – October 1, 2022
Intervention	The entire staff was instructed how to retrieve educational materials from the Exercise is Medicine® website.	November 3 – November 11, 2022
Intervention	The medical staff was encouraged to counsel each patient about physical activity over a period of four weeks and document the occurrence in the patient visit summary.	October 2 – November 2, 2022
Intervention	Patients received instructional material, regarding physical activity recommendations, in their preferred language	November 3 – December 4, 2022
Intervention	A modified post intervention Qualtrics survey link was emailed to consenting medical providers for completion depending on initial survey results.	December 5 – December 14, 2022
Post-intervention (Data Analysis)	A comprehensive statistical analysis was conducted to evaluate the responses from the Qualtrics survey(s).	December 2022 – January 2023

Post-intervention (Outcomes & Findings)	The results and conclusions of the project were written and presented in a formal capacity.	January 2023 - March 2023