Increasing Physical Activity in the 65 and Older Population

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DNP Project

Final Oral Defense & Manuscript Approval

The DNP Project is designed as a clinical scholarship initiative that allows the graduate student to demonstrate expertise in nursing practice. The project integrates the role of the DNP in a comprehensive healthcare environment that includes utilization of leadership, consultation, advocacy, collaboration and in-depth interaction with experts from Nursing and other disciplines.

Upon satisfactory completion of both the final oral defense and review of the final written manuscript, the advisor initiates the formal approval process.

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ABSTRACT

Background: It is well known that physical activity (PA) improves one's overall health and well-being along with decreasing the development of chronic diseases. In the United States, adults over the age of 65 do not meet the minimum recommended guidelines for exercise as outlined in the 2018 Physical Activity Guidelines (U.S. Department of Health and Human Services, 2018).

Medicine throughout the years has made significant advances and as a result the population is living longer. Older adults are not only living longer but are developing chronic preventable diseases that require a significant amount of money to manage. As of 2020, a total of 16 states reported an adult obesity prevalence at or above 35% while nationwide 41.9% of the US population is considered obese (Center for Disease Control, 2022). The annual obesity-related cost for medical care in 2019 was estimated at around $173 billion (Center for Disease Control, 2022).

Objective: The purpose of this DNP project is to increase the physical activity, flexibility, and pain levels of the 65 and over population to comply with the CDC's MVPA of 150 minutes per week through a practice quality improvement project. This change will involve an order for patients to attend a free exercise program, address the medical benefits of PA, address perceived barriers to PA, and provide printed PA written resources including exercises and stretching recommendations for the 65 years of age and older patient population in a Chiropractic office in Southwest Florida.

Design: Two group posttest quality improvement project.

Setting: Abundant Life Chiropractic Office, and CrossFit ENG, Cape Coral, Fl. October to December 2022

Participants: Adults 65 years and older who are currently seen at the Abundant Life Chiropractic Office.

Measurements: Participants were measured for pain levels, strength and flexibility utilizing a pre and post survey and assessment. Results from the intervention group were compared to those in the current practice group who do not participate in the free fitness class. Descriptive statistic including mean, median, range and standard deviation were utilized for demographic questions. Data was evaluated using either parametric or nonparametric testing based upon sample size to determine statistical significance. The statistical means was evaluated to determine the difference in the intervention group's exercise level, strength, flexibility, perceived barriers, pain levels and self-efficacy as compared to the non-intervention group.

Findings: The findings of this project show that incorporating an exercise treatment plan into routine patient appointments which includes a pre-assessment, list of local resources, access to free fitness classes that are specific to the 65 and over population and follow up testing during office appointments is effective in increasing the PA levels of this population. It should also be noted that participants in the IG reported a decrease in barriers to increasing PA and stated that they felt safe and were not afraid of injury during their PA intervention.

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Introduction

It is well known that physical activity (PA) improves one's overall health and well-being along with decreasing the development of chronic diseases. In the United States, adults over the age of 64 do not meet the minimum recommended guidelines for exercise as outlined in the 2018 Physical Activity Guidelines (U.S. Department of Health and Human Services, 2018).

Medicine throughout the years has made significant advances and as a result the population is living longer. Older adults are not only living longer but are developing chronic preventable diseases that require a significant amount of money to manage. As of 2020, a total of 16 states reported an adult obesity prevalence at or above 35% while nationwide 41.9% of the US population is considered obese (Center for Disease Control, 2022). The annual obesity-related cost for medical care in 2019 was estimated at around $173 billion (Center for Disease Control, 2022).

Background Knowledge

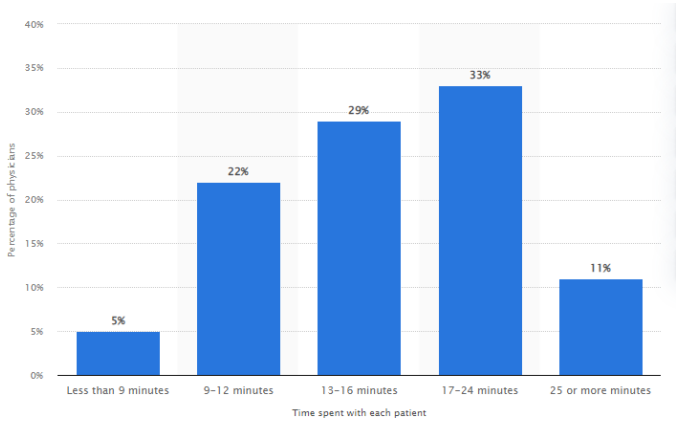
Participating in a physical activity (PA) regimen for a minimum of 150 minutes per week can prevent some chronic conditions, prevent, or improve physical limitations, decrease pain levels, and improve quality of life. However, older adults over the age of 64 often do not meet the CDC recommended guidelines due to perceived barriers such as lack of time, fear of injury, decline in health, access to facilities, cost, self-discipline, fear of embarrassment and fear of being a hinderance or slowing others down (Gray et al., 2018). It is difficult to implement a new regimen, especially for the older adult who often suffer from chronic pain and diseases. Practitioners often discuss the need to increase PA with their patients, however several patients do not know where to begin and cannot afford a personal trainer or gym membership. In Lee

County, Florida, 20.43% of the population is over the age of 64 with 8.2% of that population living at or below the poverty level (Policymap, 2020) thus creating an additional barrier. The CDC and the National Institute on Aging (NIA) are aware of these barriers and have implemented PA plans to address and overcome these barriers for the older adult population.

The World Health Organization (n.d.), has identified that obesity worldwide has tripled since 1975 and identifies that physical inactivity is the 4th leading risk factor of mortality accounting for some 3.2 million deaths each year. According to the 2018 Physical Activity Guidelines for Americans (2018), for adults to receive substantial health benefits, they should engage in at least 150 minutes of physical activity each week. Some suggestions include brisk walking and bicycling. Participation in a more vigorous-intensity exercise regime such as aerobic and muscle-strengthening exercises may provide additional health benefits.

Exercise should be addressed at office appointments with healthcare providers but due to limited time, often it is left out or briefly mentioned. According to Statista (2022), only about 33 percent of providers in the United States spend 17-24 minutes with their patients, while the majority spend less than 16 minutes. This data can be visualized figure 1.

Figure 1. Time spent by providers



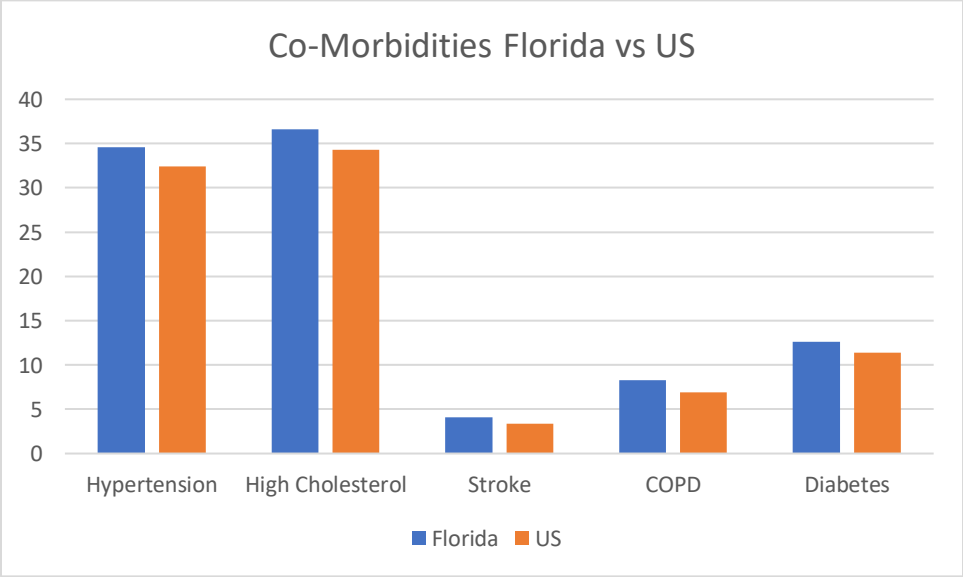
During these visits providers must interview the patient, complete a health assessment, review current medication lists and previous notes, formulate a diagnosis and treatment plan, answers questions and educate the patient. The time left to educate the patient is often less than 3 minutes due to the increased number of co-morbidities and increasing demand on the provider to see more patients (Statista, 2022). Providers spend almost half of their time in the office completing data entry and other desk type work which further constrains the time they can spend with each patient. It is estimated that for every hour that a provider spends with a patient, they will spend an additional two hours on charting and desk work (Statista, 2022). Providers often discuss the need to increase PA with patients during appointments, however very few recommendations include community resources and instruction on how to reach the recommended level of activity. Patients often leave a providers office knowing they should exercise more, but are not sure how, have limited understanding on what is safe for their individual situation, and feel that they cannot afford to hire a personal trainer or pay for a gym membership (Pedersen et al., 2018). As a result, the recommendation is often not followed.

While there is an abundance of information and resources available it can also be confusing or difficult to access for the elderly population. Providing a clear, concise intervention that can be delivered in minimal time that aligns with the common time constraints of an office appointment and provides clear concise, generalizable information with a list of resources have been shown to be successful (Sanchez et al., 2018). These instructions can be provided by a nurse or medical assistant who can spend more with the patient thus freeing the provider to care for the next patient. Resources that have been created by dependable institutions such as the National Institute of Health and Centers for Disease Control will provide practitioners with a trusted, quick source of materials that can be easily printed from the electronic health record and

shared with patients during their visit. This project will include the creation of a list of local resources that will be provided to patients. Patients will also receive a referral order from the chiropractic physician to increase their PA levels thus increasing the obligation of the patient to comply with the PA recommendation.

Obesity affects more than 31% of adults in the United States and has been characterized as an ongoing epidemic (Gray et al., 2018). Because obesity is a precursor to numerous poor outcomes including function impairment, diabetes, heart disease, cancer, and death, it is imperative that we place obesity as a focal point to assess and intervene in the health of our nation's citizens. According to PolicyMap (2020), there is a higher than national percentage of older adults in Florida suffering from hypertension (HTN), high cholesterol, stroke (CVA), chronic obstructive pulmonary disease (COPD), and diabetes (DM). This data can be viewed in figure 2.

Figure 2: Co-Morbidities Florida vs US



Problem Statement

The data retrieved for Florida showed that 20.43% of the population of the state is over 65 years of age. Of the total population in Florida 30.87% reported as being obese (PolicyMap, n.d.). This data demonstrates that a substantial portion of the population of Florida is over the age of 65, or at 1/5 of the population and about 1/3 of the population of the state is obese. Looking at this data it is easy to see that those residents over the age of 65 are lacking a healthy weight which will lead to other co-morbidities and an increased level of mortality in this population. As discussed previously, Florida has a higher average of older adults over the age of 65 who suffer from obesity related co-morbidities.

When comparing this information to the national average, a review of the chart reveals that Florida has a higher percentage of residents over the age of 65 then the national average (PolicyMap, n.d.). However, it is also interesting to see that the obesity rate in Florida is almost identical to the national average. This information can be used to help drive future initiatives to incorporate health and health promotion and better meet the needs of the local population.

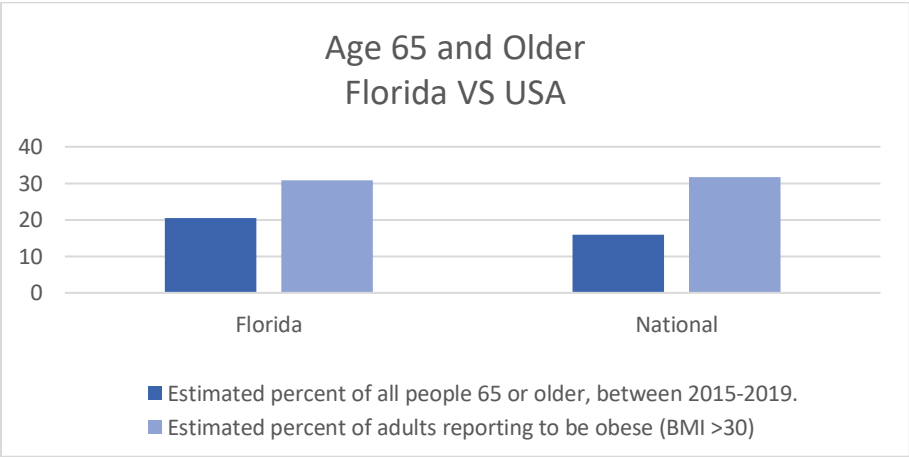


Figure 3: Age 65 and Older, Florida VS USA

The population in Florida is unique as there is an influx of residents temporarily who live in the state during the winter months and then return to their northern state during the summer. There is also a shortage of medical professionals in the state, which becomes increasingly evident in the winter months with the yearly population surge (Statista, 2022). This in turn leads to a decrease in patient access to care, increased wait times, and less face time with practitioners during visits. Additionally, in the summertime the temperature can average 90 degrees F with 90% and above humidity levels thus preventing older adults from participating in outdoor activities. When practitioners are aware of potential barriers and local challenges faced by this population, they can adjust their recommendation to improve PA compliance.

In the Abundant Life Chiropractic Office in Cape Coral, Florida 65% of the patient population is over the age of 65. Of this population 71% are considered obese with a body mass index (BMI) of greater than 30 and 84% of the population have at least one obesity related co-morbidity. Each patient is encouraged to increase their exercise level to meet the CDC guidelines of 150 minutes of PA per week during every appointment, however 98% of the patients report that they have not increased their activity level during their follow-up appointment.

In the Cape Coral Community, there are several local gyms as well as a senior center available to the older population. The Cape Coral Senior Citizens Center is part of the Cape Coral Parks and Recreation Department. They are open Monday to Friday from 8:00 am to 4:30 pm and offer day trips, dance programs and educational activities to the area senior citizens for a small fee, usually around $10 per class. According to their website they offer health and fitness classes, however a visit revealed that they currently only offer dance classes due to lack of interest in the other programs. CrossFit ENG is a local CrossFit gym that offers a free class

called the Golden Lions for senior citizens. This class is coach led and offered three times a week. They report 53 members over the age of 65 who actively participate in the class. This is 18% of their overall membership. Planet Fitness is open 24 hours a day, offers fitness classes and open gym equipment. Their memberships start at $10 per month with a $39 annual fee. They report less than 1% of their members are over 65. Mid Cape Fitness is open 24 hours a day with memberships starting at $19.99, plus an additional fee for yoga and specialty group classes. They report 3% of their members are over the age of 65. Anytime Fitness is open 24 and offers open gym equipment, personal training, and group classes. Their membership rates are $17 biweekly, and they report less than 1% of their membership is over the age of 65. In a community where 20.43% of the population is over the age of 64, it is easy to see that PA in this age group is severally lacking.

Clinical Question

The PICOT question generated for this identified problem would be as follows. In patients over the age of 64, does participating in a free low impact strength building exercise program and receiving written home workout instructions, local resources, and websites regarding physical activity for this population compared to patients who receive verbal recommendations to increase physical activity and a short demonstration of stretching activities alone, increase strength, flexibility, and decrease pain in an 8-week period?

Purpose of the Project

The purpose of this DNP project is to increase the physical activity, flexibility, and pain levels of the 65 and over population to comply with the CDC's PA of 150 minutes per week through a practice policy change. This policy change will involve an order for patients to attend a free exercise program, address the medical benefits of PA, address perceived barriers to PA, and

provide printed PA written resources including exercises and stretching recommendations for the over 64 patient population in a Chiropractic office in Southwest Florida.

Patients who are over 64 years of age and older generally have Medicare as their primary insurance. This can prove to be a barrier to patient outcomes as Medicare does not cover maintenance chiropractic care. A patient on Medicare can receive unlimited treatments for an acute injury if there is documentation demonstrating the continued need for acute care (Marks, 2022).This documentation is completed every 30 days and includes a pain index questionnaire. Unfortunately, once a patient has reached the point where acute treatment of 3-5 times a week is no longer necessary the payments stop which prevents the patient from maintaining their new levels of flexibility and decreased pain. Once acute care is no longer necessary, if a patient desires to maintain their care to prevent re-occurrence of pain or limitations to movement, their only option is self-pay which they often cannot afford (Marks, 2022). Increasing PA in this population can aid in the transition and sustainability of treatment outcomes as the patients progress from acute levels of care thus preventing the reoccurrence of injury and need for acute treatment.

As people age, the need for physical activity becomes increasingly important to reduce the loss of strength, flexibility, balance, endurance, and pain. Functional capacity is important in the prevention of falls, dependence, and isolation, and is a determinant in the ability to perform activities of daily living, and quality of life (Miller et al., 2017). Many older adults seek care at the Abundant Live Chiropractic office for complaints of back, hip or knee pain and report a sedentary lifestyle. During their encounter they are often more open to learning about health and wellness as well as how to improve their current situation and pain levels due to trust in their provider (Miller et al., 2017). Chiropractic appointments provide an opportune time to address

the positive impact that increasing activity levels have on the older adult. Success can be measured through a pre and post mobility and flexibility screening and a pre and post activity level questionnaire.

Review of Literature

The CDC recommends regular PA for adults over the age of 64 stating that benefits include increased physical functioning, prevention and management of chronic Illness and overall mental health improvement (Center for Disease Control, 2022). Unfortunately, while the CDC, World Health Organization (WHO) and National Institutes of Health (NIH) all advocate for increased PA in the older adult population, much of the information available is located on the internet and not readily available during appointments. It is essential that this information is available and accessible to providers during appointments so that providers can easily and effectively incorporate education on PA guidelines into their appointments. The majority of the over 64 population suffer from one or more co-morbidity and disability which would benefit from increased PA (Sanchez et al., 2018).

External Evidence

CINAHL, MEDLINE, Ovid Nursing Journals, and ProQuest databases were searched to evaluate current research on interventions to increase PA levels in older adults. The literature search was limited to the past five years, human subjects only, English, full article available and peer reviewed. Terms used included physical activity, exercise, elderly, older adult, and teaching strategy. An additional search of Google Scholar and .gov websites was completed utilizing identical search terms.

The search yielded 1274 results with a total of 31 articles deemed valid, chosen, and included in the synthesis of literature ranging from Level I to IV. Once articles were deemed

valid a hand search of their reference list was completed. This produced an additional 4 articles for inclusion.

The MeSH terms of “health belief model,” and “older adult,” and “physical activity” were searched utilizing the same databases. This produced an additional 15 articles with 5 deemed relevant and included. Reviewed articles can be viewed in the table located in Appendix A.

Organizational Assessment

In the Abundant Life Chiropractic care office, patients are encouraged to increase their PA regimen through verbal encouragement and a short demonstration of recommended stretching activities. During follow up appointments, many patients report that they have not increased their PA levels with some stating they do not plan to make a change in their PA levels. A quick review of the charting showed that even after a treatment plan was implemented which included an increase in PA and was discussed with the patient, most patients self-report that they did not make a change in their regime. This indicates that a practice change could be implemented to improve patient PA levels and adherence to the treatment plan thus improving overall health outcomes.

In the practice, 65% of the patient population is over the age of 65. Of these, 72% are seen by the chiropractor for complaints of back pain, hip pain, or knee pain. In reviewing admission chart notes, 98% of the patients report that they do not exercise routinely listing pain as their main barrier. Upon follow up appointments patient who are no longer experiencing pain state they do not exercise due to reported inability to afford a gym membership, uncertainty on what to do once they get to, they gym, embarrassment, fear of injury, and lack of motivation. A

community survey of local fitness facilities revealed that only 2-3% of the overall membership is over the age of 65.

The Cape Coral, Florida community is considered a sleeper town due to its large residential area and extremely limited industry. Because of this, most of the area within city limits is residential. According to PolicyMap (n.d.), 2020 Census, the population rose 26% from 2010 to a total of 194,016 residents with 23.95% of the population over the age of 65. However, local fitness centers are reporting 2% to 3% of their total membership as being 65 or older. Thus, indicating a large section of the population who is over the age of 64 could have less than the recommended 150 minutes of PA per week.

Non-hospitalized older adults over the age of 65 spend on average $860 billion dollars a year on healthcare (Center for Disease Control, 2022). Four out of every five of the costliest chronic diseases suffered by this population can be prevented or managed with PA. While there is an abundance of public parks, public pools, recreation centers, senior centers and fitness facilities in the community, the summers are often extremely hot, and prevents residents from going outdoors to participate in PA. When area practitioners are knowledgeable in the barriers to PA faced by this population, as well as strategies to increase and sustain PA, change can occur. A policy change is needed at the Abundant Life Chiropractic Center to enhance the participation in PA of this population. This participation can be supported by utilizing a free coach led fitness class geared toward the 65 and over population, and providing written instructions with handouts, demonstration, and community resources. These interventions can serve as a vehicle to improve the PA of this population to meet the CDC guidelines.

Synthesis of Evidence

There is quality support from multiple studies which indicate that healthcare

clinician-based intervention has a positive effect on the behavior of the population over the age of 65. There are several studies that indicate that patients benefit from brief face-to-face interventions. Maintaining and increasing PA throughout the years is necessary for improving quality of life in older age (Vasiliadis et al., 2018). Research shows that with an increase in provider intervention the patients' outcomes improve (McGarrigle & Todd, 2020; Olson et al., 2018; Pedersen et al., 2018; Sanchez et al., 2018; Shahab, 2021). Gamboa Moreno et al., (2019), states that self-management programs, discussed and promoted by the primary care team, were a useful tool to use in promoting self-management practices in the older adult population. Pedersen et al. (2018), in a systematic review found that more complex provider interventions improved individual outcomes. They also concluded that patients were more likely to adhere to recommended patient guidelines if providers delivered the information during their office visit. Olson et al. (2018), found a correlation between a higher dose of PA interventions with increased PA behavior. McGarrigle & Todd, (2020) state that interventions in a face-to-face setting are more effective than those delivered electronically. However, utilizing electronic resources and e-learning as an adjunct to face-to-face interventions has been shown to increase PA levels in this population (Shahab, 2021; Van Dyck et al., 2019). While electronic and internet-based learning is useful, Goethals et al., (2020) found that social marketing is not effective for this population. Kleine et al., (2021), considered the use of mailing feedback letters to members of the elderly population in Germany, but found that this was not successful in increasing PA levels. PA was also increased in populations who received the intervention in a healthcare setting, further addressing the need for providers to intervene on lifestyle changes (Hazavehei et al., 2017; Hosteng et al., 2021; Kidd et al., 2019; Landi et al., 2017; Masroor et al., 2019; Mohammad et al., 2018). In a qualitative study, Maula et al., (2019) found a range of modifiable factors that can

be addressed during follow up visits to influence continued participation in PA. A cross-sectional study conducted by Naofumi et al., (2021), found that the type of work or job held by the older patient does contribute to their level of PA in older age, with those who were blue-collar workers exhibiting a higher PA level.

Barriers to PA have also been studied. Ahangar et al., (2019) found that barriers to increasing PA include age, hypertension, and disequilibrium in men, with muscle strength and education levels are reported barriers in women. The environment can also present a barrier. In a Systematic review by Barnett et al., (2017) it was concluded that safe, walkable, and aesthetically pleasing neighborhoods with access to overall and specific destinations and services have been shown to improve PA in the older adult population. This type of environment is not easily or readily accessible in all neighborhoods. Low social inclusion and interaction, anxiety and depression have a correlation with low PA (De Oliveria, 2019; Guell et al., 2018). Obesity has also been shown to decrease PA activity due to functional limitations in older adults compared to those of normal weight (Lynch et al., 2022). Previous methods of education emphasizing health benefits of PA have also been found to be ineffective. Older adults have different goals that hold a greater personal importance. Thus, a shift in focus to address specific personal goals such as personal achievement and meaningful social connections will improve adherence (Morgan et al., 2019; Ubert et al., 2017; Vanderlinden et al, 2022).

The use of tools and models is also significant. While using a clearly written general hearing loss brochure, Walhagen (2017) found a modest improvement in patient health education, understanding and compliance. Following the Health Belief Model (HBM), Shao et al. (2018) concluded that using the model showed a significant bases for compliance with intervention in patients. Burton et al., (2019) states that working with home care populations, the

focus should solely be on improving PA and physical improvements with a process evaluation of the intervention to gain a better understanding of adherence. Stehr et al., (2021), found that utilizing a combination of models provides a better theoretical framework for understanding physical activity intentions and compliance. The use of cognitive dissonance procedures has been shown to change behavior intention and can be an extremely useful tool in increasing PA in the population (Cooper & Feldman, 2019; Mohammad Vahedian-Shahrood et al., 2019). Some research has centered around utilizing a rehabilitation model to increase PA, however Turumen et al, (2020) found that the use of a rehabilitation model is not superior to provider intervention in this demographic.

Strengths

Strengths noted in the reviewed articles include that the presence of clinician intervention during scheduled appointments have shown an increase in compliance level in this population in achieving recommended PA levels. Utilization of the HBM to evaluate factors of highest importance when working with this population has been shown to be very effective. The HBM has been adequately researched with randomized control trials and systematic reviews. Many of the studies reviewed included adequate sample sized with appropriate criteria for inclusion and exclusion.

Limitations and Weaknesses

Limitations found included the lack of long-term effects on PA levels of the population. Many studies were short-term and did not address long term sustainability of the results. Several studies used vague or confusing terms in their pre and post surveys which could lead to confusion and inaccuracies. No studies were found that included physical exercise classes or

modification exercise suggestions with demonstration, nor were regionally based PA lists provided to assist with overcoming barriers.

Gaps in Evidence

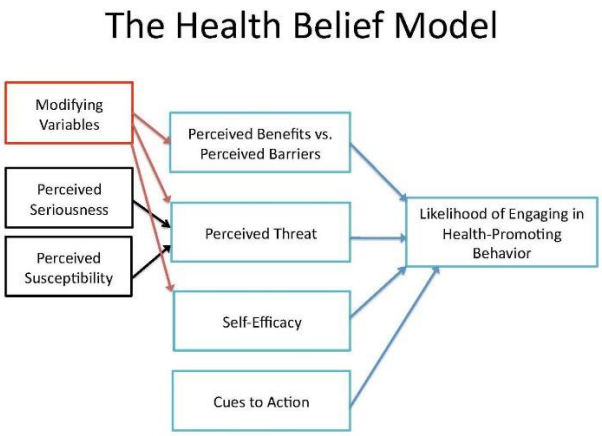
While there are several studies on increasing the PA levels of this population, there is limited documentation regarding sustainability. This included lack of documentation of an implementation plan to ensure sustainability at the practice or patient level. This DNP project incorporates PA in the practice for the older adult population to include PA in their daily routines through use of a local coach led free fitness class, discussion on benefits of increased PA in relation to their presenting complaints, eliminating barriers, demonstration, providing at home exercises, and encouraging CDC physical recommendations during initial and follow-up visits at a chiropractic office. It includes a flexibility study to be performed during initial and follow-up appointments to document improvements and provide visible documented progress for the patient that will aid in the promotion and sustainability of the PA activity. There is an incorporation of the flexibility study and handouts into the electronic health record for easy charting and accessibility to printing during appointments.

Theoretical Framework

The Health Belief Model (HBM) has served as a guide for many studies in patient education. It was developed in the 1950 by several social psychologists who were working (at the time) for the US Public Health service (Rosenstock, 1974). The goal of the model was to improve understanding of the widespread failure in health screening programs to improve patient preventative behaviors (Public Health, 2022). This model attempts to predict health-related behavior utilizing the categories of individual perceptions, modifying factors and likelihood of action (Public Health, 2022). It assists in guiding the intervention by evaluating the key factors

that should be addressed. This model states that individual health behaviors can be changed if an assessment is made of the patient's core constructs and the result of this assessment is applied during the educational process (Public Health, 2022). Utilizing the HBM as the basis for intervention in promotion of PA. Shao et al., (2018) addressed the areas of perceived susceptibility, perceived severity, perceived benefit, perceived barriers, and self-efficacy. In their study they concluded that PA was significantly improved when an intervention was completed using the HBM. Self-efficacy and motivation have also been found to be the two most significant factors when determining and increasing PA levels in the older adult population (Notthoff et al., 2017). The HBM is widely used in the creation of healthcare related tools due to its usefulness in creating short- and long-term changes in behavior (Public Health, 2022).

Figure 4: The Health Belief Model



The HBM is an excellent tool to assist practitioners in properly addressing each patients' individual concerns and beliefs (Public Health, 2022). The perceived barriers can be identified and addressed utilizing the concept of perceived susceptibility and then addressed. Morgan et al.,

(2019) found that changing the focus of the intervention to address the specific goals, needs and barriers of each patient will improve adherence. Perceived severity and perceived benefit are also addressed utilizing this model. By understanding each patient's individual belief in the degree of anticipated medical and social consequences as well as their belief in the positive benefits and outcomes, the practitioner or office staff can individualize the intervention to each patient (Public Health, 2022). Therefore, applying the HBM to the older adult population will improve the likelihood of increased PA. This project will address the HBM concepts of perceived susceptibility, perceived benefit, perceived barriers, and self-efficacy

Methodology

Obesity in the United States is an epidemic that is identified and addressed by epidemiology and current literature as a significant and modifiable risk factor for altered health in the older population (Banerjee et al., 2018; CDC, 2019; WHO, n.d**).** This quality improvement project will incorporate a two-group pre and post-test design to determine the effectiveness of participation in a free low impact strength building exercise program, receiving written handouts with stretching and PA instructions, on the PA activity level, flexibility, and pain level of the 65 years of age and over patient population at the Abundant Life Chiropractic office in Cape Coral, Florida. Patients who are scheduled for initial and follow-up appointments will be asked to voluntarily participate in the project. Patients who agree to attend the free 30-minute fitness group class will be placed in the intervention group (IG), while those who agree to participate in the project but do not wish to attend the fitness class will be placed in the current practice group (CPG). A pre and post flexibility evaluation and a written survey will be given to both groups regarding perceived benefits, perceived barriers and self-efficacy related to PA. Results of the flexibility evaluation and written survey will be collected and analyzed.

Utilizing quantitative methodology, changes between variables can be used to establish correlation, impact, and causation. This is central in the development of a foundation for evidence-based policy change interventions. This methodology will allow for numerical data to be utilized and analyzed thus explaining the relationship between the CPG and IG (Watson, 2015). Descriptive statistic including mean, median, range and standard deviation will be utilized for demographic questions. Data will be evaluated using either parametric or nonparametric testing based upon sample size to determine statistical significance. The statistical means will be evaluated to determine the difference in the intervention group's exercise level, strength, flexibility, perceived barriers, and self-efficacy as compared to the non-intervention group.

Setting

The Abundant Life Chiropractic office is centrally located in Cape Coral, Florida and serves all residents in the area and is the setting for this project. It is a private practice owned and operated by one individual, the full-time chiropractor for the office. Patients range in age from 2 weeks old to 98 years of age. Most patients are seen one to four times a month for maintenance and 2-3 times a week for acute care for the first 30 days. The office consists of one full time chiropractor, one part time chiropractor and front desk staff.

When new patients enter Abundant Life Chiropractic office, the current practice is to complete an intake interview with a health history, perform an in-office x-ray, and attempt to determine the cause of the injury when applicable. Patients then receive muscle work, and adjustment, and are encouraged to stretch first thing in the morning with a demonstration only.

Permission will be obtained from the Abundant Life Chiropractic owner, then the practice stakeholders will be notified of the purpose of the project. Practice stakeholders include front desk staff and Chiropractors. A training session will be scheduled to ensure that

stakeholders are aware of the process, have received the intervention materials, and that buy-in of the stakeholders is achieved. Benefits to the practice include creating a policy change that will provide beneficial interventions that can increase outcomes for the patient population and community. A risk to the practice is that the pre-implementation data may expose shortcomings of the practice. Expected cost of the project is $100 in office supplies, copies, and printed material. An additional $75 will be used to update the EMR system to house the educational printouts for easy access and printing, and addition of a section to record the pre and post flexibility assessment. A statistician will be hired to assist with data analysis and is estimated to cost an additional $50.

CrossFit ENG, located within one mile of Abundant Life Chiropractic Office, will be the location of the free fitness class. The senior fitness class, called the Golden Lions, is held every Monday, Wednesday, and Friday from 10:30 am to 11:00 am. This class is led by a coach who has a CFL-1 or higher certification. The movements are programmed by an employee of the facility who holds a PhD in exercise physiology and has studied movement of the older population. Each class consists of low impact cardiothoracic training, strength training and functional movements. Participants mimic everyday movements such as lifting grandchildren, carrying groceries, getting up from a seated position or lying on the floor. Each movement is closely monitored by the coach and adjusted to meet the individual strength and functional fitness level of the participants to ensure safety.

Participants

Convenience sampling will be used to ensure optimal participation and ease of implementation. Preliminary participants will be selected based on the following inclusion criteria: (a) 65 years of age or older; (b) no known cognitive impairments; (c) proficient in

English; (d) no known health related restrictions to PA; (e) scheduled for an appointment during the three-month study period. Patients who match the inclusion criteria will be flagged by the front desk staff each day when printing the daily schedule. Potential participants will be given a disclaimer for the project and asked if they would like to participate. Those who agree to participate will be assigned to the CPG or interventional group IG at the time of their appointment based on their willingness to attend the free fitness class. Those in the CPG will receive a disclaimer with information about the study (Appendix C) while those in the IG will receive a disclaimer addressing both the study and the intervention (Appendix D).The IG will receive information about the benefits of increasing PA, information on when and where to attend the free exercise classes with an expectation of attending at least one class per week, written instructions for exercise that can be completed at home and provided a list of community resources to assist in increasing and sustaining PA levels. While CPG participants will receive the recommendation to increase PA and stretching demonstration only as per current practice. All patients who are included in the study will be consented. A pre and post survey tool using a Likert scale (Appendix E) along with a flexibility and functional test (Appendix F) will be used to evaluate the level of PA and flexibility for comparison of the control group to the intervention group during their follow-up appointments. CrossFit ENG will also provide a class roster so that attendance of those in the IG group can be verified and tracked. All interventions will be conducted by the project leader, chiropractor, or front desk staff in an exam room to ensure privacy. The expected number of participants is 60-70 patients, or 50% of the current patient population over the age of 65 who are currently receiving ongoing care with a goal of 30 patients in each group. This allows for some variance due to provider recommendation, patient

declination to participate, lack of attendance in follow-up appointments, lack of attendance in the free exercise class, and attrition from the study.

There are no identified risks to the patient. Patients have the right to skip any questions in the survey or drop out of the survey at any time. The care the patient receives will not change if the patient does not want to participate or drops out of the project. All collected information will be kept confidential and destroyed upon completion of the project.

Benefits include overall health and wellness benefits from increased PA thus allowing for sustained improvements gained from acute chiropractic care, gaining knowledge of PA recommendations, introduction to resources and at home movements that can be incorporated to increase PA in their everyday lives, and information on how to compete PA in a safe manner tailored to their needs.

Ethical Considerations

In the research setting, respect for persons is the recognition that persons within a study have their own set of values and are individuals. The principle states that individuals in the study are to be treated as autonomous individuals. Those participants who have diminished autonomy are ensured the right of protection (The Belmont Report, 2014). This DNP project provides respect for persons through the utilization of the disclaimer process (Appendix C & D). The disclaimer will include all collected information, purpose of the project, risks, benefits, and attempt to answer potential participant involvement questions to ensure that participants are fully informed prior to agreeing to participate. Participants will also be verbally informed that they can decline participation without retribution or change to their current care. Identifiable information used in during the project will be destroyed immediately once the project is completed. Every effort will be made to provide age-related accommodations to ensure autonomy and respect of

persons including handouts printed in large font, comfortable seating, quiet surroundings, and explicit language.

Beneficence is defined as the ethical principle promoting good and charitable outcomes, above and beyond those imposed on duty (Pieper & Thomson, 2016). Applying beneficence to this DNP project is achieved though identifying and calculating the risk and benefits to the participants as well as the impact the work has on an individual and practice site level (Pieper & Thomson, 2016). There is minimal to no risk identified for participant, while benefits include increasing PA levels in a safe, monitored environment, gaining knowledge regarding PA recommendations, benefits of PA, how to overcome barrier and apply PA knowledge to everyday life. Undue stress will be minimized through a positive approach that is helpful while avoiding fear mongering and guilt. The goal is to institute a practice change policy based on Evidence Based Practice that will increase the PA levels of the target population.

The ethical principle of justice involves the patient's right to receive full privacy, and equality in equal distribution among persons (Matwick & Woodgate, 2017). The over 64 years of age population is the target of this DNP project primarily due to the benefits that increasing PA can provide. Every effort will be made to include all older adults in the practice during the three-month data collection period, for whom could benefit in an increase in PA. All participants will receive identical interventions. If a participant chooses not to participate, he or she will continue to receive their routine care.

Intervention

Each patient enrolled in the project will receive a pre-study flexibility screening and pre-survey. Intervention information will be given in a 10-minute or less session, intentionally kept short with the hope that a shorter intervention information session will increase participation

rates and maintain the attention of the participants. The initial part of the intervention will be focused on the benefits of increased PA in relation to the patients' presenting complaints. This will include the current CDC recommendation of 150 minutes per week, and how to overcome common barriers to improving PA in the older adult population. Information regarding the free coach led senior fitness 30-minute class at a local gym will be provided with the expectation that the participant attends at least one session per week (Appendix J). Patients will then be provided with written examples of exercises they can do at home with instruction on how to safely perform the exercises including specific instructions on length and frequency of activity. Finally, a list of local resources (Appendix K) and useful websites (Appendix I) will be provided. The written material will be delivered in English, large print, and at an 8th grade reading level following the suggestion of the CDC (2019). A post-survey and flexibility study will be performed at the end of the three-month period during a scheduled follow-up appointment.

The CrossFit ENG coach will track attendance of participants during the study and report back to the study leader each week. Participants will be enrolled in the program on a rolling basis over the initial four-week period. Once enrolled, participants will be followed for eight weeks and then reassessed at the completion of the eight-week period during their following office appointment. The study period will cover a three-month period accounting for both the enrollment and participation period. The Study leader will follow up as necessary with participants to ensure they are attending at least one class a week. This will be completed during follow-up visits and phone calls on a weekly basis. Attrition rates for those participants in the IG who do not attend at least one fitness class per week will also be monitored.

Data Collection

Data was collected during initial and follow-up appointments over an eight-week period and recorded on an Excel Spreadsheet. General data was collected from the demographic portion of the survey of participants form located in Appendix E. The demographic survey included gender, age range, education level, household income, relationship, and employment status. Data pertaining to participant PA levels and the HBM constructs was collected using a Likert 5 five-point scale. The Likert scale utilized a quantitative measurement combined with qualitative measurement for all questions. The scoring is '1' *Strongly Disagree*, '2' *Disagree*, '3' *Neither*, '4' *Agree*, and '5' *Strongly Agree*. PA data collected included how many minutes of exercise participants complete each week, belief in the benefits of exercise and perceived barriers to exercise. The HBM constructs included in the survey were perceived benefits, perceived barriers, and self-efficacy. Weekly attendance data was collected from CrossFit ENG class attendance records to ensure participants attended eight weeks of class as instructed.

Measures, Instruments, Tools

Data was collected utilizing several tools throughout the project. A pre and post survey adopted from the Vulnerable Elders Survey (VES-13) including a Likert scale was used to collect demographic, pain levels, belief regarding exercise, evaluation of barriers and level of PA completed each week (Appendix E). A functional assessment test adopted from the National Institute of Aging (NIH) Exercise and physical activity tracking tool was used to assess strength and flexibility (Appendix F).

Data Analysis

Data was collected utilizing several tools throughout the project. A pre and post survey adopted from the Vulnerable Elders Survey (VES-13) including a Likert scale was used to

collect demographic, pain levels, belief regarding exercise, evaluation of barriers and level of PA completed each week (Appendix E). A functional assessment test adopted from the National Institute of Aging (NIH) Exercise and physical activity tracking tool was used to assess strength and flexibility (Appendix F). All data was placed on an excel spreadsheet.

Data was reviewed for validity, accuracy, and format. Reverse coding was completed for negative framed questions to ensure all answers were consistently in the same direction. Descriptive statistics were calculated to describe the frequency and percentages for the nominal variables of gender, age, marital status, educational status, annual income, employment status and pain levels for both groups. This includes mean, median, range and standard deviation.

To examine the research question, an independent samples t-test was conducted to assess if differences existed in the mean of the dependent variable between the levels of the independent variable. An independent samples t-test is the appropriate statistical test when the purpose of research is to assess if differences exist in the mean of a continuous dependent variable between the levels of a dichotomous independent variable.

The assumptions of normality and homogeneity of variance were assessed. The assumption of normality requires the dependent variable to be normally distributed within each group of the independent variable. Normality was assessed by conducting Shapiro-Wilk tests (Razali & Wah, 2011). The homogeneity of variance assumption requires the variance of the dependent variable to be equal within each group of the independent variable. Homogeneity was assessed using Levene's test for equality of variances (Levene, 1960). If Levene's test is significant, Welch's *t*-test will be used instead of Student's *t*-test, which has higher statistical power when the two samples have unequal variances (Ruxton, 2006). A two-tailed test will be used. Significance will be determined using an alpha of 0.05.

Description of the Sample

There was a total of 26 participants in this study which included fourteen in the IG group and twelve in the CPG. The response and completion rate for both groups were 100%. The participants were predominately female (*n* = 18, 69.23%). Most of the group reported an income of less than $25 thousand per year (*n* = 10, 38.46%). Most of the participants were married (*n* = 13, 50.00%). All participants stated they receive a yearly health exam (*n* = 26, 100.00%). The most frequently observed categories of Age were 68 and 70, each with an observed frequency of 4 (15.38%). Education of a College Degree was reported highest of all educational levels (*n* = 12, 46.15%) with employment reported as retired with a part time job (*n* = 15, 57.69%). Frequencies and percentages are presented in Table 1.

Table 1
Frequency Table for Nominal Variables

Variable	*n*	*%*
Gender		
Female	18	69.23
Male	8	30.77
Missing	0	0.00
Income		
Decline	6	23.08
<25 K	10	38.46
25-49 K	4	15.38
> 50K	6	23.08
Missing	0	0.00
Marital status		
Divorced	8	30.77
Married	13	50.00
Single	1	3.85
Widowed	4	15.38
Missing	0	0.00
Yearly exam		
Yes	26	100.00

Table 1
Frequency Table for Nominal Variables

Variable	*n*	*%*
Missing	0	0.00
Age		
65	1	3.85
66	1	3.85
67	2	7.69
68	4	15.38
69	1	3.85
70	4	15.38
71	1	3.85
72	1	3.85
74	3	11.54
75	1	3.85
76	3	11.54
78	2	7.69
79	2	7.69
Missing	0	0.00
Education		
College Degree	12	46.15
Some Post HS	11	42.31
High School	3	11.54
Missing	0	0.00
employ		
Retired, not working	11	42.31
Retired, part time job	15	57.69
Missing	0	0.00

Note. Due to rounding errors, percentages may not equal 100%.

Sample demographics can be viewed in Figures 6 to 12**.**

Figure 6. Gender.

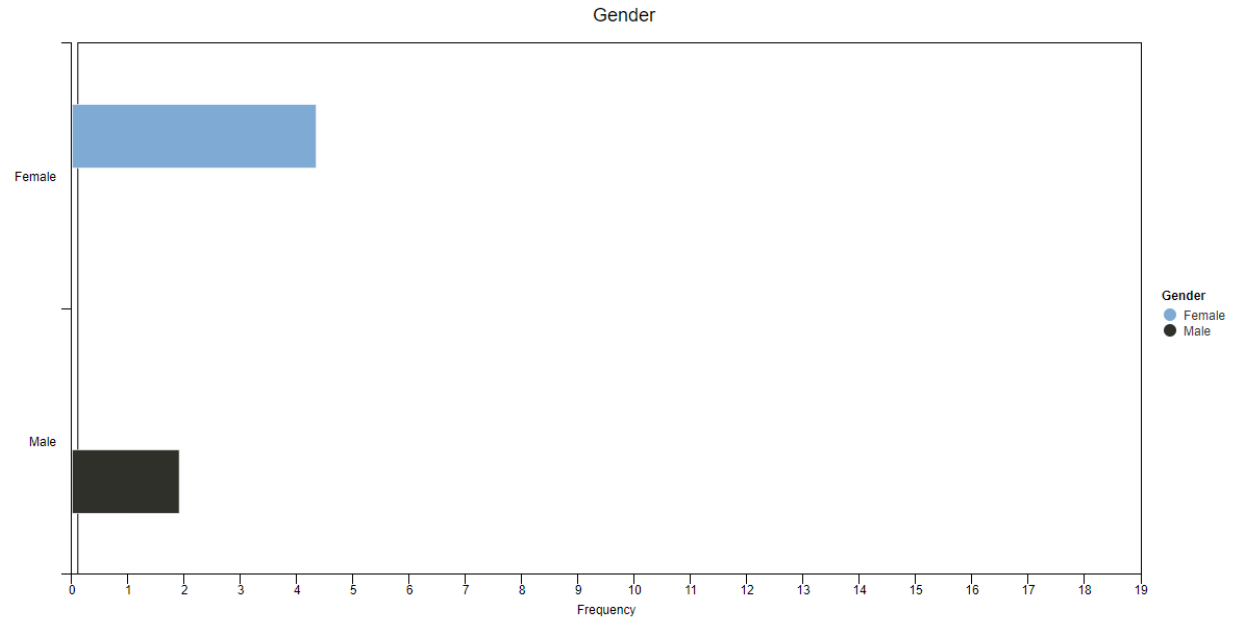


Figure 7. Age.

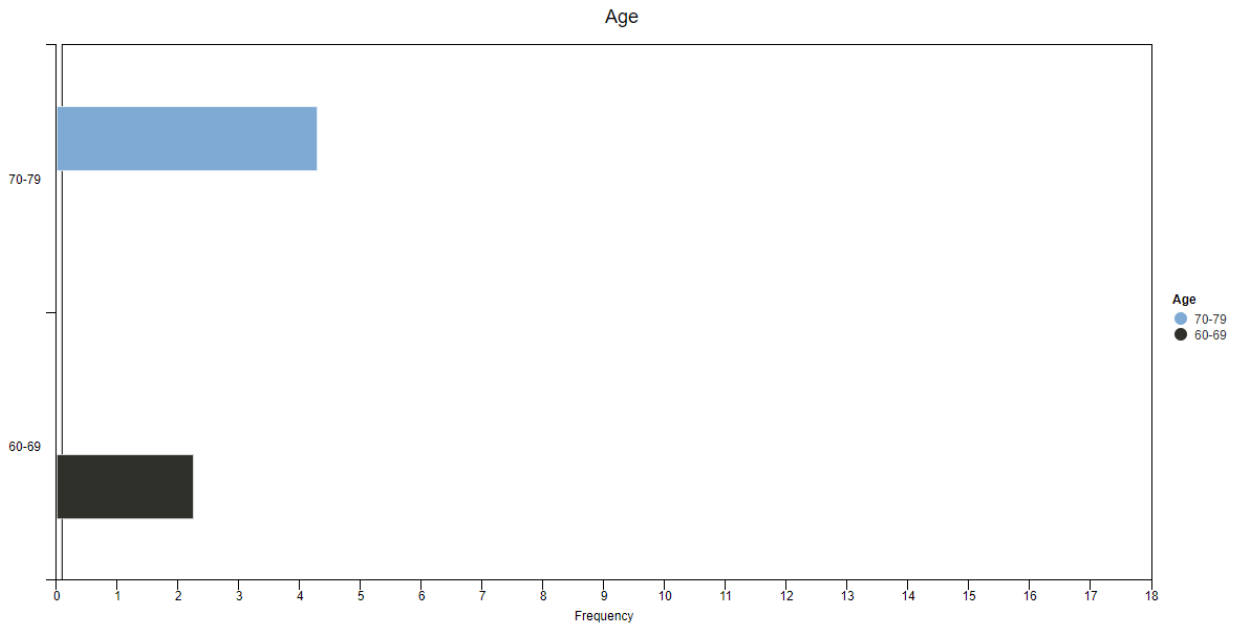


Figure 8. Education.

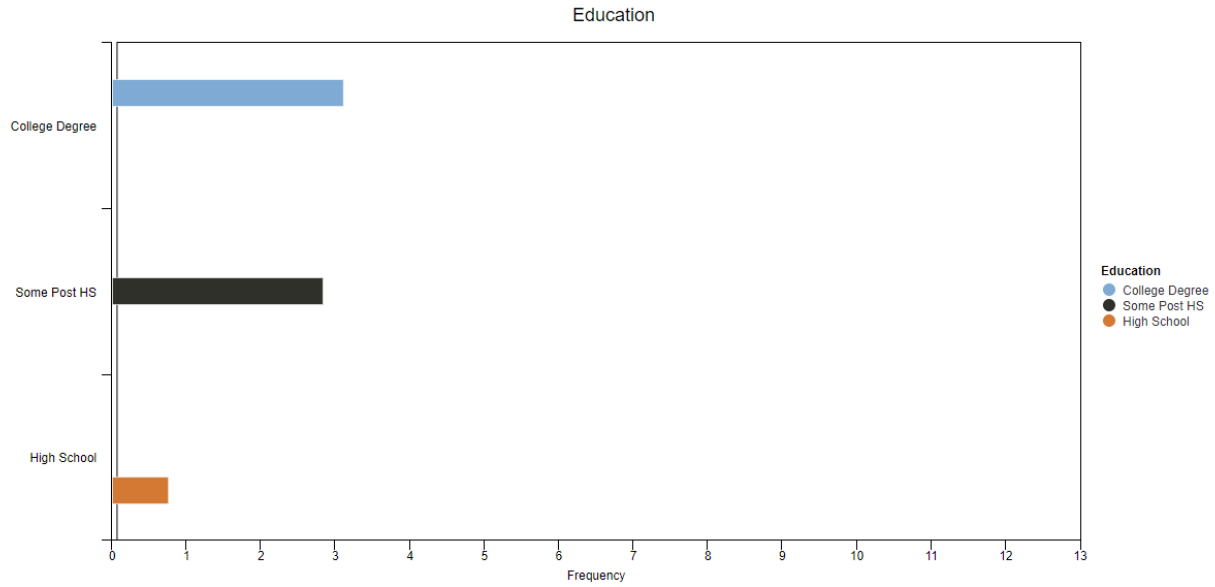


Figure 9. Income

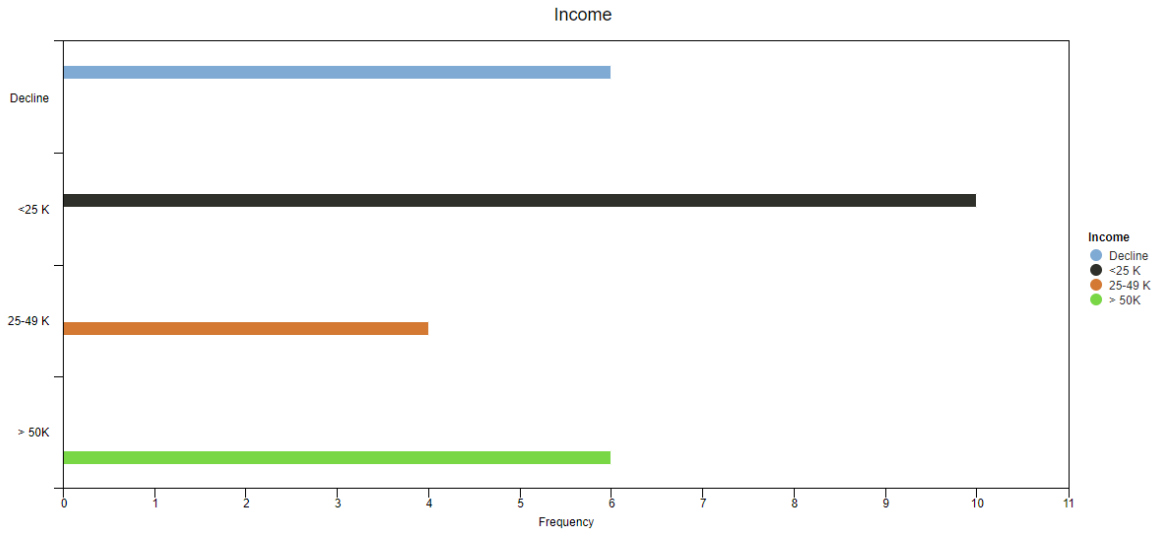


Figure 10. Yearly Exam

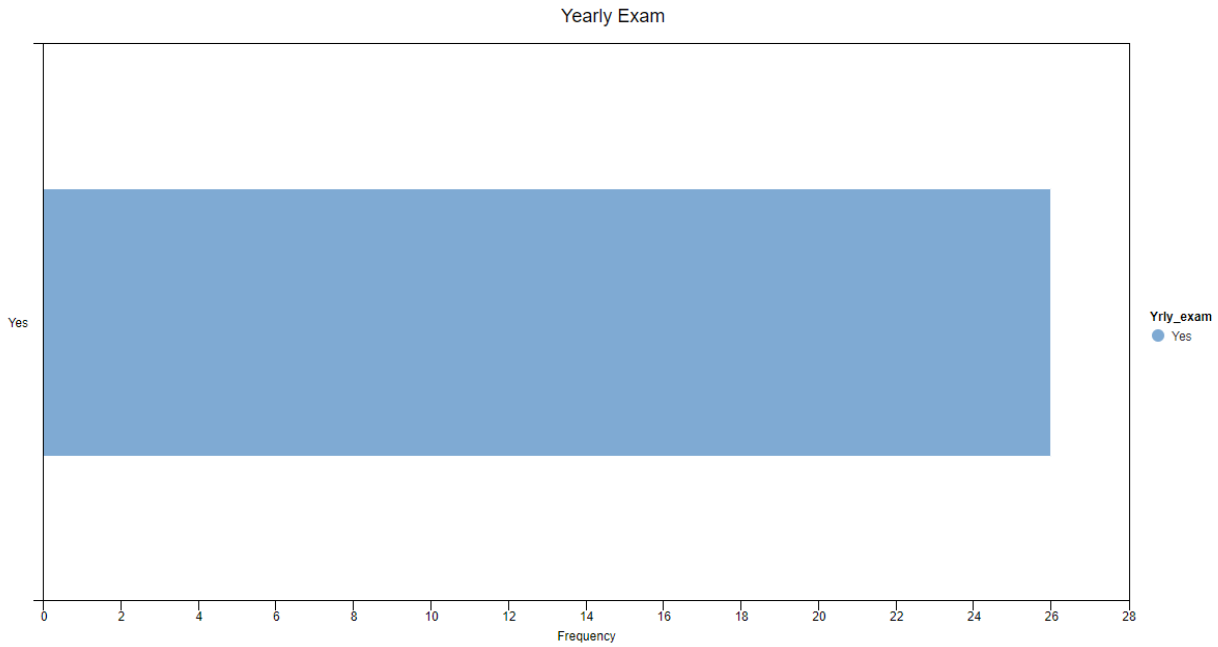


Figure 11. Marital Status.

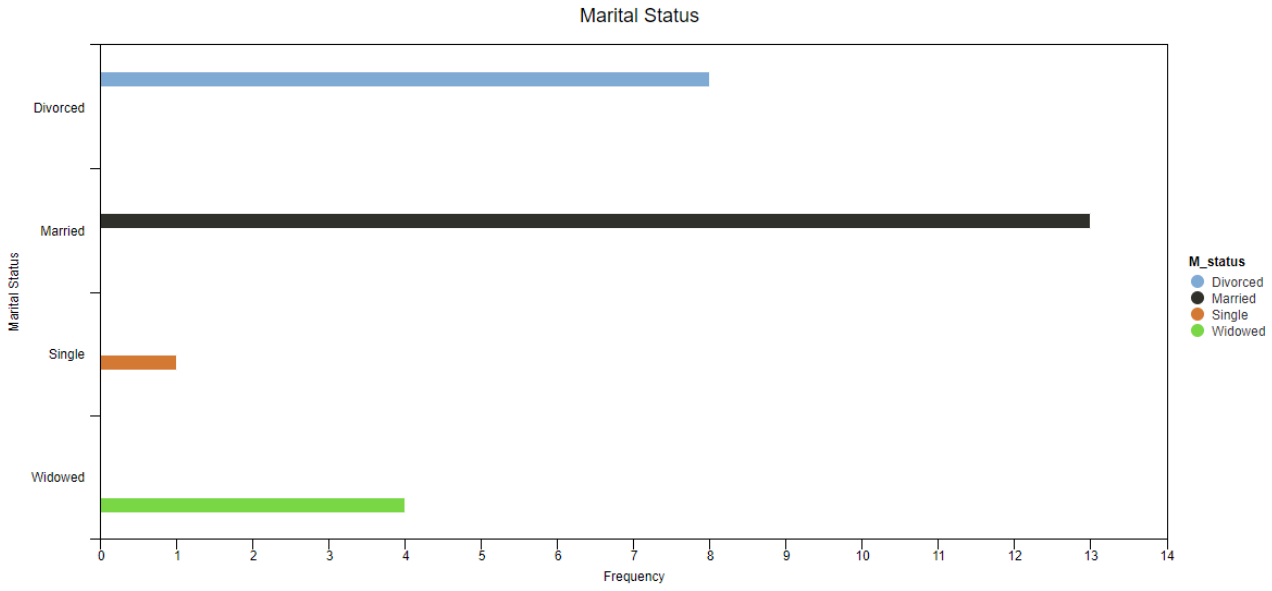
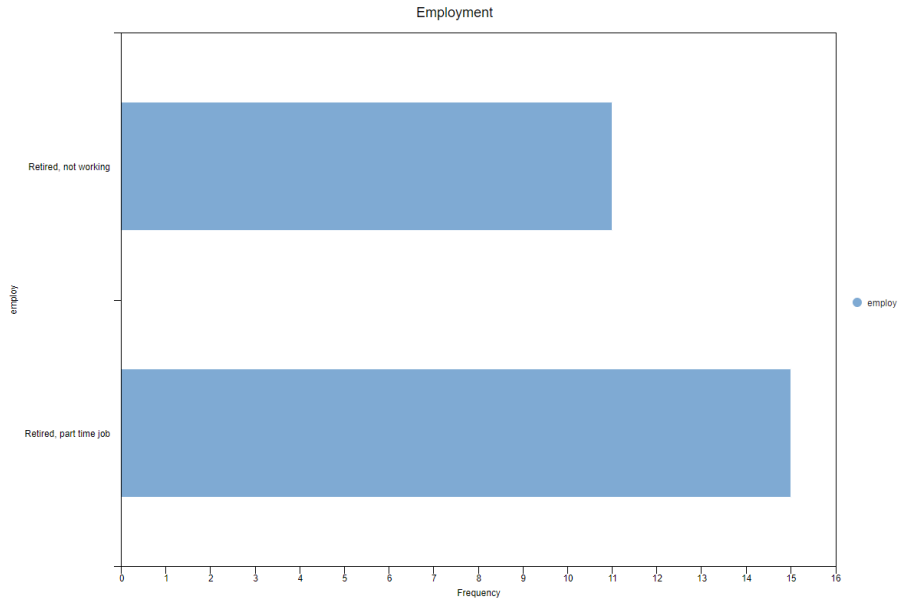


Figure 12. Employment



Findings

Pain Filtered By: Group (Intervention)

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of Pre-pain and Post-pain was significantly different from zero.

A Shapiro-Wilk test was conducted to determine whether the differences in Pre-pain and Post-pain could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were significant based on an alpha value of .05, $W = 0.86$, $p = .033$. This result suggests the differences in Pre-pain and Post-pain are unlikely to have been produced by a normal distribution, indicating the normality assumption is violated.

The result of the two-tailed paired samples *t*-test was significant based on an alpha value of .05, $t(13) = 6.57$, $p < .001$, indicating the null hypothesis can be rejected. This finding suggests the difference in the mean of Pre-pain and the mean of post-pain was significantly different from zero. The mean of Pre-pain was significantly higher than the mean of post-pain. The results are presented in Table 2. A bar plot of the means is presented in Figure 13.

Table 2

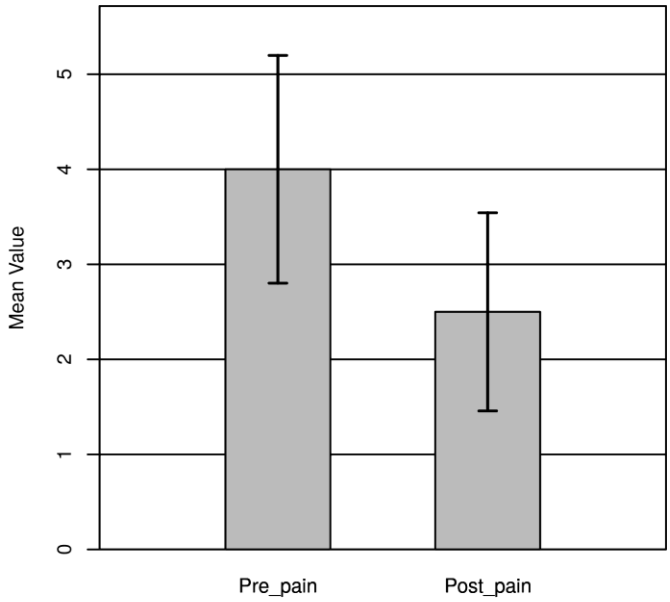
Two-Tailed Paired Samples t-Test for the Difference Between Pre-pain and Post-pain

Pre-pain		Post-pain				
M	*SD*	*M*	*SD*	*t*	*p*	*D*
4.00	2.29	2.50	1.99	6.57	< .001	1.75

Note. N = 14. Degrees of Freedom for the *t*-statistic = 13. *d* represents Cohen's *d.*

Figure 13

The means of Pre-pain and Post-pain with 95.00% CI Error Bars



Pain Filtered By: Group (Control)

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of Pre-pain and Post-pain was significantly different from zero.

A Shapiro-Wilk test was conducted to determine whether the differences in Pre-pain and Post-pain could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were significant based on an alpha value of .05, $W = 0.78$, $p =$

.006. This result suggests the differences in Pre-pain and Post-pain are unlikely to have been produced by a normal distribution, indicating the normality assumption is violated.

The result of the two-tailed paired samples *t*-test was not significant based on an alpha value of .05, $t(11) = -1.39$, $p = .191$, indicating the null hypothesis cannot be rejected. This finding suggests the difference in the mean of Pre-pain and the mean of post-pain was not significantly different from zero. The results are presented in Table 3. A bar plot of the means is presented in Figure 14.

Table 3

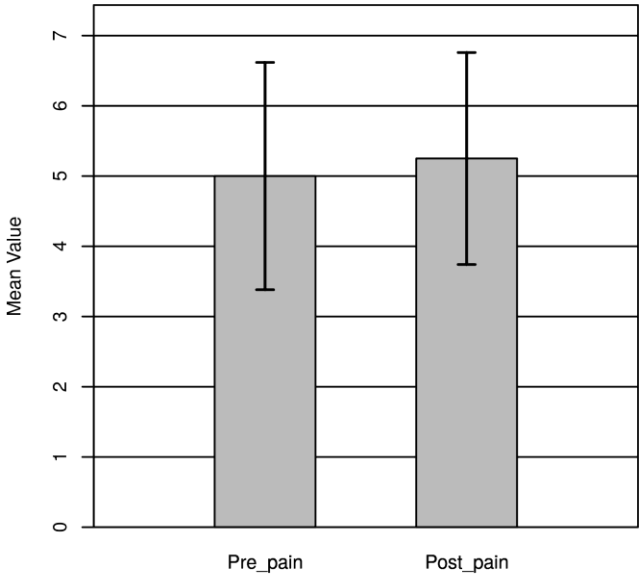
Two-Tailed Paired Samples t-Test for the Difference Between Pre-pain and Post-pain

Pre-pain		Post-pain				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
5.00	2.86	5.25	2.67	-1.39	.191	0.40

Note. N = 12. Degrees of Freedom for the *t*-statistic = 11. *d* represents Cohen's *d.*

Figure 14

The means of Pre-pain and Post-pain with 95.00% CI Error Bars



Bicep Curl Filtered By: Group (Intervention)

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of pre-curl and post-curl was significantly different from zero.

A Shapiro-Wilk test was conducted to determine whether the differences in pre-curl and post-curl could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were not significant based on an alpha value of .05, $W = 0.91$, $p = .150$. This result suggests the possibility that the differences in pre-curl and post-curl were produced by a normal distribution cannot be ruled out, indicating the normality assumption is met.

The result of the two-tailed paired samples *t*-test was significant based on an alpha value of .05, $t(13) = -7.55$, $p < .001$, indicating the null hypothesis can be rejected. This finding suggests the difference in the mean of pre-curl and the mean of post-curl was significantly different from zero. The mean of pre-curl was significantly lower than the mean of post-curl. The results are presented in Table 4. A bar plot of the means is presented in Figure 15.

Table 4

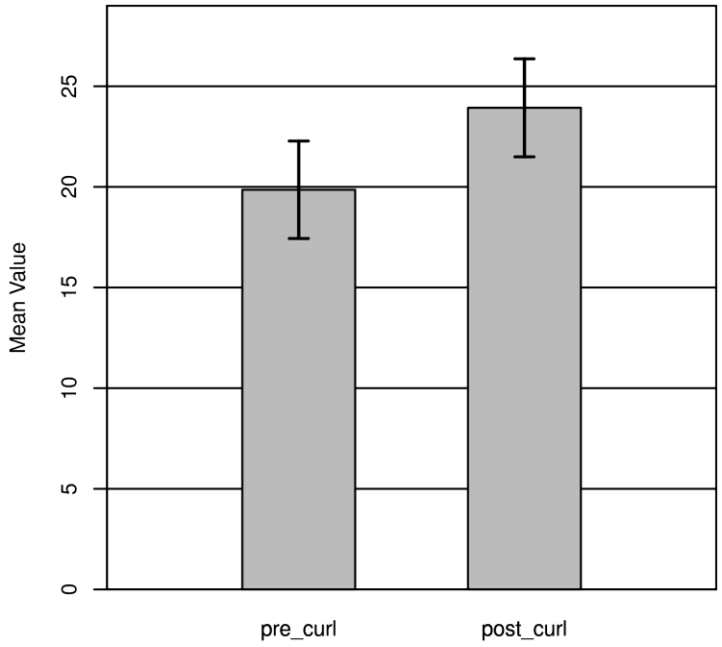
Two-Tailed Paired Samples t-Test for the Difference Between pre-curl and post-curl

Pre-curl		Post-curl				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
19.86	4.62	23.93	4.65	-7.55	< .001	2.02

Note. N = 14. Degrees of Freedom for the *t*-statistic = 13. *d* represents Cohen's *d.*

Figure 15

The means of pre-curl and post-curl with 95.00% CI Error Bars



Bicep Curl Filtered By: Group (Control)

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of pre-curl and post-curl was significantly different from zero.

A Shapiro-Wilk test was conducted to determine whether the differences in pre-curl and post-curl could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were significant based on an alpha value of .05, $W = 0.84$, $p = .028$. This result suggests the differences in pre-curl and post-curl are unlikely to have been produced by a normal distribution, indicating the normality assumption is violated.

The result of the two-tailed paired samples *t*-test was not significant based on an alpha value of .05, $t(11) = 2.03$, $p = .067$, indicating the null hypothesis cannot be rejected. This finding suggests the difference in the mean of pre-curl and the mean of post-curl was not significantly different from zero. The results are presented in Table 5. A bar plot of the means is presented in Figure 6.

Table 5

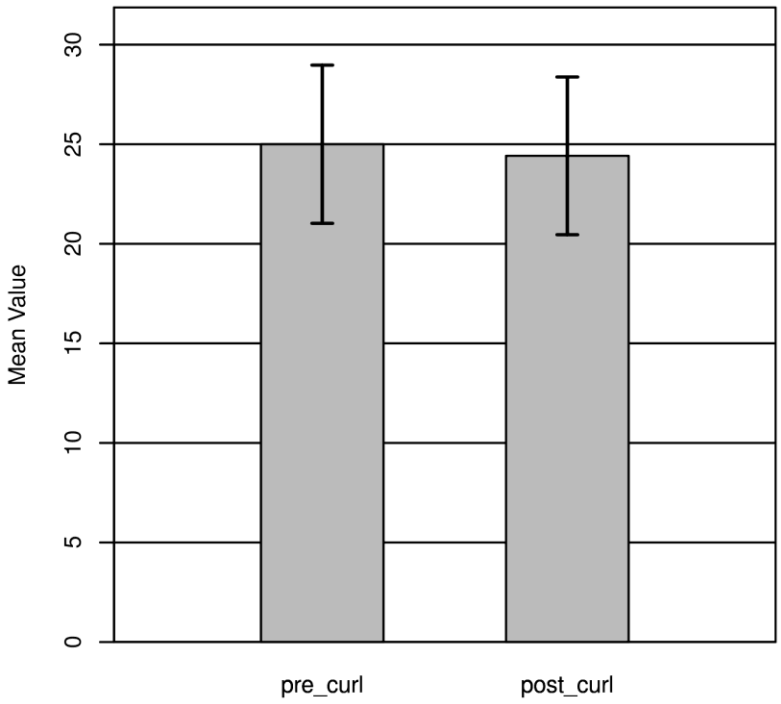
Two-Tailed Paired Samples t-Test for the Difference Between pre-curl and post-curl

Pre-curl		Post-curl				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
25.00	7.02	24.42	7.00	2.03	.067	0.59

Note. N = 12. Degrees of Freedom for the *t*-statistic = 11. *d* represents Cohen's *d.*

Figure 16

The means of pre-curl and post-curl with 95.00% CI Error Bars



Stand Test Filtered By: Group (Intervention)

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of pre-stand and post-stand was significantly different from zero.

A Shapiro-Wilk test was conducted to determine whether the differences in pre-stand and post-stand could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were significant based on an alpha value of .05, $W = 0.85$, $p = .024$. This result suggests the differences in pre-stand and post-stand are unlikely to have been produced by a normal distribution, indicating the normality assumption is violated.

The result of the two-tailed paired samples *t*-test was not significant based on an alpha value of .05, $t(13) = -2.02$, $p = .064$, indicating the null hypothesis cannot be rejected. This finding suggests the difference in the mean of pre-stand and the mean of post-stand was not significantly different from zero. The results are presented in Table 6. A bar plot of the means is presented in Figure 17.

Table 6

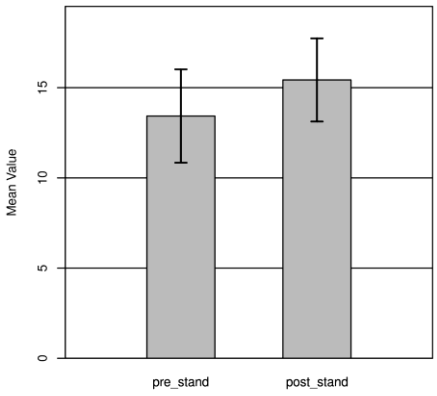
Two-Tailed Paired Samples t-Test for the Difference Between pre-stand and post-stand

Pre-stand		Post-stand				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
13.43	4.94	15.43	4.40	-2.02	.064	0.54

Note. N = 14. Degrees of Freedom for the *t*-statistic = 13. *d* represents Cohen's *d.*

Figure 17

The means of pre-stand and post-stand with 95.00% CI Error Bars



Stand Test Filtered By: Group (Control)

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of pre-stand and post-stand was significantly different from zero.

A Shapiro-Wilk test was conducted to determine whether the differences in pre-stand and post-stand could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were significant based on an alpha value of .05, $W = 0.71$, $p = .001$. This result suggests the differences in pre-stand and post-stand are unlikely to have been produced by a normal distribution, indicating the normality assumption is violated.

The result of the two-tailed paired samples *t*-test was not significant based on an alpha value of .05, $t(11) = 0.89$, $p = .394$, indicating the null hypothesis cannot be rejected. This finding suggests the difference in the mean of pre-stand and the mean of post-stand was not significantly different from zero. The results are presented in Table 7. A bar plot of the means is presented in Figure 10.

Table 7

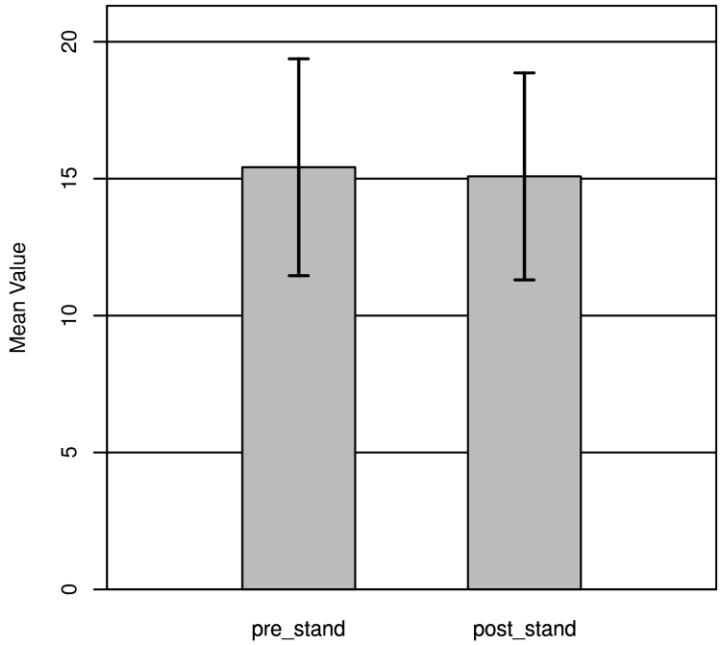
Two-Tailed Paired Samples t-Test for the Difference Between pre-stand and post-stand

Pre-stand		Post-stand				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
15.42	7.00	15.08	6.68	0.89	.394	0.26

Note. N = 12. Degrees of Freedom for the *t*-statistic = 11. *d* represents Cohen's *d.*

Figure 18

The means of pre-stand and post-stand with 95.00% CI Error Bars



Stretch distance from toes Filtered By: Group (Intervention)

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of Pre-stretch and post-stretch was significantly different from zero.

A Shapiro-Wilk test was conducted to determine whether the differences in Pre-stretch and post-stretch could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were significant based on an alpha value of .05, $W = 0.82$, $p = .008$. This result suggests the differences in Pre-stretch and post-stretch are unlikely to have been produced by a normal distribution, indicating the normality assumption is violated.

The result of the two-tailed paired samples *t*-test was significant based on an alpha value of .05, $t(13) = 5.55$, $p < .001$, indicating the null hypothesis can be rejected. This finding suggests the difference in the mean of Pre-stretch and the mean of post-stretch was significantly different from zero. The mean of Pre-stretch was significantly higher than the

mean of post-stretch. The results are presented in Table 8. A bar plot of the means is presented in Figure 14.

Table 8

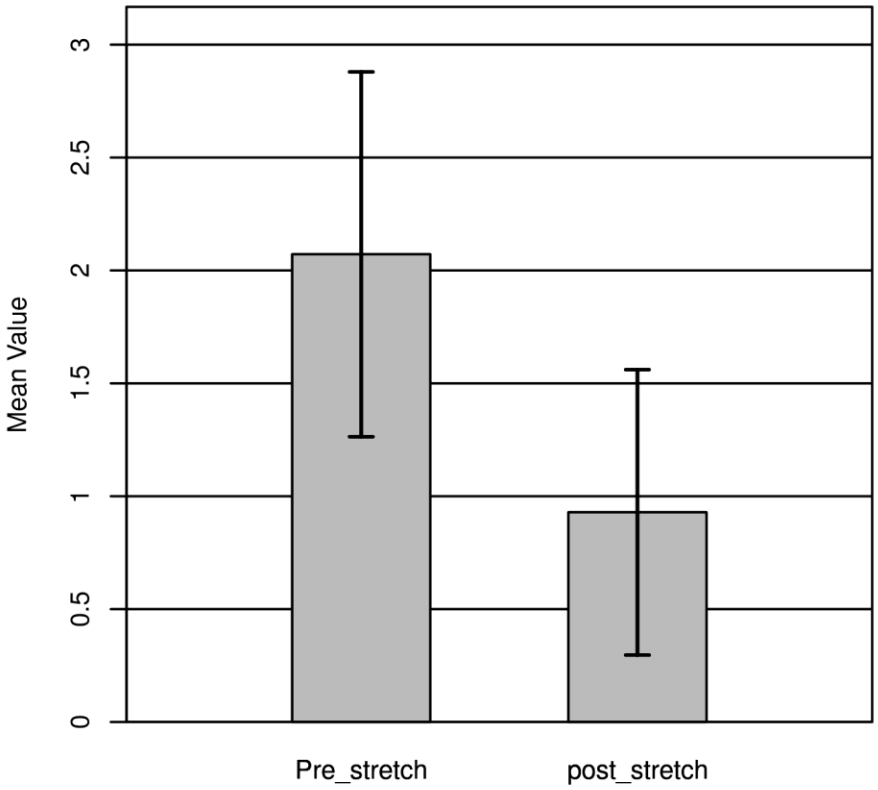
Two-Tailed Paired Samples t-Test for the Difference Between Pre-stretch and post-stretch

Pre-stretch		Post-stretch				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
2.07	1.54	0.93	1.21	5.55	< .001	1.48

Note. N = 14. Degrees of Freedom for the *t*-statistic = 13. *d* represents Cohen's *d.*

Figure 19

The means of Pre-stretch and post-stretch with 95.00% CI Error Bars



Stretch distance from toes Filtered By: Group (Control)

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of Pre-stretch and post-stretch was significantly different from zero.

A Shapiro-Wilk test was conducted to determine whether the differences in Pre-stretch and post-stretch could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were significant based on an alpha value of .05, $W = 0.78$, $p = .006$. This result suggests the differences in Pre-stretch and post-stretch are unlikely to have been produced by a normal distribution, indicating the normality assumption is violated.

The result of the two-tailed paired samples *t*-test was not significant based on an alpha value of .05, $t(11) = 1.15$, $p = .275$, indicating the null hypothesis cannot be rejected. This finding suggests the difference in the mean of Pre-stretch and the mean of post-stretch was not significantly different from zero. The results are presented in Table 9. A bar plot of the means is presented in Figure 12.

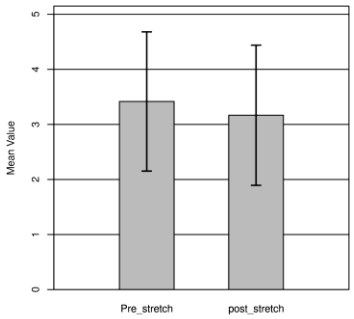
Table 9

Two-Tailed Paired Samples t-Test for the Difference Between Pre-stretch and post-stretch

Pre-stretch		Post-stretch				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
3.42	2.23	3.17	2.25	1.15	.275	0.33

Note. N = 12. Degrees of Freedom for the *t*-statistic = 11. *d* represents Cohen's *d.*

Figure 20: *The means of Pre-stretch and post-stretch with 95.00% CI Error Bars*



Findings related to patient reported movement difficulties

Assessment of common movements was addressed using a five-point Likert scale with choices of Strongly Disagree, Disagree, Neither, Agree and Strongly Agree. Participants were asked about difficulty with stooping, crouching, or kneeling, lifting, or carrying objects as heavy as 10 pounds, reaching or extending arms above shoulder level, writing, or handling and grasping small objects, walking a quarter of a mile, completing housework, bathing, shopping, writing, and managing money. Participants were asked to self-report these finding pre and post intervention. Results were recorded on an excel spreadsheet and tallied as an overall result per group. Comparing Pre to Post intervention results there is a decrease noted in patient self-reporting of difficulty to complete these movements in the IG post intervention. These results can be viewed in Table 10.

Table 10: Movement

Movement	Pre Intervention			Post Intervention		
Group	Intervention	Control	Missing	Intervention	Control	Missing
Strongly Disagree	11.54%	11.54%	0.00%	30.77%	3.85%	0.00%
Disagree	19.23%	15.38%	0.00%	19.23%	19.23%	.00%
Neither	23.08%	19.23%	0.00%	3.85%	19.23%	0.00)
Agree	0.00%	0.00%	0.00%	0.00%	3.85%	00%
Strongly Agree	0.00%	0.00%	0.00%	0.00%	00%	0.00%

Note: Due to rounding errors, percentages may not equal 100%

Findings related to Health Belief Model

The HBM question for benefits and barriers included both groups answering questions regarding their personal health perceptions, current abilities, and beliefs pre and post

intervention. By utilizing this proven change model to identify the constructs of how participants make health-related changes, the intervention can be tailored to improve PA levels and overall results. By assessing such areas as barriers and beliefs regarding PA, the study leader was able to identify and address these concerns to during the enrollment period. Self-efficacy did not show a difference between the two groups because the HBM was utilized and questions were based on constructs, thus allowing for systematic reconstruction of the intervention and improvements.

Health perception was assessed by asking how the participants felt about their health compared to others of the same age. Answers were recorded on a Likert Scale of Poor, good, very good and excellent. These questions included current level of activity, belief regarding the importance of getting 2.5 hours of PA per week, manageability of 2.5 hours of PA per week, frequency of excuses not to exercise, desire to increase PA, and barriers related to cost and fear of injury.

Results were recorded on an excel spreadsheet and tallied as an overall average result per group. Post intervention it was noted that the CPG registered minimal change in health perception while the IG showed a significant improvement. It should also be noted that no participant felt that their current health was poorer than others of the same age. Results of the pre and post intervention assessment can be viewed in Table 11.

Table 11: Health Perception

Health Perception	Pre-Intervention			Post-Intervention		
Group	IG	CPG	Missing	IG	CPG	Missing

Good	19.23%	23.08%	0.00%	3.85%	23.08%	0.00%
Very Good	26.92%	19.23%	0.00%	30.77%	19.23%	0.00%
Excellent	7.69%	3.85%	0.00%	19.23%	3.85%	0.00%
Missing	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Note: Due to rounding errors, percentages may not equal 100%.						

Interpretation of Findings

The findings of this project show that incorporating an exercise treatment plan into routine patient appointments which includes a pre-assessment, list of local resources, access to free fitness classes that are specific to the 65 and over population and follow up testing during office appointments is effective in increasing the PA levels of this population. It should also be noted that participants in the IG reported a decrease in barriers to increasing PA and stated that they felt safe and were not afraid of injury during their Golden Lions class at CrossFit ENG.

CrossFit ENG reported a surprising result. At the initiation of the project, participants in the IG were reluctant to attend more than one class per week stating barriers such as lack of time, low desire to work out, and fear of injury. By the three week mark, CrossFit ENG reported an increase in participation in the Golden Lions class stating participants began bringing family members and friends with them to participate in the PA sessions and attended two to three classes per week. CrossFit ENG coaches reported that participants are still attending the Golden Lions classes, and all participants have increased their attendance from one time per week to

three times per week. They have also reported that the participants have created new friendships within the group and are reporting frequent outings and gatherings outside of class time.

Discussion

It is vital to incorporate some form of exercise into the treatment plan for all patients. This population is especially important as their strength and health are essential in maintaining optimal levels of functioning and independence.

Due to the overall success of this project in increasing the PA of the 65 and over population, it is recommended that the project is continued and expanded to cover a larger population. This project could easily be implemented for all ages at the practice site and incorporated into practice policy and procedures. To sustain and expand the project, due to its simple design, the current practice at the Abundant Life Chiropractic office is sufficient. Currently CrossFit ENG provides a free class to the 65 and older population, and a paid CrossFit or Boot Camp class to all other members. Sustaining the project is simply as there are no changes required, however expansion will require support and collaboration from CrossFit ENG. CrossFit ENG would need to open their Golden Lion's class to residents of all ages and could potentially see it as a feeder program for their CrossFit and bootcamp programs. This would allow easy expansion of the project to encompass all patients in the Abundant Life Chiropractic office.

This DNP project could be easily implemented in other chiropractic and physician practices locally and nationally. Simply tailoring the local resource list, the project can be utilized in new populations and geographic areas. Patients are easily accessible during their

office appointments and follow-up appointments, making a perfect fit for this project. Simply keeping a file in each exam room with the handout packets and adding the pre and post strength and flexibility assessment to the current charting will ease the implementation. Patients are encouraged when they see results and completing the strength and flexibility assessment provides these results in a controlled setting and opens the door for discussion on the benefits of PA. Patients will have the ability to visualize their improvement or decline during each visit. The participants in this project were excited to see the improvements they made over the eight-week period with several stating they would like to have another follow-up assessment in 2 months to continue to monitor their progress and improvements. This project can be expanded to include a celebration of small achievements offered by the practice to encourage patients to continue or increase their PA activity. Self-efficacy can be improved through a short conversation regarding improvements, motivation, and barriers during follow-up appointments increasing internal motivation to improve overall health and wellness through exercise.

Future studies could incorporate a larger sample size which would include a larger representation of the 65 and older population. A change in the age to 50 years would provide a different insight as this would include patients who are not retired and have different barriers to overcome. Studies conducted at a time that is not centered around a large natural disaster may produce different results, as many participants were seeking some form of normality in their lives post Hurricane Ian.

Sustainability Plan

Results of the project were shared with the practice stakeholders. New policy and procedures will be created and implemented at the practice level for all patients aged 65 and over. Consideration has been given to expanding the project and practice policy in the future to include all ages.

Contact has been made with other area chiropractic offices in the Cape Coral, Florida area to schedule a time to discuss the findings. Additionally, a plan to seek opportunities to present a poster presentation as well as submit for future publication in a journal has been considered.

Implications for Nursing

Findings from this project indicate that the target population benefits when PA is addressed during office appointments, and patients are provided with handouts, lists of local resources, and a free local fitness class. Completing an in office strength and flexibility assessment during follow up visits provides an easy opening to praise progress and provide encouragement. Participants are excited to see their progress and look forward to their strength and flexibility assessments. Participants are also reporting a decrease in their pain levels. These improvements could result in maintenance of treatment goals once the acute phase of chiropractic care is completed. Improved patient outcomes could translate to increased patient satisfaction with chiropractic care and overall improved health thus bridging the gap between acute chiropractic care and post treatment result longevity.

Incorporation of this DNP project into everyday practice at other sites has the potential to increase patient health and wellness levels, increase longevity, decrease co-morbidities, and decrease healthcare associated cost.

As stated previously, it is a well-known fact that PA improves overall health and wellness. The problem in today's world is we are inundated with conveniences and electronics that promote inactivity and increase the desire for immediate and proven results. As the population ages there is an increased risk of comorbidities which results in increased cost and decreased levels of health that is exacerbated by inactivity. Through the incorporation of a system into the daily practice that promotes PA while addressing and decreasing barriers and providing visible proof of results, healthcare providers can begin to change the trajectory of our older population from one of sickness to one of wellness.

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Shao, C., Wang, J., Liu, J., Tian, F., & Li, H. (2018). Effect of a health belief model-based education program on patients' belief, physical activity, and serum uric acid: A randomized controlled trial. Patient Prefer Adherence, 12, 1239-1245. doi:10.2147/ppa.s166523

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Appendix A

Literature Review

Author (s)	Date	N	Objective	Design	Findings
Ahangar, A.A., Khoshmanzar, H., Heidari, B. (2019).Prevalence and the Determinants of Physical Activity in an Elderly Cohort of 60 years and more. A Cross-Sectional Case-Control Study. *Ageing Int 44*, 399–410 https://doi.org/10.1007/s12126-017-9315-5	2019	1297	Determine the prevalence and the associated factors of low PA in the elderly.	Cross-Sectional Case-Control Study Level II	The findings of this study indicate that age, male sex, hypertension, and disequilibrium are positively associated with low PA whereas female sex, muscle strength and education level are protective against low PA
Barnett, D. W., Barnett, A., Nathan, A., Van Cauwenberg, J., Cerin, E., & Council on Environment and Physical Activity (CEPA) – Older Adults working group (2017). Built environmental correlates of older adults' total physical activity and walking: a systematic review and meta-analysis. *The international journal of behavioral nutrition and physical activity*, *14*(1), 103. https://doi.org/10.1186/s12966-017-0558-z	2017	100	Systematically review and quantify findings on built environmental correlates of older adults' PA and investigate differences by type of PA and environmental attribute measurement.	Systematic Review and Meta-analysis Level 1	Safe, walkable, and aesthetically pleasing neighborhoods, with access to overall and specific destinations and services positively influenced older adults' PA participation.
Burton, E., Farrier, K., Galvin, R., Johnson, S., Horgan, N. F., Warters, A., & Hill, K. D. (2019). Physical activity programs for older people in the community receiving home care services: systematic review and meta-analysis. *Clinical interventions in aging*, *14*, 1045–1064. https://doi.org/10.2147/CIA.S205019	2019	18	Investigate the effectiveness of physical activity/exercise interventions for older adults receiving home care services.	Systematic Review and Meta-analysis Level 1	Future exercise/physical activity studies working with home care populations should consider focusing solely on physical improvements and need to include a process evaluation of the intervention to gain a better understanding of the association between adherence to the exercise program and other factors

					influencing effectiveness.
Cooper, J., & Feldman, L. (2019). Helping the couch potato: A cognitive dissonance approach to increasing exercise in the elderly. *Journal of Applied Social Psychology, 50*(1), 33-40. doi: https://doi.org/10.111/jasp.12639	2019	63	Derive and test a theoretically based intervention to increase physical activity in an elderly population	RCT Level I	The data provide strong support for the effectiveness of the dissonance procedure to produce changes in participants' behavior intentions.
De Oliveira, L., Souza, E. C., Rodrigues, R., Fett, C. A., & Piva, A. B. (2019). The effects of physical activity on anxiety, depression, and quality of life in elderly people living in the community. *Trends in psychiatry and psychotherapy*, *41*(1), 36–42. https://doi.org/10.1590/2237-6089-2017-0129	2019	200	Analyze the effects of physical activity on quality of life, anxiety, and depression in the elderly population.	Cross Sectional study Level II	There is a correlation between low levels of physical activity and symptom of anxiety and depression in the elderly population.
Gamboa Moreno, E., Mateo-Abad, M., Ochoa de Retana García, L., Vrotsou, K., del Campo Pena, E., Sánchez Perez, Á., ... Rotaeche del Campo, R. (2019). Efficacy of self-management education program on patiens with type 2 diabetes in primary care: A randomized controlled trial. Prim Care Diabetes, 13(2), 12-133. doi: https://doi.org/10.1016/j.pcd.2018.10.001	2019	594	Key Variables: Self-management interventions, A1C Hypothesis: Giving patients self-management strategies will improve A1C goals better than medication and baseline education Research Question: Is self-management education and intervention more effective in lowering A1C versus usual care in type 2 diabetes	RCT Level I	Self-efficiency in disease control can be obtained with primary care intervention but long-term success was not significant.
Goethals, L., Barth, N., Hupin, D., Mulvey, M. S., Roche, F., Gallopel-Morvan, K., & Bongue, B. (2020). Social marketing interventions to promote physical activity among 60 years and older: a systematic review of the literature. *BMC public health*, *20*(1), 1312. https://doi.org/10.1186/s12889-020-09386-x	2020	9	Provide a new systematic literature review of social marketing interventions promoting physical activity and targeting people aged 60 and over.	Systematic Review Level II	Few published interventions use the seven social marketing criteria. Further research is required to encourage uptake and inclusion in successful social

					marketing interventions to increase program effectiveness in this target population.
Guell, C., Panter, J., Griffin, S., & Ogilvie, D. (2018). Towards co-designing active ageing strategies: A qualitative study to develop a meaningful physical activity typology for later life. *Health expectations : an international journal of public participation in health care and health policy*, *21*(5), 919–926. https://doi.org/10.1111/hex.12686	2018	27	Develop a typology of older people's motivations and lifelong habits of being active as a starting point to co-designing active ageing strategies in a workshop	Semi-Structured Interviews Level V	A more differentiated understanding of barriers, and acknowledging that intellectual, social, or solitary pursuits can include incidental physical activity
Hazavehei, E.M., & Moradi, A. (2017). The role of intervention models and theories of health education and health promotion in increasing physical activity in the elderly: A systematic review. *Majallaj-I Danishgan-I Ulum-I Pizishki-I Qum, 11*(6), 82-94.	2017	13	Interventions based on the models and theories of health education and health promotion, were systematically studied in the field in the elderly physical activity.	Systematic Review Level I	Most studies based on the models and theories of health education and health promotion have a significant positive effect on the elderly physical activity.
Hosteng, K. R., Simmering, J. E., Polgreen, L. A., Cremer, J. F., Segre, A. M., Francis, S. L., Whitaker, K. M., Polgreen, P. M., & Carr, L. J. (2021). Multilevel mHealth Intervention Increases Physical Activity of Older Adults Living in Retirement Community. *Journal of Physical Activity & Health, 18(*7), 851–857. https://doi.org/10.1123/jpah.2020-0592	2021	54	Explored the feasibility, acceptability, and efficacy of a multilevel mHealth intervention for increasing physical activity of older adults living in a retirement community	RCT Level I	Our multilevel mHealth physical activity intervention was effective for increasing physical activity older adults over 8 weeks. Additional research focused on maintaining physical activity gains with this approach is warranted.
Jiménez-Zazo, F., Romero-Blanco, C., Castro-Lemus, N., Dorado-Suárez, A., & Aznar, S. (2020). Transtheoretical Model for Physical Activity in Older Adults: Systematic Review. *International journal of environmental research and public health*, *17*(24), 9262. https://doi.org/10.3390/ijerph17249262	2020	8	Identify the use of TTM for PA in older adults (>60 years)	Systematic Review Level I	There is paucity of research in this area, and more studies including the four behavioral change dimensions are needed to

					analyze the effect of TTM on the promotion of PA in the older adults.
Kidd, T., Mold, F., Jones, C., Ream, E., Grosvenor, W., Sund-Levander, M., Tingström, P., & Carey, N. (2019). What are the most effective interventions to improve physical performance in pre-frail and frail adults? A systematic review of randomised control trials. *BMC Geriatrics, 19*(1), 184. https://doi.org/10.1186/s12877-019-1196-x	2019	10	Identifying interventions that improve physical outcomes in pre-frail and frail older adults.	Systematic Review Level I	Interventions included physical activity; nutrition, physical activity combined with nutrition. Interventions that incorporated one or more physical activity components significantly improved physical outcomes in pre-frail and/or frail older adults. Conclusions: Physi
Kleinke, F., Ulbricht, S., Dörr, M., Penndorf, P., Hoffmann, W., & van den Berg, N. (2021). A low-threshold intervention to increase physical activity and reduce physical inactivity in a group of healthy elderly people in Germany: Results of the randomized controlled MOVING study. *PloS One, 16*(9), e0257326. https://doi.org/10.1371/journal.pone.0257326	2021	258	The effect of individual feedback-letters reporting the measured PA and PI in a sample of elderly people in Germany. Primary outcomes of the study were overall PA and PI after 6 months in the intervention group compared to a control group.	RCT Level I	There was no statistically significant interaction effect (time*group) between the intervention and control group for the depending variables. Sensitivity analyses showed significant small positive effects of the interaction time*partnership,
Landi, F., Cesari, M., Clavani, R., Cherubini, A., Di Bari, M., & Bejuit, R., (2017). The "Sarcopenia and Physical fRailty in older people: multi-component Treatment strategies" (SPRINTT) randomized controlled trial: Design and methods. *Aging Clin Exp Res. 29*(1). 89-100. doi: 10.1007/s40520-016-0715-2	2017	1500	Comparing the efficacy of a MCI based on long-term structured physical activity, nutritional counselling/dietary intervention, and an information and communication technology intervention, versus a healthy	RCT Level I	Results showed a significant advancement in the management of weakened older persons at substantial risk of disability from both clinical and regulatory perspectives. Findings also projected to pave

			aging lifestyle education program designed to prevent mobility disability in pts with physical frailty and sarcopenia.		the way for major investments in the field of disability prevention.
Lynch, D. H., Petersen, C. L., Fanous, M. M., Spangler, H. B., Kahkoska, A. R., Jimenez, D., & Batsis, J. A. (2022). The relationship between multimorbidity, obesity and functional impairment in older adults. *Journal of the American Geriatrics Society,* *70*(5), 1442–1449. https://doi.org/10.1111/jgs.17683	2022	7261	Evaluate the association between obesity, multimorbidity (MM), and rates of functional limitations in older adults.	Multistage Probability sampling design using three stages. Level I	Compared to normal weight status, obesity is associated with an increased burden of MM and functional limitation among older adults. The results underscore the importance of identifying and addressing obesity, MM, and functional limitation patterns and the need for evidence-based interventions.
Masroor, F., Ilali, El, Mousavinasab, N., & Taraghi, Z. (2019). The effect of educational intervention on the physical activity of the elderly. لوم بهداشتی 28-19), 2(7,ایران.	2019	40	Determine the effect of educational intervention on physical activity of elderly people.	Quasi-experimental study Level II	The intervention groups showed a significantly higher rate of physical activity then the control group thus showing that educational intervention is effective in this group.
Maula, A., LaFond, N., Orton, E., Iliffe, S., Audsley, S., Vedhara, K., & Kendrick, D. (2019). Use it or lose it: a qualitative study of the maintenance of physical activity in older adults. *BMC geriatrics*, *19*(1), 349. https://doi.org/10.1186/s12877-019-1366-x	2019	30	Provide a better understanding of PA maintenance behaviours in older people	Qualitative Study Level III	Range of modifiable factors were identified that influence continued participation in PA at the end of exercise programs. Interventions should be initiated to

					enhance continuation of PA.
McGarrigle, L., & Todd, C. (2020). Promotion of Physical Activity in Older People Using mHealth and eHealth Technologies: Rapid Review of Reviews. *Journal of Medical Internet Research, 22*(12), N.PAG. https://doi.org/10.2196/22201	2020	472	Assess the evidence for mHealth or eHealth technology in the promotion of physical activity among older people aged 50 years or older.	Systematic Review Level I	There is low to moderate evidence that interventions delivered via mHealth or eHealth approaches may be effective in increasing physical activity in older adults in the short term.
Mohammad, S., Saeedeh, S., Ehsan, M., Morad, A., & Sayed, M. (2018). Effect of education on physical activity among the rural elderly in Zabol city. *Elderly Health Journal, 4(2). 55-59.*	2018	200	Determine the effect of an educational intervention on knowledge and practice of physical activity among the rural elderly in Zabol city.	Semi-experimental study Level II	Educational intervention is effective in increasing awareness and overall level of physical activity among the elderly
Mohammad Vahedian-Shahroodi, Mahdi Moshki, Habibollah Esmaily, Somaye Moradi Gholezo, Elaheh Lael- Monfared, & Maryam Damirchi. (2019). Predicting the intention to perform physical activity in the elderly based on the theory of planned behavior. *Journal of Research & Health, 9*(4), 324–329. https://doi.org/10.29252/jrh.9.4.324	2019	371	Apply the theory of planned behavior to predict the intention to do physical activity in the elder	Quasi-Experimental Level II	The theory of planned behavior was successful in predicting the elderly's intention to do physical activity and the necessity of paying attention to the component is emphasized to teach intention to elderly people, considering the role of the perceived behavior control construct in predicting behavior intention.
Morgan, G., Willmott, M., Ben-Shlomo, Y., & Campbell, R. (2019). A life fulfilled: Positively influencing physical activity in older adults – a systematic review and meta-ethnography. *BMC Public Health, 19*(1), 362. doi: 10.1186/s12889-019-6624-5.	2019	39	Conduct a systematic and inductive qualitative synthesis of the large body of	Qualitative Meta-ethnography Level III	Existing physical activity interventions for older adults often emphasise the health benefits as

			qualitative research describing what influences physical activity at the age of 65-74,		a means of encouraging behaviour change. however such a focus may be misplaced because at this stage in their lives older adults have other goals which are of greater personal importance. A shift in focus is required to an approach in which older adults are supported to regain or consolidate their sense of purpose through the routines, personal achievement, and meaningful social connections physical activity can provide.
Naofumi, Y., Hidenori A., & Hagi, Y. (2021). Relationships between work and objectively measured sedentary time and physical activity in older adults: A descriptive cross-sectional study. *Environmental and Occupational Health Practice, 3*(1), 1-9. doi: https://doi.org/10.1539/eohp.2021-0003-OA	2021	194	Objectively assess sedentary time and physical activity time during work performed by older adults and investigate the relations between work and sedentary time / physical activity.	Cross-sectional study Level II	Blue collar work was shown to be effective in decreasing sedentary time and increasing physical activity.
Olsen, J. M., Horning, M. L., Thorson, D., & Monsen, K. A. (2018). Relationships between public health nurse-delivered physical activity interventions and client physical activity behavior. *Applied Nursing Research: ANR, 40*(18), 13-19. doi:10.1016/j.apnr.2017.12.005	2018	197	Identify PA interventions delivered by PHN and examine their association with PA behavior change in older adults.	Quantitative retrospective study Level III	A higher dose of PA interventions and increased PA knowledge were associated with increased PA behavior.
Pedersen, E. R., Rubenstein, L., Kandrack, R., Danz, M., Belsher, B., Motala, A., ... Hempel, S. (2018). Elusive search for effective provider interventions: A systematic review of provider interventions to increase adherence to evidence-based treatment	2018	22	To gather information on the effect of provider interventions and the impact on	Systemic Review Level I	More complex provider interventions improved individual

for depression. *Implement SCI, 13*(2), 99. doi:10.1186/s13012-018-0788-8			patient's depression outcomes		outcomes. Effects on patients' health in the RTCs were inconsistent as well as the type of interventions which showed effect.
Sanchez, A., Silvestre, C., Campo, N., & Grandes, G. (2018). Effective translation of a type-2 diabetes primary prevention program into routine primary care: The PreDE cluster randomized clinical trial. *Diabetes Res Clin Pract, 139*, 32-42. doi: 10.1016/j.diabres.2018.01.006	2018	1068	Assess the effectiveness of a Type 2 diabetes mellitus prevention program in routine primary healthcare in high-risk patients	RCT Level I	The DE-PLAN program is effective in reducing type 2 DM incidence in high risk patients.
Schertz, A., Herbeck Belnap, B., Chavanon, M.-L., Edelmann, F., Wachter, R., & Herrmann-Lingen, C. (2019). Motivational interviewing can support physical activity in elderly patients with diastolic heart failure: results from a pilot study. ESC Heart Failure, 6(4), 658–666. https://doi.org/10.1002/ehf2.12436	2019	39	A preliminary evaluation of the acceptance, feasibility, and efficacy of a motivational interviewing (MI) intervention to support elderly patients suffering from HFpEF in maintaining or starting physical activity.	Pilot Study Level I	The results from this pilot study suggest that our MI intervention was well accepted by participants and deemed feasible. It also appears to be an effective treatment to increase and maintain physical activity and exercise capacity in patients suffering from HFpEF. Our findings need to be confirmed in a randomized clinical trial with larger and unselected patient cohorts.
Schönbach, J. K., Bolte, G., Czwikla, G., Manz, K., Mensing, M., Muellmann, S., Voelcker-Rehage, C., & Lhachimi, S. K. (2020). Equity impacts of interventions to increase physical activity among older adults: a quantitative health impact assessment. *The international journal of behavioral nutrition and physical activity*, *17*(1), 103. https://doi.org/10.1186/s12966-020-00999-4	2020	N/A	6 intervention scenarios were created targeting the elderly population in relation to physical activity and were simulated over a 10 year period	Quantitative assessment Level III	Health impact varies depending on how the intervention-induced physical activity change differs across educatin groups.

			using the DYNAMO-HIA tool.		
Shahab, P., Yadollah, A., Mahshid F., Farahnaz, M., Marzieh A., & Tahereh, R. (2021). Comparing the effect of face-to-face education and e-learing on the physical activity of the Elderly. *Journal of Holistic Nursing and Midwifery, 31*(1), 35-43	2021	58	Compare the effects of face-to-face education and e-learning methods on the physical activity of the elderly.	Quasi-experimental Study Level II	Both face-to-face and e-learning methods were effective in promoting the physical activity behavior of the elderly. E-learning method can be used as one of the complementary methods of traditional education for improving the physical activity of the elderly.
Shao, C., Wang, J., Liu, J., Tian, F., & Li, H. (2018). Effect of a health belief model-based education program on patients' belief, physical activity, and serum uric acid: A randomized controlled trial. Patient Prefer Adherence, 12, 1239-1245. doi:10.2147/ppa. s166523	2018	193	Physical activity, blood pressure, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and self-efficiency	RCT Level I	This study proved the significance of the educational program based on the HBM in improving the model constructs and physical activity, as well as in diminishing the SUA standards in AHU patients
Stehr, P., Rossmann, C., Kremer, T., & Geppert, J. (2021). Determinants of Physical Activity in Older Adults: Integrating Self-Concordance into the Theory of Planned Behavior. *International journal of environmental research and public health*, *18*(11), 5759. https://doi.org/10.3390/ijerph18115759	2021	865	Identify the key determinants of physical activity in older adults	Cohort Study Level II	A combined model provides a better theoretical foundation from which to explain physical activity intentions than one of the theories
Turunen, K. M., Aaltonen-Määttä, L., Törmäkangas, T., Rantalainen, T., Portegijs, E., Keikkala, S., Kinnunen, M.-L., Finni, T., Sipilä, S., & Nikander, R. (2020). Effects of an individually targeted multicomponent counseling and home-based rehabilitation program on physical activity and mobility in community-dwelling older people after discharge from hospital: a randomized controlled trial. Clinical Rehabilitation, 34(4), 491–503. https://doi.org/10.1177/0269215519901155	2020	117	Evaluate the effects of multicomponent rehabilitation on physical activity, sedentary behavior, and mobility in older people recently discharged from hospital	RCT Level I	The rehabilitation program was not superior to standard care for increasing physical activity or improving physical performance.

Ubert, T., Forberger, S., Gansefort, D., Zeeb, H., & Brand, T. (2017). Community Capacity Building for Physical Activity Promotion among Older Adults-A Literature Review. *International journal of environmental research and public health*, *14*(9), 1058. https://doi.org/10.3390/ijerph14091058	2017	16	Identify practical strategies to enhance community capacities for PA promotion among older adults (50 years or older) and to evaluate their success.	Literature Review Level I	More rigorous research evaluating the efficacy of specific strategies to enhance community capacities for PA promotion is needed.
Vanderlinden, J., Boen, F., Puyenbroeck, S. V., & van Uffelen, J. (2022). The effects of a real-life lifestyle program on physical activity and objective and subjective sleep in adults aged 55+ years. *BMC public health*, *22*(1), 353. https://doi.org/10.1186/s12889-022-12780-2	2022	451	1) examine the effects of a lifestyle program on moderate-to-vigorous physical activity and objective and subjective sleep in adults aged 55+ years; and 2) examine if the effects differed between good and poor sleepers.	Controlled Pre-test, Post-test trial Level I	Although the program was successful in increasing physical activity, it did not improve sleep.
Van Dyck, D., Herman, K., Poppe, L., Crombez, G., De Bourdeaudhuij, I., & Gheysen, F. (2019). Results of MyPlan 2.0 on Physical Activity in Older Belgian Adults: Randomized Controlled Trial. *Journal of Medical Internet Research, 21*(10), e13219. https://doi.org/10.2196/13219	2019	130	Investigate the effect of the theory-based eHealth intervention, MyPlan 2.0, focusing on pre- and postintentional determinants on both accelerometer-based and self-reported PA levels in older Belgian adults in the short and intermediate term	RCT Level I	The findings suggest that theory-based eHealth interventions focusing on pre- and postintentional determinants have the potential for behavior change in older adults.
Vasiliadis, H. M., & Bélanger, M. F. (2018). The prospective and concurrent effect of exercise on health-related quality of life in older adults over a 3 year period. *Health and quality of life outcomes*, *16*(1), 15. https://doi.org/10.1186/s12955-018-0843-9	2018	967	Assess the effect of sex and neighborhood socio-economic status on the change in health-related quality of life (HR-QOL) as a function of physical activity over a three-year period.	Cohort Study Level II	For healthy ageing, maintaining, and increasing physical activity throughout the years is necessary for improved HR-QOL. Past physical activity does not confer

					protection against future decline of HR-QOL.
Wallhagen, M. I. & Strawbridge, W. J. (2017). Hearing loss education for older adults in primary care clinics: Benefits of a concise educational brochure. *Geriatr Nurs, 38*(6), 527-530. doi: 10.1016/j.gerinurse.2017.03.015WHO	2017	67	Physician referrals, subsequent patient actions, alternative changes, gender and age referral differences, participant feedback on the brochure	RCT Level I	A very brief hearing educational brochure accompanied by a brief review can stimulate the subsequent use of positive communication.

Appendix B

PDSA Cycle Template

Directions: Use this Plan-Do-Study-Act (PDSA) tool to plan and document your progress with tests of change conducted as part of chartered performance improvement projects (PIPs). While the charter will have clearly established the goals, scope, timing, milestones, and team roles and responsibilities for a project, the PIP team asked to carry out the project will need to determine how to complete the work. This tool should be completed by the project leader/manager/coordinator with review and input by the project team. Answer the first two questions below for your PIP. Then as you plan to test changes to meet your aim, answer question 3 below and plan, conduct, and document your PDSA cycles. Remember that a PIP will usually involve multiple PDSA cycles in order to achieve your aim. Use as many forms as you need to track your PDSA cycles.

Model for Improvement: Three questions for improvement

1. **What are we trying to accomplish (aim)?**
   State your aim (review your PIP charter – and include your bold aim that will improve resident health outcomes and quality of care)

2. **How will we know that change is an improvement (measures)?**
   Describe the measureable outcome(s) you want to see

3. **What change can we make that will result in an improvement?**

   Define the processes currently in place; use process mapping or flow charting

   Identify opportunities for improvement that exist (look for causes of problems that have occurred – see Guidance for Performing Root Cause Analysis with Performance Improvement Projects; or identify potential problems before they occur – see Guidance for Performing Failure Mode Effects Analysis with Performance Improvement Projects) (see root cause analysis tool):
   - Points where breakdowns occur
   - "Work-a-rounds" that have been developed
   - Variation that occurs
   - Duplicate or unnecessary steps

   Decide what you will change in the process; determine your intervention based on your analysis
   - Identify better ways to do things that address the root causes of the problem
   - Learn what has worked at other organizations (copy)
   - Review the best available evidence for what works (literature, studies, experts, guidelines)
   - Remember that solution doesn't have to be perfect the first time

Plan What change are you testing with the PDSA cycle(s)? What do you predict will happen and why? Who will be involved in this PDSA? (e.g., one staff member or resident, one shift?). Whenever feasible, it will be helpful to involve direct care staff. Plan a small test of change. How long will the change take to implement? What resources will they need? What data need to be collected?	**List your action steps along with person(s) responsible and time line.**
Do Carry out the test on a small scale. Document observations, including any problems and unexpected findings. Collect data you identified as needed during the "plan" stage.	**Describe what actually happened when you ran the test.**

Study Study and analyze the data. Determine if the change resulted in the expected outcome. Were there implementation lessons? Summarize what was learned. Look for: unintended consequences, surprises, successes, failures.	**Describe the measured results and how they compared to the predictions.**
Act Based on what was learned from the test: Adapt – modify the changes and repeat PDSA cycle. Adopt – consider expanding the changes in your organization to additional residents, staff, and units. Abandon – change your approach and repeat PDSA cycle.	**Describe what modifications to the plan will be made for the next cycle from what you learned.**

APPENDIX C

Disclaimer and information form for CPG Standard group participants

Study Title:
Increasing Physical Activity in the 65 and older population

Purpose:
The purpose of this project is to increase the physical activity, flexibility, and pain levels of the 65 and over population to comply with the CDC's recommendation of 150 minutes per week of exercise.

Procedure:
During the project you will be asked basic background information, and to take a pre and post survey about your levels of exercise. The survey will take less than five minutes. You will also be given a short flexibility and strength screen. The initial process will take place after your appointment today with a short post-survey completed during a follow up appointment.

Risk:
There is no risk involved with participation. The care you receive will not change if you do not participate. You may skip any survey questions you do not want to answer. You may drop out of the project at any time.

Confidentiality:
All collected information will be kept private, following HIPPA laws, and will be destroyed once the project has been completed. There will be no personal identifying information collected

Questions:
If you have any questions about the research now or during the study, please contact:
Misti Hollingsworth, RN, Project leader at misti.hollingsworth1@smail.rasmussen.edu
By completing the education intervention with the project leader and the pre and post surveys, you are consenting to participation in this project.

APPENDIX D

Disclaimer and information form for PA IG group participants

Study Title:
Increasing Physical Activity in the 65 and older population

Purpose:
The purpose of this project is to increase the physical activity, flexibility, and pain levels of the 65 and over population to comply with the CDC's recommendation of 150 minutes per week of exercise. This will involve attendance in a free exercise program at least once per week.

Procedure:
During the project you will be asked basic background information, and to take a pre and post survey about your levels of exercise. The survey and discussion will take less than ten minutes. You will also be given a short flexibility and strength screen. The initial process will take place after your appointment today with a short post-survey completed during a follow up appointment. You will be provided with information regarding the free fitness program with the expectation of attending at least once per week for at least 8 weeks as ordered by your Chiropractic physician.

Risk:
There is no risk involved with participation. The care you receive will not change if you do not participate. You may skip any survey questions you do not want to answer. You may drop out of the project at any time.

Confidentiality:
All collected information will be kept private, following HIPPA laws, and will be destroyed once the project has been completed. There will be no personal identifying information collected

Questions:
If you have any questions about the research now or during the study, please contact:
Misti Hollingsworth, RN, Project leader at misti.hollingsworth1@smail.rasmussen.edu
By completing the education intervention with the project leader and the pre and post surveys, you are consenting to participation in this project.

APPENDIX E

Informed Consent **Student Researcher:** Misti Hollingsworth, RN, MSN, CNOR

Title of Project: Increasing physical activity in the 65 and older population

I am asking for your voluntary participation in my Doctoral project. Please read the following information about the project. If you would like to participate, please sign in the appropriate area below.

Purpose of the project:

Increase physical activity, flexibility and improve pain level of the 65 and older population though compliance with the CEC's recommendation of 150 minutes per week of exercise.

If you participate you will be asked to:

Complete a pre and post survey. Complete a pre and post strength and flexibility study. Optional participation in a free 30 minute one time per week strength and flexibility fitness class for 8 week.

Potential Risks of Study: None

Benefits:

Decreasing pain levels through physical activity in a safe, monitored environment. Gaining knowledge regarding physical activity recommendations, how to overcome barriers and apply physical activity knowledge to everyday life. Increased strength and flexibility, and increased independence.

How Confidentiality will be maintained:

All identifiable information will be kept on a secure laptop and in a locked room when not withing arm's length. All documentation gathered will be shredded immediately once it has been transferred to the laptop. All HIPPA policies will be followed.

If you have any questions about this study, feel free to contact:

Misti Hollingsworth, RN, MSN, CNOR (614) 946-7788, misti.hollingsworth@rasmussen.edu

Abundant Life Chiropractic Office (239) 772-2266

CrossFit ENG (239) 349-7111, admin@crossfiteng.com

Voluntary Participation: Participation in this study is completely voluntary. If you decide not to participate there will not be any negative consequences. Please be aware that if you decide to participate, you may stop participating at any time and you may decide not to answer any specific questions.

By signing this form, I am attesting that I have read and understand the information above and I freely give my consent/assent to participate .

Adult Informed Consent Date reviewed and signed:_____

Printed Name:_____

Signature:_____

APPENDIX F

Demographic and Pre-Survey / Post Survey

Adopted from VES-13

Name:_____ Age:_____

1. What is your gender? ____Male ___ Female ___ Other

2. Relationship Status:
   ___ Married ___ Single ___ Divorced ___Widowed

3. What is the highest level of education you have completed?
   ___ No diploma
   ___ High School diploma or equivalent
   ___ Some education after High School but no degree
   ___ College Degree

4. What is your annual household income?
   ___ Below $24,999
   ___ $25,000-$49,999
   ___ $50,000 - $99,999
   ___ $100,000 and over
   ___ Decline to answer

5. Do you get a yearly wellness exam by your primary care provider?

___ Yes ___ No

6. What best describes your employment status?
   ___ Full-Time
   ___ Part-Time
   ___Retired – With scheduled activities or volunteering.
   ___Retired – No scheduled activities or volunteering.

7. On a scale of 0-10 with 0 being in no pain and 10 being the worst pain you have ever experienced. What is your current level of pain? _____

8. In general, compared to other people your age, would you say that your health is:
   _____Poor
   _____ Fair
   _____ Good
   _____Very Good
   _____Excellent

Please mark the following categories:

	No difficulty	A little difficulty	Some difficulty	A lot of difficulty	Unable to do
Stooping, crouching or kneeling					
	No difficulty	A little difficulty	Some difficulty	A lot of difficulty	Unable to do
Lifting or carrying objects as heavy as 10 pounds					
	No difficulty	A little difficulty	Some difficulty	A lot of difficulty	Unable to do
Reaching or extending arms above shoulder level					
	No difficulty	A little difficulty	Some difficulty	A lot of difficulty	Unable to do
Writing, or handling and grasping small objects					

	No difficulty	A little difficulty	Some difficulty	A lot of difficulty	Unable to do
Walking a quarter of a mile					
	No difficulty	A little difficulty	Some difficulty	A lot of difficulty	Unable to do
Heavy housework such as scrubbing floors or washing windows					

Because of your health or physical condition, do you have difficulty:

a. Shopping for personal items (Like toilet items or medicine)
    a. Yes -- Do you get help with shopping? ___ yes ___no
    b. NO
    c. Don't Do – Is that because of your health?__yes __no

b. Managing Money (like keeping track of expenses or paying bills)
    a. Yes -- Do you get help with managing money?
       ___ yes ___no
    b. NO
    c. Don't Do – Is that because of your health?__yes __no

c. Walking across the room? (Use of cane or walker is OK)
    a. Yes -- Do you get help with walking? ___ yes ___no
    b. NO
    c. Don't Do – Is that because of your health?__yes __no

d. Doing light housework (like washing dishes, straightening up, or light cleaning)?
    a. Yes -- Do you get help with light housework?
       ___ yes ___no
    b. NO
    c. Don't Do – Is that because of your health?__yes __no

e. Bathing or showering?
    a. Yes -- Do you get help with bathing or showering?
       ___ yes ___no
    b. NO
    c. Don't Do – Is that because of your health?__yes __no

Please mark the following categories:

	0-29 minutes	30-59 minutes	60-99 minutes	100-149 minutes	150 minutes or more
How much exercise I get on average each **week**					
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I believe getting 2.5 hours of moderate-to-vigorous physical activity a week is important to improve or maintain my health.					
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I often find excuses to not exercise.					

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I believe getting 2.5 hours of exercise each week is manageable.					
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I want to exercise more but I do not know what to do or where to start.					
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I cannot afford to a gym membership.					
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I am afraid if I exercise, I will get injured.					

APPENDIX G

Functional Test Adopted from the National Institute on Aging (n.d.)

Patient Name:_____ Date:_____ IG / CPG

Sit and reach

While sitting on the edge of a chair with one leg straight, the senior leans forward and gets their fingers as close to the foot as possible. The distance is measured. This is a flexibility test for the hamstrings and lower back. It relates to function as a role in walking, balance and fall prevention.

Distance:_____

30 second chair stand

This tests how many sit to stand and stand to sit repetitions can be done in 30 seconds. It is test of lower body strength and relates to functional activities. Activities like entering and exiting cars or going from kneeling to standing.

Number achieved:_____

Arm Curl

This is a test of how many arm curls (biceps curls) that can be done in 30 seconds and used an 8 pound weight for men and a 5 pound weight for women. Functionally it relates to carrying groceries, lifting grandchildren or pouring juice from a jug.

Number achieved:_____

Length of time since last assessment:_____

APPENDIX H

Office of Disease Prevention and Health Promotion

Table 2-1. Health Benefits Associated With Regular Physical Activity

Adults and Older Adults

- Lower risk of all-cause mortality
- Lower risk of cardiovascular disease mortality
- Lower risk of cardiovascular disease (including heart disease and stroke)
- Lower risk of hypertension
- Lower risk of type 2 diabetes
- Lower risk of adverse blood lipid profile
- Lower risk of cancers of the bladder, breast, colon, endometrium, esophagus, kidney, lung, and stomach
- Improved cognition*
- Reduced risk of dementia (including Alzheimer's disease)
- Improved quality of life
- Reduced anxiety
- Reduced risk of depression
- Improved sleep
- Slowed or reduced weight gain
- Weight loss, particularly when combined with reduced calorie intake
- Prevention of weight regain following initial weight loss
- Improved bone health
- Improved physical function
- Lower risk of falls (older adults)
- Lower risk of fall-related injuries (older adults)

Office of Disease Prevention and Health Promotion

Table 2-1. Health Benefits Associated With Regular Physical Activity

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▪ Lower risk of all-cause mortality
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▪ Lower risk of adverse blood lipid profile
▪ Lower risk of cancers of the bladder, breast, colon, endometrium, esophagus, kidney, lung, and stomach
▪ Improved cognition*
▪ Reduced risk of dementia (including Alzheimer's disease)
▪ Improved quality of life
▪ Reduced anxiety
▪ Reduced risk of depression
▪ Improved sleep
▪ Slowed or reduced weight gain
▪ Weight loss, particularly when combined with reduced calorie intake
▪ Prevention of weight regain following initial weight loss
▪ Improved bone health
▪ Improved physical function
▪ Lower risk of falls (older adults)
▪ Lower risk of fall-related injuries (older adults)

APPENDIX I

Go4Life®

from the National Institute on Aging at NIH

Overcoming Barriers to Exercise: No More Excuses

Exercise is good for almost everyone, but there are so many things that can get in the way of staying active. It's time for some positive thinking. No more excuses!

Finding Time to Exercise

Try exercising first thing in the morning. Combine physical activity with a task that's already part of your day, such as walking the dog or doing household chores. If you don't have 30 minutes to be active, look for three 10-minute periods. As you progress, add more 10-minute sessions until you hit your goal!

Sticking with Your Exercise Plan

Make exercise interesting and enjoyable. Do things you enjoy, but pick up the pace and try new activities to keep your interest alive. Being creative about your physical activity plans and regularly trying new forms of exercise prevent boredom. If you can stick with it for at least 6 months, it's a good sign that you're on your way to making physical activity a regular habit.

Exercising without Spending Money

Being active doesn't have to cost a thing! All you need for brisk walking is a pair of comfortable, non-skid shoes. For strength training, you can save money by making your own weights using soup cans or water bottles. Check with your local parks and recreation department or senior center about free or low-cost exercise programs in your area.

Increasing Your Energy

Regular, moderate physical activity can help reduce fatigue and even help you manage stress. Exercise can also reduce feelings of depression, while improving your mood and overall emotional well-being. Once you become active, you're likely to have more energy than before. As you do more, you also may notice that you can do things more easily, faster, and for longer than before.

Strength

Try to do strength exercises for all of your major muscle groups on 2 or more days per week for 30-minute sessions each, but don't exercise the same muscle group on any 2 days in a row.

Upper Body

Seated Row with Resistance Band Exercise

Chair Dip Exercise

Arm Curl with Resistance Band Exercise

Wall Push-Up Exercise

Arm Curl Exercise

Side Arm Raise Exercise

Front Arm Raise Exercise

Overhead Arm Raise Exercise

Wrist Curl Exercise

Hand Grip Exercise

Elbow Extension Exercise

Lower Body

Toe Stand Exercise

Chair Stand Exercise

Leg Straightening Exercise

Knee Curl Exercise

Side Leg Raise Exercise

Back Leg Raise Exercise

Endurance

Walking or Rolling Exercise

Brisk walking is great exercise, and like other endurance exercises, it can increase your heart rate and breathing. Endurance exercises keep you healthy, improve your fitness, and help you do the tasks you need to do every day.

For some, walking for the recommended 30 minutes a day might be difficult. If so, try walking for 10 minutes at a time and build up to three times a day. As your endurance improves, walk longer until you can advance to a single 30-minute walk.

Step counters can help you keep track of your walking, set goals, and measure your progress.

Most inactive people get fewer than 5,000 steps a day, and some very inactive people get only 2,000 steps a day. Try wearing a step counter for a few days to see how you're doing.

If you get 10,000 or more steps a day, you can be confident that you're getting an adequate amount of endurance activity.

Types of Endurance Exercises

1. Gardening
2. Heavy housework
3. **Go4Life** Exercise Videos
4. Raking
5. Shoveling snow
6. Biking
7. Horseback riding
8. Jogging
9. Skating
10. Going to a gym or fitness center and using the treadmill, elliptical machine, stationary bike, or rowing machine
11. Swimming/Water aerobics
12. Dancing
13. Martial arts
14. Racquet sports
15. Seated Volley ball

Balance

You can do balance exercises almost anytime, anywhere, and as often as you like. Having good balance is important for many everyday activities, such as going up and down the stairs. It also helps you walk safely and avoid tripping and falling over objects in your way.

Heel-to-Toe Walk Exercise

Stand on One Foot Exercise

Tai Chi

Balance Walk Exercise

Flexibility

Do each stretching exercise 3 to 5 times at each session. Slowly and smoothly stretch into the desired position, as far as possible without pain. Hold the stretch for 10 to 30 seconds. Relax, breathe, then repeat, trying to stretch farther.

Yoga and Older Adults

Buddy Stretch Exercise

Calf Stretch Exercise

Lower Back Exercise

Hip Flexibility Exercise

Thigh Flexibility Exercise (Standing)

Thigh Flexibility Exercise (Floor)

Back of Leg Exercise

Back of Leg Exercise (Floor)

Ankle Stretch Exercise

Upper Back Exercise

Back Exercise 2

APPENDIX J

Resources for Physical Activity and Fall Prevention for Older Adults

Resources	**Website**
A Matter of Balance	http://www.mainehealth.org/mob
Arthritis Foundation Exercise Program and Walk with Ease	http://www.arthritis.org/living-with-arthritis/
Arthritis Foundation Tai Chi Program	http://www.arthritis.org/resources/community-programs/tai-chi/
Be Active Your Way	http://www.health.gov/paguidelines/guidelines/activeguide.aspx
EASY tool (Assesses readiness for physical activity)	http://easyforyou.info/
Exercise & Physical Activity: Your Everyday Guide from the National Institute on Aging (Available in English and Spanish)	https://www.nia.nih.gov/sites/default/files/exercise_guide.pdf
Exercise is Medicine	http://www.exerciseismedicine.org/
Falls Prevention: Lifestyle-Integrated Functional Exercise (LiFE)	http://sydney.edu.au/health-sciences/staff/docs/lindy_clemson/LiFE_participant_manual_book_1.pdf
Falls Prevention: Otago	https://www.med.unc.edu/aging/cgec/exercise-program
Fit and Strong	http://www.fitandstrong.org/
Functional Focused Care	http://www.functionfocusedcare.org
Geri-Fit Strength Training Workout	http://www.gerifit.com

Resources	Website
Go4Life (DVD and exercise guide) Available in English and Spanish	www.nia.nih.gov/Go4Life https://go4life.nia.nih.gov/exercise-guide https://www.nia.nih.gov/health/…/go4life-dvd
Healthy Moves for Aging Well	https://www.ncoa.org/resources/program-summary-healthy-moves-for-aging-well/
National Falls Prevention Resource Center	http://www.ncoa.org/center-for-healthy-aging/falls-resource-center/
NIH Senior Health: Exercise: Benefits of Exercise - Health Benefits	http://nihseniorhealth.gov/exercise/toc.html
Stay Active and Independent for Life	http://livingwell.doh.wa.gov
Stepping ON	http://www.ncoa.org/improve-health/center-for-healthy-aging/stepping-on.html
Stopping Elderly Accidents, Deaths & Injuries (STEADI) website	http://www.cdc.gov/steadi
Tai Chi: Moving for Better Balance	http://www.ncoa.org/improve-health/center-for-healthy-aging/tai-chi-moving-for-better.html

APPENDIX K

FREE

SENIOR CLASS

CROSSFIT ENG

"EARNED NOT GIVEN"

COACH LED TO ENSURE YOUR SAFETY EVERY MON, WED, FRI 10:30-11:00 AM

326 SW 2ND TERRACE CAPE CORAL, FL 239-349-7111

APPENDIX L

Tony Rotino Center – 239-574-0807

5817 Driftwood Pkwy., Cape Coral

"The Tony Rotino Center provides today's active mature adults with a diverse selection of social, recreational, and educational opportunities. Programs are offered throughout the year to provide life enhancing opportunities for the mature adult, including, but not limited to the following:

Classes offered

- Seniorcise
- Stretch & Tone
- Yoga
- Line Dancing
- Piano Lessons

Recreational Programs:

- Day Trips
- Dances
- Luncheons
- Bingo
- Pinochle
- Bridge
- Dominoes & Games
- Movie Matinees
- Family Events
- Quilting
- Mahjong
- Duplicate Bridge

Lake Kennedy Center – 239-574-0575

400 Santa Barbara Blvd., Cape Coral

Lake Kennedy Center has an emphasis on planning and facilitating activities for active adults age 50+ . As a result one can find a diverse selection of social, recreational and educational opportunities. This includes events in the ballroom, day trips, and a variety of classes and programs including:

- Health and Fitness Classes
- Dance Programs
- Music / Theater Programs
- Educational & Leisure Activities

CrossFit ENG – 239-349-7111

326 SW 2nd Terrace, Cape Coral

Free coach led group fitness class designed to improve flexibility and strength.
Monday, Wednesday, Friday 10:30-11:00 am