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Benefits of Ambulation in Older Adult Population

by

Kelsey E. Wilkes

A project submitted to the faculty of
Gardner-Webb University Hunt School of Nursing
in partial fulfillment of the requirements for the degree of
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Abstract

Background: Loss of mobility is an outcome of aging. Decreased ambulation leads to a loss of mobility and ultimately a loss of independence. There are additional health risks associated with loss of mobility. There can be challenges to facilitating ambulation and mobility in an aging population.

Objective: A literature review of the benefits of ambulation/mobility and the risks of loss of mobility was conducted. The purpose was to promote ambulation/mobility in a community-based setting and educate those caring for the adult population about the importance of ambulation.

Methods: A presentation was provided to staff and participants of an adult day care center, and data was gathered on the efficacy of the presentation. A pre-test and post-test method to gather information was used.

Results: The education provided was effective as evidenced by improvement in each of the five test questions. Following the educational session with staff, an improvement from the pre-test to the post-test was noted. The installation of signs for participants in determining their walking distance was placed on the community path.

Conclusions: An educational session at a senior community center increased participants' knowledge of exercise and its benefits. Staff and participants were encouraged to learn about the advantages of the walking path already in place. This will assist in the use of the walking path and increase daily ambulation at the facility.

Keywords: ambulation, aging, community, teaching

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Benefits of Ambulation in Older Adult Population

Preservation of mobility is a key aspect in maintaining independence as individuals age. A considerable amount of research has been conducted on the benefits of ambulation in older populations and the risks that can occur with limited ambulation. The challenges discovered in research consisted of how to encourage ambulation in the aging population. The medical community has placed an emphasis on the role of functional mobility in preventing health declines as individuals age (Whitcomb & Psalia, 2015). Patients, staff, and healthcare workers have been identified as key stakeholders in the role of functional mobility.

Research has identified a gap in information regarding the impact of mobility programs on patients. A greater focus is being placed on demonstrating the efficacy of mobility programs not just on critically ill patients, but on all individuals as they age (Dammeyer et al., 2013). This is especially applicable to the participants of community facilities such as senior centers.

Problem Recognition

According to the Centers for Disease Control and Prevention (CDC, 2020), 50% of adults do not achieve the recommended 150 minutes of activity per week. Ottoni et al. (2016) established that ambulation and functional mobility are key factors that contribute to an older adult remaining independent and at home. Consistent exercise is important to an active healthy lifestyle and some older adults are not aware of the importance of ambulation.

Ambulation and mobility are key components in the prevention of functional decline and injury. Decreased mobility during hospitalization can limit patient outcomes

or lengthen hospital stays. During hospitalization, decreased mobility can result in increased risk for falls, hospital readmissions, or overall functional decline. This alone can result in the increased need for admission to skilled nursing facilities following hospital discharge (King & Brown, 2017). Previous research has determined mobility after surgery is associated with shorter hospitalizations, a reduction in urinary tract infections (UTIs), pulmonary complications, and thromboembolism (blood clots) (Rupich et al., 2018). The lack of patient mobility during hospitalization has been a consistent issue due to staffing concerns (Hoyer et al., 2016).

The population at the senior center will benefit from the findings of this research. The risk for hospitalizations increases as one ages (Hoyer et al., 2016), thus impacting the senior center population. The risks associated with decreased ambulation/mobility while hospitalized can also impact the older adults in the community. King and Brown (2017) found that decreased mobility increases the risk for hospital readmission, infection, and overall functional decline. This is applicable to both the hospitalized older adult patient and the senior center participants in the community setting.

Up to 65% of hospitalized patients, ages 65 and older, experience a loss of mobility and functional decline following hospitalization (King & Brown, 2017). Declines in mobility contribute to complications during hospitalizations and functional mobility decline for patients aged 65 and older (Kleinpell et al., 2008). Additionally, patients aged 65 and older comprise almost half of all hospitalized patients (Kleinpell et al., 2008). Upon discharge from the hospital, these older adults are returning to the community and settings like the Life Enrichment Center (LEC). According to a recent Surgeon General's report, only 50% of American adults are meeting the minimum

weekly activity recommendation of 150 minutes (United States Department of Health and Human Services, 2015).

Problem Statement

Gaps in the participant and staff at the Life Enrichment Center are a lack of education on the importance of ambulation and the CDC recommendations for activity have been identified. Education is needed to assist older adults in gaining knowledge on the recommendations for exercise each week. Additionally, the walking path lacks a way to track the ambulation distance.

Literature Review and Synthesis

A literature review was completed to uncover the research and recommendations behind ambulation and its health benefits of ambulation. The literature search consisted of articles discussing mobility, ambulation, older adults, hospitalization, aging, independent living, and nursing. The databases used in the search were accessed through the Gardner-Webb University library and included CINHALL and ProQuest. The impacts and benefits of ambulation have been studied in multiple settings including hospitals, community-based settings, and extended care facilities (assisted living and skilled nursing). The health benefits that will be explored include physical and mental health benefits.

Guidelines

The Centers for Disease Control and Prevention (CDC, 2020) has established a minimum activity goal for adults as 150 minutes of physical activity each week. This recommendation has been shown to decrease the risk of mortality for all individuals (US Department of Health and Human Services, 2015). Meeting the minimal weekly physical

activity guidelines can prevent or even improve the management of non-communicable diseases such as heart disease, diabetes, and cancer (World Health Organization [WHO], 2022). One of the goals set by Healthy People 2030 includes increasing the number of adults meeting the minimum activity requirements each week (CDC, 2020). The Surgeon General has released a report that only half of the adult population achieves the weekly activity goal (United States Department of Health and Human Services, 2015). This is concerning since routine exercise and consistent ambulation is effective in maintaining health and wellness.

Ambulation is one way for adults to meet weekly activity goals and maintain overall health. Ambulation is considered a low-cost and accessible way to meet the recommended 150 minutes per week. The CDC (2020) reports the following benefits are associated with meeting the minimal activity recommendations: improved sleep habits, reduction in anxiety, enhanced memory, decrease in chronic pain, and improvement of chronic conditions such as diabetes and heart disease.

The guidelines associated with minimum activity requirements are established. The benefits of improving or maintaining ambulation status should be achieved by older adults in the community-dwelling and hospitalized patients. There is significant research that has been conducted on the impact of ambulation/mobility on hospitalized adults.

Hospitals

Ambulation is a focus in a variety of health settings specifically hospitals. Due to the significant cost of being hospitalized, ambulation is a low-cost way to maintain mobility and improve a patient's overall recovery. Patients 65 years of age and older comprise almost half of all hospitalized patients, and they experience the greatest impact

of mobility loss (Kleinpell et al., 2008). Research has been focused on the evaluation and improvement of a hospitalized patient's health when ambulation is part of routine nursing care.

King and Brown (2017) investigated global interventions to promote mobility in hospitalized patients. The focus of King and Brown (2017) was to assess interventions that promote ambulation for hospitalized patients, they also discussed the benefits of ambulation programs. King and Brown (2017) observed benefits of ambulation include: decreased rates of hospitalization and rehospitalization, reduced rates of urinary tract infections (UTIs) and pneumonia, decreased risk of falls, and a reduced risk of developing blood clots. A decrease in ambulation while hospitalized directly correlates with reduced mobility upon discharge. Reduced ambulation is associated with a loss of motor function and independence upon discharge (King & Brown, 2017). Once this decline in function occurs, a patient has increasing difficulty trying to overcome and regain previous levels of independence and mobility (King & Brown, 2017). Patients often must have additional assistance or physical therapy to regain mobility.

King and Brown (2017) found that nurses are the catalysts for ambulation in a hospital setting. They also found that daily ambulation and scalability were key components of successful mobility programs (King & Brown, 2017). Scalability allows for the use of assistive devices and walking at a pace comfortable for the individual. This is applicable and can carry over as a problem with the community-based adult care services following hospital discharge. Community facilities are often led by nurses who can promote ambulation as part of their daily schedule with participants.

The task of assessing and mobilizing hospitalized patients often falls on the nursing staff who provide routine daily care. Hoyer et al. (2016) found that nurses reported awareness of the importance of their role in mobilizing hospitalized patients but reported many barriers to completing this task. Commonly reported barriers include dedicated time, adequate staffing, and lack of proper equipment (Hoyer et al., 2016). Nursing leadership is also being tasked with supporting staff as a greater emphasis is being placed on the importance of mobilizing hospitalized patients (Hoyer et al., 2016).

A meta-analysis completed by Constantin and Dahlke (2018) reviewed the perceptions of nurses regarding the mobility of hospitalized patients. The perceptions of nurses revealed a misconception about the role a nurse holds in preventing mobility decline (Constantin & Dahlke, 2018). Further review of the meta-analysis determined providing nurses with education and training programs increased their willingness to take “ownership” of patient mobility (Constantin & Dahlke, 2018). Additionally, providing training to new graduate nurses increased buy-in for nurses when mobilizing patients (Constantin & Dahlke, 2018). One constant barrier to patient mobility is an adequate nursing staff (Constantin & Dahlke, 2018). Nurses can identify the importance of patient mobility during hospitalization; however, they often defer the actual task of mobilizing to other disciplines (Dermody & Kovach, 2017). Dermody and Kovach (2017) postulated nurses with less than 5 years of experience reported lacking the proper training to safely mobilize patients. Nurses under 5 years of experience noted discomfort with the risks of mobilizing patients, and time management for incorporating mobilization in a packed schedule (Dermody & Kovach, 2017).

Patients are sent home or referred to community services following hospital discharge. Decreased mobility and ambulation during hospitalization can subsequently have an impact on the patient's ability to participate in community services or functions. This also leads to an increased burden on community-based services (such as the LEC), the patients, and their caretakers as mobility losses are managed following hospitalization. The impact of decreased mobility/ambulation during hospitalization also has a tremendous impact on senior center programs.

Senior Center

Another focus on mobility is maintaining one's independence. Ottoni et al. (2016) reported mobility being one of the greatest predictors of an older adult's ability to remain in their homes. This is an important consideration for community-based facilities. The senior center has a goal of helping individuals remain safely at home while they age. Ottoni et al. (2016) also discovered that community-based ambulation/mobility had a positive impact on individual well-being by decreasing feelings of anxiety and depression, along with increasing feelings of well-being. These researchers further assessed successful community-based ambulation and how this impacts individuals. Findings indicated that a safe walking space such as a wide, paved, and well-lit path was important for encouraging ambulation in the community (Ottoni et al., 2016). One of the purposes of the senior center is to provide a safe place for participants during the day, so they can return home to live with their families in the evening. This is consistent with previous findings indicating the need to maintain or improve one's ambulation status as a key factor in remaining at home. Additionally, the installation of benches along the walking path contributed to the accessibility and promoted use for older adults (Ottoni et

al., 2016). This is also significant to the adult day care facility as they have all these components in place on a walking path. An important component of promoting community-based ambulation included the opportunity to interact with peers, and the comradery of participating in activities with peers (Ottoni et al., 2016). These different findings demonstrate how important certain aspects of ambulation are within the community setting.

Mobility and ambulation status are utilized as predictive measures to determine disease progression and prognosis. Disability and discomfort are part of the “Six D’s of Prognosis”, which is a tool utilized by clinicians to gauge the impact of disease and determine progression (Berger et al., 2013). Specifically, mobility and ambulation are key components of estimating one’s prognosis for the disease. Ambulation is utilized as a prognostic indicator for cancer, chronic diseases, and end of life (Berger et al., 2013). As discussed by Ottoni et al. (2016), preservation of mobility and ambulation has a positive impact on maintaining independence. This has also been noted in chronic disease management and end-of-life care. As diseases progress, the ability of an older adult to ambulate becomes a specific indicator of functional status and is a key component of estimating prognosis of the disease (Berger et al., 2013). Functional status is important because this also helps estimate supportive needs for patients and families (Berger et al., 2013). Performance status scores incorporate ambulation as full, partial, or none as a factor used to predict survival in patients with cancer (Berger et al., 2013). Both the Karnofsky Performance Scale and the Palliative Performance Scale assess ambulation and activity level as key components to predict both quality of life and estimate disease progression (Berger et al., 2013).

Maintaining mobility and ambulation as individuals age is paramount to their overall health. For these reasons educating staff and older adults about the recommendations for weekly activity and ambulation is very important. Ensuring all healthcare workers and patients are equipped with the knowledge of the importance of ambulation results in an improvement in health and chronic disease management. Maintaining and even improving functional mobility through routine ambulation can have a significant impact on how individuals age and cope with everyday needs.

Research Question

The purpose of the Doctor of Nursing Practice (DNP) project was to determine if educating staff and members at a local senior center about the benefits of ambulation and placement of walking markers will improve overall knowledge and understanding of the importance of ambulation. A gap in Senior Center participant and staff education on the importance of ambulation and the CDC's recommendations for activity has been identified. Additionally, the walking path is lacking a way to track the ambulation completed. The senior center participants and staff need to know the CDC's recommendation for weekly activity, because of the impact it can have on aging and disease management.

The project intervention will focus on staff and participants at the senior center. The DNP student will provide education on the purpose, expected weekly time for ambulation, and benefits of routine ambulation. Education will be provided on the measurement of the walking path and signage for the walking path that displays the number of laps needed for 1 mile. The ambulation signage will serve as a method for tracking the distance ambulated for both staff and participants. This is important because

decreased mobility results in an increased risk for falls, hospital admissions, and overall functional decline (King & Brown, 2017). The ambulation signage will be used to promote exercise, improve ambulation safety, and measure the distance mobilized. Mobility markers like this signage have been successfully used as components for mobility programs but have not been implemented at the local senior center facility.

Needs Assessment

Sponsors and Stakeholders

The DNP student partnered with the senior center Community Outreach Coordinator to facilitate this project. A faculty member from the educational institution assisted in facilitating the DNP project with the DNP student. Stakeholders included the members of the community, senior center staff, and participants of the senior center. Additional stakeholders included the family of the senior center participants as they will directly benefit from the improved knowledge and mobility of their loved ones. Local hospitals and facilities will be considered stakeholders as they will be able to refer patients to this facility and provide information on the walking path updates. Local hospitals can also benefit as stakeholders from this project because they are involved in the care of the senior center participants. Additionally, it is reasonable to anticipate that as individuals age they are at an increased risk of hospitalization. If their mobility and ambulation status has been preserved prior to hospitalization this will aid in their recovery.

Organizational SWOT Analysis

Completing a SWOT analysis for this project is useful to aid in the identification of strengths, weakness, opportunities, and threats for the proposed project. Performing a

SWOT analysis will help focus the successful achievement of the project goals. Each section of the SWOT analysis has a specific purpose. Strengths refer to unique resources the student, research, and facility bring to this project (Zaccagnini & White, 2017).

Weakness focus on areas of opportunity for the project to address or avoid as they fall beyond scope of the project (Zaccagnini & White, 2017). Opportunities result from an assessment of the strengths and weaknesses and offer potential solutions or areas of continued research (Zaccagnini & White, 2017). Threats represent barriers to the project, and identifying them can aid in overcoming barriers to the project (Zaccagnini & White, 2017)

Strengths

Leadership support at the senior center and participant enthusiasm are two strong aspects of this project. The local senior center is very enthusiastic about working with graduate students to provide best practice enhancements. The facility has a large staff and large participant group to benefit from the program education and ambulation sign. The local facility can approve the design of the walking path sign in-house to make it unique to the facility. The walking path sign will encourage staff, participants, and caregivers to support daily mobility. The education and interventions from this project will improve the health of older adults. An additional strength of the project is that staff could structure ambulation/mobility time independently throughout the day program.

Weakness

The identification of weaknesses allows the student to become more prepared and anticipate changes that may need to be made throughout the project. Senior center staffing will not be increased to facilitate more staff to mobilize participants, which is

cited as a barrier to implementing patient mobility programs in hospitals (Constantin & Dahlke, 2018). Participants may not be able to mobilize every day or utilize the outdoor walking path. The senior center has a robust daily schedule accommodating many participants of varying degrees of independence and this could present a challenge to incorporating daily mobilization/ambulation. Additionally, as the center supports groups with participants of varying degrees of independence there can be challenges for staff to assist all participants to ambulate as a group at the same time. There are other types of movement and mobility that could fulfill the CDC's recommendations; however, they are not addressed and could be considered a weakness of the project.

Opportunities

Opportunities help the student identify positives about the project that can continue to be a guiding focus. Facility leadership understands the importance of the program and will continue to support it after the initial implementation. The success of the project can influence future staffing and perhaps encourage them to use the walking path for exercise. There is also the opportunity for this program to positively impact the health of participants, as well as their ability to preserve their independence. There is also the opportunity to make enhancements to the current walking path in use.

Threats

There are also anticipated threats to consider for the success and stability of the project. These threats include the possible unwillingness of staff to participate in education or perhaps an unwillingness to change daily habits. Staff turnover or changes in leadership can lead to a lack of understanding of how to use the walking path sign. Staff concerns regarding patient falls or injuries; therefore, neglecting mobilizing participants

also presents a threat to the project and program. As this project utilizes an outdoor walking path the weather will also present a threat. Inclement weather could also damage the outdoor walking track thus leading to continuous maintenance or repairs.

Desired/Expected Outcomes

The expected outcomes of this project include: (1) an increase in knowledge regarding the importance of daily ambulation, (2) increased use of the walking path, and (3) daily monitoring of the ambulation distance and time to meet the recommended exercise goals. Expected outcome number one will be met by the benefits of ambulation presentation completed at the LEC. Outcome number one will be measured by the number of correct answer choices on the pre-test being compared to the number of correct answers on the post-test. Outcome number two will be impacted by the intervention of measuring and creating a sign to measure the distance ambulated on the walking path. Outcome number three will be impacted by the intervention of installing the ambulation sign along the walking path.

Team Selection

The team selection included the educational program's project chair to approve and monitor the project status. The Community Outreach Coordinator for the senior center acted as the DNP student's point of contact for the project. Additionally, the staff and participants of the senior center were part of the partnership for the teaching and utilization of the signage. Both the staff and participants from the senior center were chosen as part of the team for this project. This was because the staff could schedule ambulation/mobility throughout the day. The participants can request to utilize the

walking path, and they will also be able to share their new knowledge with their families to promote ambulation at home.

Cost/Benefit Analysis

The costs of this project are minimal compared to the potential benefits. The benefits to staff and participants include better chronic disease management, prevention of disease development, improved sleep, reduced feeling of anxiety/depression, and improved mental function. In addition to those benefits, there are also the benefits of preserving functional mobility, preserving independence, and remaining at home as individuals age. Improvement of health along with education can assist in maintaining the program. Participants and staff who understand the importance of ambulation are more likely to promote and improve their own health. The cost savings associated with these benefits will prove to be invaluable to the staff and participants at the senior center.

The estimated costs incurred by the DNP student were minimal and sustainable for the facility. The fixed and measurable costs of the program totaled \$276.69. The breakdown of the cost includes blue and green paper: 40 pages of each required two packs at \$16 each, two 34 packs of black ink pens at \$4.74 each, one black ink cartridge at \$18.25, the ambulation sign was \$74.25, with an additional \$17.59 for lamination protection from the sun, and the weighted stand for posting the sign was \$141.12. Following completion of the project, the facility would not need to purchase additional paper or pens, thus eliminating this cost for future estimates.

Scope of Project

Prior to the implementation of the project, the Community Outreach Director will notify staff via email and in-person of the education session with the DNP student. Data

collection for the project will occur anonymously through a paper pre-test (Appendix A) and a paper post-test (Appendix B). This will be collected via pen and paper. Pens will be provided to participants to complete the pre- and post-tests. The pre- and post-tests will be printed on different color paper. A pre-test will be administered prior to the educational session. Informed consent will be included on blue paper with the pre-test. The pre-test will be given to the center staff and participants to assess the baseline knowledge of the benefits of ambulation in the senior population. Following completion of the pre-test, there will be an information session. During the informational session, the DNP student will present the benefits of ambulation and the purpose of the ambulation markers. A PowerPoint presentation will be used to present the educational materials (Appendix C). The DNP student will conduct a post-test to analyze the effectiveness of the teachings through descriptive statistics utilizing graphs/tables. The post-test will be on paper and distributed to all participants and staff. There will be a collection box near the exit for participants to return their complete posttest. This will ensure anonymity. A test-retest reliability measure will be utilized to assess the reliability and validity of the teaching based on the results of the pre-and post-test (Zaccagnini & White, 2017). The DNP project chair has reviewed the pre- and post-surveys for face validity.

The DNP Student will utilize a measuring wheel to space ambulation markers along a paved path at the center. The DNP student will install an ambulation sign along the path with weatherproof materials. The DNP student will present in person to the center staff and participants

Goals, Objectives, and Mission Statement

Goals

The overall goal of this project was to examine the effectiveness of teaching on the benefits of ambulation. There was an additional goal of increasing the usage of the walking path by providing ambulation signage to encourage staff and participants to use the teaching provided. The goal of objective one was to increase knowledge regarding the importance of daily ambulation. The objective number one goal was met as evidenced by an increase in the number of correct responses for each assessment question when the pre-test was compared to the post-test. Objective number two increased use of the walking path was met by the installation of an ambulation sign to track the distance ambulated. Objective number three, daily monitoring of the ambulation distance and time to meet the recommended exercise goals was also achieved by the installation of an ambulation sign along the walking path.

Objectives

The goal of this project was to demonstrate the effectiveness of teaching the benefits of ambulation. This is analyzed and demonstrated by the assessment of the answers to the pre-test and post-test surveys. The teaching was completed by utilizing a PowerPoint presentation. The objective of this project was to improve participant and staff knowledge of the benefits of ambulation and increase the usage of the walking path through the installation of an ambulation sign.

Objective one was met by the presentation of the educational program. The pre- and post-tests were utilized to measure the effectiveness of objective one. Objective two was met by the installation of the ambulation sign along with a walking path. Objective

three was also met by the installation of the ambulation sign along the walking path. This objective included measuring the walking path, designing a sign, and installing the sign.

Mission Statement

The mission of this ambulation project was to provide teaching to senior center staff and participants on the benefits of ambulation. The installation of a sign noting the number of laps needed to complete 1 mile on the walking path was included in the educational session. The ambulation sign will serve as a reminder and encouragement to complete daily mobility. The ambulation sign will also serve a functional role in measuring the distance mobilized.

Theoretical Underpinning

Theoretical Framework

Virginia Avenel Henderson developed a nursing theory based on 14 components of need (Ahtisham & Jocline, 2015). Henderson also identified the importance of facilitating and maintaining the functional independence of the patient by encouraging autonomy and patient participation in the nursing care they received (Ahtisham & Jocline, 2015). An additional component of the theory of need expounded upon patient participation in desired recreational activities (Ahtisham & Jocline, 2015). Henderson was an advocate for nurses or health care staff promoting functional independence for their patients (Abrams, 2007). Henderson believed a key component of recovery from illness was rehabilitation and preserving or promoting functional independence (Abrams, 2007).

Henderson believed that nurses occupy an important role in rehabilitating patients from their illnesses, and this starts the moment the nurse assumes care for the patient.

Thus, implying the moment the patient was admitted into the hospital. Henderson promoted the nurse's role in achieving patient independence and one of the most valuable ways to do this is to maintain or improve patient mobility. Henderson's Need Theory focuses on the nursing role in assisting patients to regain their function to the highest level possible. Henderson extends this need theory across the lifespan from birth up to and including death (Ahtisham & Jacoline, 2015).

The Need Theory places great emphasis on the ability of nurses to promote independence and functional mobility with their patients (Abrams, 2007). The nurse of current times has access to many specialty services, such as occupational and physical therapy. These specialty areas are the basis for the delegation of the patient's physical mobility activities. Henderson's nursing theory is not supported by this hands-off care (Abrams, 2007). The Need Theory reminds all the training and ability of nurses to work with patients to promote mobility and work actively alongside occupational and physical therapy to enhance patient recovery and return to function (Abrams, 2007).

Henderson also advocated for the role of evidenced based practice as a pillar of nursing care, long before it was well-recognized and taught throughout nursing school (Flynn, 1999). The promotion of evidence-based practice is a valuable contribution to nursing practice. Research evidence supports the importance of promoting and maintaining patient mobility. Not only does Henderson's Need theory support the importance of the nursing role in patient mobility, but it also supports the role of implementing evidence-based practices into patient care (Flynn, 1999).

Henderson's nursing theories are incorporated into this project by utilizing them as a basis for the importance of maintaining or improving mobility/ambulation status.

The knowledge of the staff and participants of the LEC will be influenced by Henderson's emphasis on the importance of maintaining functional independence. Henderson emphasized that patients should be encouraged to complete tasks as independently as possible with nurses available to support the patients (Flynn, 1999). Henderson really championed functional mobility, and the preservation of this while hospitalized (Flynn, 1999). This construct can be extended to this project by acknowledging the role of nurses in daily patient mobility in and out of the hospital. Additionally, Henderson was a proponent of incorporating evidence-based practice into daily nursing care, and that is a vital component of this project (Flynn, 1999). It is important to note that Henderson was a proponent of the unique functions of a nurse and encouraged nurses to evolve their relationship with patients throughout their continuum of care (Flynn, 1999).

Henderson's Need Theory acts as a theoretical underpinning for this project. Many of the things this project promotes such as evidence-based practice and mobility are based on the teachings of Henderson. Many components of the Need theory are directly incorporated into this project, such as encouraging daily movement, patients and nurses participating in meaningful mobility, and the mobility should be an enjoyable aspect of the patient's care (Flynn, 1999). However, all 14 components of the Theory of Need are addressed by maintaining and promoting patient mobility. Empowering nurses and other healthcare staff to participate in daily patient mobility aligns with addressing the components of the Theory of Need (Flynn, 1999). This is applicable not only in the hospital setting but also in the outpatient setting.

Implementation

The sponsor at the senior center approved and partnered with the DNP student on April 1, 2022 (Appendix D). The DNP project was approved by the Institutional Review Board (IRB) on April 27th, 2022 (Appendix E). Participants who elected to complete the project pre-tests and post-tests were protected and remained anonymous. The pre-test includes a statement indicating that all responses are anonymous, and the participant can voluntarily participate in the project by completion of the pre-and post-test. The data collected was secured. Following approval, implementation started on June 24th, 2022. The senior center sponsor sent an email to all staff and participants concerning the project implementation date. Completion of the data collection occurred on June 24th, 2022. The pre- and post-tests stated that participation was voluntary and completion of the pre-and post-test indicated consent for data gathering. The data was gathered via pre- and post-tests anonymously. The pre-tests were denoted by blue paper and the post-tests were denoted by green paper. Black ink pens were provided to participants for completion of the pre-and post-tests.

A partnership was established with a local senior center. The facility was assessed internally and externally for locations for ambulation and tracking. This was completed because in addition to providing education this project also includes installing an ambulation sign. The installation of the ambulation sign will allow there to be an additional sustainable aspect of the project. The sign will act as a reminder of the teaching, and aid in the tracking of distance ambulated. The facility has an existing walking path that is wide, paved, and well-illuminated. The path also contains benches on the side and seating nearby that facilitates scalability and promotes ambulation for people

of varying abilities. A measuring wheel was utilized to measure the distance around the walking path. One lap measured 377.1 feet. There are 5,280 feet in 1 mile (Smith, 2021). That equates to 14 laps around the walking path equaling 1 mile. A custom sign was ordered from Smart Sign (Appendix F) with a weighted signpost for visibility (SmartSign, 2022).

A program was scheduled with the local adult day care facility where a presentation would be offered to participants and staff on the benefits of ambulation and the new sign. The goal of the presentation was to have an audience of 30 people from the local adult daycare facility, however, on the day of the presentation, there were 20 audience members due to absences and staff emergencies. To demonstrate the effectiveness of the presentation a pre-test and post-test were given before and after the presentation. A PowerPoint presentation was provided to participants discussing the benefits of ambulation, current recommendations, and the benefits of the walking path at the facility.

The program was presented to 20 staff and participants on Friday, June 24th, 2022, at 2 pm. The program was conducted in a social hall with a supporting PowerPoint presentation. The presentation lasted for 55 minutes. Twenty minutes were spent presenting the PowerPoint presentation, 10 minutes were allotted for the pre-test, 10 minutes were allotted for the post-test, and there were 10 minutes after the post-test allotted for questions and discussion. Staff and participants were very engaged throughout the presentation, and there was a beneficial discussion at the end of the program.

Program participants were enthusiastic regarding the installation of the ambulation signage along the walking path. The staff was encouraged by the fact that the paved walking path with lighting and benches was supported by research as promoting ambulation (Ottoni et al., 2016). Both staff and participants were surprised by the Surgeon General's report that only 50% of adults meet the minimum recommended weekly activity goal of 150 minutes (CDC, 2020). This fact seemed to be a motivator for staff and participants to start utilizing the walking path to meet the CDC's recommended weekly activity.

Project Closure

Data collection was completed on June 24th, 2022. The ambulation signage was installed 1 week later due to shipping delays. The project was then completed once the ambulation signage was installed. The sign will remain in place for staff and participants to continue to use. The PowerPoint presentation (Appendix C) was provided to the Director of Community Outreach for future use and reference. Resources and references regarding the educational guidelines were shared and can easily be disseminated to new staff or participants at the senior center.

Interpretation of Data

Data Analysis

A pre-test was provided to program participants prior to the presentation (Appendix A). The pre-test was printed in black ink on blue paper. Participants were each provided a pen and allotted 10 minutes to complete the five questions of the pre-test. All those who were selected to participate in the session were notified that completion of the

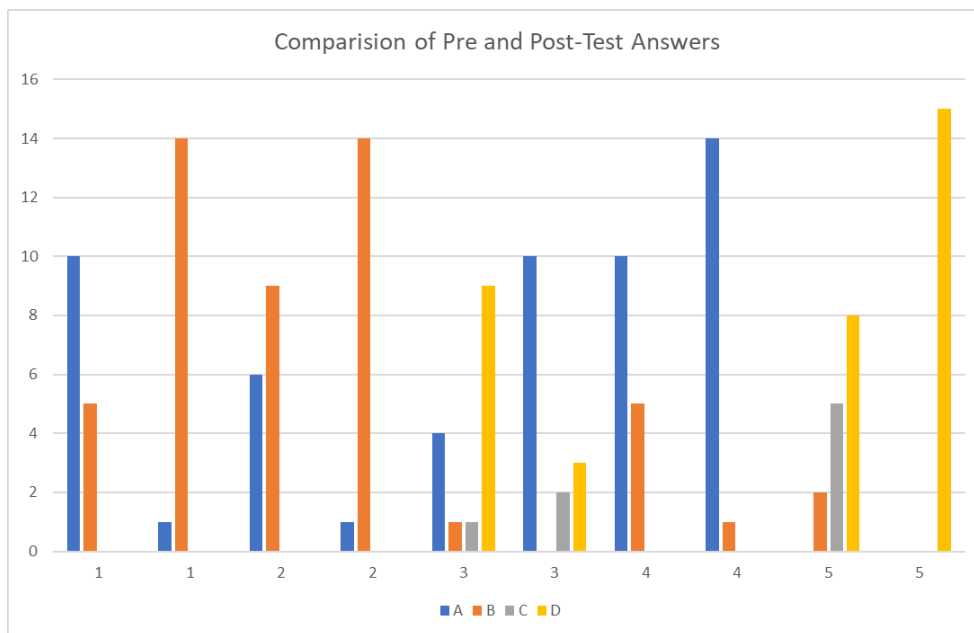
pre-test and post-test indicated their voluntary agreement to participate in the project data collection. All participants were informed their identity would remain anonymous, no identifying data would be collected from them, and to not place their names on the pre-test or post-test. Participants held on to the pre-test for the duration of the presentation and submitted the completed pre-test with the completed post-test at the conclusion of the program. Once the 10 minutes had ended, the presentation of the material began. The educational session took approximately 20 minutes as the PowerPoint slides were discussed and reviewed (Appendix C). There was an additional 10 minutes at the conclusion of the educational session for completion of the post-test. Submission and completion of the pre and post-tests implied consent to participate in the project. The post-test (Appendix B) was completed at the conclusion of the program, and it was printed on green paper. Blue and green paper were used to differentiate the pre- and post-tests for participants and to aid the DNP student in data analysis

Overall, 20 individuals completed the pre-test, however, only 15 participants completed the post-test. The decrease in completion of the post-tests could be due to the fact some of the participants were content to listen to the presentation but had difficulty managing the paper test. There was some difficulty writing on the pre-/post-test paper due to not having a table or hard surface, and this could also be a factor in some of the participants choosing not to complete the post-test. Therefore 15 completed pre- and post-tests were able to be utilized for data analysis. Test-retest reliability was utilized for data analysis (Zaccagnini & White, 2017). This method was selected because of the ability to compare the data from a pre-and post-test type of data collection. The pre-and post-test questions were plotted along a bar graph (Figure 1). A correlation was assessed

for each question to determine improvement based on the teaching provided. The number of correct answers on the pre-test was compared to the number of correct answers to the corresponding question on the post-test. The answers to the pre-test were compared with the answers to the post-test. The goal was for the number of correct answer selections to improve from the pre-test to the post-test.

Figure 1

Pre-and Post-Test Answers



A comparison of the answers to each of the five questions was conducted. The first number on the Y-axis represents the pre-test with the second number representing the post-test response. Questions 1, 2, and 4 were True/False style questions for which there were only two options to answer. Questions 3 and 5 were multiple choice style questions for which there were four options to answer. Interestingly, each question showed a positive correlation for improvement between the pre- and post-tests, meaning that the number of correct answers increased for each question from the pre- to post-test.

Question Breakdown

The answer to question number one was True. Ten participants answered correctly on the pre-test (66%), and 14 participants answered correctly on the post-test (93%). This was an increase of 27% in knowledge following the educational session. The correct answer to number two was False. Nine participants (60%) answered correctly on the pre-test, and 14 participants (93%) answered correctly on the post-test. This was an increase of 33% in knowledge following the educational session. The correct answer for the third question was A-minimally 150 minutes of physical activity per week. Four participants (26%) chose the correct answer on the pre-test. Ten participants (66%) chose the correct answer A on the post-test. This was an increase of 40% in knowledge following the educational session. For question number four the correct answer was True. Ten participants (66%) chose true on the pre-test and 14 participants (93%) chose true on the post-test. This was an increase of 27% in knowledge following the educational session. The final question number five had a correct answer of D-a simply walking or mobilizing outside can meet the weekly activity guidelines. Eight participants (53%) chose the correct answer D on the pre-test. All 15 participants (100%) chose D as the correct answer on the post-test. This was an increase of 47% in knowledge following the educational session.

Conclusion

Limitations and Barriers

Threats and barriers to the implementation portion of the project included the DNP student relying on the willingness of the staff and participants to attend the program. Additionally, the willingness of the staff and participants to complete the pre-

and post-test assessments was high, yet some opted not to complete the post-test. This proved to be a barrier to gathering data and a threat to truly assessing the education provided. The paper pre-and post-tests also turned out to be cumbersome for the completion of the assessments. Despite explaining that the pre-test was printed on blue paper and the post-test was on green paper prior to the start of the program, there were additional reminders and instruction that was needed throughout the program to provide clarification. In the future, consideration should be given to handing out the pre- and post-tests individually to minimize the confusion and hopefully increase participation. Managing and manipulating the paper pre- and post-tests proved to be a challenge as well as the program was presented in a room with chairs but no tables. There were challenges with participants writing on the paper without something to bear down on. A future consideration would be to provide clipboards for the tests. Despite these challenges, there were 15 completed pre-and post-tests for analysis.

The use of paper and pen to assess knowledge and efficacy of teaching was cost-effective and accessible. However, it was cumbersome for participants to handle for the duration of the program. Ideally, an electronic method of data collection could be utilized, however, could be cost prohibitive. Electronic methods of data collection could have included the use of a digital application on a smartphone, however, not all participants may have had access to a smartphone. There are digital devices that can be purchased for distribution to utilize to answer questions, however, this would have been cost prohibitive for this project. After the post-tests were collected there was time for questions from participants. One of the questions raised by multiple participants concerned question number three on the pre-and post-test. Multiple participants stated

they selected option D as the correct answer on both the pre-and post-test as it was the longest answer. This was not the correct answer but brought to light an interesting unintended response to the question.

An additional limitation was the number of participants and the limited data set for analysis. The nature of the adult day care program lends that their daily census varies based on the needs of the community. Therefore, there were fewer than anticipated participants due to the absences of participants. Additionally, there were unanticipated staff emergencies that resulted in lower staffing numbers. This meant that fewer staff were available to participate in the program, as some were out of the facility, and others needed to be reassigned to other duties.

Sustainability

This project will be sustained because the ambulation signage will remain in place at the conclusion of the education program. Senior center staff and participants will be able to utilize the walking path and signage to track their ambulation. The education was provided on a one-time basis. However, the Director of Community Outreach was provided with a copy of the PowerPoint (Appendix C) for future use and reference. The signage will also remain in place as a continual reminder of the education that was provided.

Recommendations for Future Research

Future research could be focused on assessing the use of the walking path and correlating the use of the walking path with health metrics from the adult daycare participants to further prove the role of ambulation. Particularly, future research could be geared towards looking further at ambulation status and the ability to remain at home as

an individual age. Future researchers could establish a tool to track the usage of the walking path by senior center participants. Researchers could then assess the ambulation status of participants and encourage ambulation to the CDC's recommendations of 150 minutes per week. From there, researchers could assess the impact on the ambulation of participants' standardized assessments. Future research could also involve the assessment of ambulation and disease management among participants and even staff.

Summary

The senior center ended up being an especially unique location for the completion of the project. The target population is older adults, which is the population much of the research applied. In addition, the senior center has an existing walking path with many attributes that promote the benefits of ambulation and mobility in an older adult population. The research conducted by Ottoni et al. (2016) supported this by identifying characteristics such as a wide flat, paved, well-lit path as promoting ambulation. The presence of benches and seating along the walking path also promotes improved feelings of community, and accessibility of the walking path (Ottoni et al., 2016). Making this connection with the senior center staff and participants contributed to getting their buy-in for participating in the program. There was a distinct sense of pride from staff and participants that the research supported the design of their walking path.

In conclusion, the benefits of ambulation in an older adult population are numerous. This project proved particularly applicable to the local senior center facility. The local senior center facility has the target age range population of participants and a safe place to conduct ambulation activities. A program was conducted with staff and participants participating in a pre-and post-test to evaluate the effectiveness of the

teaching. A PowerPoint was utilized as a teaching tool, and that proved to be effective as evidenced by improved responses to post-test questions. An increase in knowledge of the importance of frequent ambulation was beneficial to the senior center participants and staff. There is a consistent theme across all settings that proves ambulation is beneficial for patients, participants, and residents.

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Appendix A

Pre-Test (Printed on Blue Paper)

Participation is voluntary and anonymous. Completion of questions implies consent to participate. Thank you for your time! Please circle the correct answer.

1. Daily ambulation or mobilization can reduce the risk of hospitalization, pneumonia, and functional decline.
 - A. True
 - B. False

2. Ambulation must be at a fast speed to be beneficial.
 - A. True
 - B. False

3. The Center for Disease Control and Prevention recommends how much physical activity weekly?
 - A. Minimally 150 minutes of physical activity per week.
 - B. Maximally 65 minutes of physical activity per week.
 - C. Minimally 75 minutes of physical activity per week.
 - D. There are no real recommendations, just do what you can.

4. Participating in regular physical activity can improve sleep and reduce feelings of anxiety.
 - A. True
 - B. False

5. Meeting the physical activity guidelines requires:
- A. Expensive home gym equipment.
 - B. Getting a gym membership.
 - C. Being physically fit to start.
 - D. A simply walking or mobilizing outside can meet the weekly activity guidelines

Appendix B

Post Test (Printed on Green Paper)

1. Daily ambulation or mobilization can reduce the risk of hospitalization, pneumonia, and functional decline.
 - A. True
 - B. False

2. Ambulation must be at a fast speed to be beneficial.
 - A. True
 - B. False

3. The Center for Disease Control and Prevention recommends how much physical activity weekly?
 - A. Minimally 150 minutes of physical activity per week.
 - B. Maximally 65 minutes of physical activity per week.
 - C. Minimally 75 minutes of physical activity per week.
 - D. There are no real recommendations, just do what you can.

4. Participating in regular physical activity can improve sleep and reduce feelings of anxiety.
 - A. True
 - B. False

5. Meeting the physical activity guidelines requires:
 - A. Expensive home gym equipment.
 - B. Getting a gym membership.
 - C. Being physically fit to start.
 - D. A simply walking or mobilizing outside can meet the weekly activity guidelines

Appendix C

PowerPoint Presentation

The image displays four slides from a PowerPoint presentation, arranged in a 2x2 grid. Each slide features a blue circle on the left side and various decorative elements like dashed lines and colored shapes.

Slide 1: The title slide is titled "Benefits of Ambulation" in white text on a blue background. Below the title, it reads "Kelsey Wilkes, BSN, RN", "Doctorate of Nursing Practice Student", and "Gardner-Webb University".

Slide 2: Titled "Pre-Test", it contains a bulleted list: "Thank you for coming!" and "Please complete the Blue pre-test prior to the presentation." The slide number "2" is in the bottom right corner.

Slide 3: Titled "Introduction", it contains a bulleted list: "Background" and "Doctorate of Nursing Practice Project Overview". The slide number "3" is in the bottom right corner.

Slide 4: Titled "Walking Path Sign", it features an image of a maroon sign with white text that reads "Walking Path", "14 laps =1 mile", and a double-headed arrow. The slide number "4" is in the bottom right corner.

Introduction

- Increasing the number of adults participating in physical activity is a Healthy People 2030 goal.
- The Surgeon General has made walking a priority through it's "Step It Up!" campaign.

Benefits of Ambulation 5

Introduction

- A useable walking path is a valuable asset to the Life Enrichment Center Community members.
- Ambulation is a low cost, easily accessible way to stay active.

Benefits of Ambulation 6

Daily Ambulation

- Prevent mobility decline(Ottoni et al, 2016)
- Reduce the risk of falls (Pauelsen, 2017)
- Positive impact on mood and feelings of wellbeing (Ottoni et al, 2016)

Benefits of Ambulation 7

Impact on Health

Reduced Risk of:

- Hospitalization
- Urinary Tract Infections
- Pneumonia
- Blood clots

Benefits of Ambulation 8

Impact on Health

- Has the potential to improve:
 - Sleep habits
 - Feelings of anxiety
 - Memory
 - Chronic Pain
 - Chronic conditions such as diabetes and heart disease

Benefits of Ambulation 9

Impact on Health

- According to research by Ottoni et al: maintaining mobility is one of the greatest predictors of an individual's ability to remain in their homes as they age

Benefits of Ambulation 10

Impact on Health

- Ottoni et al also found that community based ambulation/mobility had a positive impact on individual wellbeing. Decreasing feelings of anxiety and depression, and increasing feelings of wellbeing.

Benefits of Ambulation 11

Impact on Health

- Ottoni et al reports certain features that promote the walkability of an area such as safety (wide flat paved path), peers to interact with, and benches along the path.

9/3/2008 Presentation Title 12

Time to Walk!

- The Centers for Disease Control and Prevention recommends 150 minutes per week of moderate physical activity, all of which can be achieved through walking!
- Ambulation does not need to be fast to be beneficial, use a pace that is comfortable for you.

Benefits of Ambulation 13

13

Questions/Post-Test

- Thank you for opportunity to speak with you today and your partnership on this project.
- Please complete the Post-test on the green sheet.

9/3/20XX Presentation Title 14

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9/3/20XX Presentation Title 16

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End

Kelsey Wilkes, BSN RN
Gardner-Webb Doctorate of Nursing
Practice-Family Nurse Practitioner
Student

17

Appendix D

Permission to Complete Project at Senior Center

From: Donna Tessler <Donna@lifeenrichmentcenter.org>
Sent: Friday, April 1, 2022 10:17:55 AM
To: Kelsey Wilkes <kwilkes@gardner-webb.edu>
Cc: Tina Mauney <Tina@lifeenrichmentcenter.org>; Christy Pearson <Christy@lifeenrichmentcenter.org>
Subject: Doctorate of Nursing Practice Project

CAUTION: This email originated from outside of the Gardner-Webb.edu domain. Do not click links or open attachments unless you verify that the links and/or attachments are safe.

Dear Kelsey and Whomever It May Concern,

We are thrilled you have chosen Life Enrichment Center for your Doctorate of Nursing Practice Project. Your study on ambulation and mobility sounds interesting and very beneficial to the population we serve.

We grant permission for you to complete your project with our organization. There will be a few forms to complete upon your arrival.

We look forward to seeing you soon!

Warm regards,

Donna H. Tessler
Life Enrichment Center

Appendix E

IRB Email Permission

From: Yvonne Smith <ysmith@gardner-webb.edu>
Date: Wednesday, April 27, 2022 at 1:34 PM
To: Melissa McNeilly <mmcneilly1@Gardner-Webb.edu>, Kelsey Wilkes <kwilkes@gardner-webb.edu>
Cc: Anna Hamrick <ashamrick@Gardner-Webb.edu>, Brittany Hudgins-Graham <bnhudgins@gardner-webb.edu>
Subject: QI Application HSON Final Approval – Kelsey Wilkes

Dr. McNeilly and Kelsey,

Thank you for your submission to the Hunt School of Nursing (HSON) Evidence Based Practice and Research Council.

Your project entitled: Mobility Marker Implementation has been approved as a quality improvement project effective today.

Please make sure to use the attached application and materials as the final copies for your project.

If you have any questions or concerns, please reach out to a member of the **IRB** Committee.

Best wishes on your project!

Dr. Yvonne H. Smith, DNP, PMHNP-BC, PMH-BC, CNE, NCSN
PMHNP Program Coordinator
Assistant Professor
Hunt School of Nursing
Gardner-Webb University
Office Address: College of Health Sciences- Office 127
315 West College Ave, Shelby, NC 28152

Appendix F

Installed Ambulation Walking Sign

