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Waiting Room Health Promotion for Older Adults in Rural Primary Care

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WAITING ROOM HEALTH PROMOTION FOR OLDER ADULTS IN
RURAL PRIMARY CARE

A Project Presented

By

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to

The Faculty of the Graduate College

of

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for the Degree of Master of Science
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WAITING ROOM HEALTH PROMOTION FOR OLDER ADULTS

ABSTRACT

Background: Advances in health care technology have led to adults living longer than in previous decades. Longer life expectancy in combination with the aging of the Baby Boomer generation is predicted to result in rapid and exponential growth among the older adult population. Adults in the U.S. over the age of 65 have on average five or more chronic illnesses, many of which are often poorly managed. Older adults who experience chronic diseases often report decreased quality of life, limitations in functional ability, loss of independence, and periods of decline and increasing disability. Health promotion efforts can help in delaying the onset of disability and preventing rapid decline associated with many chronic conditions.

Purpose: The purpose of this project was to assess the effectiveness of the implementation of a brief waiting room health promotion activity that informs older adults about the benefits of walking, such as reducing the risk of chronic disease, improving mood, and maintaining weight, physical and cognitive function. This project took place at a federally qualified health center in Plainfield, Vermont.

Methods: The target population for this educational intervention included patients, as well as family members and visitors to the primary care practice who were age 55 and older. All age-eligible participants were encouraged to participate regardless of health status or the presence of comorbid health conditions. The activity comprised of participants viewing a brief audiovisual educational activity explaining the health benefits of walking, supplemented with paper materials to support the health messages; the intervention was then followed by completion of a brief paper survey evaluation.

Results: During the two-month period the health promotion activity was available, 56 individuals participated and completed the survey. Of the 56 participants, 87% indicated they either “strongly agreed” or “agreed” that watching the video increased knowledge about health-related benefits of walking. In total, approximately 73% of participants who participated in this health promotion activity agreed that they paid attention to educational materials in the waiting room setting. Approximately 57% of participants shared a health related goal that they created as a result of the health promotion activity.

Conclusion: This project has suggested that implementation of waiting room health promotion activities, specifically for older adults, is a simple and cost-effective way to promote good health practices and provide patients with in-depth health care information that may not be addressed during the health care visit. Activities in the waiting room can help to supplement information provided during the clinical encounter, leaving patients more satisfied with their visits, and promoting positive behavior change.

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Chapter I: Introduction

Background and Significance

Recent advances in health care technology have led to adults living longer than in previous decades. At the same time, the baby boomer generation comprises a large percentage of the population in the U.S. This robustly large portion of the population, combined with increasingly longer life expectancy, is predicted to result in rapid and exponential growth among the older adult population, a phenomenon referred to as the “silver tsunami” (Ogden, Richards & Shenson, 2012). By 2050, it is predicted that the number of older adults in the United States will be double that of the number in 2010, nearing close to 89 million people aged 65 or older (CDC, 2013). The financial implications of this degree of population growth are unsurprising, with Medicare spending amounts projected to increase from \$555 billion in 2011 to nearly \$903 billion in 2020 (CDC, 2013).

Chronic disease is responsible for approximately 83% of the total health care expenditures in the United States. Adults in the U.S. over the age of 65 have on average five or more chronic illnesses, many of which are often poorly managed and as a result are adding to our burdensome national economic deficit (Zaldivar & Boharyzyk, 2013). The Centers for Disease Control and Prevention (2013) estimate that only 9.3% of adults with diabetes have diabetes alone as a chronic illness - a startling example of the compounding and complex nature of chronic illness. Efforts aimed at preventing chronic disease and promoting healthy aging are imperative in order to improve the health and quality of life of older adults, as well to keep our national health care spending in check.

Older adults who experience chronic diseases often report decreased quality of life, limitations in functional ability, loss of independence, and periods of decline and increasing

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disability (CDC, 2013). While death is unavoidable, health promotion efforts can help in delaying the onset of disability and preventing rapid decline associated with many chronic conditions. There are many factors associated with the ability of an individual to manage his/her chronic conditions. Socioeconomic and demographic factors including geographic proximity to a healthcare provider, provider availability, health insurance coverage, transportation, culture, education, health literacy, and perception of health status are few of many factors (Ogden, Richards & Shenson, 2012). Age may be considered a risk factor in the development of chronic diseases, but it is not however a cause. Conditions such as heart disease, cancer, stroke, respiratory disease, diabetes, Alzheimer's and other forms of dementia are all increasingly prevalent, and the risk behaviors that contribute to these illnesses are often present at a young age (CDC, 2013).

Protective lifestyle behaviors such as abstinence from tobacco, regular physical activity, healthy dietary choices and regular preventive care services are advised across the age continuum. In addition to these health behaviors, there are also additional health promotion activities that should be regularly targeted toward older adults to reduce the risk of age-related adversities and geriatric syndromes that increase the risk of morbidity and mortality. These include addressing changes in sensory perception, accident prevention, gait impairments, incontinence, central nervous system and musculoskeletal impairments (Boeckxstaens & Graaf, 2011). Health promotion activities that are focused on older adults should emphasize ways to reduce age-associated morbidity, and should utilize health promotion messages that are focused on maintaining independence, self esteem and consequences, rather than those focused on risks and consequences (Boeckzstaens & Graff, 2011).

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Regular aerobic physical activity, in combination with muscle-strengthening exercises, is key for healthy aging of older adults, yet older adults are among the least physically active individuals of any age group in the United States (Nelson et al., 2007). The Centers for Disease Control and Prevention (2014) recommends approximately 150 minute per week of moderate-intensity physical activity for adults. There are many known benefits of regular physical activity among all age groups, including reduction of the risk of cardiovascular disease, stroke, hypertension, type II diabetes, obesity, and reducing risk factors for certain cancers (CDC, Facts, 2014). Among older adults specifically, regular physical activity confers additional protection against age-related impairments, including reducing risk of falls and injury related to falls, slowing progression of cognitive impairments, and has potential to prevent or slow limitations in functioning (Nelson et al. 2007; Surgeon General, n.d.). Health promotion of older adults should emphasize several aspects of physical activity, including reducing sedentary behavior, increasing moderate activity with less focus on vigorous forms of activity, emphasizing importance of a gradual and stepwise approach to reaching fitness goals, and role of muscle strengthening activities in addition to aerobic activity (Nelson et al., 2007). Despite the known health benefits of physical activity, the Centers for Disease Control (2014) estimates that only 21% of adults nationwide in fact meet the physical activity recommendations of 150 minutes weekly.

Project Description and Purpose

The purpose of this project was to assess the effectiveness of the implementation of a brief waiting room health promotion activity that informs older adults about the benefits of walking, such as reducing the risk of chronic disease, improving mood, and maintaining weight, physical and cognitive function. This health promotion project took place at a federally qualified health center in Plainfield, Vermont, a practice that serves a rural six-town area in Central

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Vermont. Following the health promotion exercise, older adults evaluated the effectiveness of the intervention using a 5-point Likert scale to assess knowledge regarding the benefits of walking for health in aging, as well as motivation to increase physical activity levels.

Theoretical Conceptual Framework

The conceptual framework that guided completion of this project is Nola Pender's Health Promotion Model. Pender reasons that the act of health promotion is motivated by the desire to increase well-being and maximize human health potential, which can be done on multiple levels (primary, secondary, tertiary) throughout the lifecycle. The model is useful in identifying background factors that influence health behaviors, focusing on eight central beliefs that serve as the core of nursing intervention (Pender, 2011). There are many components of the Health Promotion Model, including identifying individual characteristics and experiences, including prior behavior and personal factors that influence change. Behavior specific cognitions and affect include factors such as perceived benefits and barriers of the action, perception of self-efficacy and ability to make a change, as well as interpersonal and situational influences that form the context of the social, structural and physical environment. The last component is the behavioral outcome, or the outcome of health decision-making and the individual preparing for action.

It is important to note the assumptions of the model, including the concept that individuals seek to actively regulate their own behavior, individuals interact with the environment, and health professionals essentially serve as only a part of the interpersonal environment (Pender, 2011). When applied within the context of this project, the Health Promotion Model can be used to anticipate possible perceived benefits and barriers to engaging in regular walking. Additionally, support and information can be provided in order alter the

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external environment, serving as both a situational and interpersonal influence, and can positively enhance patient self-efficacy in engaging in the desired health behavior.

Relationship to Advanced Practice Nursing

There are many core competencies proposed by the National Organization of Nurse Practitioner Faculties (NONPF) that have been identified as expected behaviors essential to the entry-level nurse practitioner. Of the many proposed competencies, this project fulfilled aspects of several, including leadership, quality, and technology and information literacy. Thorough appraisal of the best available evidence has guided the development of this project, which intends to provide a valuable opportunity for health promotion among older adults within the primary care setting,

When supporting health prevention efforts, emphasis should focus on the avoidance of disease and promotion of good health practices through primary prevention (Goetzel, 2009). Advocating for evidence-based, cost-effective health promotion efforts that have promise to provide benefit to population health outcomes and healthcare cost savings is a vital aspect of the role of the nurse practitioner. The ability to assess and find balance among the risks, benefits, cost, quality and safety of health promotion efforts assures a level of quality that is vital in clinical practice. Most importantly, a thorough assessment of patient needs and literacy level, and appropriate integration of technology and health information into patient education is paramount to providing effective clinical care and promoting positive behavior change.

Contribution to Intended Recipients and Anticipated Benefits

Primary care providers face an incredible challenge in daily clinical practice, finding a balance between addressing patients' acute and chronic health concerns, and simultaneously educating patients and promoting important preventive health care measures. This project is

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intended to provide a waiting room health promotion activity for older adults, many of whom present with concurrent chronic conditions that are difficult to address within the allotted time of an office visit. This project will provide patients with more in-depth information about the health benefits associated with walking, including maintenance of independent functioning throughout the aging process. Additionally, the completion of this project will provide valuable information regarding the efficacy of brief promotional activities and ability to enhance patient motivation when employed in a primary care waiting room, where space and time is often underutilized as patients wait for health care services.

Chapter II: Literature Review

The Rationale for Walking

The evidence regarding the health benefits of regular physical activity, and the role it plays in primary and secondary prevention of chronic diseases is incontrovertible (Warburton, Nicol, & Bredin, 2006). The specific health benefits are numerous and reach far and wide, including prevention of many chronic diseases such as cardiovascular disease, stroke, hypertension, type II diabetes mellitus, osteoporosis, obesity, cancer, anxiety and depression; rates of disability are reduced, and while inevitable, mortality can be at least delayed (Lee & Buchner, 2008). Walking, specifically, is considered to be one of the oldest, most universal and fundamental forms of physical activity (Zhu, 2008). It is one of the most common forms of physical activity undertaken by both genders, with 52% of men and 74% of women reporting walking as one of the top two activities when surveyed in 2011 (Surgeon General, n.d.). It is both a rhythmic and dynamic form of aerobic activity, and one that has potential to convey pleasurable and therapeutic benefits through both the physiological benefits and social opportunities it provides (Morris & Hardman, 1997).

It wasn't until the 1990s that walking really began to receive attention as a healthy form of moderate intensity activity, a notion that challenged the perception regarding the need for more vigorous activity such as running (Lee & Buchner, 2008). Walking as a form of physical activity is appropriate for nearly all populations. There are no limitations related to gender, ethnic group, age, education, income level, or access to resources; walking can be done anywhere, any time of the year, and requires no skill or special equipment, and comes with very minimal risk of injury (Surgeon General, n.d.). Individuals with disabilities are often still able to walk or move about with use of assistive devices such as walkers, and the level of intensity can

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be tailored to individual need. It is also an ideal form of activity for those who are either inactive or sedentary, including elderly who fall into the category of frail and immobile (Surgeon General, n.d.). The variable intensity level and easy access makes walking a favorable form of physical activity, and one with the potential to improve health, reduce the burden of chronic disease and like-wise help control health care expenditures (Lee & Buchner, 2008).

Health Benefits of Walking

Numerous studies have looked at the benefits of walking in regards to a variety of health-related outcomes, such as physical functioning, measures of chronic disease (blood pressure, hyperlipidemia, A1c), depressive symptoms, quality of life, cognitive functioning, and overall reduction in rates of mortality. The Centers for Disease Control and Prevention (CDC) recommend approximately 150 minutes per week of moderate-intensity aerobic activity, defined as brisk walking at a rate of 3-miles per hour (Older Adults, n.d.). While this recommendation is the standard, even low-intensity walking has shown to have notable health benefits.

Varma et al. (2013) explored at the benefits of walking in a cross-sectional design specifically looking at older adults. One hundred eighty-seven participants, primarily African American females with a mean age of 66 living in urban settings wore step counters to track activity intensity. The association between low-intensity walking and a variety of outcome measures was then examined. Outcome measures included ability to walk a mile, walking stairs, lower extremity function, as well as the presence of depressive symptoms as measured by the Geriatric Depression Scale, self-reported quality of life, and global cognition using the MMSE. Approximately 90% of the total activity undertaken was categorized as low-intensity, but even an increase in 1000 steps daily (equating to approximately 10 minutes) at this low level of intensity was associated with better physical functioning measures, significantly fewer

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depressive symptoms and increased quality of life; results of the MMSE were unchanged. The cross-sectional study design is a notable limitation, in that it only provides a snapshot measure of the true effect of low-intensity activity rather than a long-term measure. The improvement in depressive symptoms and reported change in quality of life however is an especially notable finding, regardless of the duration of effect.

Another study by Wueve et al. (2004) examined the role of physical activity and walking, specifically, on cognitive function and performance. Nearly 16,466 female participants age 70 and older with no prior history of stroke were drawn from the Nurses' Health Study cohort for telephone cognitive assessment twice, approximately 2 years apart. In addition to the performance of cognitive testing, women were interviewed regarding their leisure-time activity, running, jogging, walking, hiking and other moderate and vigorous-intensity activities. Baseline cognitive function and mean decline in cognitive performance were assessed over 2 years in comparison with physical activity, finding that not surprisingly, women engaging in higher rates of activity were less likely to experience issues with balance, fatigue, cardiovascular disease, pulmonary disease, diabetes and other physical health limitations, but they also scored significantly better on all cognitive measures (general cognition, verbal memory, category fluency and attention) with the one exception of category fluency. Women who fell within the most active range had 20% less risk of cognitive impairment when compared with women in the least active tier. Walking at a pace of 21-30 minutes/mile for 1.5 hours per week showed to be an effective in reducing the risk of cognitive impairment. It is possible that results were confounded by other health-patterns or lifestyle factors, however numerous factors were considered and adjusted for. It is also possible that "reverse causation" existed, and that participants experiencing some degree of cognitive impairment thus also experienced a reduction in physical

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activity levels. Additionally, it is difficult to assess the true impact of physical activity on cognitive functioning within a two-year time frame, as the decline can be slow and insidious over a significantly longer period of time.

While the aforementioned studies focused primarily on the benefits of walking in regards to cognitive functioning and other psycho-emotional measures, others have focused more heavily on a variety of physical measures. Hanson and Jones (2015) explored the potential health benefits of walking groups and sustained walking behavior. They reviewed and analyzed 42 studies involving 1843 participants, all over the age of 19 and with a wide range of conditions, such as arthritis, dementia or other cognitive impairment, diabetes, obesity, and many more. Studies were included when walking as an intervention was predominantly group based, and when the study looked at the physiological, psychological or health outcomes associated with walking as an activity (such as blood pressure, lipids, hemoglobin A1c, depression). The studies were prominently based in the U.S, both rural and urban settings. Statistically significant improvements were seen from baseline to end of intervention for systolic and diastolic BP, heart rate, body fat %, BMI, total cholesterol, quality of life for physical functioning, walk time, depression; the remaining outcomes, such as waist circumference, fasting glucose, mental health, and serum lipids, did not demonstrate any clear statistically significant effects following intervention. Remarkably, no notable adverse effects were reported in any of the studies. The weaknesses of this review include the lack of a straightforward comparison between group walking and non-group walking, but the breadth of available evidence seems to reasonably support that the results are similar.

A prospective cohort study by Zhao et al. (2015) looked at the effects of daily walking on mortality rates among a cohort of elderly men aged 65-74 years, both with and without heart

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disease, cerebrovascular disease and cancer. Assessment data from the 1239 male participants was collected by self-report, including walking duration, critical illnesses, sociodemographic and lifestyle factor, as well as other biometric measures such as BMI, blood pressure, the presence of hyperlipidemia, and measurement of hemoglobin A1c. Participants were followed until death or the last day of the year upon reaching 75 years of age. In the men afflicted with chronic diseases, those walking 1-2 hours per day demonstrated a protective effect on mortality, more so than walking ½ hour daily. Walking 2 hours or more daily did not result in any greater benefit on mortality, evidence that is consistent with, and supports the CDC recommendation of 150 minutes of moderate intensity physical activity per week.

A narrative review by Warburton, Nicol and Bredin (2006) also explored the benefits of walking in the reduction of mortality and premature death, as well as delay in the development of chronic disease. A prospective cohort study included in the review looked specifically the role of walking in patients with diabetes, showing that walking for 2 hours per week was associated with a 39-54% reduction in the incidence of premature death resulting from cardiovascular disease among diabetic patients. The duration and intensity of activity level were also discussed, with evidence showing that energy expenditure of approximately 2000 kilocalories (kcal) per week were associated with an approximate increase in life expectancy of 1-2 years by age 80. Even lower rates of energy expenditure or approximately 1000kcal per week were associated with a 20-30% reduction in all-cause mortality.

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Health Promotion in Older Adults

The CDC has outlined numerous healthcare priorities among the general population, one being the identification and implementation of more activities that are designed to promote health and wellbeing, and to minimize chronic disease and disability of older adults in the population. There have been several studies looking at the effects of various health promotion interventions in older adult age groups, utilizing a variety of different platforms for delivery of information and promotional messages, such as in-person classes, web-based designs, video, and mobile phone applications and messaging. Among these different studies includes Müller, Khoo, and Morris (2016), who looked at the effectiveness of text messaging as a means of promoting physical activity in a randomized controlled trial targeted at adults age 55-75. All participants were provided with an exercise booklet that provided information about the benefits of physical activity, warm up and cool down exercises, and descriptions and visual depictions of a variety of strengthening exercises. Over the course of the 12-week study, participants in the intervention group were sent 5 weekly text messages, which provided further instruction about the exercises, as well as motivational messages designed to enhance behavior change. No messages were sent to participants in the control group. At the end of the 12-week study, those participants who had received regular text messaging were exercising significantly more than those in the non-text group, a frequency of approximately 1.21 days more per week. However, further follow-up at 24 weeks showed no statistical difference between groups.

The rationale for using mobile phones in this study was based on the fact that studies of older adults in the U.S. have showed that as much as 75.9% of the adult population over age 65 own a mobile phone. Furthermore, text messaging is a frequently used feature among this age range as it is easy to use and requires little skill. Additionally, texting can be perceived as a

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personal interaction, which can be of greater significance among an older population who may be socially isolated or who benefit from increase in social interactions.

The effectiveness of web-based interventions has also been explored as a method for promoting health among older adults. Van Stralen et al. (2011) utilized a randomized controlled design to assign participants (all over age 50, n=1971) to one of three research arms; the first was a basic, computer-tailored print intervention that provided personalized advice about physical activity and motivational messages focused on phases of behavior change, as well as increasing awareness of individual physical activity levels. The second group received the same basic motivational intervention, plus information about environmental-specific physical activity offerings and opportunities in the community, such as walking and biking routes, sports clubs, and home exercise routines. The third group, the control group, was placed on a wait list. Both intervention groups demonstrated increases in the number of days per week of physical activity, however, only the group that received the basic motivational intervention in addition to the environmental specific physical activity information saw an increase in the total number of minutes of physical activity per week - a significant increase of approximately one hour. The outcome of physical activity time in this study was measured by self-report, and therefore is subject to possible over-reporting which is a limitation of this particular study. In addition, the authors note a high dropout rate among participants in the intervention group, a finding that has been noted among other computer-tailored intervention studies.

The findings in the study by Van Stralen et al. (2011) are in part supported by other literature that looks at computer-designed delivery of health promotion interventions. In a systematic review and scientific statement from the American Heart Association, Artinian et al. (2010) reviewed the available literature in order to formulate evidence-based recommendations

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for implementing both physical activity and dietary interventions among the adult population, noting the strong correlation between these lifestyle behaviors and cardiovascular risk factors. Approximately 128 studies including 94,745 participants looking at a variety of strategies were reviewed and discussed, including different cognitive behavioral strategies and their effectiveness in facilitating behavior change, as well as different strategies for delivery of health promotion interventions including print, media, individual or group settings, computer and other technology-based interventions. Noted benefits of utilizing a web-based design included cost-effectiveness and ability to reach a wide audience. The results of trials with web-based designs were not overwhelmingly conclusive, however, they did seem to indicate that computer-based interventions appeared to be helpful for weight loss and dietary changes, with less evidence available about the efficacy in increasing physical activity levels. One of the notable strengths of this systematic review is the identification of evidence-based recommendations for designing and implementing health promotion interventions among the adult population. These recommendations include

- promoting goal setting,
- devising strategies for self-monitoring and building self-efficacy,
- using multi-component delivery strategies, and
- using culturally adapted strategies and materials with special attention to health literacy.

A systematic review and meta-analysis by Hobbs et al., (2013) also explored health promotion efforts utilizing multi-component delivery strategies, and looked at the effectiveness of behavioral interventions to increase physical activity in adults ages 55-70. Thirty-two studies including 10,519 participants, both healthy and “at risk” of chronic disease (including hypertension, glucose intolerance, overweight/obesity, hyperlipidemia) were included in the

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review, which intended to examine the long-term effects of health promotion efforts in the older adult age group, at 12 months or more post-intervention. Studies included in this review also included health promotion delivered by a variety of means, many of which were multi-modal and included telephone, printed material, face-to-face individual and group settings, and internet based intervention. All health promotion activities included a blanket physical activity goal of achieving 150 minutes per week of moderate-intensity activity. Most interventions were found to be effective in increasing activity levels among the participants at 12-months following intervention, however the evidence beyond 12 months was too limited. Notably, there was no significant relationship between the mode of delivery of intervention or the number of contacts during intervention and the increase in activity level. Intervention approaches that allowed for personal goal setting, as well as those that provided information about local activity opportunities were slightly more effective at the 12-month follow-up.

The results of a systematic review by Bottorff et al., (2015) also supported the view that providing information about, or access to local activity offerings and/or facilities results in more sustained increases in physical activity. This review looked specifically at the promotion of physical activity programs among men in 35 studies including 14,383 male participants age 18 and older. Studies included either focused exclusively on physical activity alone, or physical activity in combination with other health behaviors, and included delivery of health promotion messages by a variety of different modes, including group sessions, individual face-to-face counseling; some just encouraged increased activity by way of print, DVD, tracking tools, email or other web-based platforms. Ultimately, those programs with diverse components and which included both online and mobile platforms did have an impact on physical activity especially if the information that was provided was both simple and clear. Of note, programs that utilized an

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individual approach or which encouraged activity were more successful in increasing activity levels when they provided free access to facilities at which to do so. The wide age range of participants in this review is a notable limitation, as it cannot be generalized to the older adult population specifically. Additionally, the study focused solely on promotion of physical activity among men. The broader recommendations resulting from the analysis however support previous research in that it echoes the suggestion that providing information or access to facilities as part of the intervention results in a more successful outcome.

The evidence supports the effectiveness of health promotion activities among the older adult population. The mode of delivery for health promotion interventions seems to be less important than the overall content of the message, as demonstrated in the previously reported studies (Bottorf et al., 2015; Hobbs et al., 2013; Artinian et al., 2010). The barriers to physical activity are numerous, including personal barriers such as lack of time, energy, motivation, illness, fear, injury and lack of skill. Additionally, there are the perceived environmental barriers such as weather, extreme temperatures, perceived walkability and access to appropriate facilities. Promoting the favorable characteristics of walking, such as the moderate degree of intensity, low-cost, simple and convenient, as well as the possibility to incorporate social aspects may be a helpful approach (Brawley, Rejeski & King 2003). Providing information about environmental opportunities for activity may help to reduce some of these barriers. Identifying areas that are perceived as “walkable”, which includes the aesthetics of a given area, presence of sidewalks or grass, as well as facilities where participants can walk or cycle, has been shown to increase physical activity minutes among seniors (Carlson et al., 2012). Providing an age-appropriate educational intervention that emphasizes the health benefits of walking in addition to addressing many of these barriers has great potential to motivate older adults to walk more.

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Waiting Room Health Promotion

Several studies have explored the effectiveness of health promotion efforts taken place in the waiting room. Ward and Hawthorne (1994) examined the effectiveness of waiting room posters and whether patients read or remember poster contents in the general practice setting. Approximately 319 patients were surveyed, with 82% indicating they noticed posters placed in a waiting room, and 95% of those individuals reporting they took time to read them. Patients over 50 were more likely to read the posters than younger patients, and all patients indicated that the longer the wait time, the more likely they were to remember the poster contents. The results of this study suggest that health promotion materials in the waiting room can increase awareness of health related issues.

Sherwin, McKeown, Evans and Bhattacharyya (2013) reported similar findings in their review of waiting rooms as a potential vector for delivering patient health information. Their findings support the notion that the waiting room experience is an important predictor of patient satisfaction; longer wait times are associated with lower patient satisfaction, but patients who report being occupied during the wait report higher satisfaction, even when waiting the same amount of time. The authors suggest several potential uses of waiting rooms, including allowing time for completion of validated screenings and questionnaires, appointment goal prompts, coaching, or providing appropriate patient education material regarding health. One of the studies they reviewed, a 2001 controlled trial with 100 participants, designated patients to either an educational intervention comprised of a brief video on glaucoma compared with the control group who received the usual care (no video). Patients in the intervention group reported feeling more satisfied with the education they received during the clinical encounter than the patients who received routine care. This is further supported by the findings of a 2013 study by Devroey

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et al., which assessed use of patient health information materials (PHIMs) such as posters and leaflets in family practice offices in Belgium. Out of the 903 questionnaires completed, 94% of patients indicated they read the PHIMs during waiting times, but more significantly, 34% of patients indicated that the information included in the PHIMs helped them to improve their own health-related knowledge and disease self-management practices.

The use of technology as an intervention strategy was also explored in a controlled trial by Rhodes et al. (2001), when evaluating the use of a computer-based intervention in the emergency department (ED) waiting room setting. Five hundred forty-two patients with non-urgent conditions were assigned to either a computer intervention group or usual care. The intervention group completed a computer-based assessment of health risks that targeted modifiable behaviors and health practice patterns, and which then generated individualized health recommendations and information. Patients in the intervention group indicated general acceptance of the technology, and reported feeling interested in receiving relevant health information during the wait time. They were also more likely than the control group to remember the health advice given one week after the encounter in the ED.

These study findings indicate that the waiting room environment holds promise as a vehicle for health promotion targeted toward older adults, and that providing educational opportunities during appointment wait times has potential to increase patient satisfaction. Additionally, the use of health promotion materials, either posters, leaflets or technology based, have potential to increase understanding of health-related conditions and inform patients about appropriate self-management strategies to improve their health.

Educating Older Adults

The effectiveness of educational strategies varies depending on the age group. Best (2001) discussed the role of the nurse in effective teaching for the elderly in the context of Malcolm Knowles' theory of andragogy, describing basic teaching tips and criteria for educating older adults. Knowles' theory includes a few basic assumptions, including:

- Adults need to know why they need to learn something,
- Adults need to learn experientially,
- Adults approach learning as problem-solving, and
- Adults learn best with the topic is of immediate value (Andragogy, n.d.).

For a successful educational experience, these assumptions must be incorporated into the educational experience. Adults ought to know why they should learn about a given topic, why it applies and why it is of value to them, and how it will help them to navigate future life experiences. In addition to incorporating these principles, Best (2001) describes that a combination of educational methods is effective in ensuring retention of material, as people remember only 75% of what they see, and 10% of what they hear, but closer to 90% of what is communicated by combination of sight and sound. As a result, use of printed materials when reinforced verbally may result in a better understanding of the information. For content of an educational message to be appropriate, it needs to take into consideration health literacy level, grade level of written information, font color and size to meet the sensory needs of older adults. Small amounts of basic, specific information should be provided first, with complex information following only if necessary.

This appraisal of the evidence included in this literature review provides valuable insight and direction as to the potential effectiveness for health promotion activities for the older adult

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age groups. Providing older adults with information about the irrefutable health benefits of walking has potential to enhance participant motivation in engaging in regular activity of this form. Additionally, the waiting room setting presents an ideal opportunity, time and space for providing this information in an effective educational format.

Chapter III: Methods

Identification of Need

Evidence shows that physical activity is one of the most important health behaviors older adults can practice in order to maintain their health. The Centers for Disease Control and Prevention (CDC) (2014) recommends that older adults engage in approximately 150 minutes of moderate-intensity aerobic activity, such as walking, on a weekly basis. However, current statistics show that only 20% of adults actually meet the 2008 Physical Activity Guidelines put forth by the CDC. The purpose of this project was to assess the effectiveness of the implementation of a brief waiting room health promotion activity that informs older adults about the benefits of walking, such as reducing the risk of chronic disease, improving mood, and maintaining weight, physical and cognitive function. A description of the project setting and design, target population, and project implementation and evaluation methods will follow.

Development of Project Material

This project provided an educational health promotion activity for older adults visiting a rural primary care practice in Central VT. The intervention entailed participants viewing a brief, narrated video, Walk for Health: The Best Medicine, sponsored by the Every Body Walks program, a partner of the Centers for Disease Control. The video was available at a kiosk located within the waiting room, where it played on loop out loud within the waiting room in order for patients to hear the video's audio content. The video, less than 5 minutes in length, featured health care providers discussing few of the many evidence-based health benefits of walking, including influence on cholesterol, blood pressure, prediabetes, cognitive status, muscle tone, and weight management. It also discussed the CDC established physical activity recommendations. Additional educational materials were also available within close proximity,

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including a single sheet handout outlining the highlights of the Every Body Walks video and drawing connections to the influence of walking on healthy aging. The handout also included practical tips for increasing daily steps taken, information modified from materials published by the America on the Move Foundation. A handout listing all of the local environmental recreational opportunities for walking, such as rail trails, bike paths, running tracks, and available fitness facilities were also provided. The health promotion activity was accessible for participants during clinic hours for the period of time from June 15, 2016 through August 15, 2016.

Enhancements or Inhibitors in Implementing the Project Objectives

Enhancements. The health promotion activity was available at a computer kiosk located within the waiting room of the primary care practice during clinic hours. The Every Body Walks video provides simple, relatable health information that that can be viewed within less than five minutes, an ideal time frame for older adults. Personally identifying information about the participants was not collected in order to protect and maintain patient identity and confidentiality.

Inhibitors. Completion of the health promotion activity was dependent upon the time of patient arrival prior to appointment time. Patients arriving late to visits did not have sufficient time to engage in activity prior to appointment time. Only one kiosk was available for this educational activity, potentially reducing accessibility for patients willing to participate.

Target Population

The target population for this educational intervention included patients registered with the primary care practice and who were age 55 and older. Family members of patients presenting to the clinic were also eligible to participate if age requirements were met. All participants that

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fell within this age range were eligible to participate regardless of health status or the presence of comorbid health conditions. Participation in this health promotion activity was entirely voluntary; engagement in the activity and completion of evaluation survey served as passive informed consent. Upon check-in for appointments, reception staff encouraged age-eligible patients and family members to visit the health promotion offering, a kiosk set up on along the wall of the waiting room, where participants could determine whether or not they had interest in participating. The Institutional Review Board (IRB) at the University of Vermont approved of this educational health promotion project and deemed it “not research” status.

Description and Discussion of the Products of the Project

This educational health promotion project was conducted in a federally qualified health center in Plainfield, Vermont. The practice serves a rural six-town area in Central Vermont, and provides comprehensive health care services including medical, dental, mental health, nutrition, and physical therapy services to patients regardless of the ability to pay. While the practice serves patients of all ages, from infants to elderly, the large majority of patient population is comprised of older adults, many of whom come from diverse socioeconomic backgrounds and who present with a wide range of health related concerns.

As previously indicated, the intervention itself consisted of participants engaging in a brief audiovisual educational activity explaining the health benefits of walking, supplemented with paper materials to support the health messages; the intervention was then followed by completion of a brief paper survey evaluation. The waiting room of the practice served as an ideal environment for a health promotion intervention, given the large, open space as well as the opportune time for brief intervention as patients waited for scheduled appointments. Additionally, the Central Vermont setting for this project was ideal due to the wide range of

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recreational opportunities available within the community, including local bike paths, rail trails or local fitness facilities.

Plan for Evaluation of Outcome of Project

Following the video screening and review of the provided health educational materials, participants were asked to anonymously comment on the effectiveness of the intervention with a short evaluation survey, which included a combination of Likert-type scale, multiple choice, and open-ended questions that provided room for personalized comments and feedback for use in future health promotion activities. Aspects of participant evaluation were confidential, and included demographic data, such as age, gender and race. Completion of the survey also provided information regarding the following:

- evaluation of the effectiveness of the intervention in enhancing knowledge regarding the health benefits of walking for health in aging,
- opinions regarding walking as a primary form of physical activity,
- effectiveness of the intervention in enhancing patient motivation and readiness for behavior change in regards to walking,
- specific health related goals.

Survey completion was estimated to take less than five minutes. Following completion of the evaluation surveys were returned to the reception desk where they were confidentially stored in a secure location. Upon return of the completed survey, participants received a raffle ticket with which they could elect to enter into a prize lottery by providing preferred contact information. This contact information was not connected in any way to the survey they submitted, and was for the sole purpose of receiving the prize. Following completion of the project period, a drawing took place and the winner received a free FitBit™ Flex activity tracker.

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All contact information was shredded upon completion of the drawing. Following completion of the educational intervention period, reception staff and primary care providers in the office were be provided with an informal presentation of patient acceptance and involvement with the waiting room health promotion activity.

Evaluation of the project outcomes was performed by paper survey only. The collected surveys were reviewed and provided quantitative and qualitative data regarding the extent to which the health promotion intervention was successful in enhancing participant understanding of walking-related health benefits, as well as enhancing motivation to set specific health related goals and to increase number of daily steps taken.

Chapter IV: Evaluation & Discussion

Results

During the two-month period the health promotion activity was available, 56 individuals participated and completed the survey. The majority of participants were female, white/Caucasian, and between the ages of 55-65. Self-reported activity levels varied, but the majority described themselves as lightly to moderately active (see Table 1).

Table 1 <i>Background information for completed survey responses (questions 1-4)</i>		
	# Participants	Percentage of total
Total number of surveys completed	56	100%
<u>Participant age</u>		
55-65	28	50%
65-75	14	25%
75-85	13	23%
85-95	1	2%
95 or older	0	-
<u>Participant gender</u>		
Male	16	29%
Female	40	71%
<u>Participant ethnicity</u>		
White	54	96%
Hispanic or Latino	1	2%
Black or African American	1	2%
Native American	2	3%
Asian/Pacific Islander	0	-
Other	0	-
<u>Participant self-reported physical activity level</u>		
Sedentary	11	20%
Lightly active	28	50%
Moderately active	15	27%
Very active	2	3%
<i>Note. Cells with a dash (-) indicate no response.</i>		

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As for responses to the Walk for Health video, 49 participants (87%) indicated they either “strongly agreed” or “agreed” that watching the video increased knowledge about health-related benefits of walking (survey question number 6). Only seven participants indicated feeling neutral about this statement (13%), and no participants indicated they disagreed or strongly disagreed (Table 2). The large majority (n= 37 or 66%) of participants strongly agreed with the statement “I feel walking is a good form of physical activity” (survey question number seven). An additional 16 participants indicating they agreed (29%). Only three participants (5%) felt neutral about this statement and none of the participants disagreed on any level (Table 3). Participant responses regarding attention to educational materials in the waiting rooms of health clinics was mixed; 19 participants (34%) strongly agreed that they pay attention to these materials, 22 participants agreed (39%), and 15 participants felt neutral about this statement (27%). Again, no participants disagreed with the statement (Table 4).

Table 2. <i>Responses to statement “I feel the Walk for Health video increased my knowledge about health-related benefits of walking”</i>		
Response	# Participants	Percentage of total
Strongly agree	26	46%
Agree	23	41%
Neutral	7	13%
Disagree	-	-
Strongly disagree	-	-
<i>Note.</i> Cells with a dash (-) indicate no response.		

Table 3. <i>Response to statement “I feel that walking is a good form of physical activity, and can help maintain my health and ability to function independently as I get older”</i>		
Response	# Participants	Percentage of total
Strongly agree	37	66%
Agree	16	29%
Neutral	3	5%
Disagree	-	-
Strongly disagree	-	-
<i>Note.</i> Cells with a dash (-) indicate no response.		

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Table 4. <i>Response to statement "I pay attention to educational materials that are presented in the waiting room of my health clinic"</i>		
Response	# Participants	Percentage of total
Strongly agree	19	34%
Agree	22	39%
Neutral	15	27%
Disagree	-	-
Strongly disagree	-	-
<i>Note.</i> Cells with a dash (-) indicate no response.		

Survey question eight asked participants to self-rate their current readiness to increase the number of daily steps taken. Responses to this question were also widely varied, however the large majority (89%) of participants rated themselves somewhere between a 4 to 9 on a 1-10 readiness scale. Approximately 21% of participants rated themselves with an 8/10. In total, only 4% of participants rated themselves at a readiness between 1-3 (Table 5).

Table 5. <i>Self-rated level of readiness to increase number of daily steps taken</i>		
Level of readiness	# Participants	Percentage of total
1	1	2%
2	-	-
3	1	2%
4	10	18%
5	6	11%
6	8	14%
7	8	14%
8	12	21%
9	6	11%
10	4	7%
<i>Note.</i> Cells with a dash (-) indicate no response.		

Survey question number 9 asked all participants, "Does this activity motivate you to set a specific health –related goal? If yes, what is it?". Of the 56 activity participants, 32 provided comments about health-related goals that arose as a result of the activity. The general themes and specific goals are summarized below.

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- More movement, walk more, stretch more (n=12)
- Increase physical activity level (n=2)
- Work on weight control and stress relief (n=1)
- Walk 2 miles 3 times weekly (n=1)
- Walk 1 mile and back to barn to feed horses (n=1)
- Walk ½ mile daily with the dog (n=1)
- Wear pedometer to increase daily steps (n=1)
- Work on 10,000 steps daily (n=1)
- Keep heart strong to stay healthy and live longer (n=1)
- Lose weight to help breathing and health (n=1)
- Keep brain and heart healthy, maintain mental health and prevent chronic disease (n=1)
- Walk 1-2 miles daily (n=1)
- Make more time for physical activity (n=1)
- Stay fit to hike, kayak and workout (n=1)
- Work on my breathing problems (n=1)
- Get motivated and stay motivated (n=1)
- Quit smoking (n=1)

The last and final survey question allowed participants to free text any comments or feedback about the health promotion activity. The responses (n=12) are summarized below:

- Activity is rewarding and inspirational (n=3)
- General thanks and appreciation for the information (n=3)
- Video was educational and well-done (n=2)
- I need to make time for me (n=1)

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- Video made me think about what I can do (n=1)
- Vermont has great places to walk and explore year round (n=1)
- Walking helps me destress, I enjoy the physical feeling (n=1)

Limitations of project

The implementation of this waiting room health promotion activity for older adults was successful in this busy primary care practice. The practice sees anywhere between 30-100 or more patients on a given day, with the summer months being notably less busy, in part due to provider vacation schedules. Regardless, during the 2-month period, 56 individuals still participated in the health promotion activity. Survey feedback was generally positive, with the majority of participants indicating positive feelings toward the Walk for Health video and drawing helpful connections between physical activity level and maintaining health as one ages. Participants also responded positively to educational materials in the health clinic waiting room. This could be due to the fact that the participants who participated in this activity are more likely to pay attention to educational materials in a waiting room, potentially skewing results, however this remains to be unknown.

In this particular health promotion activity in this clinic, the computer kiosk was setup on one side of a 2-part waiting room. As a result, patients sitting in the other waiting room section may not have been aware of the activity offering. Additionally, the computer screen was small, and perhaps would have been more visible if placed flat on a wall in a central location.

Regardless of these potential limitations, based on the results of this project, the waiting room still serves as an opportune environment for providing health promotion and educational materials for patients to access prior to and after office visits. Primary care practitioners serve a wide range of patients, many of whom present with complex chronic health conditions;

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addressing these health care concerns and providing appropriate preventive health recommendations can be a challenge within the time constraints of a standard office visit. Providing patients with optional health promotion activities in the waiting room helps to extend the value of the standard office visit, and enhances patient motivation to work toward self-identified health-related goals.

Comparison of project outcomes with review of the literature

The measurable outcomes of this specific project align well with the results of the available literature. The recommendations put forth by Artinian et al. (2010) were employed in this project, in that this activity used a multi-component delivery strategy, using both video and written educational materials. The survey itself also promoted goal setting by challenging participants to assess level of readiness to increase physical activity and share a health-related goal. The educational materials available at the computer kiosk had to be replenished numerous times, indicating that participants do benefit from having material presented in different formats. The handouts that provided information about local activity options and walking paths was well utilized by participants, perhaps supporting the evidence by Bottorf et al. (2015), which showed that participants are more likely to engage in physical activity when they have information about and access to local activity offerings.

In total, approximately 73% of participants who participated in this health promotion activity agreed that they paid attention to education materials in the waiting room setting, and only 27% felt neutral about this statement. These results, in combination with the general positive feedback about the activity as indicated by participants comments, is supported by the evidence of Ward and Hawthorne (1994), who found that 82% of participants looked at posters in the waiting room setting. To further the argument for waiting room health promotion

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activities, Sherwin, McKeown, Evans & Bhattacharyya, (2013). found that patients who receive education while in this setting tend to be more satisfied with their clinical encounters than patients who do not

Implications for future research and practice

Further investigation of these health promotion strategies would help providers determine if an investment in waiting room educational offerings is warranted. A randomized trial by Oermann, Webb and Ashare (2003) found that even minimal investments in health promotion has a positive impact on patient knowledge and experience. In this study 215 patients were randomly assigned to either a control group or waiting room videotape instruction, which provided education about signs, symptoms, risks and treatment for glaucoma. A registered nurse (RN) was also available to discuss the rationale for the video and answer patient questions. The videotape instruction was effective in increasing patient knowledge about the topic, and resulted in greater overall patient satisfaction following the visit. The investment of RN time was minimal, reinforcing the effectiveness and cost-efficiency of video instruction in the waiting room. Furthermore, video education is easily modifiable, and therefore can reach a wide audience with a variety of health-related topics. Further research into cost-effectiveness of other methods of education would be helpful to inform the direction of future clinic-based health promotion efforts.

This project has suggested that implementation of waiting room health promotion activities, specifically for older adults, is a simple and cost-effective way to promote good health practices and provide patients with in-depth health care information that may not be addressed during the health care visit. Health care providers are confronted on a daily basis with finding a balance between providing appropriate care to manage both acute and chronic conditions, while

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also addressing preventive measures for a population that presents many challenges – all of which needs to be done within a 15 or 30 minute office visit. Activities in the waiting room can help to supplement information provided during the clinical encounter, leaving patients more satisfied with their visits, and promoting positive behavior change. Advanced practice nurses, in collaboration with other health care professionals, can play a key role in the design, implementation and evaluation of such activities.

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Appendix

The survey used for participants to evaluate the effectiveness of the health promotion activity offered in the clinic waiting room.

Waiting Room Health Promotion: Walking for Good Health

1. What is your age?
 - a) 55-65
 - b) 65-75
 - c) 75-85
 - d) 85-95
 - e) 95 or older

2. Which gender do you identify with?
 - a) Male
 - b) Female
 - c) Other

3. Which of the following best describes your ethnicity?
 - a) White
 - b) Hispanic or Latino
 - c) Black or African American
 - d) Native American or American Indian
 - e) Asian/Pacific Islander
 - f) Other

4. In general, how would you describe your current level of physical activity on most days?
 - a) Sedentary (little to no activity)
 - b) Lightly active (house work, stretching, slow leisure walking)
 - c) Moderately active (walking briskly, aerobics, strength training)
 - d) Very active (hiking, jogging, biking)

Please respond to the following statements:	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5. I feel that the Walk for Health video increased my knowledge about the health related benefits of walking.					

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6. I feel that walking is a good form of physical activity, and can help maintain my health and ability to function independently as I get older.					
7. I pay attention to educational materials that are presented in the waiting room of my health clinic.					

8. On a scale of 1-10, with 1 being not ready at all and 10 being extremely motivated, where would you rate your readiness to increase the daily number of steps you walk:

1	2	3	4	5	6	7	8	9	10
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9. Does this activity motivate you to set a specific health-related goal? If yes, what is it?

10. Please note any additional comments or feedback you have about this activity: