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RELATIONSHIPS AMONG SELF DIRECTION IN LEARNING, HEALTH PROMOTING BEHAVIORS AND PHYSICAL THERAPY SUPPORT FOR AUTONOMY IN OLDER ADULTS

by

Lisa Gayle Latham

Abstract of a Dissertation
Submitted to the Graduate School of The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Education

August 2015
The purpose of this study is to examine the relationships among self-direction in learning, health-promoting behaviors, and physical therapy support for autonomy in older adults. Self-direction in learning was measured by the Oddi Continuing Learning Inventory, participation in health-promoting behaviors was measured by the Health Promoting Lifestyle Profile II, and physical therapy support for autonomy was measured by the Health Care Climate Questionnaire. In addition, a questionnaire gathering demographic information about the participant's age, educational level, marital status, and gender was administered.

The 20 participants are community-dwelling older adults who participated in outpatient physical therapy for four weeks. The participants completed the Oddi Continuing Learning Inventory, the Health Promoting Lifestyle Profile II, the Health Care Climate Questionnaire, as well as a demographic questionnaire. Descriptive statistics, paired t-tests, one-way ANOVAs, and Pearson coefficient correlations were used to analyze the data.

The findings in this study indicated a statistically significant relationship between an older adults’ self-direction in learning and participation in health-promoting behaviors. The findings also indicate that there is no statistically significant relationship between the
participant's self-direction in learning and physical therapy support for autonomy, nor is
there a statistically significant relationship between the participant's health-promoting
behaviors and physical therapy support for autonomy. Additional findings indicate there
is a relationship between educational level and participation in health-promoting
behaviors and educational level and self-direction in learning. A statistically significant
relationship was found between gender and physical therapy support for autonomy, with
females reporting higher scores on the healthcare climate questionnaire.

These findings suggest that it would be important for a physical therapist to gather
information related to a patient's degree of self-direction in learning and educational level
as both are related to participation in health-promoting behaviors. Educational
approaches can be adapted by the physical therapist to better meet the needs and
motivations of this patient population. Further research is needed into other factors that
may contribute to a physical therapist’s ability to influence an older adult’s self- direction
in learning and health-promoting behaviors.
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I would also like to thank the physical therapists who tirelessly recruited patients to participate in my study and provided moral support and clinical judgment that enhanced the data collection process. Finally, I want to express my appreciation to Lorys Oddi for granting permission to use the OCLI and to Susan Noble Walker for granting permission to use the HPLP II in this study.
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CHAPTER I

INTRODUCTION

Background

The health care industry has experienced many changes in the provision of medical care over the past several decades, including improved technology and advances in the treatment of many diseases. With these advancements, the United States population has experienced the potential for a greater quality of life (Resnick, 2003). However, with these advances, challenges have also arisen. The population of the United States has shifted to a greater percentage of adults aged 65 and older and increased longevity for this age group (Zamora & Clingerman, 2011). In 2010, the older adult population, defined as adults aged 65 and older, was 13% of the overall population of the United States. By 2030, one in five people will be 65 years of age or older (Centers for Disease Control and Prevention, 2013). The increased number of older adults and increased longevity of the population have provided the health care system with an even greater challenge to meet the needs of all segments of society (Bandura, 2004). Health care costs for older adults are currently two to three times greater than that for younger adults and by 2030, health care spending on older adults is projected to increase by 25% (Centers for Disease Control and Prevention, 2013). The struggle between higher costs and lower revenues has led to greater restrictions on the provision of care; which, in turn has increased the need for greater efficiency and more effective management throughout the continuum of care (Bandura, 2004; Davis & Chesbro, 2003).

In an attempt to mitigate the health care issues, Congress has enacted several mandates for the management of health care and governmental agencies have established
initiatives for the advancement of health promotion. There has also been an increased focus on preventative services and mechanisms to enhance an individual’s ability to reduce the risk of disease (Healey, Broers, Nelson, & Huber, 2012). The Healthy People initiatives are one outcome of that increased focus. The Healthy People 2020 initiative is a continuation of four prior initiatives that began in 1979 with the Surgeon General’s report about activities and behaviors that promote health and prevent disease. The objectives for the Healthy People 2020 initiative include not only improvements needed in health care delivery, but also greater progress in the adoption of healthy behaviors by the United States population. The recommendations for improvements in health care delivery described in the initiative focus on more effective interaction between health care professionals and their patients, greater satisfaction expressed by patients in the education provided by health care professionals, and improvements in the proportion of patients who report the appropriate degree of participation in the decision making process in their care. In addition, goals for increased participation in physical activity, an increased proportion of patients making appropriate nutrition decisions, and a decreased number of patients who engage in smoking were also included in this initiative (Topics & Objectives Index, 2012). Lastly, the health care system has begun a transition from a health delivery model of passive involvement by the patient to a collaborative model of increasing patient responsibility in health care decision-making (Price, Bereknyei, Kuby, Levinson, & Braddock, 2012). These financial strains and shifts in health care delivery systems have increased the demand for health-promotion activities that place more emphasis on prevention of disease rather than treating disease. (Healey et al., 2012).
Health promotion encompasses any endeavor that assists an individual to make appropriate changes to maintain or improve his or her health (Davis & Chesbro, 2003). Behavioral factors have been linked to approximately 40% of the mortality rate in the United States (Levesque, Williams, Elliot, Pickering, Bodenhamer, & Finley, 2007). The lack of proper nutrition, an inactive lifestyle, excessive alcohol use, and smoking are significant risk factors for chronic diseases and the leading cause of death and disability in the United States (Centers for Disease Control and Prevention, 2009). Chronic illness, often a result of the progression of dysfunction, consumes up to 75% of the total health care resources, with the majority of Medicare resources spending consumed by those with multiple chronic co-morbidities (Zubialde, Mold, & Eubank, 2009). An individual’s quality of health is impacted by lifestyle behaviors; therefore, a person has some control over his or her health by the health behaviors he or she chooses to embrace (Centers for Disease Control and Prevention, 2009).

Older adults have the greatest risk for developing chronic conditions, which further highlights the need for an older adult’s competence in matriculating the health care system. With the increase in the number of older adults, and the physiological changes that occur with normal aging, health promotion has become an even more important focus for this segment of the population (Davis & Chesbro, 2003). Despite the merits of physical activity engagement, older adults often remain sedentary or digress in their participation in physical activities. According to the United States Department of Health and Human Services Center for Disease Control and Prevention (2014), only 14.8% of older adults aged 65-74 meet the recommended guidelines for aerobic activity and strength training and approximately 35.7% are completely inactive. Successful aging
requires the ability to safely and sufficiently interact within the environment. This ability is dependent upon problem solving ability and functional status complementing the environment in which the individual lives. Perceived lack of control by the older adult leads to difficulty in adjusting to changes, reduced levels of activity, and poorer health. Promoting the development of self care and problem solving through intervention at the individual, community, and policy level is consistent with the attributes and desires of older adults (Beckingham & Watts, 1995). Health-promotion programs have been shown to be cost effective and to lead to increased quality of life and health outcomes (Padula & Sullivan, 2006). They are often touted as the panacea for the current health crisis (Heidemann & Almeida, 2011), but for older adults these programs may not be as effective due to inadequate matriculation of the health care system, ineffective motivation, and insufficient skill in healthcare decision-making (Rouse, Ntoumanis, Duda, Jolly, & Williams, 2011).

Autonomous regulation and adequate knowledge of health information are critical aspects of the decision-making process when selecting appropriate health behaviors (Bandura, 2004; Rouse et al., 2011). With the changes in the health care system, and increased focus on shared decision-making, education provided by health care professionals can be the bridge that moves a patient from passive reliance on others to active collaboration in his or her care. The effectiveness of a physical therapist’s assistance is dependent upon the identification of the influential factors and characteristics of a patient’s decision to adopt healthy behaviors (Ennis, Hawthorne, & Frownfelter, 2012; Smith, Dixon, Trevena, Nutbeam, & McCaffery, 2009). As an integral member of the health care delivery team, physical therapists can assist in
effectively identifying risk factors and highlight strategies for the patient to achieve optimal health. Adult education principles and methods of teaching such as self-directed learning can provide valuable tools for the healthcare professional (Ennis et al., 2012; Healey et al., 2012).

Health-promotion activities, communication methodology, and preventative strategies are garnering more time within the educational curriculum and increasingly advocated by the physical therapy profession (Ennis et al., 2012; Healey et al., 2012). Educational programs for health professionals focused on strategies for collaborative decision-making and facilitation of autonomy and self-direction in learning are essential (Beckingham & Watts, 1995). Physical therapists as educators not only have an opportunity to deliver more cost effective treatment, but can offer a means for further expansion of the profession into associated areas of health care such as health promotion and community health (Higgs, Trede, & Smith, 2012). The American Physical Therapy Association’s (APTA) Vision 2020 describes the physical therapist as a health care practitioner who practices autonomously and collaboratively to provide evidence-based practice. Independence, self-determination and professional judgment are attributes associated with practitioners in autonomous practice (Vision 2020, 2012). Physical therapists need to determine the knowledge base of the patient, the patient’s propensity for decision-making, the motivators and goals of the patient, and be able to communicate appropriately within these confines to effect behavior change (Ennis et al., 2012).

Statement of the Problem

Although research has been conducted to identify psychosocial and demographic factors that influence health promotion and studies have been conducted to identify
potential external influences, most of these studies looked at factors in isolation as they related to health promotion. Studies in health promotion associated with the field of physical therapy were limited and even fewer of these studies were conducted with older adults as participants. While research has been conducted that assessed relationships between healthcare professional communication and patient health outcomes, few of these studies were conducted with physical therapists as participants. In the provision of care, physical therapists not only spend a great deal of time with patients during individual sessions, but also throughout the patient’s continuum of care. Therefore, a physical therapist’s influence for behavior change may be greater than the influence of other educators or healthcare professionals who see patients infrequently or for limited time periods. In addition, research that included physical therapists as subjects studied the physical therapist’s perceptions of health promotion or the relationship between personal characteristics of the therapist and the degree to which health-promotion education was offered (Ennis et al., 2012; Healey et al.; 2012; Rea, Marshak, Neish, & Davis, 2004). No studies have been identified that studied the relationship between the attributes of the physical therapist and a patient’s intent to participate in health-promotion behaviors. Finally, although a few studies have been identified that explored the relationship between self-directed learning and health behaviors, no studies have been identified that studied the relationship between these patient characteristics and the physical therapist’s attributes.

Adult education principles and teaching methodology are intertwined with the physical therapist’s educational approaches when the goal is promoting greater independence for the older adult (Higgs, Trede, & Smith, 2012). The Hamburg
Declaration on Adult Learning stated it best: “Health is a basic human right. Investments in education are investments in health” (Hamburg Declaration on Adult Learning, 1995, para 16). Therefore, a study regarding the relationships between the physical therapist’s attributes and the patient’s attributes and a patient’s participation in health-promotion behaviors is warranted. This study investigated the relationships between the degree of a physical therapist’s supportive approach in patient interactions, the patient’s self-direction in learning, and the patient’s participation in health-promoting activities.

Justification

Physical Therapy

The alterations in the dynamics of the health care system and the population of the United States have challenged those involved in health care to adapt not only current philosophies of patient care but also methods of patient interaction and interventions. A more collaborative form of care and increased responsibility on the part of the individual seeking care are changes that have resulted. Because of this, health care professionals including physical therapists have been required to assume greater responsibility in facilitating patients’ assumption of responsibility for their own care. Physical therapists are knowledgeable of pathologies and the important information that needs to be communicated to patients, but are less knowledgeable in the theoretical frameworks and methodologies of education (Daley, 2011; Higgs, Trede, & Smith, 2012). Lifelong learning is a professional attribute for physical therapists, and as such, the degree of self-direction in learning and self-determination will influence not only the pursuit of educational growth on the part of the physical therapist but also the focus or components of clinical practice. Higgs et al. (2012) promoted the argument that adult education and
Knowles’ principles of adult learning provide the foundation for learning and teaching in any field. If physical therapists were more knowledgeable of these principles and their impact on an individual’s behavioral outcome, they may be more likely to investigate the use of these educational approaches in the clinical setting. The curricular content of physical therapy programs includes educational principles, communication methods, and the legal and ethical concepts of informed consent. This study would benefit those in the physical therapy educational institutions by providing evidence related to these subject areas. Physical therapy educators are trained as physical therapists and not as adult educators; therefore increased evidence for teaching strategies would be beneficial for enhancing the success of the educational process for physical therapy students.

Autonomy strategies employed by educators and mirrored by the physical therapy students have the potential to affect change in future patient care and health outcomes (Deci & Ryan, 2002). Therefore, the results of this study will add to the evidence for appropriate practice patterns in physical therapy (Higgs et al., 2012) and potentially lessen the disconnect between what is known about health promotion and what is actually practiced in the clinical setting (Williams, 2002).

Although the physical therapy profession has been involved in the development and evaluation of standardized measures for diverse populations and clinical settings for many years and the APTA has encouraged the use of outcome measures in clinical practice to further boost the evidence for physical therapy practice patterns, the implementation of these measures by practitioners has still not become routine in most clinical settings (Jett, Halbert, Iverson, Miceli, & Shah, 2009). Medicare has now instituted a mandate for the incorporation of outcome measures in physical therapy
practice as a means to evaluate the efficacy of treatment to improve function (U.S. Department of Health and Human Services, 2013). The questionnaires utilized in this study relate to patient attributes that may influence a patient’s current and future functional status, consequently the results of this study may be an impetus to their use in physical therapy clinical practice and enhance the addition of adult education principles and theory into the healthcare field. The use of these objective measures in various aspects of health care and adult education will increase the evidence of reliability and validity for these measures. Health promotion is a complex issue; therefore, collaborative efforts can be employed to improve the likelihood of success. This study would assist in adding to the research in the areas of curricular design and program development.

The Mississippi (MS) Physical Therapy regulations delineate the scope of practice for physical therapists in Mississippi. Direct access, one component of clinical practice, is the option for patients to see a physical therapist for health and wellness with or without a physician’s prescription (Mississippi State Board of Physical Therapy, 2014). Therefore, the results of this study have the potential to benefit Mississippi physical therapists by enhancing practice as they gain knowledge about relationships between their own characteristics and patients’ characteristics in promoting health and wellness. Another potential benefit to Mississippi physical therapists may be the improved health and wellness of their patient population by improving their ability to provide more effective care to patients based on the results of the study. The physical therapists participating in the study benefitted from reflection on the questions and assessments performed related to health promotion. The field of physical therapy and its professional organization may benefit from this study by adding to the research in the field of
evidence-based practice and health promotion, which are both central tenets of the Vision 2020 mission. The American Physical Therapy Association’s Section on Geriatrics has developed a special interest group (SIG) specifically devoted to health promotion and wellness. A health-promotion study adds to the resources available for these practitioners (Health Promotion and Wellness SIG, n.d.). The results of this study may also benefit the overall health care system by providing further data that identifies relationships in health-promotion decision-making and thereby may positively influence health care costs and assist in maximizing utilization of the health care system.

*Adult Education*

Health promotion and adult education are distinct fields and each has a unique knowledge base and theoretical frameworks. Those unique qualities can easily be correlated to achieve a common goal of better health and quality of life. The World Health Organization (WHO) expands the concept of health beyond the classic description as the lack of disease, to a more positive depiction of physical, psychological, and societal well-being (Constitution, 1946). Health, as defined by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), is a changing and adapting social concept based on the interactions between individuals and their environment with a focus on not just the disease but the social and economic contributors to the disease (UNESCO, 2010). The interpretation of health is therefore, individualized and fluid based on the individual’s physical, mental, spiritual, cultural, and social condition. Culture and environment have key roles in the development of a healthy state. The concept of health presented by WHO focuses solely on the individual and the attributes that constitute a healthy state, whereas the UNESCO description broadens the
concept to include not only a state of being, but a continuum of being with cultural and environmental influences. These health perspectives are important to consider because they will provide the philosophical framework and influence the organization and agenda for the health-promotion programs (Daley, 2011).

Health promotion was born out of the field of health education. Health education is often viewed as the communication that occurs between the health care provider and the individual for the purpose of information transfer. Health promotion has a much greater depth than just the transfer of information. It is a process of enabling the individual to attain the maximal degree of physical, mental, and social well-being through actions that lead to increased control by the individual and a greater ability to problem-solve. This process concurs with reaching Maslow’s highest level of need: self-actualization (Maslow, 1954). Often, the process of health promotion is lost in the presentation of the information by the healthcare professional. Optimally, the actions associated with health promotion include health education, prevention, and health protection. Advocacy, autonomy, and control are central to this process. Assessment and change are consistent threads throughout adult educational programs including health-promotion programs. The health education field and health-promotion programs can benefit from adult education strategies and expertise in the design and implementation of these programs (Daley, 2011).

Adult community education programs have widened the scope of offerings, which now includes health topics. For these topics, health care professionals are often called upon to provide the content for this segment of the curriculum (Diehl, 2011). Health care practitioners may not have the educational background or expertise in the areas of
teaching and learning methodology for older adults and adult educators can provide this expertise. In addition to lack of health knowledge, adults, especially older adults, have other significant educational and social barriers, which can further impact the learning process. An adult educator has the expertise to assist in the amelioration of this aspect of the learning process (Hill & Ziegahn, 2010; Murphy, Davis, Mayeaux, Sentell, Arnold, & Rebouche, 1996). The adult education field can provide the opportunities for pertinent and continuous access to health knowledge (Daley, 2011; Hill & Ziegahn, 2010). For the adult education field, this study further reinforces the applicability of adult education principles in other fields of study and assist in promoting the potential for collaborative efforts. The utilization of adult education principles further cements the expanding role for adult educators in the health care field.

“Learning is integral to coping with chronic disease” (Baumgartner, 2011, p. 7), and is integral to decision-making in disease prevention as well. Learning theories and methodologies are foundational to the adult education field, thus research in learning methodology as it relates to health care would be relevant to adult education research. This study adds to the adult education research and theoretical frameworks by further investigation of relationships between learning and pertinent health care issues.

*Older Adults*

Individuals, as they progress through their lifespan, experience changes in not only physical, sensory, and perceptual abilities but in their roles within society and the family (Hooyman & Kiyak, 2008). These changes may influence an individual’s motivation for participation in health-promotion activities. Therefore, research related to motivations in older adults would enhance the body of evidence across the lifespan.
Older adults are much more likely to experience chronic illness and experience declines in functional ability. Preventing chronic illness and delaying or minimizing functional decline would impact the health care resources (Davis & Chesbro, 2003; Healey et al., 2012; Hooyman & Kiyak, 2008). Research targeting this population would serve to enhance the evidence in health-promotion evidence. In addition, individuals often use multiple resources to gain knowledge about illnesses and the prevention of illnesses and this study provides information that would assist individuals and facilitators of the learning process in assessing appropriate methods to enrich that knowledge. Adults desire appropriate management information and strategies, and educators can assist adults in this process. These educators, whether they are health care professionals or adult educators, will have additional knowledge gained through the results of this study that will enhance the methodology of instruction in appropriate health behaviors and may lead to improved health-promotion behaviors (Baumgartner, 2011).

The field of adult education, since its beginnings, has stressed the importance of the role of the learner in the educational process. The concepts of autonomy and personal development, inherent in self-determination and self-direction in learning, are common threads in adult education philosophies and methodologies (Brockett & Hiemstra, 1991). Studies in self-determination and self-direction in learning have expanded into the healthcare arena, but further research regarding the variables that influence an individual’s desire and ability to matriculate the healthcare system appropriately is needed. An individual’s motivation or propensity for action is quite variable, therefore the role of personal attributes of the individual as well as the characteristics of the facilitator may have varying degrees of influence (Brockett & Hiemstra, 1991).
results of this study supplement the research in the field of not only adult education but of health care promotion as well as augment the evidence associated with the theoretical frameworks of self-determination and self-direction in learning.

Finally, the older adult participants may also benefit from this study by the reflection of the internal and external factors that may influence their decision making process; thereby enhancing their own self-direction in learning, which would hopefully result in greater self-actualization, greater autonomy and better health behavior practices.

Research Questions

The research questions addressed in this study are designed to determine the relationships among self-direction in learning, health-promoting behaviors, and physical therapy support for autonomy in older adults. Physical therapy support for autonomy was measured by the score on the Healthcare Climate Questionnaire (HCCQ). The older adult’s self-direction in learning was measured by the score on the Oddi Continuing Learning Inventory (OCLI), and the older adult’s health-promoting behaviors was measured by the score on the Health- Promoting Lifestyle Profile II questionnaire (HPLPII). The relationship between participation in physical therapy and the older adult’s self-direction in learning and his or her health-promoting behaviors was measured by the change in score on the OCLI and the HPLPII instrument, respectively. The research questions were:

1. Is there a statistically significant change in the older adults' score on the OCLI after participating in physical therapy?

2. Is there a statistically significant change in the older adults' score on the HPLPII after participating in physical therapy?
3. Is there a relationship between the older adults' score on the OCLI and the older adult’s score on the HPLPII at four weeks?

4. Is there a relationship between the older adults' score on the HCCQ and the older adult’s change in score on the OCLI?

5. Is there a relationship between the older adults' score on the HCCQ and the older adult’s change in score on the HPLPII?

Definitions

*Autonomy:* a basic psychological need of self-governance, self-regulation; the need to direct the control of an action (Ryan, Patrick, Deci, & Williams, 2008).

*Health Care Climate Questionnaire (HCCQ):* a 15-item instrument developed to measure patients’ perceptions of the extent to which healthcare providers promote patient autonomy in the provision of care (Healthcare Climate Questionnaire, n.d.).

*Health Promoting Lifestyle Profile II:* a 52-item self-report instrument that measures health-promoting behaviors and opinions in the areas of “health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships, and stress management” (Health Promoting Lifestyle Profile II, 1995, para 1).

*Health promotion activities:* any endeavor that assists an individual to make appropriate changes to maintain or improve his or her health (Davis & Chesbro, 2003).

*Oddi Continuous Learning Inventory:* a 24-item self-report questionnaire that uses a seven point Likert scale to measure self-direction in learning characteristics of individuals (Oddi, 1984).

*Outpatient physical therapy:* physical therapy services provided in a free-standing location for patients who are not hospitalized.
Physical therapist: health care professional who diagnoses and treats individuals of all ages who have neuromusculoskeletal or cardiopulmonary impairments that limit their movement ability and performance of activities of daily living as well as developing fitness- and wellness-oriented programs to prevent these losses and to promote healthier and more active lifestyles (Who are physical therapists?, 2013).

Physical therapy: "the art and science of a health specialty concerned with the prevention of disability, and the physical rehabilitation for congenital or acquired physical or mental disabilities, resulting from or secondary to injury or disease" (Physical Therapy Law, 2013, p. 2).

Self-determination: the degree to which an individual is internally motivated or has integrated external motivation (Self-Determination theory, n.d.); “free choice of one’s own acts or states without external compulsion” (Self-determination, 2013).

Self-direction in learning: an individual’s propensity to accept responsibility in the decision-making process of learning (Brockett & Hiemstra, 1991).

Delimitations

The delimitations for this study were: 1) older adults aged 65 years and older who participated in outpatient physical therapy services in Mississippi for four weeks and agreed to participate in the study and 2) the use of the OCLI, the HPLPII, and HCCQ tools to generate data to determine correlations. The study was limited to the state of Mississippi for several reasons. It has one of the lowest rankings in most of the health related categories identified in the Center for Disease Control and Prevention’s report, The State of Aging and Health in America 2013, therefore the exploration of patient attributes, and how they may be influenced by participation in physical therapy may
result in positive change in these health related categories in Mississippi. According to the United Health Foundation's America's Health Rankings for 2013-2014, the state of Mississippi is ranked 50th in overall health status. The senior adult population data from the state were consistent with the overall national population findings. Although the restriction of participants to the state of Mississippi may limit the generalizability of the study to a more global population, it allows for a more representative group of participants. This research contributes to the breadth of research that the University of Mississippi Medical Center can assess to further the goal of “finding solutions to the challenges of health disparities in Mississippi” (University of Mississippi Medical Center, 2014, Vision and goals, para 1). The time frame of four weeks was selected as this is the typical episode of care for patients in physical therapy; therefore it is representative of a time frame frequently experienced between initiation and discharge from physical therapy to determine if change occurred. The OCLI, the HPLPII, and HCCQ were selected because they are common questionnaires frequently employed to evaluate self-direction in learning, health promotion, and the climate of the healthcare environment, respectively. Each of these instruments has high reliability and validity, they are easy for participants to understand, and can be completed in a relatively short period of time.

Assumptions

The first assumption of this study was that the participants would be interested enough in health promotion to complete the questionnaires. The second assumption was that the participants would complete the questionnaires honestly. The study participation was voluntary, and data was collected anonymously, thereby increasing the likelihood of
honest responses. The third assumption was that the participant’s health would allow them to read and understand the content of the questionnaires.
CHAPTER II

LITERATURE REVIEW

Introduction

Health care reform has mandated sweeping changes within the health care field. One of those changes has been the increasing focus on prevention and wellness. With this increased focus, healthcare professionals have been required to reassess their roles in patient management. Health-promotion programs have blossomed as a result of this evaluation of the goals for the healthcare community. Health promotion is designed to enhance an individual’s ability to take the necessary steps to prevent the development of diseases as well as to enable the individual to enhance or maintain their health (Davis & Chesbro, 2003).

The health-promotion mission couples nicely with the desires of older adults. Stephens, Breheny, and Mansvelt (2015) identified six common themes that are important to older adults: “physical comfort, social integration, contribution, security, autonomy, and enjoyment” (p.720). The achievement of these desires, although universal, is influenced by the older adult's capabilities and view of his or her ability. Older adults aspire to be active and engaged participants in their community despite their chronic illnesses or declining function. These motivating factors are supported by a study conducted by Valente (2011). Based on the data analysis, Valente concluded that self-directed learning behaviors positively impact the quality of healthcare for the older adult. As older adults navigate life changes, their desire to control or make their own decisions (autonomy) is an integral value and may be a more important aspect of health-promotion approaches for the older adult. Autonomy is not considered independent decision
making; rather it is the choice to make the decision. An older adult may require assistance or want advice or support when making those decisions. Successful aging is a multifaceted concept that involves not only physical ability, but also psychosocial aspects of living. Therefore, health-promotion activities for older adults may need to focus not only on improving or maintaining physical functioning, but also supporting these fundamental values (Stephens, Breheny, & Mansvelt, 2015).

Research does reveal that health-promotion activities result in improved patient outcomes and the prevention of complications from chronic illness. Health promotion programs have been shown to be cost-effective, and as a result of participation, health care resource use decreased, coping and recovery strategies improved, and a higher level of independence was achieved (Davis & Chesbro, 2003). Health-promotion activities identified most often were those in pursuit of the promotion of smoking cessation, nutritional education, and participation in physical activity. Research has been conducted that studies the relationship between self-determination and behavior change directly related to health promotion.

Theoretical Framework

The theoretical framework for this study was Self-Determination theory (SDT) and Self-Directed Learning (SDL) theory. The philosophical paradigms for SDT and SDL are cognitivism (Knowles, Holton, & Swanson, 2005; Self-Determination theory of motivation, 2010) and humanism (Merriam, Caffarella, & Baumgartner, 2007). Cognitive theorists view individuals as active participants in actions by interpreting the necessary requirements for the action (Self-Determination theory of motivation, 2010). Bruner, a cognitive theorist who was a proponent of inquiry or self-directed learning,
described teaching as a collaborative effort between the student and the teacher. This collaborative experience promotes student discovery, resulting in intellectual gains, intrinsic rewards, increased retention, and the exploration of problem-solving strategies. Bandura, another cognitive theorist, described the use of instructor modeling to encourage the practice of self-reflection and critical analysis of actions (Knowles et al., 2005). Humanism theorists view human nature as fundamentally good, individuals as autonomous and possessing an infinite capacity for growth. Self-actualization is the highest level of growth, with self-perception and reality that is personally defined playing important roles in its achievement. Maslow, a proponent of humanism, developed the human motivation theory that outlines the hierarchy of need, with self-actualization again placed as the highest level of need. The theories of self-determination and self-directed learning exemplify these principles of the cognitive and humanistic theories (Brockett, & Hiemstra, 1991; Maslow, 1954).

Bandura (1999) postulated that individuals have the capacity to be proactive, to participate in self-reflection, and experience self-efficacy. Individuals can effect change through personal actions, actions of others, or collective actions (Bandura, 1999). A patient’s belief that he or she is capable of controlling a situation, or is confident in his or her abilities is one of the determining factors in the success of behavior modification. Because health behaviors impact health outcomes, a patient’s self-determination can play an important role in the adoption and persistence of health-promotion activities (Rouse et al., 2011).

Grow (1991) using the Staged Self-Directed Learning model, proposed that a learner’s self-direction progressively increases in stages, and an educator can enhance or
hinder that process. The most effective approach for the educator is to match the method of education to the learner’s stage of self-direction and to encourage the progression to higher levels of self-direction. Mismatches between the educator and the learner, especially the mismatch of a learner with low level of self-direction and an educator who has a non-directive teaching style, can lead to difficulties in the pedagogical process (Grow, 1991). Physical therapists are called upon to not only provide effective interventions for neuromusculoskeletal conditions, but also are even more frequently called upon to be an educator. That education can be a key motivator to health behavior change (Ennis et al., 2012; Healey et al., 2012; Higgs et al., 2012). Although knowledgeable about the importance of facilitating change, the clinician is often more focused on providing the interventions to treat the disease, rather than providing the means necessary to motivate the individual to take responsibility for the prevention of those diseases. “Human health is a social matter, not just an individual one. A comprehensive approach to health promotion also requires changing the practices of social systems that have widespread effects on human health” (Bandura, 2004, p. 143). Therefore, healthy behavior intent and adoption issues reside not only with the patient, but with the healthcare provider as well (Williams, 2002).

The Self-Determination theory, proposed by Deci and Ryan (1985), is an explanation of the motivational aspects of behavior and a description of the influences that lead to behavior adoption or action (Category: Motivational Theories, 2012). It is one of the only motivational theories that emphasize the significance of autonomous self-regulation and its assessment (Levesque et al., 2007). An individual’s growth propensity and the inherent psychological needs that provide the foundation for motivation and
The assimilation of personality are outlined in this theory (Ryan & Deci, 2000). Individuals, as they progress through the lifespan, have different psychological needs along the path and therefore can be differently motivated at any point. Intrinsic motivation is the influence of the internal value an individual possesses by participating in the activity. The internal value is derived from the individual’s desire for self-determination and proficiency. Extrinsic motivation, such as the reward of money, status, approval, or the avoidance of a negative outcome, can also influence an individual’s behavior. At times, individuals may lack motivation, which leads to diminished inspiration and a non-responsive behavior. Often, this lack of motivation is derived from low self-esteem or feelings of inadequacies, which can be brought about by external or internal stimuli. Although intrinsic motivation has a higher correlation to positive growth than extrinsic motivation, extrinsic motivation can result in positive outcomes when an individual internalizes or learns to value a behavior or action. Rewards and external feedback have a controlling component and an educational component, therefore the component that is most prominently displayed in the interaction will result in a positive or negative influence (Deci & Ryan, 1985). Research conducted to test the motivational influences of behavior was the impetus for the development of four sub-theories of SDT (Deci & Ryan, 2002).

The four sub-theories are the Cognitive Evaluation theory, the Organismic Integration theory, the Causality Orientations theory, and the Basic Needs theory. Each of these sub-theories explains one aspect of behavior motivation. The Cognitive Evaluation theory describes the social environmental factors that influence internal motivation. The Organismic Integration theory outlines the development and driving
forces of extrinsic motivation. In addition, this theory was developed to explain the correlations between autonomy and extrinsically motivated behaviors and the means by which individuals adopt the values of the communities in which they live. Differences in an individual’s propensity to gravitate toward environments that encourage autonomy, inhibit autonomy, or are without motivation are explained through the Causality Orientations theory. The Basic Needs theory describes the link between motivation and goals and health and wellbeing (Deci & Ryan, 2002). Whether the motivation is intrinsic or extrinsic, an individual’s psychological needs of autonomy, competence, and relatedness must be met (Ryan & Deci, 2000). Autonomy is the need to direct the choice of action; competence is achieved when the individual experiences the confidence of performing the behavior, and relatedness is the need of the individual to be respected and valued (Ryan et al., 2008).

The concept of self-direction in learning has existed since the time of the early Greek philosophers, and was the primary means of education in the early life of those in North America (Brockett & Hiemstra, 1991). The theoretical framework for this idea of self-direction in learning developed from the work of Eduard Lindeman, Cyril Houle, Allen Tough, and Malcolm Knowles. *The Meaning of Adult Education* (1926), authored by Eduard Lindeman, provided an early perspective of the characteristics of adult learners and the need for teaching them how to learn. Knowles described Lindeman as “the single most influential person in guiding my thinking” (Knowles, 1984, p. 3). Houle was also instrumental in forging the study of self-directed learning in adult education (Brockett & Hiemstra, 1991; Brockett & Donaghy, 2005; Knowles, 1984). His work, *The Inquiring Mind* (1961), a study of the characteristics of adult learners, further
authenticated the premises of self-directed learning. In addition to Houle's research, his mentoring also led to future research in this area by Tough (1967, 1971) and Knowles (1970, 1975). Tough’s description of self-directed learning as self-planned and purposeful activities was the first thorough explanation of this model of learning (Merriam, Caffarella, & Baumgartner, 2007). Knowles’ theory of andragogy, aligns very closely to the tenets of Tough’s definition of self-directed learning and includes self-directedness in his description of the adult learner. The assumptions of andragogy are: (a) the adult learner needs to understand the reasoning behind the learning experience, (b) the adult learner desires self-direction in the learning environment, (c) past experience is a strong resource for the learning, (d) the adult’s social roles and developmental stage impacts an adult’s readiness to learn, (e) learning experiences that are problem oriented are much more useful to adults, (f) and internal motivators are more influential to learning than external motivators (Knowles et al., 2005).

The multifaceted Self- Directed Learning (SDL) theory has been described in terms of goals desired, as a method of learning, and as a learner trait. Hence, SDL encompasses both the internal and the external influences that compel an individual to accept more responsibility in the decision-making process of learning (Brockett & Hiemstra, 1991). The goals of SDL are to enrich the capabilities of an individual to be self-directed in learning, to advance transformation in learning, and to encourage learning that leads to social action. Self-directed learning as a process of learning includes several schools of thought. Knowles (1984) and Tough (1971) advocated for a linear model of SDL, which is a series of steps that the individual progresses through to achieve his/her learning goals. The instructional model of self-directed learning outlines formal designs
for the implementation of self-directed learning in the classroom (Merriam et al., 2007). Brockett and Hiemstra (1991) outlined an interactive model of self-directed learning in which self-directed learning is enhanced by an environment that encourages the active participation of the learner. The attitude of the educator is also a central component to the success of the learning process. An educational process, characterized by autonomy, inherently stimulates internal motivation. Self-determination is an integral requirement of active learning or self-direction in learning (Deci & Ryan, 1985). Self-direction in learning was a term coined to describe not only the instructional components of self-direction, but also introduced the personal characteristics of the individual that comprise self-directedness. The premise of this model is that an adult has the primary role in planning, participating, and assessing the learning experience. This model also recognizes the interaction between external facilitators and the adult learner. Finally, Brockett and Hiemstra (1991) emphasized the importance of the role of social context of the learning environment. Although the learner is the central theme, the external influences of facilitators and the environment do play a pivotal role (Brockett & Hiemstra, 1991).

The theoretical framework for this study not only illustrated the external influences and motivations for an individual’s action or intent, but also the personal attributes of the individual that impact the learning process with the intent to perform a behavior or action. This study, in light of these theories, explored the relationships between personal or internal influences of the older adult and the facilitator of learning, the physical therapist, and the older adult’s health-promoting lifestyle.
Health Promotion and Self-Determination theory

The initial work in the development of Self-Determination theory began in the 1970s with a comprehensive explanation of the theory formulated within the next decade. Since that time, research has flourished in enhancing the foundational principles of the theory with an increasing volume of research conducted within the healthcare field (Deci & Ryan, 2008). Self-determination theorists emphasize the importance of autonomy, competence, and relatedness in behavior change. These needs are necessary for personal growth, development of effective social interaction, and a secure quality of life. In addition to the psychological needs and motivation, Self-Determination theory includes the social contexts that influence personal or social outcomes. Environments that embrace autonomy, competence, and relatedness also facilitate personal and social well-being, and those that impede these three psychological needs obstruct the accomplishment of these outcomes (Ryan & Deci, 2000). As with intrinsic and extrinsic motivation, goals, whether they are intrinsic or extrinsic, also impact the individual’s behavior adoption. Extrinsic goals are those desired outcomes related to external reward such as financial attainment or fame and internal rewards such as personal growth or satisfaction are intrinsic goals. Behavior adoption motivated by intrinsic goals is much more likely to be sustained and produce well-being (About the theory, 2008). Therefore, learning as an intrinsic goal rather than an external obligation will more likely result in related behavior adoption.

A study by Williams, Gagne, Ryan and Deci (2002) explored the relationship between a self-determination model of smoking cessation program and behavior change. The researchers evaluated the responses to questionnaires distributed to the participants at
6, 12, and 30 months after initial contact. A correlation between the physician’s approach and the patient’s motivation for smoking cessation was identified. A relationship was found between an approach that was more supportive of the patient’s autonomous decision-making and higher patient motivation. There was also a relationship between the physician’s approach and behavior change, but the significance was marginal. Another study utilizing a self-determination model was conducted by Williams, Grow, Freedman, Ryan, and Deci (1996). They studied the potential for behavior change in adults who were significantly obese. The participants in the study not only followed a rigid diet, but also were required to attend weekly educational meetings conducted by a physician or nurse. The results of the study revealed that personal autonomy predicted attendance, weight loss, and maintenance of that weight loss over time. Although age was a consideration in the study, the average age of the participants was 43 (Williams et al., 1996).

Older adults have unique characteristics and challenges that affect their ability to understand and engage in health-promoting behaviors. Older adults have not only physical limitations, either due to the aging process or comorbidities, but also have psychosocial challenges such as sensory and cognitive deficits and changing roles within the community and family that may affect their participation (Bandura, 1994; Hooyman & Kiyak, 2008). Health-promotion education, as with any educational process, has to consider these unique challenges older adults face in the implementation of the information. Self-determination theorists point out that motivation varies throughout the lifespan (Bandura, 1994); therefore the older adult population has a unique perspective for researchers to investigate. Although the older adult population is the fastest growing
segment of society in the United States, healthcare research that includes older adults as subjects, or that solely investigates the older adult population is limited. It is even far more limited in the health-promotion literature. A study conducted by Kasser and Ryan (1999) explored the relationship between autonomy supportive behaviors of the staff at a nursing home, the patient’s autonomy and emotional support and well-being and health. The results of the study revealed that mortality rates were lower for those patients with higher levels of autonomy, and that well-being was influenced by not only personal autonomy, but also the autonomously supportive interaction with family, friends, and the staff at the nursing home. Lastly, vitality of the patients was related to greater well-being and increased attributes of autonomy and relatedness. Although this study was conducted at a nursing home, with patients of varying degrees of health, the results provide additional support for autonomy supportive approaches in other healthcare situations such as health promotion within the community (Kasser & Ryan, 1999).

A study conducted by Price et al., (2012) investigated older adults’ opinions of which decision-making model designed by the researchers with input from older adults was most effective and to identify any additional patterns or variables in decision-making. The decision-making criteria utilized by this study included the discussion of the patient’s role and understanding in decision-making, and the investigation of the risks, benefits, and possible alternatives to the patient’s decision. Community focus groups were established consisting of individuals 65 and older. The results of the study revealed that older adults embraced the components of the decision-making model and provided additional variables to include in future patient education instructions. These variables were the opportunity to include someone that the individual trusted in the
decision and to include in the decision-making process a discussion of the decision’s influence on the individual’s activities of daily living. This study illustrated the importance of communication with the older adult in the decision-making process related to health issues. A study of health behaviors and the older adult may benefit from the inclusion of these elements in determining not only readiness for health-promotion behaviors, but also compliance as well (Price et al., 2012).

Health-promotion behavior intent and participation are influenced by not only external factors but internal beliefs as well. Competence, an integral concept in the Self Determination theory, is achieved when the individual experiences confidence in performing a behavior (Ryan et al., 2008). Self-efficacy is the confidence in one’s capability to accomplish an outcome. Self-efficacy is similar to competence (Bandura, 1994; Bandura, 1997; Williams et al., 2006), and correlations between the two have been identified in research (Fortier, Sweet, O’Sullivan, & Williams, 2007). The two concepts are often used interchangeably (Hughes, Galbraith, & White, 2011; Sweet, Fortier, Strachan, & Blanchard, 2012). According to Bandura (1994), self-efficacy is the belief about what an individual can do with the abilities he or she possesses, not an actual measure of the skills, and is a key contributor to competence. Competency requires both the skills and the level of self-efficacy necessary to use those skills appropriately (Bandura, 1997). The following health-promotion research concerned with older adults investigates the relationship between self-efficacy and health-promoting behaviors.

Caudroit, Stephan, and Le Scanff (2011) researched social cognitive factors as they relate to older adults’ physical activity involvement. The factors studied included the individual’s characteristics and motivations, the environment within which the
learning takes place, and the influence of the facilitator or educator. The researchers’ hypotheses were that self-efficacy would be a significant predictor of intention to perform physical activity, and there would be a direct correlation between self-efficacy and performance, that risk would be more likely to predict physical activity intention than would outcome expectancy, and that there would be a relationship between the intent to participate in physical activity and performance. The results of the study revealed that action self-efficacy and identified risks associated with inactivity contributed to an individual’s intent to participate in physical activity, physical activity intention positively predicted physical activity participation, and coping self-efficacy was the strongest post-intentional predictor of physical activity participation (Caudroit et al., 2011). Kim and Yu (2010) studied health literacy and its relationship to self-efficacy. They determined that health literacy had an indirect impact on both physical and mental health due to the influence of self-efficacy. This study correlated well with the topic of health promotion and the older adult because it looked at both the understanding of health information and self-efficacy (Kim & Yu, 2010).

McAuley et al. (2011) also studied self-efficacy, but in relation to executive function processes, self-regulatory strategies, and compliance to exercise. Effective executive function was defined as the ability to coordinate tasks and hinder the habitual ineffective responses. These executive function processes were measured by tests that involved activities such as dual tasking, color-word identification, and task-switching. Self-regulatory strategies included, but were not limited to, goal setting and time management skills, garnering external support, and evaluation. The results of the study indicated an association among higher levels of executive function, better incorporation
of self-regulatory approaches, and greater degrees of exercise self-efficacy. In addition, higher levels of exercise self-efficacy were associated with better compliance to the exercise program. The lack of diversity in the study sample, with respect to gender and education, was one limitation of this study. Also, the author identified the potential influence of past experiences with exercise, but this was not addressed in the study (McAuley et al., 2011). Padula and Sullivan (2006) not only researched attributes of the learner, but also studied barriers to participation in health-promotion activities. The results of the study revealed a negative correlation between the identified barriers and the ability to participate in health-promotion activities as well as actual participation in those activities. In addition, the quality of the relationship was positively correlated with the support in the relationship. Although only minimal, a positive correlation between the spouses’ score was found with respect to barriers, abilities, and quality of the marriage. Relationship quality, identified barriers, levels of self-efficacy, and social support were found to account for 31% of the variance in the performance of health-promotion behaviors. This study did address specific social support constructs as well as identification of control and ability in relation to health-promotion behaviors. The study employed objective measures for each of these constructs and in the analysis looked at the correlations in these constructs. Again, this study looked at older adults and psychosocial variables to identify relationships in health promotions behaviors. These aspects correlated well with a study of the influences in the promotion and compliance of health behaviors (Padula & Sullivan, 2006). Jacobs, Hagger, Streukens, Bourdeau and Claes (2011) conducted a study of adults with an average age of 40 that investigated coaching influence on autonomous motivation attitudes, self-efficacy, and intentions for
participation in exercise and diet modification. Comparisons between a website educational site and one-on-one educational activities were analyzed. The results revealed that self efficacy was a significant predictor of change in intention, and changes in behavior intent were predictive of behavior change for exercise but not diet. Increases in autonomous motivation led to changes in attitudes and self efficacy (Jacobs et al., 2010).

The assessment of long term changes in self-efficacy and the expectations in outcomes for the older adult population was researched by Resnick (2004). The study was conducted over a four-year period of time and a convenience sample of older adults who were residents of a retirement facility was used. The descriptive study consisted of administering yearly questionnaires related to participation in health-promotion behaviors, self-report of physical and mental health status, and expectations of self-efficacy and outcomes. The results of the study revealed that for this population, there was a statistically significant change over time in self-efficacy expectations, mental and physical health status, and exercise participation. No statistical significance for outcome expectations was identified. Decreased self-efficacy in relation to exercise and participation levels were also seen. When physical and mental health were controlled, the decline in self-efficacy was not significant, but the participation decline continued. A consistent relationship was seen between physical health and self-efficacy, self-efficacy and outcome expectations, and self-efficacy and the number of years that exercise participation was maintained. Age and mental health were not related to self-efficacy, outcome expectations, or the number of years in exercise participation (Resnick, 2004). This study correlated well with identified variables for a study in health-promotion behaviors in the older adult. Although all the participants were older adults, age was
identified as a factor in change over time for these individuals. Self-efficacy has also been a consistent variable studied in this population and the outcome measure of health-promotion behaviors.

In a study conducted by Cohen-Mansfield (2003), exercise motivators for the older population included the knowledge of health problems and the ability to improve them with exercise, a doctor’s advice, class instruction, support from friends, and social interaction gained from participation, method of exercise, and the convenience of participation in the exercise activities. Lack of knowledge, poor health status, depression, and weather were the most common barriers identified by the participants. Valente’s (2005) study, using self-directed learning, found similar results for motivators and barriers, with the relationship between health and the desire for independence determined to be the most common motivator. The barriers identified were more related to personal characteristics than physical or psychological factors. In this study, the most common barriers to participating in physical activity were laziness, procrastination, and fear.

Finally, a study by Costello, Kafchinski, Vrazel, and Sullivan (2011) interviewed older adults in focus groups and found congruent results for motivations and results.

Health Promotion and Self-Direction in Learning

Self-direction promotes the principles of an individual’s autonomy, the influence of the environment, and the role of facilitators in achieving self-direction in learning. A facilitator must be able to assist the adult learner in this process of achieving the skill of properly self-directing the learning activities and to reach the desired goals. In this model, a learner’s personal responsibly or desire to be self-directed in learning is central to success. Personal responsibility does not necessarily equate with total control over life
circumstances. Instead, it refers to autonomous decisions in the responses taken when various life circumstances are encountered. If control of the learning experience is not the goal of the learner, then self-directed learning will not be realized (Brockett & Hiemstra, 1991).

The relationship between self-directness and health-promotion participation by older adults was studied by Hulsman (2011). Health-promotion activities were offered at senior centers, conducted by a senior health-promotion health educator and open to anyone 60 years or older. The participants of the study attended the senior center activities on average 2-3 times per week. The results of this study revealed a significant correlation between health-promotion behaviors and religious observance and self-reported health status. In addition, older adults who were more self-directed were more likely to participate in health-promotion behaviors. Lastly, Hulsman (2011) determined that, of the variables analyzed in relationship to the degree of self-directedness, religious practice was the only variable with a significant correlation. Frequency of visits, educational level, income, and perceived health status were positively correlated, but not statistically significant. This study, although conducted to investigate self-directness as it relates to health promotion with older adults, did not address the external motivation of the educator and the potential correlation with self-directedness.

The external motivator of financial incentive was researched in a study by Klein and Karlawish (2010). This study investigated financial incentive programs in light of the characteristics of older adults. Research in financial incentives will be more beneficial if the unique attributes of older adults are considered when financial incentive programs are designed and conducted. The research revealed that older adults were more
likely than younger adults to include others in the decision-making process. Older adults were also more likely to put off making health care decisions and to allow others to make the decision for them. This collaborative decision-making includes not only medical decisions but daily life decisions (Klein & Karlawish, 2010).

Resnick (2003) conducted research to determine the influences of participation in health-promotion behaviors in older adults and to determine the influence of a nurse practitioner’s individualized education on health-promotion behaviors and assistance with decision-making about these behaviors. The study looked at both primary prevention (healthy behavior participation) and secondary prevention activities (participation in health screenings). The results of the study revealed that there was not a statistically significant difference in any primary or secondary health behavior at the one year follow-up, and there was a decrease in the percentage of individuals who continued with a diet restriction. The researchers found that age was the only predictor of participation in cancer screenings. An increase in age correlated with a decrease in participation in screenings. Physical health was influential in exercise participation, and the variables of age and physical health were also predictive of the adherence to a low fat diet. Increased age and poorer health correlated negatively with adherence. The results of this study did not support the inclusion of the individualized practice for the promotion of healthy behaviors. This study did support the premise that aging and poorer health were predictive of participation in health-promotion activities, therefore, if participation begins at an earlier age and individuals are able to stay healthier, they are more likely to continue these practices with aging. The correlation to a study on health promotion and the older adult was evidenced in the analysis of appropriate variables and the analysis of
these variables across time. The results may indicate few changes in behavior, but the percentage of participants already practicing healthy behaviors was high. A study conducted by Martin, Jahang, Golin, and Dimatteo (2003) studied patients’ opinions of the degree of facilitation by physicians in promoting patient involvement in care. The patients reported that physicians who asked open-ended questions and were responsive to patient questions were perceived as facilitating their involvement in care. In addition, physicians who limited the number of alternatives were also rated high in facilitation of a supportive and autonomous environment. Patients who were offered too many alternatives may have felt as if too much of the responsibility had shifted to them, thereby causing confusion and apprehension. Patients reported lower ratings for physicians who allowed the patient no control in the decision-making process, as well as those who appeared passive and allowed the patient total control during the interaction. This finding suggests that although patients want to be involved in the decision making, the degree to which that involvement occurred was variable (Martin et al., 2003).

Health Promotion and Physical Therapy

Research in health promotion as it relates to physical therapy is increasing, but is still lacking in breadth (Rea et al., 2004). Fruth, Ryan, and Gahimer (1998) found that the number of health-promotion statements during physical therapy interactions to be relatively low, with only an average of two statements occurring during the sessions. The most commonly addressed health-promotion behavior was facilitating patients to increase physical activity participation, followed closely with psychological well-being assistance. Nutrition and smoking cessation were the least often addressed. The time spent in these activities was strongly correlated with the physical therapist’s self-efficacy and
moderately correlated with the physical therapists’ expectations of the potential for positive outcomes (Fruth et al., 1998; Rea et al., 2004).

A study by Healey et al. (2012) was conducted to determine physical therapist’s views of health-promotion activities for older adults and their participation in the promotion of these activities. The results of the study revealed that physical therapists thought health promotion was important for this population and included a variety of health-promotion activities in clinical practice. The physical therapists reported that one-on-one sessions that focused on individual patient needs were most effective. In addition, the physical therapist’s opinions were that patients who had supportive families were more likely to participate in health-promotion activities, and those who had financial restraints and a lack of ownership in care were also less likely to participate in health-promotion activities. The analysis of the questionnaires also revealed that the physical therapist’s number of years in clinical experience correlated with the degree of health-promotion activities addressed (Healey et al., 2012).

Summary

Self-determination and Self-direction in learning theories have common themes, with regard to the realization of behavior change. Both theories promote the importance of autonomy and the critical relationship between the type of environment and an individual’s propensity to change. Both theories describe the positive and negative aspects of internal and external influences (Brockett & Hiemstra, 1991; Ryan & Deci, 2000). The goal of self-direction in learning is to enhance the ability of an individual to become the cause of his or her learning. Individuals engaged in self-direction learning
activities are engaged in self-determined learning (Mithaug, Mithaug, Agran, Martin, & Wehmeyer, 2003).

Although motivations and influences for behavior may change with age (Bandura, 1994, Deci & Ryan, 1985), older adults have the desire to remain active and engaged. Successful aging includes not only physical function, but also psychosocial aspects as well. Older adults have expressed the importance of autonomy, social interaction, contribution, physical function, security, and enjoyment (Stephens, Breheny, & Mansvelt, 2015). Physical therapists can provide support for an individual's autonomy by the provision of choice, promotion of self-initiation, and respect for an individual's viewpoint (Deci & Ryan, 2002). These ideals are well represented in the Self-determination and Self-direction in learning theories.

The focus of this study was the investigation of both internal and external influences on the older adult’s change in self-direction in learning and health-promotion behaviors. The literature is replete with studies regarding self-determination and self-direction in learning and the positive influences of these characteristics, but the correlation of these attributes in older adults to the intent of health-promotion behavior change is limited and negligible as these attributes relate to the physical therapy field and the potential for influence in health promotion.
CHAPTER III

METHODOLOGY

This correlational study examined the relationships among a patient’s self-directedness, his or her health-promoting behaviors, and physical therapy support for the patient's autonomy. Patient demographic information including age, gender, and geographic location of residence was gathered. The research questions addressed in this study were:

1. Is there a statistically significant change in the older adults’ score on the OCLI after participating in physical therapy?

2. Is there a statistically significant change in the older adults’ score on the HPLPII after participating in physical therapy?

3. Is there a relationship between the older adults’ score on the OCLI and the older adult’s score on the HPLPII at 4 weeks?

4. Is there a relationship between the older adults’ score on the HCCQ and the older adult’s change in score on the OCLI?

5. Is there a relationship between the older adults’ score on the HCCQ and the older adult’s change in score on the HPLPII?

Participants

The 20 participants in this study are patients 65 years and older who participated in outpatient physical therapy services in Mississippi.

Instrumentation

Three instruments were used during this study: 1) the Oddi Continuing Learning Inventory, 2) the Health Promoting Lifestyle Profile II instrument and 3) the Health Care
Climate Questionnaire. In order to address research questions #1 and #2, analysis of the participant’s initial scores on the OCLI and the HPLP II and the subsequent scores on each instrument at week 4 of participation in physical therapy was performed to determine statistically if there is a change in scores on each instrument. In order to address research question #3, the participant’s score on the HPLP II instrument, administered at the conclusion of physical therapy services at week 4, was correlated with the participant’s score on the OCLI instrument at the conclusion of week 4. In order to address research question #4 and #5, the participant’s score on the Health Care Climate questionnaire was correlated with the change in the participant’s score on the OCLI and the HPLP II, respectively.

The Oddi Continuing Learning Instrument (OCLI) was selected for this research because it is designed to measure an individual’s propensity for self-direction in learning. “For the purposes of this research, a royalty-free copyright license for the use of the OCLI was granted by Lorys F. Oddi” (personal communication, 2013, para 4) (See Appendix D). Oddi (1984) proposed three categories of self-directed learning characteristics: proactive versus reactive drive, cognitive openness as opposed to defensiveness, and an attitude of commitment toward learning vs. apathy toward learning. Oddi (1984) espoused that self-directed learners are proactive in their learning as evidenced by an inner motivation to learn distinct from any external stimulus. They exhibit cognitive openness, which is the ability to be objective and flexible when confronted with challenges or new experiences. An individual who possesses cognitive openness is not stifled by potential risk or ambiguity. The final characteristic, an attitude of commitment toward learning, refers to an attitude of active pursuit of learning through
diverse avenues and an affinity for stimulating learning opportunities (Oddi, 1984). The OCLI is a 24-item self-report instrument that embodies the foundational characteristics of a self-directed learner, as determined by Oddi (1984). A seven point Likert scale is used to score the instrument with a higher score reflective of a greater degree of self-directed learning.

During the development phases, Oddi created a pool with 100 items consisting of both reverse and non-reverse items. Content validation was assessed by experts in the field, as well as a panel of graduate students who were similar to the study’s projected participants. Subsequent to analysis by the two panels, a pre-pilot study, and a final pilot study, 24 of the items were included in the instrument. The instrument was administered to graduate students in three areas of study (law, adult education, and nursing). Internal consistency, measured by the standard coefficient alpha, was 0.875. The temporal stability of the instrument was determined by retesting the instrument two weeks after the initial testing, with a resultant correlation coefficient of 0.893 for the test/re-test analysis. Factor analysis revealed the necessity to use the total score on the OCLI as a measure of self-directed learning due to the inability of the separate factors to explain an adequate amount of the instrument’s total variance. Construct validity was measured by the correlation of the total scores on the OCLI with the Leisure Activity Survey (LAS), the Internal-External Scale (I-E Scale), the Shipley Institute of Living Scale (Shipley), and the ACL-Affiliation (Aff), ACL-Endurance (End), ACL-Self-Confidence (S-Cfd), ACL-Change subscales of the Adjective Checklist. Data analysis revealed a positive correlation between the OCLI and the LAS (r= 0.363, p= .004) as well the ACL-Aff (r= 0.247, p = 0.04), the ACL-End (r= 0.473, p <.0001), and the ACL-S-Cfd (r= 0.449,
p < .0001). No correlation was found between the OCLI and the I-E Scale (r= -0.042, p=0.73), the Shipley (r= 0.040, p= 0.754), or the ACL- Cha (r=-.011, p=.928). Since the Shipley is a measure of adult intelligence, discriminate validity was supported when the OCLI scores indicated no correlation with the Shipley scores. Validity was further bolstered when similar findings were identified within each of the three subject groups (Oddi, 1984). Following Oddi’s development of this instrument, several researchers have conducted studies to test its reliability and validity (Harvey, Rothman, & Frecker, 2006; Oddi, Ellis, & Altman Roberson, 1990; Six, 1989). The research by Harvey et al. (2006) revealed a coefficient alpha of 0.66 and similar results to Oddi (1986) in a three factor analysis of the instrument. Their results did suggest that a four factor solution may be more representative of the instrument than the three factor solution. Since its development, the OCLI has been consistently used as a measure of self-directed learning in research with diverse populations, in various learning environments, and in the health care environment (Francis & Flanagan, 2012; Harvey et al., 2003, 2006; Hemby, 1998; Kungu, Kinyanjui, & Machtmes, 2011; Oddi et al., 1990).

The Health Care Climate Questionnaire (HCCQ) is an instrument that measures the degree of patient autonomy promotion by health care providers in the provision of care as reported by patients. There are two versions of the instrument, one with a more general overview of the patient’s opinion of the healthcare environment with 15 items and one with six items constructed to ascertain the patient’s opinion related a specific health behavior. The individual items are scored on a seven-point Likert scale, with a higher score representing the patient’s report of greater support by the health care provider. The total score for both versions is derived by averaging the scores on the
individual items (Health Care Climate Questionnaire, n.d.). For this study, the 15-item HCCQ was administered because this researcher is more interested in the patient’s perception of the supportive environment as it relates to general health behaviors, rather than a single health behavior. The instrument’s psychometric properties have been analyzed in several studies administered to several different patient populations. Both studies conducted by Williams et al., (1996) and Williams & Deci (1996) found the HCCQ reliable with a Cronbach alpha of 0.92 and 0.96, respectively. In 2012, Schmidt et al. concluded, after analyzing data in their study, that the German version of the HCCQ and the English version of the HCCQ had similar psychometric properties. The internal consistency (Cronbach alpha = 0.97) was high and the HCCQ demonstrated moderate correlation (Spearman rank correlation coefficient=-0.5) with the European Task Force on Evaluations of General Practice Questionnaire (EUROPEP). It has been used frequently in smoking cessation program research (Williams, Cox, Kouides, & Deci, 1999; Williams, et al., 2002) and in populations participating in diet improvement and regular exercise programs (Williams et al., 1996).

The Health Promoting Lifestyle Profile II (HPLP II) is a revision of the Health Promoting Lifestyle Profile developed by Walker, Sechrist, and Pender (1987). The original Health Promoting Lifestyle Profile was used frequently in research across diverse populations to measure health promoting behaviors, and validation of its psychometric properties was supported in research by Walker et al. in 1990 and again by Kuster and Fong in 1993. Feedback from the instrument’s users and changes in current practice and literature prompted the construction of the HPLP II. This revised version is a 52-item instrument that encompasses actions and perceptions of an individual that
displays self-initiation, self-actualization, and wellbeing. The health promoting behaviors and opinions included in the instrument are categorized in the areas of “health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships, and stress management” (Health Promoting Lifestyle Profile II, 1995, para. 1). The Health Responsibility subcategory consists of items that reflect an individual's level of accountability for his or her health. This accountability involves active engagement in education regarding health behaviors and healthcare field navigation. Physical activity is participation in any level of activity, whether it is for the purpose of health and fitness or is accomplished in the activities of normal daily living. The Nutrition subcategory includes items that are related to an individual's knowledge of and participation in a healthy diet. The items in the Spiritual Growth subcategory reflect the ideas of inner peace, feelings of harmony, connectedness, finding significance in life, and achieving goals in life. Interpersonal relationships are described as meaningful and close relationships that are developed through verbal and nonverbal communication. Stress management is the ability to recognize and utilize the necessary physical and psychological skills to minimize stress (Walker & Hill-Polerecky, 1996). These six subcategories were isolated by factor analysis and accounted for 47.1% of the variance in the instrument. Low to moderate (-0.27 to 0.44) correlations between the factors indicated that these subcategories are distinct elements of a health promoting lifestyle. Each subcategory contains eight or nine representative activities or items (Walker et al., 1987).

Each item is scored based on a 4-point verbal frequency scale. A score of 1 is equated with never; a score of 2, sometimes; a score of 3, often; and a score of 4 is equal
to routinely. The total score is derived by calculating the mean of the scores on each item. The six subscales or categories of behaviors are scored similarly. A higher score suggests a greater degree of health promoting behaviors (Health Promoting Lifestyle Profile II Scoring Instructions, 1995). Meihan and Chung-Ngok (2011) analyzed the psychometric properties of the instrument in a study with a population of Taiwanese women. Reliability was determined with the reported ranges of Cronbach alpha coefficients from 0.74 – 0.87 for the subscales. The total score correlation revealed a Cronbach alpha coefficient of 0.95. Significant correlations were found between the HPLP II and measures for perceived health (r= 0.365, p< 0.001) and quality of life (r= 0.359- 0.558, p< 0.001). Factor analysis revealed significant alignment with the HPLP II, except for one factor in the nutrition subscale. In spite of a small sample size, the authors of this study found the HPLP II a reliable and valid measure to use in culturally diverse populations (Meihan & Chung-Ngok, 2011). The criterion validity of the HPLP II was supported by a study conducted by Mohamadian, Ghannaee, Kortdvanganeh, and Meihan (2013) who found significant correlations between HPLP II, quality of life, as measured by the SF-12 instrument (r= 0.24, p<.001), and self-efficacy variables (r= 0.48, p<.001). The HPLP II’s construct validity was evaluated by confirmatory factor analysis which demonstrated a good estimate of fit and correlations between the HPLP II, and its subcategories ranged from 0.73- 0.80. Further validation of the instrument was provided by studies conducted by Pinar, Celik, and Bahcecik, (2009) in a Turkish population, Mullins, et al., (2012) in a Hispanic population, and Cao, Chen, Hua, Xu, and Hua (2012) in a Chinese population. In the Cao et al. (2012) study, the criterion-related validity was evaluated by analyzing correlations between the SF-36 and the HPLP II. The SF-36 is a
valid and reliable instrument used to assess quality of life. A significant relationship was found between the HPLP II and perceived health status ($r= 0.302, p < 0.001$) and the total SF-36 score ($r= 0.312, p< 0.001$) (Cao et al., 2012). The HPLP II instrument has been used frequently in the investigation of health-promoting behaviors in older adults (Boland, 2000; Callaghan, 2005; Cao et al, 2012; Walker, Volkan, Sechrist, & Pender, 1988).

Procedure

After obtaining IRB approval from The University of Southern Mississippi to conduct this study, a list of physical therapists and their contact information was obtained from the Mississippi Board for Physical Therapy. Physical therapists practicing in outpatient physical therapy settings in Mississippi were then contacted by phone and/or email to assist in recruiting patients for participation in the study. Therapists who did not respond to the initial contact were contacted again on two subsequent occasions. Physical therapists willing to assist in recruitment were provided with a copy of the patient information letter and a general overview of the research project. Physical therapists across the state, who agreed to assist in recruitment were contacted by email and/or by phone on a biweekly basis to recruit patients for the study. Patients who were willing to participate were asked to sign the informed consent letter that identified the purpose of the study and the requirements for participation in the research. Participants then completed the demographic items, the Oddi Continuing Learning Inventory, and the Health Promoting Lifestyle Profile II, at the first or second visit to physical therapy. At the conclusion of their four-week episode of care, the participants completed the Oddi
Continuing Learning Inventory, the Heath Promoting Lifestyle Profile II, and the Healthcare Climate Questionnaire.

Data Analysis

Data were analyzed to determine relationships among variables as well as changes in self-direction in learning and participation in health promotion activities reported by participants. Descriptive analysis, paired t tests, one way analysis of variance, and Pearson coefficient correlations were used for the multiple dependent measures.
CHAPTER IV
ANALYSIS OF DATA

Participants

Twenty-four patients agreed to participate in the study. Two of the patients failed to complete the initial instruments, and two of the patients completed only the pre-test instrument. The data generated from the twenty participants who completed both the pre-test instruments and the post-test instruments at the four week time frame were analyzed.

Demographics

The 20 participants who completed the study reside in three Mississippi counties and all are Caucasian. Two of the participants live in Rankin County, six in Hinds County, and twelve in Madison County. Thirteen of the participants are female and seven are male. The age range of 65-69 was selected by 11 participants, four selected the 70-74 age range, three participants selected the 75-79 age range, and two participants selected the range from 80-84 years of age. No participants selected the 85 or older age category. The educational degree attained by most of the participants was a college degree (nine), with the least number of participants selecting the 7-11 grade range (one). No one selected the 1st-6th grade classification. All but two of the participants were married, with one of those two identified as single and the other, a widow (see Table 1).
Table 1

*Participant Characteristics*

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
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<td></td>
</tr>
<tr>
<td>Male</td>
<td>7</td>
<td>35.00%</td>
</tr>
<tr>
<td>Female</td>
<td>13</td>
<td>65.00%</td>
</tr>
<tr>
<td><strong>Age range</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65-69</td>
<td>11</td>
<td>55.00%</td>
</tr>
<tr>
<td>70-74</td>
<td>4</td>
<td>20.00%</td>
</tr>
<tr>
<td>75-79</td>
<td>3</td>
<td>15.00%</td>
</tr>
<tr>
<td>80-84</td>
<td>2</td>
<td>10.00%</td>
</tr>
<tr>
<td><strong>Educational level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-11 grade</td>
<td>1</td>
<td>00.05%</td>
</tr>
<tr>
<td>High school graduate</td>
<td>4</td>
<td>20.00%</td>
</tr>
<tr>
<td>College graduate</td>
<td>9</td>
<td>45.00%</td>
</tr>
<tr>
<td>Masters/Doctoral degree</td>
<td>6</td>
<td>30.00%</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
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<td></td>
</tr>
<tr>
<td>Single</td>
<td>1</td>
<td>00.05%</td>
</tr>
<tr>
<td>Married</td>
<td>18</td>
<td>90.00%</td>
</tr>
<tr>
<td>Widow/Widower</td>
<td>1</td>
<td>00.05%</td>
</tr>
</tbody>
</table>
Instrumentation

Each participant completed the Oddi Continuing Learning Inventory (See Appendix D) and the Health Promoting Lifestyle Profile II (See Appendix B) at the initiation of OP physical therapy and at the conclusion of four weeks of OP physical therapy. The Health Care Climate Questionnaire (See Appendix E) was completed by the participants at the conclusion of four weeks of OP physical therapy. Results from the descriptive data analysis of the demographic and instrument score variables using means, and standard deviations are discussed. Statistical analysis were reported using the paired t test, one way ANOVA, and Pearson coefficient correlation to determine relationships among the demographic and instrument variables. Lastly, the five research questions developed to determine relationships among self-direction in learning, participation in health-promoting behaviors, and interaction with a physical therapists are discussed.

*Oddi Continuing Learning Inventory*

The Oddi Continuing Learning Inventory has 24 items that are rated on a 7-point Likert scale. The participants responded to each of the items by indicating the number that best reflected his or her level of agreement or disagreement with the item. The scale ranged from Strongly Disagree (1) to Strongly Agree (7), with the intervening values representing Moderate Disagreement (2), Slight Disagreement (3), Undecided (4), Slight Agreement (5), and Moderate Agreement (6). Items 12, 17, 20, 21, and 24 are reverse items, the value of these scores are reversed prior to adding them to the values of the remaining items. The questionnaire is scored by totaling the values of the non-reversed items and the corrected reverse items. The score totals range from 24 - 168; with a higher score reflective of a higher level of self-directed learning.
The mean score on the initial OCLI was 123.8, with a standard deviation of 18.881. This mean score is consistent with past research conducted by Hutto (2009) who found a mean score of 123.042 for the OCLI and Oddi (1984), with a normative mean of 123.627 and a standard deviation of 19.026. The current study scores had a range of 70 points, with 87 as the lowest score and 157 as the highest score. Male participants’ mean score was slightly higher than female participants. The mean score of participants who completed a high school (HS) education or less was lower than college graduates, and college graduates had a lower mean score than those participants with an advanced degree. Participants in the 70-74 age group had the highest mean score, while those in the 80-84 age group had the lowest mean score (see Table 2).

The mean score on the OCLI, completed after four weeks of OP physical therapy participation, was also 123.8, with a standard deviation of 14.888. The scores ranged from 102-151, a range of 49 points (see Table 2). In contrast to the mean score for males which was higher on the initial OCLI, female participants had a higher mean score than the male participants on the OCLI after 4 weeks of OP physical therapy. The mean scores for the educational level again indicated higher mean scores for higher levels of education. The mean scores for the participants in the 70-74 age group had the highest mean score, and those participants in the 75-79 age group had the lowest mean score (see Table 2).

Research Question 1- Is there a statistically significant change in the older adults’ score on the OCLI after participating in physical therapy?

Data analysis of the OCLI pre-test and post-test scores using the paired t test revealed no statistically significant change in the OCLI score after four weeks of
participation in OP physically therapy, t (19)=.000, p=1.00. Demographic variable correlations with the OCLI were run using the one way ANOVA. Although not statistically significant, education correlated positively with OCLI pre-test (F(2,17)=3.18, p=.067) and post-test (F(2,17)=1.23, p=.318) scores.

Table 2

*Oddi Continuing Learning Inventory Scores*

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Pre-test Mean</th>
<th>Post-test Mean</th>
<th>Change in Mean (Post – Pre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>124.14</td>
<td>116.29</td>
<td>-7.85</td>
</tr>
<tr>
<td>Female</td>
<td>123.62</td>
<td>127.85</td>
<td>4.23</td>
</tr>
<tr>
<td>Age Range</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65-69</td>
<td>126.73</td>
<td>123.64</td>
<td>-3.09</td>
</tr>
<tr>
<td>70-74</td>
<td>134.00</td>
<td>131.50</td>
<td>-2.50</td>
</tr>
<tr>
<td>75-79</td>
<td>111.00</td>
<td>115.67</td>
<td>4.67</td>
</tr>
<tr>
<td>80-84</td>
<td>106.50</td>
<td>121.50</td>
<td>15.00</td>
</tr>
<tr>
<td>Educational Level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS or less</td>
<td>108.80</td>
<td>116.40</td>
<td>7.60</td>
</tr>
<tr>
<td>College graduate</td>
<td>124.89</td>
<td>123.56</td>
<td>-1.33</td>
</tr>
<tr>
<td>Advanced degree</td>
<td>133.83</td>
<td>130.30</td>
<td>-3.53</td>
</tr>
</tbody>
</table>

*Health Promoting Lifestyle Profile II*

The HPLP II is a 52-item questionnaire with a 4-point verbal frequency scale. The values for the frequency scale are as follows: a score of 1 for Never, a 2 for Sometimes, a
3 for Often, and a 4 for Routinely. The participant selected the value that best represented the frequency (Never, Sometimes, Often, and Routinely) with which he or she currently participates in the behavior described. A higher score indicates greater participation in a variety of health-promoting activities. The total possible raw values range from 52 to 208. The questionnaire is scored by totaling the number of points and then dividing that total by the number of items (52). The six HPLP II subcategories are scored by totaling the points of the items that have been selected to represent that subcategory and then dividing that total by the total number of items in the subcategory.

The mean of the raw total score on the initial HPLP II was 146.3 with a mean of 2.81 on the 4-point verbal frequency scale (see Table 3). Male participants had a lower mean score than females. The participants in the age range of 70-74 and those participants who completed a Master’s or Doctoral degree had the highest mean scores (see Table 3).

Following four weeks of participation in outpatient physical therapy, the mean total raw score on the HPLP II was 145.55 (2.79 mean on the 4-point verbal frequency scale) (see Table 3). Male participants’ mean score remained lower than female participants. The participants in the age group 70-74 continued to have the highest mean score as did the participants with a Master's or Doctoral degree (see Table 3).

**Subcategories of Health Promoting Lifestyle II**

The subcategory of Physical Activity had the lowest pre-test score with a value of 2.39, and Spiritual Growth had the highest score with a value of 3.25 (see Table 4). Although not a statistically significant change, the mean scores for the subcategories of Health Responsibility (t(19)=-.473, p=.642), Physical Activity (t(19)=-.325, p=.749),
Nutrition ($t(19) = -1.115, p = .279$), and Stress Management ($t(19) = 1.770, p = .093$) were slightly higher on the post-test questionnaire. The scores for the subcategories of Spiritual Growth and Interpersonal Relations were slightly lower on the post-test questionnaire (see Table 4). The Physical Activity subcategories remained as the subcategory with the lowest mean score (2.43), and Spiritual Growth remained as the subcategory with the highest mean score (3.18) (see Table 4).

Table 3

*Health Promoting Lifestyle Profile II Scores*

<table>
<thead>
<tr>
<th>Category</th>
<th>Pre-test mean (s.d.)</th>
<th>Post-test mean (s.d.)</th>
<th>Change in mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPLP total score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.8140(.342)</td>
<td>2.8061(.391)</td>
<td>0.0079</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2.68 (.333)</td>
<td>2.76 (.378)</td>
<td>0.0800</td>
</tr>
<tr>
<td>Female</td>
<td>2.89 (.336)</td>
<td>2.83 (.440)</td>
<td>-0.0600</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65-69</td>
<td>2.80 (.384)</td>
<td>2.82 (.440)</td>
<td>0.0200</td>
</tr>
<tr>
<td>70-74</td>
<td>2.77 (.418)</td>
<td>2.85 (.489)</td>
<td>0.8000</td>
</tr>
<tr>
<td>75-79</td>
<td>2.86 (.208)</td>
<td>2.71 (.260)</td>
<td>-0.1500</td>
</tr>
<tr>
<td>80-84</td>
<td>2.70 (.122)</td>
<td>2.75 (.218)</td>
<td>0.0500</td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS or less</td>
<td>2.71 (.218)</td>
<td>2.59 (.263)</td>
<td>-0.1200</td>
</tr>
<tr>
<td>College graduate</td>
<td>2.76 (.351)</td>
<td>2.78 (.357)</td>
<td>0.0200</td>
</tr>
<tr>
<td>Master's/Doctoral</td>
<td>2.99 (.394)</td>
<td>3.09 (.463)</td>
<td>0.1000</td>
</tr>
</tbody>
</table>
Table 4

*Health Promoting Lifestyle II Subcategory Scores*

<table>
<thead>
<tr>
<th>Subcategory/ Demographic</th>
<th>Pre-test Mean (s.d.)</th>
<th>Post-test Mean (s.d.)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Responsibility</td>
<td>2.55 (.435)</td>
<td>2.56 (.427)</td>
<td>0.642</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>2.39 (.605)</td>
<td>2.43 (.810)</td>
<td>0.749</td>
</tr>
<tr>
<td>Nutrition</td>
<td>2.63 (.515)</td>
<td>2.72 (.502)</td>
<td>0.279</td>
</tr>
<tr>
<td>Spiritual Growth</td>
<td>3.25 (.416)</td>
<td>3.18 (.399)</td>
<td>0.257</td>
</tr>
<tr>
<td>Interpersonal Relations</td>
<td>3.21 (.417)</td>
<td>3.13 (.559)</td>
<td>0.354</td>
</tr>
<tr>
<td>Stress Management</td>
<td>2.75 (.503)</td>
<td>2.90 (.529)</td>
<td>0.093</td>
</tr>
</tbody>
</table>

*Research Question 2- Is there a statistically significant change in the older adults’ score on the HPLPII after participating in physical therapy?*

Data analysis indicated no statistically significant change in the HPLP II scores, following 4 weeks of OP physical therapy (t(19)=.313, p=.758). Following correlational analysis of the demographic variables with the HPLP II and its subcategories, the only variable with a statistically significant relationship was educational level and the Health Responsibility subcategory, F(2,17)=6.42, p=.008. Although not statistically significant, there was a positive relationship between educational level and the mean score on the HPLP II pre-test (F(2,17)=1.18, p=.331) and post-test (F(2,17)=1.93, p=.175)(See Figure 1).
Research Question 3- Is there a relationship between the older adults' score on the OCLI and the older adult’s score on the HPLP II at 4 weeks of physical therapy?

Data were analyzed to determine a relationship between the participant's scores on the OCLI and the participant's scores on the HPLP II, and a statistically significant correlation was found for both the participant's initial scores (r=.512, p=0.021) and the participant's score after 4 weeks of OP physical therapy (r=.499, p=.025).

Health Care Climate Questionnaire

The Health Care Climate Questionnaire has a total of 15 items rated on a 7-point Likert scale, with a range from 1-7 points. The value for each item is selected based on participants' opinion regarding their agreement or disagreement with the item, as it related to their encounters with a physical therapist. The lowest value (1) indicates strong disagreement with the item, a four represents a neutral response, and the highest value (7) indicates strong agreement. Item 13 is a reverse statement, therefore the score for this item is recoded by reversing the score selected by the participant. The HCCQ is scored

Figure 1. Relationship between the HPLP II pre-test mean (1st Column) and the HPLP II post-test mean (2nd Column) and educational level.
by totaling the values selected for each item, after reversing the score for item 13, and then dividing the total by 15 (the total number of items). The mean score ranges from 1.0 as the lowest possible score and 7.0 as the highest score. A higher average score indicates a higher level of perceived autonomy support.

The mean total score on the HCCQ for this sample was 6.4, and with a range from 4.27 to 7. Female participants had a higher mean score than the male participants. The participants in the age range from 65-69 had the highest mean score, while those 70-74 had the lowest mean score. The mean score for those participants with a college degree had the highest mean score, while those with an advanced degree had the lowest mean score (see Table 5).

*Research Questions 4 and 5- Is there a relationship between the older adults' score on the HCCQ and the older adults' change in score on the OCLI? Is there a relationship between the older adults' score on the HCCQ and the older adults' change in score on the HPLPII?*

To determine whether the change in scores for the OCLI and/or the HPLP II had a relationship with the HCCQ scores, data were analyzed using bivariate correlation. No statistically significant correlation with the HCCQ for either change in scores for the OCLI ($r = .287, p=0.220$) or the HPLP II ($r =-.062, p=0.797$) was found. After analysis of relationships between the demographic variables and the HCCQ, a statistically significant relationship between gender and the score on the Healthcare Climate questionnaire ($F(1,18)=6.16, p=.023$) was found.
Table 5

*Health Care Climate Questionnaire Scores*

<table>
<thead>
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<td>Masters/Doctorate</td>
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Summary

The data were analyzed to determine the relationships among self-direction in learning, participation in health promoting behaviors, and interaction and physical therapy support for autonomy in older adults. The OCLI was used to determine an older adult’s level of self-direction in learning. Participation in health promoting behaviors was determined by the score on the HPLP II, and interaction with the physical therapist was analyzed using the score on the HCCQ. Following data analysis, the only statistically significant relationship among these variables was the relationship between the OCLI and HPLP II.

In addition to the identification of relationships among the participant’s scores on each of the instruments, relationships were investigated between the demographic variables and scores on the study instruments. A statistically significant relationship was found between gender and the HCCQ scores and between educational level and the mean scores on the HPLP II Health Responsibility subcategory. Although not statistically
significant, a positive relationship was found between educational level and the mean scores on the HPLP II and the OCLI.
CHAPTER V
SUMMARY
Purpose and Procedure

The healthcare industry is at a critical point in time to influence the quality of life for older adults. With the changes in reimbursement, advances in technology, and the increasing number of older adults in the United States, the investigation into the most efficient and effective means to meet the quality of life issues of older adults is important (Deci & Ryan, 2002). Physical therapy is a profession that has a mission to improve the functional ability of patients. A patient’s functional ability includes not only the actual improvement of physical ability, but also the ability to successfully problem-solve and safely live within their environment. Therefore, physical therapy interventions should be comprehensive in the approach. Education should be a key part of a patient's physical therapy plan of care and should promote autonomous regulation by the patient (Beckingham & Watts, 1995).

Participation in health promoting behaviors influences an individual’s quality of life (Centers for Disease Control and Prevention, 2009), therefore any endeavor to assist the older adult in making appropriate choices or changes in behaviors can only enhance their quality of life. Health education is not only designed to provide information about health promoting behaviors, it is designed to provide the patient with the necessary tools to effect the necessary changes. Advocacy, autonomy, and control are all key components of this process (Daley, 2011), and are integral to the concepts of self-determination and self-direction in learning (Brockett & Hiemstra, 1991).
The current study was conducted to determine the relationships among self-direction in learning, participation in health promoting behaviors, and physical therapy support for autonomy in older adults. The OCLI instrument was used to determine the degree of self-direction in learning, the HPLP II was used to determine level of participation in health promoting behaviors, and the physical therapy support for autonomy was analyzed by the score on the HCCQ. After receiving approval from The University of Southern Mississippi’s Institutional Review Board (see Appendix F), physical therapists were contacted to assist in the recruitment of patients for the study. The recruitment of patients was slow and required repeated contact with physical therapists across the state and yielded a total of 20 participants after 9 months of recruitment. Five research questions were developed to address these relationships and descriptive analysis, the paired t test, the one way ANOVA, and correlational analyses using the Pearson correlation coefficient were employed to determine the outcomes.

Results

The first two research questions in this study addressed the change in scores on the OCLI and/or the HPLP II after participating in OP physical therapy for four weeks. The original intent was to follow patients for six weeks, but the patients who participated in this study were discharged from OP physical therapy at four weeks. Data analysis resulted in no statistically significant change in the scores for the OCLI or the HPLP II after four weeks of OP physical therapy. The time frame for the study may have been too short to indicate a true change. It does take time to internalize and integrate a behavior change, and health benefits are often not as evident until the behavior changes have been
maintained over time. (Deci & Ryan, 2002). Additionally, the patient's impairments and co-morbidities may have contributed to the lack of change.

The data analysis results indicated a statistically significant relationship between self-direction in learning and participation in health promoting behaviors. This is consistent with Hulsman's (2011) study that determined a statistically significant relationship between self-directedness and health promotion in the elderly. In her qualitative study, Valente (2005) also concluded that there was a relationship between self-directed learning and participation in health promoting behaviors. Although not a study with older adults, Owen (1996) found in his study with graduate students a statistically significant relationship between self-directed learning and wellness.

The last two research questions addressed the relationship between physical therapy support for autonomy and self-direction in learning and health promoting behaviors. The analysis indicated no statistical significant relationship between the OCLI and the HCCQ or the HPLP II and the HCCQ. Although there was no statistically significant relationship between the scores on these instruments in this study, the score on the HCCQ was relatively high (6.6), which does suggest that the patients at most of the OP clinics believed that the physical therapists who provided their care were autonomy supportive in the provision of that care. These results are inconsistent with the plethora of studies that determined a positive relationship between an autonomous supporting environment and behavior change (Kasser & Ryan, 1999; Ryan & Deci, 2000; Williams et al., 1996; Williams et al., 2002; Williams et al., 2006). Although none of these studies looked at the physical therapy environment, they did report on health promoting behavior
changes such as diet, medication adherence, and alcohol behaviors, and the positive relationships with programs or environments that were supportive in patient autonomy.

Additional correlations with the demographic variables were analyzed. This analysis revealed a positive relationship, although not statistically significant, between the participant’s educational level and the mean scores on the HPLP II and the OCLI. This finding is similar to the findings of Hulsman (2011) who reported a weak relationship between education and health promotion behaviors. Cao et al. (2012) investigated the reliability and validity of the use of the HPLP II in a population of Chinese older adults, and his results also indicated a statistically significant relationship between the participant’s educational level and the score on the HPLP II. This is inconsistent with Lema's (2006) study of self-directed learning in the hospitality industry that showed a statistically significant relationship between education and the degree of self-directed learning. A statistically significant relationship between education and the scores on the HPLP II Health Responsibility subcategory was found. In her study of health promoting lifestyles of African American women, Parker (1996) also found a positive correlation between education and the HPLP II and the subcategory of Health Responsibility.

Data analysis found a statistically significant relationship between gender and the HCCQ score, but no statistically significant relationship between gender and the HPLP II or the OCLI. This is contrary to the findings of Hutto (2009) and Lema (2006) who found a statistically significant relationship between gender and the OCLI. Females had the higher OCLI mean scores in both of these studies. These two studies were not
conducted with older adults, therefore their results may be more reflective of younger adults rather than older adults.

Limitations

There were only 20 patients who agreed to participate in this study. These patients are all Caucasian and reside in only 3 counties in Mississippi; therefore these results may not be generalizable to older adults of other races or in other areas of Mississippi. The sample size is also too small for statistical tests. In addition, the study was conducted for only four weeks due to the participants’ discontinuation of OP therapy at that time. This may have influenced the lack of change in self-direction in learning or change in participation in health promoting behaviors. Several studies that were conducted for longer time frames reported a positive relationship between self-direction in learning and changes in health behaviors (Kasser & Ryan, 1999; Williams et al., 1996; Williams et al., 2002).

Clinical Implications and Further Research

This study is clinically relevant because it adds to the body of literature that supports a positive relationship between self-direction in learning and participation in health promoting behaviors. A physical therapist can use this information to better tailor his or her educational approaches and priorities to better meet the needs of patients. The OCLI or another self-direction in learning instrument, if included in the initial data collection in OP physical therapy, could be used by the physical therapist to obtain a better picture of the patient’s propensity for learning. The educational process could then be tailored to encourage the advancement of the patient’s self-direction in learning,
thereby, increasing the potential for improvement in health behaviors to meet the needs of
the older adult patient.

Although there was not a statistically significant correlation between the HCCQ
and the HPLP II or the OCLI, future research conducted with a larger sample of older
adults for a longer time frame, or in different physical therapy settings, may show
promise in determining a more robust positive relationship with the physical therapist.
This current study did not consider the influence of the physical therapist's degree of self-
direction in learning or take into consideration the physical therapist's teaching styles,
therefore there may be merit for research in this area to determine any possible
correlations. The studies by Rea et al. (2004) and Fruth et al. (1998) found strong
correlations between the physical therapist’s self-efficacy and the time spent in education
related to healthy behaviors.

The HPLP II subcategories of physical activity and health responsibility had the
lowest mean scores for this study. Since physical therapists focus more on physical
function, this author would have expected the scores in the physical activity subcategory
to positively change over time. The diagnoses or co-morbidities were not identified in
this study, so it may have been that the small sample of older adults in this study had
greater impairments than the general population of patients in OP physical therapy. If so,
this may have influenced the lower scores in these areas. Cao et al. (2012) found a
statistically significant inverse relationship between health promoting behaviors and
chronic diseases.

In addition, since health responsibility was the other lowest subcategory, this also
suggests that this sample of older adults were taking less responsibility or control over
their healthcare. Examples of the items on the HPLP II that were included in the Health Responsibility subcategory related to communication with health care professionals about health issues, watching programs, or reading about health issues. Although the scores for the HCCQ in this sample were high, indicating an autonomous supportive environment, these older adults were less likely to take the initiative in their care. Identification of these patient characteristics at the initial visit of physical therapy and then incorporating strategies based on this assessment can be used to enhance the acquisition of greater control in healthcare decision-making and may also improve physical therapy outcomes.

Conclusion

The issues of behavior change and adherence are major challenges to the healthcare arena, and will continue to be in the future. The factors that influence an individual's health behavior change are complex and varied. Healthcare professionals must use the limited time available with patients to optimize the patient’s outcomes. One way to optimize the outcomes is to foster an autonomy supportive environment (Deci & Ryan, 2002). Although this study did not show a correlation between an autonomy supportive environment and behavior change, the results did show a relationship between self-direction in learning and participation in health behaviors. Physical therapists as well as other healthcare professionals can use the study results to enhance the assessment and care of older adults. Physical therapists, not only provide interventions for impairments, but they also are educators. Physical therapy treatment is a team approach, and the patient is one of the key team players. The incorporation of educational approaches that promote the enhancement of self-direction in learning into the physical therapy plan of care may result in a greater degree of health-promoting
behaviors. When the care is tailored to appropriately motivate the older adult, the older adult may be more willing to embrace a more autonomous approach to healthcare, and thereby participate to a greater degree in health-promoting behaviors and improve their overall quality of life consequently.
Dear Colleague:

Thank you for your interest in the Health-Promoting Lifestyle Profile II. The original Health-Promoting Lifestyle Profile became available in 1987 and has been used extensively since that time. Based on our own experience and feedback from multiple users, it was revised to more accurately reflect current literature and practice and to achieve balance among the subscales. The Health-Promoting Lifestyle Profile II continues to measure health-promoting behavior, conceptualized as a multidimensional pattern of self-initiated actions and perceptions that serve to maintain or enhance the level of wellness, self-actualization and fulfillment of the individual. The 52-item summed behavior rating scale employs a 4-point response format to measure the frequency of self-reported health-promoting behaviors in the domains of health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations and stress management. It is appropriate for use in research within the framework of the Health Promotion Model (Pender, 1987), as well as for a variety of other purposes.

The development and psychometric evaluation of the English and Spanish language versions of the original instrument have been reported in:


Copyright of all versions of the instrument is held by Susan Noble Walker, EdD, RN, FAAN, Karen R. Sechrist, PhD, RN, FAAN and Nola J. Pender, PhD, RN, FAAN. The original Health-Promoting Lifestyle Profile is no longer available. You have permission to download and use the HPLPII for non-commercial data collection purposes such as research or evaluation projects provided that content is not altered in any way and the copyright/permission statement at the end is retained. The instrument may be reproduced in the appendix of a thesis, dissertation or research grant proposal. Reproduction for any other purpose, including the publication of study results, is prohibited.

A copy of the instrument (English and Spanish versions), scoring instructions, an abstract of the psychometric findings, and a list of publications reporting research using all versions of the instrument are available for download.

Sincerely,

Susan Noble Walker, EdD, RN, FAAN
Professor Emeritus
APPENDIX B

HEALTH-PROMOTING LIFESTYLE PROFILE II

LIFESTYLE PROFILE II

DIRECTIONS: This questionnaire contains statements about your present way of life or personal habits. Please respond to each item as accurately as possible, and try not to skip any item. Indicate the frequency with which you engage in each behavior by circling:

N for never, S for sometimes, O for often, or R for routinely

1. Discuss my problems and concerns with people close to me.
2. Choose a diet low in fat, saturated fat, and cholesterol.
3. Report any unusual signs or symptoms to a physician or other health professional.
4. Follow a planned exercise program.
5. Get enough sleep.
6. Feel I am growing and changing in positive ways.
7. Praise other people easily for their achievements.
8. Limit use of sugars and food containing sugar (sweets).
9. Read or watch TV programs about improving health.
10. Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber).
11. Take some time for relaxation each day.
12. Believe that my life has purpose.
13. Maintain meaningful and fulfilling relationships with others.
14. Eat 6-11 servings of bread, cereal, rice and pasta each day.
15. Question health professionals in order to understand their instructions.
16. Take part in light to moderate physical activity (such as sustained walking 30-40 minutes 5 or more times a week).
17. Accept those things in my life which I cannot change.
18. Look forward to the future.
19. Spend time with close friends.
20. Eat 2-4 servings of fruit each day.
21. Get a second opinion when I question my health care provider’s advice.
22. Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).
23. Concentrate on pleasant thoughts at bedtime.
24. Feel content and at peace with myself.
25. Find it easy to show concern, love and warmth to others.
26. Eat 3-5 servings of vegetables each day.  N  S  O  R  
27. Discuss my health concerns with health professionals. N  S  O  R  
28. Do stretching exercises at least 3 times per week.  N  S  O  R  
29. Use specific methods to control my stress.  N  S  O  R  
31. Touch and am touched by people I care about.  N  S  O  R  
32. Eat 2-3 servings of milk, yogurt or cheese each day. N  S  O  R  
33. Inspect my body at least monthly for physical changes/danger signs. N  S  O  R  
34. Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking). N  S  O  R  
35. Balance time between work and play.  N  S  O  R  
36. Find each day interesting and challenging.  N  S  O  R  
37. Find ways to meet my needs for intimacy.  N  S  O  R  
38. Eat only 2-3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day. N  S  O  R  
39. Ask for information from health professionals about how to take good care of myself. N  S  O  R  
40. Check my pulse rate when exercising.  N  S  O  R  
41. Practice relaxation or meditation for 15-20 minutes daily. N  S  O  R  
42. Am aware of what is important to me in life.  N  S  O  R  
43. Get support from a network of caring people.  N  S  O  R  
44. Read labels to identify nutrients, fats, and sodium content in packaged food. N  S  O  R  
45. Attend educational programs on personal health care.  N  S  O  R  
46. Reach my target heart rate when exercising.  N  S  O  R  
47. Pace myself to prevent tiredness.  N  S  O  R  
48. Feel connected with some force greater than myself.  N  S  O  R  
49. Settle conflicts with others through discussion and compromise. N  S  O  R  
50. Eat breakfast.  N  S  O  R  
51. Seek guidance or counseling when necessary.  N  S  O  R  
52. Expose myself to new experiences and challenges.  N  S  O  R  

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APPENDIX C

HEALTH_PROMOTING LIFESTYLE PROFILE II SCORING INSTRUCTIONS

HEALTH-PROMOTING LIFESTYLE PROFILE II

Scoring Instructions

Items are scored as:

- Never (N) = 1
- Sometimes (S) = 2
- Often (O) = 3
- Routinely (R) = 4

A score for overall health-promoting lifestyle is obtained by calculating a mean of the individual's responses to all 52 items; six subscale scores are obtained similarly by calculating a mean of the responses to subscale items. The use of means rather than sums of scale items is recommended to retain the 1 to 4 metric of item responses and to allow meaningful comparisons of scores across subscales. The items included on each scale are as follows:

- Health-Promoting Lifestyle: 1 to 52
- Health Responsibility: 3, 9, 15, 21, 27, 33, 39, 45, 51
- Physical Activity: 4, 10, 16, 22, 28, 34, 40, 46
- Nutrition: 2, 8, 14, 20, 26, 32, 38, 44, 50
- Spiritual Growth: 6, 12, 18, 24, 30, 36, 42, 48, 52
- Interpersonal Relations: 1, 7, 13, 19, 25, 31, 37, 43, 49
- Stress Management: 5, 11, 17, 23, 29, 35, 41, 47
APPENDIX D

ODDI CONTINUING LEARNING INVENTORY

Licensor Agreement:

Lorys F. Oddi (Licensor) hereby grants a license under the copyright on the Oddi Continuing Learning Inventory (OCLI) to the undersigned Licensee on the following terms and conditions:

1. The license is granted only for use of the OCLI in research to be undertaken by the Licensee as specified in the research proposal provided herewith by the Licensee.

2. The license is granted on a royalty-free basis provided the OCLI is used only for the specified research. Any use of the OCLI for other purposes is strictly prohibited without the express written authorization of the Licensor.

3. The Licensee shall include the following statement in any written report (published or communicated to others) of the research undertaken with the use of the OCLI: "For the purposes of this research, a royalty-free copyright license for the use of the OCLI was granted by Lorys F. Oddi."

4. The Licensee shall provide Licensor with a copy of the final version of any written report (published or communicated to others) of the research undertaken with the use of the OCLI.

5. The Licensee shall provide Licensor with item scores and demographic data, which shall be used only for further development of the OCLI.

6. A copy of the OCLI will NOT be published or included with study report.

AGREED 7/11/2013

Lorys F. Oddi (Licensor)

Signature

Licensee's research proposal attached.
APPENDIX E

HEALTH-CARE CLIMATE QUESTIONNAIRE

Health-Care Climate Questionnaire

This questionnaire contains items that are related to your visits with your physical therapist. Physical therapists have different styles in dealing with patients, and we would like to know more about how you have felt about your encounters with your physical therapist. Your responses are confidential. Please be honest and candid.

1. I feel that my physical therapist has provided me choices and options.
   
   1 2 3 4 5 6 7
   strongly disagree neutral strongly agree

2. I feel understood by my physical therapist.
   
   1 2 3 4 5 6 7
   strongly disagree neutral strongly agree

3. I am able to be open with my physical therapist at our meetings.
   
   1 2 3 4 5 6 7
   strongly disagree neutral strongly agree

4. My physical therapist conveys confidence in my ability to make changes.
   
   1 2 3 4 5 6 7
   strongly disagree neutral strongly agree

5. I feel that my physical therapist accepts me.
   
   1 2 3 4 5 6 7
   strongly disagree neutral strongly agree

6. My physical therapist has made sure I really understand about my condition and what I need to do.
   
   1 2 3 4 5 6 7
   strongly disagree neutral strongly agree

7. My physical therapist encourages me to ask questions.
   
   1 2 3 4 5 6 7
   strongly disagree neutral strongly agree
8. I feel a lot of trust in my physical therapist.

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9. My physical therapist answers my questions fully and carefully.

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10. My physical therapist listens to how I would like to do things.

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11. My physical therapist handles people's emotions very well.

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12. I feel that my physical therapist cares about me as a person.

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13. I don't feel very good about the way my physical therapist talks to me.

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14. My physical therapist tries to understand how I see things before suggesting a new way to do things.

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15. I feel able to share my feelings with my physical therapist.

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APPENDIX F

IRB APPROVAL

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.5007 | Fax: 601.266.4377 | www.usm.edu/research/institutional-review-board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 811), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
- Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: CH14012702
PROJECT TITLE: Relationships among an Older Adult's Interaction with a Physical Therapist, and an Older Adult's Self Direction in Learning and Health Promoting Behaviors
PROJECT TYPE: Change to a Previously Approved Project
RESEARCHER(S): Lisa Latham
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: Educational Studies and Research
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 04/09/2014 to 04/08/2015

Lawrence A. Hosman, Ph.D.
Institutional Review Board
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