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The Role of Health Promotion in Physical Therapy

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THE ROLE OF HEALTH PROMOTION IN PHYSICAL THERAPY

by

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A Dissertation in Partial Fulfillment of the

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Each person whose signature appears below certifies that this dissertation, in his/her opinion, is adequate in scope and quality as a dissertation for the degree Doctor of Public Health.

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ABSTRACT OF THE DISSERTATION

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Purpose: The purpose of this study was to investigate physical therapy practice patterns in four focus areas of Healthy People 2010 (focus area #6, disability and secondary conditions by looking at psychological well-being; focus area #19, nutrition and overweight; focus area #22, physical fitness and activity; focus area #27, tobacco use) and identify self-efficacy and outcome expectations related to those practice patterns across California, New York and Tennessee using Bandura's Social Cognitive Theory as a framework. It was hypothesized that physical therapists' self-efficacy and outcome expectations in the four focus areas of Healthy People 2010 would be significantly associated with and predict health promotion practice patterns.

Method: The study employed a cross-sectional observational design and utilized a survey designed, pilot-tested, and distributed to 3,500 randomly selected, licensed physical therapists from three states in two waves of data collection: 1,050 from California, 1,200 from New York, and 1,250 from Tennessee. Interviews to saturation

were conducted randomly via phone within all three states to facilitate creation of the survey and the pilot test was conducted with 23 physical therapists in the Loma Linda area.

Results: The health promotion behavior most commonly practiced by physical therapists was assisting patients to increase physical activity (54%), followed by psychological well-being (41%), nutrition and/or overweight issues (19%) and smoking cessation (17%). Physical therapists health promotion behaviors varied between states in the area of psychological well-being (p=.011), with CA being significantly higher than NY. No significant differences in the areas of physical activity, nutrition and overweight and smoking cessation were noted. Self-efficacy was significantly associated with all four behaviors beyond age, gender, ethnicity, hours/week working, year of graduation, number of years working in current setting, patients seen per hour, highest PT degree obtained and school setting with pediatric type patients.

Conclusion: Physical therapists address health promotion topics during practice in varying degrees and in lower than desirable percentages. This study demonstrated that a physical therapist's confidence in being able to perform a specific behavior (self-efficacy) and the expected results of that behavior (outcome expectation) were related to the frequency the health promotion behavior occurred in each of the four focus areas of Healthy People 2010. Furthermore, self-efficacy alone predicted behavior in all four focus areas when all other variables were controlled. By targeting the factors that improve self-efficacy and outcome expectation in the four focus areas, the potential to increase the percentage of physical therapists that practice health promotion behaviors with patients is high.

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CHAPTER 1

INTRODUCTION

A. Statement of the Problem

Healthy People 2010 objectives are evidence that the nation is continuing to move towards an emphasis in health promotion (Healthy People 2010; 2000). The Healthy People 2010 document is an extension of Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention developed in 1979 and Healthy People 2000: National Health Promotion and Disease Prevention Objectives released in 1990. The overarching goals of Healthy People 2010 are to increase quality and years of healthy life and eliminate health disparities (Healthy People 2010; 2000).

Statistics outlined in Healthy People 2010 (2000, Leading Health Indicators, pp. 24-47) and the Centers for Disease Control and Prevention: Behavioral Risk Factor Surveillance System (BRFSS) (2002) demonstrate the need for continued emphasis on health promotion in America. For example, it was estimated that more than 19 million adults currently suffer from depression in America, and in 1997, only 23% of those who were diagnosed received treatment. In 2001, among adults aged 20 and older, 37% were overweight (BMI=25.0-29.9) and 21% were obese (BMI=30.0+). In 1997 only 15% of the adult population performed the recommended amount of physical activity and in 2001, 25.7% reported no participation in leisure time physical activity. In 2001, 22.8% of the adult population was still smoking. Thus, there is a great need for a concerted effort by all Americans to promote health in themselves and the community in which they live.

The American Physical Therapy Association (APTA) is a member of the Healthy People Consortium. This is a group of 650 national, professional and voluntary organizations and agencies that assisted with creating Healthy People 2010 (Bainbridge, 2000). Healthy People 2010 specifically calls the "Federal Government, States, local governments, policymakers, health care providers, professionals, business executives, educators, community leaders, and the American public itself" to become active promoters of health in the community in which they live (Healthy People 2010: 2000, p. 4).

As health care providers, physical therapists are in an ideal position to assist the nation with achieving Healthy People 2010 objectives. Currently physical therapists'educational and practice guidelines emphasize inclusion of health promotion. For example, The APTA has a mission to "further the profession's role in the prevention, diagnosis, and treatment of movement dysfunction and the enhancement of physical health and functional abilities of members of the public" (American Physical Therapy Association, 2000). In summary, physical therapists are uniquely qualified to address health promotion during practice, however, little is known about actual health promotion practice patterns or perception of self-efficacy and outcome expectations for physical therapists currently practicing.

B. Specific Aims

This study addressed objectives in four specific focus areas of Healthy People 2010 deemed most applicable to physical therapy practice (focus area #6, disability and secondary conditions by looking at psychological well-being; focus area #19, nutrition and overweight; focus area #22, physical fitness and activity; focus area #27, tobacco

use). Self-efficacy and outcome expectations as described by Social Cognitive Theory (Bandura, 1986 & 1997) were used as a framework for this proposal. The specific aims were:

1. To identify health promotion practice patterns of physical therapists in California, New York, and Tennessee;
2. To determine levels of self-efficacy and outcome expectations among physical therapists in regard to incorporating health promotion into practice;
3. To identify whether self-efficacy and outcome expectations were associated with physical therapists' health promotion practice, and, if so, to evaluate what self-efficacy beliefs and outcome expectations are most strongly related to physical therapy health promotion practice, and
4. To assess if there were differences between California, New York, and Tennessee in regard to self-efficacy, outcome expectations, and health promotion practice. Each state was chosen to represent distinctly different environments in which physical therapists practice.

C. Social Cognitive Theory Framework

In 1986, Bandura introduced Social Cognitive Theory (SCT) which was an outgrowth of his Social Learning Theory (Bandura, 1986). In SCT, Bandura proposed an explanation of how self-efficacy, outcome expectations, and reinforcement in a specific situation can influence person, behavior, and environment through reciprocal determinism. Self-efficacy is the belief or confidence that one can carry out a behavior necessary to reach a desired goal. Outcome expectation is a personal judgment that a particular task or behavior will result in a specific outcome. Reciprocal determinism is

the unique interaction of the person, the behavior, and the environment in which the behavior is performed (Bandura, 1986).

Self-efficacy beliefs are derived from four primary sources of information: physiological arousal (physical and emotional), verbal persuasion, vicarious experience (modeling), and performance accomplishments (previous experiences resulting in mastery of a particular situation or task) (Bandura, 1977). In 1997 Bandura suggested a framework for interactions between high and low self-efficacy beliefs and outcome expectations. He proposed that when self-efficacy and outcome expectations are high, a person will exhibit productive and aspiring behaviors that result in personal satisfaction. On the other hand, when self-efficacy and outcome expectations are low, a person will exhibit resigning and apathetic behaviors that result in dissatisfaction.

The reason Social Cognitive Theory (Bandura, 1986) was chosen as a framework for this study is because self-efficacy and outcome expectations are associated with various health behaviors in the literature such as a health care professional's readiness to screen for domestic violence (Goff, Byrd, Shelton, & Parcel, 2001), condom use in AIDS patients (Dilorio, Maiback, O'Leary, & Sanderson, 1997), and alcohol drinking behaviors in adolescents (Flaga, 1999).

A study by Pollack et al. (2001) examined self-efficacy and outcome expectations by assessing which of 12 preventive services resident physicians would address with a patient. In addition the researchers studied the resident physician's likelihood of addressing the topics, their outcome expectations for the patient, their confidence in addressing the topic, and perceived barriers for addressing the topic. The authors found that residents felt most comfortable addressing STDs, drug use, and

smoking cessation, in respective order. The residents who indicated high barriers to addressing smoking cessation and who had lower outcome expectations were less likely to address smoking cessation with their patient. If indeed levels of self-efficacy and outcome expectations are associated with any given behavior, then determining levels of self-efficacy and outcome expectations for that behavior will potentially allow manipulation of self-efficacy and outcome expectations in order to increase the desired health behavior.

When considering the four indicated focus areas of Healthy People 2010 addressed in the proposed research, one would expect that physical therapists who have high ratings in both self-efficacy and outcome expectations in a given focus area would be more likely to engage in health promotion practice patterns in that same focus area. For instance, one of the possible outcomes according to Social Cognitive Theory (Bandura, 1986) might be that physical therapists who rate high in self-efficacy and outcome expectation measures in focus area #19, nutrition and overweight, would more likely assist patients with nutrition and overweight issues during practice.

D. Application to Preventive Care and Health Promotion

As early as 1984, Robinson suggested that allied health care professionals such as physical therapists play the role of primary care practitioner and thus accept the responsibility of promoting health through patient care. In addition, some researchers concluded that non-physician delivery methods of health promotion, particularly in the area of physical activity, need to be initiated and studied because physicians have reduced time with patients, infrequent patient contact, low reimbursement rates, and little training in this field compared to physical therapy and other allied health

professionals (Eakin, Glosgow, & Riley, 2000). Perhaps a combination of physician and non-physician delivery of health promotion services would be ideal. One study did demonstrate successful smoking and dietary behavior changes have been accomplished through brief advice provided by physicians with subsequent non-physician providers following up with the majority of the interventions (King, 2000; King et al, 1998). The educational expertise of a physical therapist combined with the serial visits typical of a treatment regimen enables a therapist to be an ideal non-physician health care provider who can address health promotion issues more routinely and thoroughly than most other health care providers (Lorish & Gale, 1999).

The American Physical Therapy Association (APTA) Guide to Physical Therapy Practice, 2nd ed. (Rothstein, 2001, pp. S32-S36) states that a part of physical therapy practice is to "provide prevention and promote health, wellness, and fitness." The Guide to Physical Therapy Practice suggests physical therapy can be involved in primary, secondary, or tertiary prevention. Various types of data are listed as obtainable while taking a client history, several of which would relate to the role of prevention in physical therapy. These include "behavioral health risks (e.g, smoking, drug abuse), level of physical fitness, familial health risks, psychological function (e.g. memory, reasoning ability, depression, anxiety), social interactions, social activities, support systems, and review of other clinical findings (eg. nutrition and hydration) (Rothstein; 2001, p. S36)". Furthermore, the APTA Requirements 3.8.3.33 and 3.8.3.34, respectively, state that physical therapists are to "identify and assess the health needs of individuals, groups and communities, including screening, prevention, and wellness programs appropriate to physical therapy" and to "promote optimal health by providing

information on wellness, impairment, disease, disability, and health risks related to age, gender culture, and lifestyle" (Commission on Accreditation in Physical Therapy Education (CAPTE); 2002, appendix B-23).

The four indicated focus areas of Healthy People 2010 are those in which physical therapists are able to competently intervene, and were addressed in the following manner: focus area #6, disability and secondary conditions addressed psychological well-being by assessing how often a physical therapist assists patients in reducing feelings of sadness, unhappiness, or depression and increasing feelings of satisfaction with life; focus area #19, nutrition and overweight, was addressed by assessing how often a physical therapist assists patients in making healthier food choices to promote a healthy weight; focus area #22, physical fitness and activity was addressed by assessing how often a physical therapist assists patients with increasing cardiovascular fitness for overall health benefits; and focus area #27, tobacco use, was addressed by assessing how often a physical therapist assists patients in reducing smoking habits (Bainbridge, 2000; Healthy People 2010; 2000, Leading Indicators, p. 1; Francis, 1999; Martin, & Fell, 1999).

Potential barriers to the practice of health promotion in the field of physical therapy are similar to those found in physician practices. Issues such as lack of time, interest, knowledge, and training in the area of health promotion and education likely all play a role in current physical therapy practice patterns (Martin & Fell, 1999). In addition, the economic benefits of health promotion are still questioned by those who reimburse for the services (Rimmer, 1999). As physical therapy practices are receiving fewer dollars per treatment for reimbursement, there is an increasing demand for equal

or better care for more patients in a shorter period of time. Thus, physical therapists may view health promotion as an added burden that pushes them beyond an already very heavy patient load with no additional financial benefits (Martin & Fell, 1999).

Despite the emphasis on health promotion and education noted from Healthy People 2010 and the APTA, little is known about actual health promotion practice patterns, self-efficacy beliefs, and outcome expectations for practicing physical therapists. According to SCT (Bandura, 1986), if self-efficacy and outcome expectations are high or low, then one would expect the actual physical therapy practice patterns of health promotion to be high or low respectively. For instance, physical therapists who rate low in self-efficacy and outcome expectation measures in focus area #27; tobacco use, would be expected to demonstrate a low rate of inclusion of tobacco use issues during practice.

Based on SCT (Bandura, 1986), self-efficacy and outcome expectations are hypothesized to influence physical therapy health promotion practice patterns. In addition, self-efficacy and outcome expectations may mediate each other. For example, if a physical therapist questions whether or not he/she can adequately address the issue of tobacco use with a patient (moderate self-efficacy) and does not believe the patient will benefit from addressing tobacco use (low outcome expectations), then outcome expectations may negatively influence the questionable self-efficacy to the point where it is viewed as completely inadequate and the behavior of intervening on the issue of tobacco use is not attempted. By assessing self-efficacy and outcome expectation levels in the four focus areas of Healthy People 2010, a better understanding of actual health promotion practice patterns will be gained.

If self-efficacy and outcome expectations are shown to influence health promotion practice patterns of physical therapists, action plans can be established to increase factors that are shown to influence self-efficacy and outcome expectations. For example, factors such as improved education in the area of health promotion, more time allotted per patient, or establishment of reimbursement codes for health promotion may influence practice patterns through increasing self-efficacy and outcome expectations. Some of the factors determined to influence self-efficacy and outcome expectations in this study can then be targeted by the APTA through means such as publications, continuing education, and curricula requirements in order to enhance health promotion practice patterns nation wide.

E. Research Questions

1. What are physical therapists' general health promotion practice patterns in regard to the four focus areas of Healthy People 2010?
2. What are physical therapists' general levels of self-efficacy and outcome expectations in regard to incorporating health promotion into practice for each of the four focus areas of Healthy People 2010?
3. Are self-efficacy and outcome expectations of physical therapists in regard to the four focus areas of Healthy People 2010 associated with health promotion practice patterns of practicing physical therapists?
4. Are there differences in physical therapy health promotion practice patterns in physical therapists from California, New York, and Tennessee?

CHAPTER 2

REVIEW OF LITERATURE

A. Health Promotion as a National Agenda.

Over the past 100 years, the life expectancy in the United States has increased from 47.3 years to currently approximating 77 years (Centers for Disease Control and Prevention, National Center for Health Statistics, 2000). Despite the fact that Americans desire to live longer and healthier, they are suffering from multiple chronic lifestyle diseases that are preventable. Healthy People 2010 introduced a national agenda to "increase quality and years of healthy life." In addition, Healthy People 2010 has suggested multilevel goals to improve the health of all Americans during the next 10 years (Introduction, p. 2). With the growing knowledge and emphasis on how to prevent chronic diseases that are due to poor lifestyle choices, the need for health promotion is well established.

B. Allied Health as a Key Player in Health Promotion

Allied health fields are being asked to play a vital role in assisting the nation toward Healthy People 2010 objectives (Robinson, 1984). In 1986, several authors suggested that health-related behaviors such as cigarette smoking, diet and nutrition, exercise, and stress management must be emphasized over the continuum of time in all allied health professions (Bunker, Parcel, Phillips, & Simons-Morton, 1986). Consequently, MPT and DPT physical therapy training programs are incorporating health promotion into curricula. A national survey (Wilson, Milligan, & Hernandez, 2000) was conducted on faculty perspectives of health promotion in allied health

curricula. Of all the allied health profession directors surveyed, 8.8% were from physical therapy programs. The authors found that overall, 93.5% of faculty surveyed indicated that health promotion and disease prevention were either very or somewhat important to academic program goals. These faculty felt that health promotion and disease prevention were important elements for academic programs because understanding these topics was necessary to 1) prepare students for the workplace, 2) increase student knowledge, and 3) prepare students to deal with future changes in health care. Healthy lifestyles, screening techniques, and injury prevention were the most common health promotion and disease prevention areas covered in curricula. Of interest is that health promotion was more likely to be offered in curricula in the West and Northeast than in the Midwest and South.

C. Physical Therapy and Health Promotion

Since 1981, the APTA has fostered the practice of health promotion by physical therapists (House of Delegates of the ATPA, 1981). Consequently, CAPTE has progressively added health promotion to curricular requirements in physical therapy educational institutions. Furthermore, availability of continuing education in the field of health promotion is increasingly more available.

Articles addressing the issue of health promotion in physical therapy practice are becoming more prevalent. For example, promotion of physical activity by physical therapists is recommended as a means of primary prevention in cardiovascular disease (Francis, 1996). Physical therapists can also play a part in promoting health for the disabled community by preventing health complications and further disabling conditions, encouraging participation in common daily activities, teaching patients to

understand and monitor their own health, and promoting a healthy lifestyle and environment. General suggested areas of health promotion to address with the disabled community included: stress management, smoking cessation, coping strategies, recreational exercise, spirituality, proper sleep habits and medication usage, substance abuse reduction, and good hygiene (Li & Yoshida, 1998; Rimmer, 1999). In 2000, 21 physical therapy and occupational therapy students from The University of Texan Medical Branch participated in a health promotion and aging elective that consisted of 18-hours of training in topics such as safe physical activity, nutrition and stress management. The students then taught inactive, overweight or physically limited older adults how to incorporate the same health promotion aspects into daily living over a seven-week time span. Unfortunately, an eight month follow-up of the patients showed little continuance of learned health promotion behaviors (Haber, Looney, Babola, Hinman, & Utsey, 2000).

In Indiana, Fruth, Ryan, and Gahimer (1998) observed the prevalence of health promotion and disease prevention statements within 96 physical therapy sessions based on six categories from the "Multidimensional Model of Health" by Eberst (1984): physical, emotional, mental, social, spiritual, and vocational. Within each of the six categories, subcategories were established. For instance, under the emotional category, subcategories included stress, support groups, coping, and accepting self. In the physical category, subcategories included nutrition and overweight, patient disease/injury, exercise, smoking, rest and relaxation, stress, sports/fitness, recreation and more. If any statements regarding these subcategories were noted during the

treatment session, the observer recorded which category the statement addressed and whether the statement was initiated by the patient or the therapist.

The authors found the average number of health promotion statements in a treatment session to be a relatively low frequency of 2.44. When health promotion statements were made, they were primarily in the physical category by evidence of the average number of physical category statements being 1.93 of the 2.44 total. For example, 172 out of the 218 (79%) total health promotion statements made were in the physical category. In contrast, out of the 218 total statements only six statements were made in the emotional category, two in the mental health category, 14 in the social category, zero in the spiritual category, and 24 in the vocational category. In addition, the majority of the statements made were initiated by the therapist. The researchers also found that no relationship existed between health promotion statements and the therapist's academic degree, years of experience, duration of treatment session, type of physical therapy setting, or where the patient was in his/her course of recovery.

In summary, as outlined by Healthy People 2010, America has a great need for improved delivery of health promotion to our communities. As health care providers, physical therapists are in an ideal position to be addressing health promotion issues with patients. The literature review demonstrates that some physical therapists are currently addressing health promotion during practice, particularly in the area of physical activity; however, there is much room for expansion of all areas of health promotion in practice.

D. Potential Barriers to Health Promotion

Many allied health professionals, including physical therapists, are needed to lead and develop health promotion plans and strategies in the work force; however,

questions about the adequacy of training in this realm have been raised (Gahimer & Morris, 1999; Lorish & Gale, 1999; Martin & Fell, 1999). Several strategies for educational reform are recommended in the field of allied health and physical therapy. They include expanding health care to provide services that are not financially covered at this point, emphasizing personal and professional growth in areas congruent with current health care needs (Little & Harmening, 2000), and inclusion of health behavior change strategies in the curricula for physical therapists in order to enable more comprehensive and effective health promotion during practice (Lorish & Gale, 1999; Martin, 1997; Martin & Fell, 1999). When considering that an emphasis on health promotion in curricula has only occurred in the last five to ten years and the current levels promoted may be low, a high probability exists that a significant number of physical therapists are inadequately trained. Furthermore, many therapists in the workforce now are well recognized clinical instructors yet may be unable to model health promotion practice patterns to current students due to their lack of training in this area (Fruth, Ryan, & Gahimer, 1998). Therefore, addressing issues such as lack of time, interest, knowledge, and training will allow for discussion and problem solving that can result in adoption of strategies to overcome these impediments for both physical therapy students and currently practicing physical therapists

Health promotion has gained ground in building a scientific base to stand upon, however the medical field in general has not integrated health promotion into mainstream practice (O'Donnell, 2000). Despite the fact that the government is emphasizing a new agenda for health promotion, little money has been reallocated to support this agenda. It has been estimated that less than 1% of the money spent on

medical care is spent on health promotion (O'Donnell, 2000). Several authors have cited health promotion as financially cost effective and/or as actually cutting the costs of health care (Abresch, C., Johnson, & Abresch, B., 2000; Alfred & Woodhead, 1998), yet the economic benefits of health promotion are still questioned by reimbursement parties. In addition, as physical therapy practices are receiving fewer dollars per treatment for reimbursement, there is an increasing demand for equal or better care for more patients in a shorter period of time. Thus, physical therapists may view health promotion as an added burden that pushes them beyond an already very heavy patient load with no financial benefits to gain.

E. Rationale for Choosing California, New York, and Tennessee

California, New York, and Tennessee were chosen because they represent distinctly different situations in which physical therapists must practice. These different situations may influence how physical therapists practice health promotion. As outlined in Table 1, some of the issues in which these states vary are general health ranking, region within the United States, state practice act statements, and direct access for physical therapy services as well as insurance reimbursement for these services. California had the best health ranking of the three states, however, it had no inclusion of health promotion or prevention statements in the physical therapy practice act. On the other hand, Tennessee had the worst ranking of the three states, yet had the most comprehensive health promotion statement in the physical therapy practice act. New York had an average health ranking as well as a prevention of disease and other conditions statement in the physical therapy practice act (J. Elliot, personal communication, June 14, 2002, United Foundation State Health Ranking, 2002).

Table 1.
Variations Across States Applicable to Physical Therapy Practice [a]

	California	New York	Tennessee
United Health Foundation state health ranking [b]	Rank= 24 Score = 3.7	Rank= 32 Score = -2.6	Rank= 44 Score = -12.3
State physical therapy practice act	No inclusion of health promotion or prevention statements	Inclusion of prevention of disease or other conditions of health statements	Inclusion of health promotion, fitness maintenance and quality of life statements
Direct access for physical therapy services	Yes, with prohibition of diagnosis	No, evaluation only	Yes, with treatment time limits & experience requirements
Insurance reimbursement for direct access	No	Not applicable	Sporadic
Region within the United States	Southwest	Northeast	South

[a] J. Elliot, personal communication, June 14, 2002; United Health Foundation state health ranking, 2002

[b] The range for rank is 1 to 50 , the range for score is –23.9 to 23.9, and the score represents the percentage a state is above or below the national norm

Direct access to physical therapy services means that a patient can be evaluated and treated by a physical therapist without a physician order. California allowed direct access for treatment but not for diagnosing. New York allowed direct access for evaluation and treatment with limitations on treatment time and a certain amount of years of experience by the physical therapist required. Tennessee did not allow for direct access except for an evaluation. Whether a state had direct access for physical therapy services or not, reimbursement for direct access services were very infrequent. For instance, California allowed for direct access for treating patients without a physician order but no insurance would reimburse for a treatment without a physician order. Thus, the only patients treated with direct access were those who could afford to privately pay for the services.

F. State Statistics in the Four Focus Areas of Healthy People 2010

Healthy People 2010 statistics are of interest in this study because they portray the health status of America and individual states in the four indicated focus areas being addressed. The Behavioral Risk Factor Surveillance System (BRFSS), (2002) database helps track the status of each focus area and objective in Healthy People 2010. Table 2 outlines the means of measuring the four focus areas and compares the statistics between the Nation, California, New York, and Tennessee.

In summary, the state with the worst mental health status was California, followed by New York and Tennessee. The state with the most prevalent obesity problem was Tennessee followed by California and New York. The state with the least leisure time activity and highest smoking rates was Tennessee, followed by New York

Table 2.
Comparisons Across the Nation, California, New York, and Tennessee in the Four Focus Areas of Healthy People 2010 [a]

Focus area	Means of measurement	Nationwide	California	New York	Tennessee
#6 Disability & secondary conditions [b]	"How many days during the past 30 days was your mental health not good?"	65.8% answered "no days" n=52 [d]	62.1% answered "no days" n=2377	64.5% answered "no days" n=2113	70.9% answered "no days" n=2033
#19 Nutrition & overweight [c]	The median percentage of obesity according to BMI	20.1% n=52 [d]	19.9% n=720	17.7% n=579	22.9% n=656
#22 Physical fitness & activity [b]	The median percentage for no leisure time activity	25.7% n=52 [d]	26.6% n=921	28.7% n=1051	35.1% n=930
#27 Tobacco use [c]	The median percentage of smokers	23.2% n=52 [d]	17.2% n=685	21.6% n=757	25.7% n=768

[a] Centers for Disease Control and Prevention: Behavioral Risk Factor Surveillance System, 2002
[b] Most recent data available in 2001
[c] Most recent data available in 2000
[d] Number of states sampled including District of Columbia and Puerto Rico in year >1995

and California. Thus, each state had its strengths and weaknesses in reference to the four focus areas of Healthy People 2010.

G. Conclusion

Physical therapy education is emphasizing health promotion and the APTA Guide (Rothstein, 2001, pp. S32-S36) includes health promotion as a part of physical therapy practice. As a profession, physical therapists are in an ideal position to promote health in primary, secondary, and tertiary settings. Yet many concerns related to health promotion are not being addressed during physical therapy treatments (Fruth, Ryan, & Gahimer, 1998). Impediments may include lack of adequate knowledge and training, lack of reimbursement, and lack of adequate time for health promotion. Thus, there was a need to further assess physical therapists' practice patterns, self-efficacy and outcome expectations in regard to health promotion based on the four applicable focus areas of Healthy People 2010: disability and secondary conditions by looking at psychological well-being, nutrition and overweight, physical fitness and activity, and tobacco use.

CHAPTER 3

METHOD

A. Design

This study involved a cross-sectional, observational design. The names and addresses of all licensed physical therapists in the states of California, New York and Tennessee were purchased from the following agencies: State of California-State and Consumer Services Agency, New York State Education Department, and Tennessee Department of Health, Bureau of Health Informatics. The number of licensed physical therapists in each state were as follows: California, 15,502; New York, 15,000; and Tennessee, 3,342. Licensed physical therapists who had an address outside the three chosen states in which he/she was licensed were excluded to insure that physical therapists licensed, but not practicing, in the chosen states would be excluded from the selection process. Thus, the total physical therapists in each state used as the population from which samples were selected are as follows: California, 15,052; New York, 12,594; and Tennessee 2,856. Each state sample was selected by assigning random numbers to each entry and then sorting according to the numbers. Ideally, stratification of the sample by ethnicity and gender was desirable because according to the APTA in 2001, the physical therapy profession was 69.7-74.2% female and 93% white; however, this was not possible because only names and addresses were available (phone numbers were also available from Tennessee).

B. Outcome Variables

The variables assessed in the study included demographics, self-reported practice patterns in the four indicated focus areas of Healthy People 2010, and self-reported self-efficacy and outcome expectations according to SCT. The eight independent variables measured were self-efficacy and outcome expectations in the four indicated focus areas of Healthy People 2010: focus area #6, disability and secondary conditions by looking at psychological well-being; focus area #19, nutrition and overweight; focus area #22, physical fitness and activity; and focus area #27, tobacco use. The dependent variable was practice patterns of physical therapists in the four indicated focus areas of Healthy People 2010 by state.

C. Survey Development

The survey was developed via randomly selected interviews in the three states and quantitative pilot tests in Loma Linda, California.

1. Qualitative. Open-ended qualitative questions were developed for the eight independent variables (see example in appendix A). These questions were used during the qualitative interviews that were carried out until saturation of response was obtained (Schensul, Schensul, & LeCompte, 1999; Trotter & Schensul, 1998). Interviews were conducted via telephone with randomly selected physical therapist names and phone numbers from each of the three states. Since phone numbers of physical therapists were only available in the state of Tennessee, physical therapist names from the states of California and New York were used to obtain telephone numbers through the www.anywho.com website. Conducting interviews with randomly selected physical therapists across all three states insured that physical therapists with a

variety of geographic backgrounds, ages, work-settings, and educational institutions were accessed during the interviews. A total of 23 interviews were conducted with six in California, nine in New York and eight in Tennessee to ensure saturation level was reached.

2. *Quantitative.* Once the qualitative information from the interviews was collected, a close-ended quantitative survey was developed and pilot-tested with 20 physical therapists in the Loma Linda, California area. During the pilot test, the survey included the same cover letter and advance incentive that was included in the first mailing. The survey consisted of two distinct areas: 1) physical therapist characteristics and health promotion practice patterns, and 2) self-efficacy and outcome expectations for each of the four indicated focus areas of Healthy People 2010 (see appendix B).

D. Data Collection

Loma Linda University was the home-base used for mailing/receiving the first and second mailings of the surveys. A cover letter was included with every survey in order to explain the purpose, procedures, risks, and benefits of the study (see appendix C). The cover letter was slightly revised to accommodate the second mailing without an incentive. Every survey in the first mailing included an incentive magnet that was specifically designed to portray the importance of physical therapy promoting health. However, due to lack of sufficient funds, the incentive magnet was omitted from the second mailing.

According to the statistical software GPOWER (Faul & Erdfelder, 1992), a multiple regression based on eight variables and a small effect size with an R^2 of .11

required a sample size of 100 subjects per state to obtain a power of 80%. Portney and Watkins (1993) suggests a 30-60% survey return rate in a clinical setting is realistic. Based on a conservative survey return rate of 20%, 500 surveys per state or 1,500 total, were mailed in hopes that 100 surveys per state or 300 total would be returned. Only 180 or 12.0% of the surveys were returned from the first mailing so a second mailing of 2,000 surveys was sent a month after the first mailing. In the second mailing the percentages of surveys mailed out were split according to the number of survey responses still required from each state and led to the following number of surveys mailed per state: 550 to California, 700 to New York, and 750 to Tennessee. The second mailing yielded 237 or 11.8% return. Thus, the total number of usable surveys utilized in the data analysis was 417 (145 or 34.8% in California, 127 or 30.5% in New York and 145 or 34.5% in Tennessee).

E. Ethical Issues

All questionnaires were anonymous, therefore, no attempt was made to identify any respondent. A cover letter was included with every survey in order to explain the purpose, procedures, risks, and benefits of the study (see appendix C). The study protocol was approved by the Institutional Review Board (IRB) prior to initiating the study and was re-approved with a new cover letter when the second mailing was deemed necessary to obtain sufficient sample size. Nichol Hall, Room 1519 at Loma Linda University was where the surveys were stored in a locked cabinet and also entered into the database.

F. Data Analysis

Data analysis was as follows for the given research questions:

1. What are physical therapists' general health promotion practice patterns in regard to the four focus areas of Healthy People 2010?

Means and 95% confidence intervals were calculated on the percent of the time physical therapists assisted patients in each of the four focus areas. These percentages represent the frequency of practicing each of the four health promotion behaviors within practice.

2. What are physical therapists' general levels of self-efficacy and outcome expectations in regard to incorporating health promotion into practice for each of the four focus areas of Healthy People 2010?

Self-efficacy and outcome expectation statements were combined into overall self-efficacy and outcome expectation scores for each of the four focus areas of Healthy People 2010 using reliability analyses (Cronbach's alpha). In order to sum the scores appropriately, all four self-efficacy scores were reverse coded to indicate a high score for high self-efficacy. All items of the self-efficacy scale were included in the reliability analysis. Furthermore, all outcome expectation statements that were inherently negative were assigned a negative number in order to indicate an overall positive score for outcome expectations. For the outcome expectation reliability analysis, at least one or two items were dropped per focus area in order to achieve sufficient reliability (see Chapter 5, Tables 2 and 3 for more details).

3. Are self-efficacy and outcome expectations of physical therapists in regard to the four focus areas of Healthy People 2010 associated with

health promotion practice patterns of currently practicing physical therapists?

Pearson correlations were used to determine if there was a linear association between health promotion practice patterns and self-efficacy and outcome expectation summed scores in the four indicated focus areas of Healthy People 2010. ANOVAs and t-tests were used with the focus area behaviors as the dependent variable and demographic variables as the independent factor to determine which variables should be included in the multiple regression analysis (see Chapter 4, Table 7 footnotes for details of the variables chosen). Then multiple regression was used to determine if self-efficacy and outcome expectations significantly predicted health promotion behaviors by physical therapists in all four areas.

4. Are there differences in physical therapy health promotion practice patterns and self-efficacy and outcome expectations in physical therapists from California, New York, and Tennessee?

Multivariate ANCOVAs with Bonferroni adjustments were used to determine if there were significant differences in health promotion practice patterns, self-efficacy and outcome expectations across California, New York, and Tennessee. Chi square tests were used for nominal demographics and one-way ANOVA tests for continuous demographics (Kruskall-Wallis tests were used for year of graduation due to un-equal variances) to determine if there were significant demographic differences across states that needed to be controlled for. Covariate demographics used for state-to-state comparisons of outcome variables were age, gender, ethnicity, hours per week worked,

year of graduation, number of years worked in current setting, patients seen per hour, highest PT degree obtained, school setting and pediatric type.

CHAPTER 4

PUBLISHABLE PAPER

The Role of Health Promotion in Physical Therapy in California, New York and Tennessee

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Publication in the Physical Therapy pending

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Abstract

Background and Purpose. The purpose of this study was to investigate physical therapy practice patterns in four focus areas of Healthy People 2010 and identify related self-efficacy and outcome expectations across California, New York and Tennessee.

Subjects. A survey was pilot-tested and distributed in two waves to 3,500 randomly selected, licensed physical therapists from three states: California, New York, and Tennessee.

Methods. Interviews to saturation were conducted randomly via telephone with physical therapists in all three states in order to create the qualitative survey which was then pilot tested in California. The total number of qualitative surveys used in data analyses was 417 or 11.9%.

Results. The health promotion behavior most commonly practiced by physical therapists was assisting patients to increase physical activity (54%), followed by psychological well-being (41%), nutrition and overweight issues (19%) and smoking cessation (17%). Self-efficacy significantly predicted all four behaviors beyond the control variables ($p<.0004$). Minimal state-to-state differences were noted.

Discussion and Conclusion. This study demonstrated that a physical therapist's confidence in being able to perform a specific behavior (self-efficacy) was the best predictor of practice patterns and is an ideal area to target in future interventions.

Key Words: Health Promotion, Self-Efficacy, Outcome Expectation

Introduction

Healthy People 2010

Statistics outlined in Healthy People 2010[1] demonstrate the need for continued emphasis on health promotion in America. For example, it was estimated that more than 19 million adults currently suffer from depression in America, and in 1997, only 23% of those who were diagnosed received treatment. In 2001, among adults aged 20 and older, 37% were overweight (BMI=25.0-29.9) and 21% were obese (BMI=30.0+). In 1997 only 15% of the adult population performed the recommended amount of physical activity and in 2001, 25.7% reported no participation in leisure time physical activity. In 2001, 22.8% of the adult population was still smoking. Thus, there is a great need for a concerted effort by all Americans to promote health in themselves and the community in which they live.[1, 2]

Physical Therapy Practice

Many allied health professionals, including physical therapists, are needed to lead and develop health promotion plans and strategies in the work force in order to assist the nation in achieving Healthy People 2010 goals. The American Physical Therapy Association (APTA) has taken the initiative to assist the nation to promote health by being a member of the Healthy People Consortium - a group of 650 national, professional and voluntary organizations and agencies that assisted with creating Healthy People 2010.[3]

Currently physical therapists' educational and practice guidelines emphasize inclusion of health promotion. For example, the APTA has a mission to "further the profession's role in the prevention, diagnosis, and treatment of movement dysfunction

and the enhancement of physical health and functional abilities of members of the public".[4] The American Physical Therapy Association (APTA) Guide to Physical Therapy Practice, 2nd ed. (ppS32-S36) [5] states that a part of physical therapy practice is to "provide prevention and promote health, wellness, and fitness." The Guide to Physical Therapy Practice suggests physical therapists can be involved in primary, secondary, or tertiary prevention. For example, information such as behavioral health risks (e.g. smoking, drug abuse), level of physical fitness, familial health risks, psychological function (e.g. memory, reasoning ability, depression, anxiety), social interactions, social activities, support systems, and review of other clinical findings (e.g. nutrition and hydration) are all listed as pertinent to a physical therapy assessment. Furthermore, the APTA Requirements 3.8.3.33 and 3.8.3.34, respectively, state that physical therapists are to "identify and assess the health needs of individuals, groups and communities, including screening, prevention, and wellness programs appropriate to physical therapy" and to "promote optimal health by providing information on wellness, impairment, disease, disability, and health risks related to age, gender, culture, and lifestyle."[6]

In Indiana, Fruth, Ryan, and Gahimer[7] observed the prevalence of health promotion and disease prevention statements made by physical therapists within 96 physical therapy sessions based on six categories from the "*Multidimensional Model of Health*" by Eberst: [8] physical, emotional, mental, social, spiritual, and vocational. Within each of the six categories, the authors established subcategories. For instance, under the emotional category, subcategories included stress, support groups, coping, and accepting self. In the physical category, subcategories included nutrition and

overweight, patient disease/injury, exercise, smoking, rest and relaxation, stress, sports/fitness, recreation and more. If any statements regarding these subcategories were noted during the treatment session, the observer recorded which category the statement addressed and whether the statement was initiated by the patient or the therapist.

The authors found the average number of health promotion statements in a treatment session to be a relatively low mean frequency of 2.44. When health promotion statements were made, they were primarily in the physical category (an average of 1.93 of the 2.44 total). For example, 172 out of the 218 (79%) total health promotion statements were in the physical category. In contrast, out of 218 total statements only six were made in the emotional category, two in the mental health category, 14 in the social category, zero in the spiritual category, and 24 in the vocational category. The researchers also found no relationship between the number of health promotion statements and the therapist's academic degree, years of experience, duration of treatment session, type of physical therapy setting, or where the patient was in his/her course of recovery.

The current study addressed four focus areas of Healthy People 2010 deemed most applicable to health promotion practice in physical therapy (focus area #6, disability and secondary conditions by looking at psychological well-being; focus area #19, nutrition and overweight; focus area #22, physical fitness and activity; focus area #27, tobacco use). The study also addressed self-efficacy and outcome expectations as described by Social Cognitive Theory [9, 10] in order to identify likely predictors of physical therapy practice.

Social Cognitive Theory

In SCT, Bandura proposed an explanation of how self-efficacy, outcome expectations, and reinforcement in a specific situation can influence person, behavior, and environment through reciprocal determinism. Self-efficacy is the belief or confidence that one can carry out a behavior necessary to reach a desired goal. Outcome expectation is a personal judgment that a particular task or behavior will result in a specific outcome. In 1997, Bandura suggested interactions between high and low self-efficacy beliefs and outcome expectations. [10] He proposed that when both self-efficacy and outcome expectations are high, a person will exhibit productive and aspiring behaviors that result in personal satisfaction. On the other hand, when self-efficacy and outcome expectations are low, a person will exhibit resigning and apathetic behaviors that result in dissatisfaction.

SCT [9, 10] was chosen as a framework for this study because self-efficacy and outcome expectations have been shown to be associated with various health behaviors in the literature such as a health care professional's readiness to screen for domestic violence,[11] resident physician's willingness to address preventive topics with patients,[12] condom use in AIDS patients[13] and alcohol drinking behaviors in adolescents.[14]

When considering the four indicated focus areas of Healthy People 2010 addressed in this research, it would be expected that physical therapists who have high scores in both self-efficacy and outcome expectations in a given focus area would likely have increased frequency of health promotion practice patterns in that same focus area. For instance, one of the possible outcomes according to SCT [9, 10] might be that physical therapists who rate high in self-efficacy and/or outcome expectation measures in focus

area #19; nutrition and overweight, would be expected to demonstrate more frequent inclusion of nutrition and overweight issues during practice which will result in greater personal satisfaction for the therapist.

Three Chosen States

California, New York, and Tennessee were chosen for the study because they represented distinctly different environments in which physical therapists practice which may influence how physical therapists practice health promotion. As outlined in Table 1, issues in which these states vary are general health ranking, region within the United States, state practice act statements, and direct access for physical therapy services as well as insurance reimbursement for those services. For example, California has the highest health ranking of the three states, however, it has no inclusion of health promotion or prevention statement in the physical therapy practice act. On the other hand, Tennessee has the lowest health ranking of the three states, yet has the most comprehensive health promotion statement in the physical therapy practice act. New York has an average health ranking as well as a prevention of disease and other conditions statement in the physical therapy practice act. [15, 16]

Healthy People 2010 statistics are of interest for this study because they portray health status in America and individual states in the four indicated focus areas being addressed. The Behavioral Risk Factor Surveillance System (BRFSS)[2] database helps track the status of each focus area and objective in Healthy People 2010. Table 2 outlines the Healthy People 2010 means of measuring the four chosen focus areas in which physical therapists are able to competently intervene and compares the statistics among the Nation, California, New York, and Tennessee. The state with the lowest

mental health status is California, followed by New York and Tennessee. The state with the most prevalent obesity problem is Tennessee followed by California and New York. The state with the lowest leisure time activity and highest smoking rates is Tennessee, followed by New York and California. Thus, each state has its strengths and weaknesses in reference to the four focus areas of Healthy People 2010.

In summary, as outlined by Healthy People 2010, America has many important health objectives to achieve in the next ten years and health promotion in health care will be an important means of working towards these objectives. The literature demonstrates that some physical therapists are currently addressing health promotion during practice, particularly in the area of physical activity, however, there is much room for expansion of all areas of health promotion in practice. As health care providers, physical therapists are in an ideal position to address health promotion issues with their patients, yet, little is known about actual health promotion practice patterns or the confidence of physical therapists in engaging in such activities and the benefits of doing so.

Research Questions

The research questions addressed four specific focus areas of Healthy People 2010 deemed most applicable to physical therapy health promotion practice (focus area #6, disability and secondary conditions by looking at psychological well-being; focus area #19, nutrition and overweight; focus area #22, physical fitness and activity; focus area #27, tobacco use). Self-efficacy and outcome expectations as described by SCT [9, 10] were assessed. The research questions were:

1. What are physical therapists' general health promotion practice patterns in regard to the four focus areas of Healthy People 2010 and are there differences across California, New York and Tennessee?
2. What are physical therapists' general levels of self-efficacy and outcome expectations in regard to incorporating health promotion into practice for each of the four focus areas of Healthy People 2010 and are such levels of self-efficacy and expectations related to health promotion practice patterns of practicing physical therapists?

Methods

Subjects

Names and addresses of all licensed physical therapists in the states of California, New York and Tennessee were purchased from the following agencies: State of California-State and Consumer Services Agency, New York State Education Department, and Tennessee Department of Health, Bureau of Health Informatics. The number of licensed physical therapists in each state were as follows: California, 15,502; New York, 15,000; and Tennessee, 3,342. Licensed physical therapists who had addresses outside the three chosen states in which he/she was licensed were excluded to insure that physical therapists licensed, but not practicing, in the chosen states would be excluded from the selection process. Thus, the total number of physical therapists in each state from which samples were selected were as follows: California, 15,052; New York, 12,594; and Tennessee 2,856. Each state sample was selected by assigning random numbers to each entry and then sorting according to the numbers. Ideally stratification of the sample by ethnicity and gender was desirable

because the physical therapy profession in 2001 was 69.7-74.2% female and 93% white, [17, 18] however, this was not possible because only names and addresses were available (phone numbers were also available from Tennessee).

Design

This study involved a cross-sectional, observational design. Variables assessed in the study included demographics, self-reported practice patterns in the four focus areas of Healthy People 2010, and self-reported self-efficacy and outcome expectations according to SCT. The eight independent variables measured were self-efficacy and outcome expectations in the four focus areas of Healthy People 2010: focus area #6, disability and secondary conditions by looking at psychological well-being; focus area #19, nutrition and overweight; focus area #22, physical fitness and activity; and focus area #27, tobacco use. The dependent variable was health promotion practice patterns of physical therapists in the four focus areas of Healthy People 2010 by state.

Focus Area Assessment

For this study, focus area #6, disability and secondary conditions in regard to psychological well-being, was addressed by assessing how often physical therapists assisted patients in reducing feelings of sadness, unhappiness, or depression and increasing feelings of satisfaction with life. Focus area #19, nutrition and overweight, was addressed by assessing how often physical therapists assisted patients in making healthier food choices to promote a healthy weight. Focus area #22, physical fitness and activity, was addressed by assessing how often physical therapists assisted patients with increasing cardiovascular fitness for overall health benefits. Finally, focus area

#27, tobacco use, was addressed by assessing how often physical therapists assisted patients in reducing smoking habits. [1, 3, 19, 20]

Survey Development

The survey was developed via randomly selected interviews in the three states and quantitative pilot testing in California. Open-ended qualitative questions were developed for the eight independent variables. These questions were used during the qualitative interviews that were carried out until saturation of response was obtained.[21, 22] Interviews were conducted via telephone with randomly selected physical therapists from each of the three states. Since telephone numbers of physical therapists were only available in the state of Tennessee, physical therapist names from the states of California and New York were used to obtain telephone numbers through the www.anywho.com website. Conducting interviews with randomly selected physical therapists across all three states insured that physical therapists with a variety of geographic backgrounds, ages, work-settings, and educational institutions were accessed during the interviews. A total of 23 interviews were conducted with six in California, nine in New York and eight in Tennessee to ensure saturation level was reached.

Once the qualitative information from the interviews was collected, a close-ended quantitative survey was developed and pilot-tested with 20 physical therapists in Loma Linda, California.

Data Collection

A cover letter was included with every survey in order to explain the purpose, procedures, risks, and benefits of the study. The study protocol was approved by the

University's Institutional Review Board (IRB) prior to initiating the study and was re-approved with a new cover letter when the second mailing was deemed necessary to obtain sufficient sample size. Every survey in the first mailing included an incentive magnet that was specifically designed to portray the importance of physical therapists promoting health. However, due to lack of sufficient funds, the incentive magnet was omitted from the second mailing.

According to the statistical software GPOWER,[23] a multiple regression based on eight variables and a small effect size with an R^2 of .11 required a sample size of 100 subjects per state to obtain a power of 80%. Portney and Watkins[24] suggests that a 30-60% survey return rate in a clinical setting is realistic. Based on a conservative survey return rate of 20%, 500 surveys per state or 1,500 total, were mailed in the hope that 100 surveys per state or 300 total would be returned. Only 180 or 12.0% of the surveys were returned from the first mailing so a second mailing of 2,000 surveys was sent a month after the first. In the second mailing the surveys mailed were split according to the number of responses still required from each state and led to the following number of surveys mailed per state: 550 to California, 700 to New York, and 750 to Tennessee. The second mailing yielded 183 or 11.8% return. The incentive magnet included in the first mailing but omitted in the second mailing did not seem to influence the survey return rate. Thus, the total number of usable surveys utilized in the data analysis was 417 (145 or 34.8% in California, 127 or 30.5% in New York and 145 or 34.5% in Tennessee).

Data Analysis

Data analysis was as follows for the given research questions:

1. What are physical therapists' health promotion practice patterns in regard to the four focus areas of Healthy People 2010 and are there differences across California, New York and Tennessee?

Means and 95% confidence intervals were calculated on the percent of the time physical therapists assisted patients in each of the four focus areas. These percentages represent the frequency of practicing each of the four health promotion behaviors. Multivariate ANCOVAs with Bonferroni adjustments were used to determine if there were significant differences in health promotion practice patterns between California, New York, and Tennessee. Chi square tests were used for nominal demographics and one-way ANOVAs for continuous demographics (Kruskall-Wallis tests were used for year of graduation due to un-equal variances) to determine if there were significant demographic differences across states that needed to be controlled for. See Table 3 for demographic results. Covariate demographics used for state-to-state comparisons of outcome variables were age, gender, ethnicity, hours per week worked, year of graduation, number of years worked in current setting, patients seen per hour, highest PT degree obtained, school setting and pediatric type patients.

2. What are physical therapists' levels of self-efficacy and outcome expectations in regard to incorporating health promotion into practice for each of the four focus areas of Healthy People 2010 and are such levels of self-efficacy and expectations related to health promotion practice patterns of physical therapists?

Self-efficacy and outcome expectation statements were combined into overall self-efficacy and outcome expectation scores for each of the four focus areas of Health People 2010 using reliability analyses (Cronbach's alpha reported in Table 4). In order

to sum the scores appropriately, all four self-efficacy scores were reverse coded to indicate a high score for high self-efficacy. All items of the self-efficacy scale were included in the reliability analysis. Furthermore, all outcome expectation statements that were inherently negative were assigned a negative number in order to indicate an overall positive score for outcome expectations. For the outcome expectation reliability analysis, at least one or two items were dropped per focus area in order to achieve sufficient reliability. Pearson's correlations were used to determine if there was an association between health promotion practice patterns and self-efficacy and outcome expectation summed scores in the four indicated focus areas of Healthy People 2010. ANOVAs and t-tests were used with the focus area behaviors as the dependent variable and demographic variables as the independent factor to determine which variables should be included in the multiple regression analysis (see Table 7 footnotes for details of the variables chosen). Then multiple regression was used to determine if self-efficacy and outcome expectations significantly predicted health promotion behaviors by physical therapists in all four areas.

Results

Descriptive statistics and frequencies were calculated for each state and are outlined in Table 3. Significant differences were noted across states in the area of ethnicity (p=.003) with California having 21% non-white physical therapists and Tennessee having 7% non-white physical therapists. Of all physical therapy degrees, 54% of the physical therapists had bachelor's degrees, 42% had master's degrees, 3% had clinical doctoral degrees, and only one physical therapist had an academic doctoral degree. Significant differences were noted across states (p<.0002) with California

having 55% of physical therapists having a master's degree and 39% from New York and 32% from Tennessee. Overall, significant differences were noted among states in the number of hours worked per week (p=.044). For instance, overall 37% of the physical therapists worked more than 40 hours per week with Tennessee at 46% and New York and California at 33% and 32%. Furthermore, 34% worked 31-40 hours per week. The most common practice settings were outpatient (52%) and inpatient (26%). In New York, 19 physical therapists worked in a school setting which was significantly different compared to 8 in Tennessee and 2 in California (p<.00005). The most common type of patients treated were orthopedics (48%), general medicine (21%) and neurological (17%). In addition, 28 physical therapists treated primarily pediatric patients in New York which significantly differed compared to 15 in Tennessee and 14 in California (p=.004).

The total sample was 76.5% female, 85% white and had a mean age of 38.9 years. Significant differences were noted across states for age (p=.002) with California significantly older than Tennessee (p=.001). The median year of graduation was 1993 and differed significantly across states (p=.012) with New York being about three years earlier than Tennessee. The mean number of patients seen per hour was 2.0 and differed significantly across states (p=.043) with New York ($\bar{x}$=2.2) significantly higher than California ($\bar{x}$=1.9). The mean number of years working in the current setting was 7.1 and differed significantly among states (p=.009) with Tennessee ($\bar{x}$=6.4) being significantly lower than California ($\bar{x}$=7.8) and New York ($\bar{x}$=7.8). Overall, the percent of physical therapists who received health education and/or health promotion in school was 53%, whereas 29% had attended health education and/or health promotion

continuing education since graduation. Only 19% had obtained a health education and/or health promotion degree in addition to a physical therapy degree and the most common additional degree obtained was in the areas of exercise science/physiology.

Health Promotion Practice Patterns

As outlined in Table 5, the health promotion behavior most often practiced by physical therapists was assisting patients with increasing physical activity (54% of the time). The next was assisting with psychological well-being (41% of the time), followed by assisting with nutrition and overweight issues and smoking cessation (19% and 17% of the time).

Table 5 includes the results of the ANCOVAs across states for health promotion practice patterns in the four chosen focus areas (controlling for age, gender, ethnicity, hours per week worked, year of graduation, number of years worked in current setting, patients seen per hour, highest PT degree obtained, and school setting with pediatric type patients). Physical therapists' health promotion behaviors varied between states in the area of psychological well-being (p=.011) with California ($\bar{x}$=48.8%) being significantly higher than New York ($\bar{x}$=35.9%). No significant differences were noted across states in areas of physical activity, nutrition and overweight and smoking cessation.

Self-Efficacy and Outcome Expectation as Predictors of Practice

The highest self-efficacy scores were evident in the nutrition and overweight, physical activity, and psychological well-being areas with scores of 51.3 (range=12-72), 51.0 (range=10-60), and 49.7 (range=12-72) respectively. The smoking cessation self-efficacy score was much lower at 38.2 (range=10-60). Outcome expectation scores for

physical activity and psychological well-being were relatively similar at 15.7 (range=4-24) and 15.6 (range=3-18), whereas outcome expectation scores for smoking cessation and nutrition and overweight were 17.8 (range=4-24) and 19.6(range=3-18). As noted in Table 5, the denominator for each scale varied slightly making it difficult to compare all values.

As outlined in Table 6, significantly positive correlations were noted between health promotion behavior and self-efficacy in all four focus areas ($p<.0000007$). Outcome expectation scores demonstrated significantly positive correlations with the practice behaviors related to psychological well-being and smoking cessation ($p=.020$ and $p=003$). Of interest are other unanticipated significant correlations noted in Table 6. For example, smoking self-efficacy and outcome expectation scores significantly correlated with all four health promotion behaviors and the psychological well-being health promotion behavior significantly correlated with all outcome expectation scores except in the area of physical activity.

Results of multiple regression analyses, as outlined in Table 7, show that when self-efficacy and outcome expectations are added to the regression equation in addition to control variables, there is a significantly increased ability to predict all four focus area behaviors ($p<.00004$). Furthermore, self-efficacy alone is the one variable that significantly predicts all four practice behaviors ($p<.0004$), beyond the control variables. The state in which a physical therapist practices is significantly associated with psychological well-being behavior ($p=.003$) with California (x=48.8%) significantly higher than New York (x=35.9%) and treating pediatric type patients was associated with smoking cessation behavior ($p=.011$). Tennessee exhibited the highest

and California the lowest self-efficacy scores in the areas of psychological well-being, nutrition and overweight and physical activity, except with physical activity New York had the lowest score. For smoking cessation, New York had the highest and California the lowest score. Outcome expectation scores were similar across all topics and all states with no significant differences noted.

Discussion

Health Promotion Practice Patterns

This study found that physical therapists assist patients in all of the four chosen focus areas of Healthy People 2010, but to varying degrees and with few differences across the three states. As expected, the most frequent focus area physical therapists assisted patients with was increasing physical activity with over 50% of physical therapists addressing this issue. In addition, 41% of physical therapists assisted patients in the realm of psychological well-being by reducing feelings of sadness, unhappiness, or depression and increasing feelings of satisfaction with life. However, the percentage of time physical therapists assisted with nutrition and overweight issues and smoking cessation was low (19% and 17%).

According to Fruth, Ryan, and Gahimer[7] the most frequent health promotion statements made during a treatment were in the physical category. The physical category included nutrition and overweight, patient disease/injury, exercise, smoking, rest and relaxation, stress, sports/fitness, recreation and more. Since three out of the four focus areas addressed in this current study (nutrition and overweight, physical activity, and smoking) were covered in just the physical category in the study by Fruth et al., it is now possible to see the breakdown of how each of the three individual focus

areas are being addressed. However, it must be noted that Fruth et al. actually observed physical therapy treatments and in this study data were self-reported.

With the growing knowledge and emphasis on how to prevent chronic diseases that are due to poor lifestyle choices, the need for health promotion is well established. Many allied health professionals, including physical therapists, are needed to lead and develop health promotion plans and strategies in the work force in order to assist the nation in achieving Healthy People 2010 objectives.[20, 25-27] In 1986, several authors suggested that health-related behaviors such as cigarette smoking, diet and nutrition, exercise, and stress management must be emphasized over the continuum of time in all allied health professions.[28] Health promotion issues that can be addressed with the disabled community include stress management, smoking cessation, coping strategies, recreational exercise, spirituality, proper sleep habits and medication usage, substance abuse reduction, and good hygiene. [29, 30]

Several strategies for educational reform are recommended in the field of allied health and physical therapy. They include expanding health care to provide services that are not financially covered currently, emphasizing personal and professional growth in areas congruent with current health care needs, [31] and inclusion of health behavior change strategies in the curricula for physical therapists in order to enable more comprehensive and effective health promotion during practice. [20, 26, 32]
One example of how health promotion was included in curricula was with 21 physical therapy and occupational therapy students from The University of Texas Medical Branch (2000). They participated in a health promotion and aging elective that consisted of 18-hours of training in topics such as safe physical activity, nutrition and

stress management. The students then instructed inactive, overweight or physically limited older adults how to incorporate the same health promotion aspects into daily living over seven-weeks. Unfortunately, an eight month follow-up of the patients showed little continuance of learned health promotion behaviors. [33]

California, New York and Tennessee Differences in Health Promotion Practice Patterns

A national survey[34] was conducted on faculty perspectives of health promotion in allied health curricula. Of all the allied health profession directors surveyed, 8.8% were from physical therapy programs. The authors found that overall, 93.5% of faculty surveyed indicated that health promotion and disease prevention were either very or somewhat important to academic program goals. Of interest is that health promotion was more likely to be offered in curricula in the West and Northeast than in the Midwest and South. Thus, it was anticipated that there may be some regional differences in practicing health promotion between California in the southwest, New York in the northeast, and Tennessee in the south.

According to Table 1, California, New York, and Tennessee were also chosen for this study because they represent distinctly different environments in which physical therapists practice. These different situations may influence how physical therapists practice health promotion. In this study, physical therapists' health promotion behaviors varied among states in the area of psychological well-being with California being much higher than New York. No significant differences were noted between states in the areas of nutrition and overweight, physical activity and smoking cessation. Thus, the various environments in which physical therapists practice within each state did not appear to significantly alter practice behavior with the exception of the

psychological well-being area. And, even though the psychological well-being area showed significant differences, the reasons for these differences can only be speculative.

Self-Efficacy and Outcome Expectations as Predictors of Practice

According to SCT, [9, 10] high self-efficacy and outcome expectations in a specific area are associated with a high frequency of behavior in that area. In other words, if confidence in the ability to perform the behavior (self-efficacy) is high and the outcome of that behavior is a desired or positive result (outcome expectation), then the behavior is more likely to occur. SCT is supported by this study in that there were significant correlations between the percentage of time a physical therapist assists a patient with a given health promotion topic and the physical therapists self-efficacy and outcome expectation scores regarding that topic. The only exceptions were that nutrition and overweight and physical activity outcome expectation scores were not associated with the percent of time physical therapists assisted patients with these topics. The likely reason for the lack of association in the physical activity category is the fact that most physical therapists see physical activity as a given in treatment no matter what the outcome may be. This is supported by the fact that outcome expectations in physical activity in all three states showed relatively low scores and little variation (California=15.6, New York=15.7, and Tennessee=15.9). In addition, nutrition and overweight showed relatively high scores and little variation (all three states=19.6). Thus outcome expectations do not appear to significantly influence behavior in the nutrition and overweight and physical activity areas. Furthermore, one reason why multiple correlations were found between self-efficacy scores, outcome expectation

scores and health promotion behaviors across various topics may be due to the scores indicating an overall confidence towards practicing health promotion regardless of the specific behavior. Lastly, self-efficacy alone, when all other control variables were considered, predicted behavior in all four focus areas.

Since self-efficacy and outcome expectations are associated with health promotion practice patterns and self-efficacy alone predicts health promotion behavior of physical therapists in all four focus areas, it would seem helpful to develop an action plan that attempts to address self-efficacy and outcome expectations in an intervention. For example, in the survey, factors such as adequate education in the area of health promotion, more time allotted per patient, available supportive material for patients, proper significant other/family support, improved physician support or access to a quality referral source were used to create a self-efficacy score. By addressing the factors in the survey that were used to create the summed scores for each self-efficacy and outcome expectation in the four focus areas, the potential to increase the percentage of physical therapists who practice health promotion behaviors with patients is high. The APTA and Commission on Accreditation in Physical Therapy Education (CAPTE) can aim to improve these factors through means such as publications, continuing education, and curricula requirements in order to enhance physical therapists' health promotion practice patterns across the Nation.

Strengths and Limitations of Study

The strengths of this study include good pilot testing to develop the instrument, good internal reliability of the self-efficacy and outcome expectation scales according to Cronbach's alpha, the demographics of all three states combined seemed to parallel

nationwide demographics which indicated a good representative sample of physical therapists, an adequate sample size obtained to provide adequate power to detect small effect sizes according to the multiple regression model, a strong theoretical base by using SCT as a framework, and assessment of several regions of the United States. This study was limited by having a cross-sectional design in which physical therapists were not followed over time. Therefore, no causal links can be made between self-efficacy and outcome expectation scores and health promotion practice patterns. Another limitation was the potential for responder bias which may have led physical therapists who were interested in the subject matter to respond more than those who were uninterested in the subject matter. In addition, this study was self-report which may have resulted in responses differing from actual practice. Lastly, the results can only be generalized to California, New York and Tennessee.

Conclusion

Physical therapists are needed to lead and develop health promotion plans and strategies in the work force in order to assist the Nation in achieving Healthy People 2010 goals. Physical therapists are addressing health promotion topics with patients, however, in varying degrees and in lower than desirable percentages. This study supports SCT by demonstrating a relationship between health promotion practice patterns and self-efficacy and outcome expectation scores in four focus areas of Healthy People 2010. Whether the distinctly different state-to-state environments in which physical therapists practice influenced the health promotion practice patterns in the four chosen areas can only be speculative at this point. This additional knowledge has the potential to assist the physical therapy profession in creating effective means of

increasing physical therapists' health promotion practice patterns by addressing the factors that improve self-efficacy and outcome expectations.

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Table 1 .
Summary of the Variations Across States Applicable to Physical Therapy Practice [15, 16]

	California	New York	Tennessee
United Health Foundation state health ranking (2002)[a]	Rank= 24 Score = 3.7	Rank= 32 Score = -2.6	Rank= 44 Score = -12.3
State physical therapy practice act	No inclusion of health promotion or prevention statements	Inclusion of prevention of disease or other conditions of health statements	Inclusion of health promotion, fitness maintenance & quality of life statements
Direct access for physical therapy services	Yes, with prohibition of diagnosis	No, Evaluation only	Yes, with treatment time limits & experience requirements
Insurance reimbursement for direct access	No	Not Applicable	Sporadic
Region within the United States	Southwest	Northeast	South

[a] The range for rank is 1 to 50 , the range for score is –23.9 to 23.9, and the score represents the percentage a state is above or below the national norm

Table 2.
Comparisons Across the Nation, California, New York, and Tennessee in the Four Focus Areas of Healthy People 2010 According to the Behavioral Risk Factor Surveillance System [2]

Focus Area	Means of measurement	Nationwide	California	New York	Tennessee
Disability and secondary conditions [b]	"How many days during the past 30 days was your mental health not good?"	65.8% answered "no days" n=52 [a]	62.1% answered "no days" n=2377	64.5% answered "no days" n=2113	70.9% answered "no days" n=2033
Nutrition and overweight [c]	The median percentage of obesity according to BMI	20.1% n=52 [a]	19.9% n=720	17.7% n=579	22.9% n=656
Physical fitness and activity [b]	The median percentage for no leisure time activity	25.7% n=52 [a]	26.6% n=921	28.7% n=1051	35.1% n=930
Tobacco use [c]	The median percentage of smokers	23.2% n=52 [a]	17.2% n=685	21.6% n=757	25.7% n=768

[a] Number of states sampled including District of Columbia and Puerto Rico in year>1995,
[b] Most recent data available in 2001
[a] Most recent data available in 2000

Table 3.
Physical Therapist Demographic Characteristics by State

Variable		California n (%)	New York n (%)	Tennessee n (%)	Total n (%)	P value [a]
Gender (n=417)	Male	32 (22)	35 (28)	31 (21)	98 (24)	.429
	Female	113 (80)	92 (72)	114 (79)	319 (76)	
Ethnicity (n=419)	African-American	1 (<1)	6 (5)	3 (2)	10 (2)	.003
	Asian	20 (14)	11 (9)	5 (3)	36 (9)	
	Hispanic	7 (5)	5 (4)	1 (<1)	13 (3)	
	Native-American	3 (2)	0	1 (<1)	4 (1)	
	White	114 (79)	105 (83)	134 (93)	353(85)	
PT degree (n=417)	Bachelor's	56 (39)	74 (58)	96 (66)	226 (54)	<.0002
	Master's	80 (55)	51 (39)	46 (32)	177 (42)	
	Clinical Doct	8 (6)	2 (2)	3 (1)	13 (3)	
	Academic Doct	1 (<1)	0	0	1 (<1)	
Hours practice (n=415)	1-10 hrs	5 (3)	7 (6)	10 (7)	22 (5)	.044
	11-20 hrs	24 (17)	10 (8)	11 (8)	45 (11)	
	21-30 hrs	21 (15)	17 (13)	17 (12)	55 (13)	
	31-40 hrs	48 (33)	50 (40)	41 (28)	139 (34)	
	40+ hrs	46 (32)	42 (33)	66 (46)	154 (37)	
Practice setting [b] (n=430)	Inpatient	42 (28)	32 (24)	38 (26)	112 (26)	.764
	Outpatient	85 (57)	62 (46)	76 (52)	223 (52)	.257
	Home health	21 (14)	22 (16)	23 (16)	66 (15)	.815
	School system	2 (1)	19 (14)	8 (6)	29 (7)	<.00005
Practice type [b] (n=490)	Neurological	26 (16)	28 (17)	27 (16)	81 (17)	.662
	Orthopedics	89 (55)	68 (42)	78 (48)	235 (48)	.319
	Pediatrics	14 (9)	28 (17)	15 (9)	57 (12)	.004
	Sports	5 (3)	5 (3)	6 (4)	16 (3)	.952
	General med	29 (18)	34 (21)	38 (23)	101 (21)	.338
Received health educ/health prom in school (n=417)		74 (18)	62 (15)	86 (21)	222 (53)	.363
Attended health educ/health prom CEU (n=416)		47 (11)	39 (9)	35 (8)	121 (29)	.251
Obtained health educ/health prom degree in addition to PT degree (n=414)		37 (9)	25 (6)	22 (5)	84 (20)	.088

[a] Chi Square test used to determine state-to-state differences on nominal and ordinal data
[b] Respondents could check more than one

Table 3 Continued.
Physical Therapist Demographic Characteristics by State

Variable	California Mean (95% CI)	New York Mean (95% CI)	Tennessee Mean (95% CI)	Total Mean (95% CI)	P value
Age [c]	41.1 (39.2-42.8) n=142	38.8 (37.2-40.4) n=126	37.0 (35.6-38.5) n=144	38.9 (38.0-39.9) n=412	.002
Year of graduation [d]	1993 n=144	1992 n=126	1995 n=143	1993 n=413	.012
Patients seen/hour [c]	1.9 (1.7-2.1) n=140	2.2 (2.0-2.5) n=125	2.0 (1.8-2.2) n=143	2.0 (1.9-2.2) n=408	.043
Years working in current setting [c]	7.8 (6.7-8.9) n=144	7.8 (6.6-8.9) n=127	6.4 (5.0-6.7) n=145	7.1 (6.5-7.7) n=416	.009

[c] ANOVA with Bonferroni adjustments
[d] Medians reported instead of means and Kruskall-Wallis test used due to unequal variances.

Table 4.
Cronbach's Alpha Reliability for Self-Efficacy and Outcome Expectation Summed Scores

	Self-efficacy	**# of items**	**Outcome expectation**	**# of items**
Psychological well-being	.8786	12	.7215	3
Nutrition and overweight	.9253	12	.7002	3
Physical activity	.9331	10	.7223	4
Smoking cessation	.9508	10	.8008	4

Table 5.
Means and 95% Confidence Intervals for Physical Therapist Self-Efficacy and Outcome Expectation Scores and Health Promotion Behaviors

	CA Mean (95% CI) n=106	NY Mean (95% CI) n=101	TN Mean (95% CI) n=124	Totals Mean (95% CI) n=331	P Value [a]
	Self-efficacy				
Psychological well-being (12-72) [b]	49.4 (47.7-51.1)	49.5 (47.9-51.2)	50.2 (48.7-51.7)	49.7 (48.8-50.6)	.759
Nutrition and overweight (12-72) [b]	50.1 (48.1-52.1)	50.7 (48.7-52.6)	53.0 (51.2-55.0)	51.3 (50.2-52.4)	.103
Physical activity (10-60) [b]	51.2 (49.8-52.6)	50.8 (48.9-52.8)	53.0 (51.2-54.8)	51.0 (50.2-51.7)	.742
Smoking cessation (10-60) [b]	37.1 (35.0-39.1)	39.2 (37.1-41.2)	38.4 (36.5-40.3)	38.2 (37.1-39.3)	.400
	Outcome expectations				
Psychological well-being (3-18) [b]	15.9 (15.4-16.3)	15.4 (15.0-15.9)	15.6 (15.2-16.0)	15.6 (15.4-15.9)	.578
Nutrition and overweight (3-18) [b]	19.6 (19.0-20.2)	19.6 (19.0-20.2)	19.6 (19.1-20.1)	19.6 (19.3-19.9)	.920
Physical activity (4-24) [b]	15.6 (15.2-16.0)	15.7 (15.3-16.1)	15.9 (15.5-16.2)	15.7 (15.5-15.9)	.649
Smoking cessation (4-24) [b]	18.0 (17.3-18.8)	18.1 (17.4-18.9)	17.2 (16.5-17.9)	17.8 (17.4-18.2)	.173
	Health promotion behaviors				
% of time PT assists with psychological well-being (1-100) [b]	48.8% (42.9-54.7)	35.9% (30.1-41.7)	39.2% (33.8-44.5)	41.4% (38.2-44.4)	.011*
% of time PT assists with nutrition and overweight (1-100) [b]	19.4% (14.4-24.3)	20.4% (15.5-25.3)	17.6% (13.1-22.2)	19.1% (16.5-21.8)	.747
% of time PT assists with physical activity (1-100) [b]	58.1% (51.6-64.5)	51.5% (45.2-57.9)	52.3% (46.5-58.2)	54.0% (50.5-57.4)	.262
% of time PT assists with smoking cessation (1-100) [b]	18.9% (13.5-24.3)	14.6% (9.3-19.2)	16.1% (11.2-21.0)	16.5% (13.6-19.4)	.521

[a] ANCOVA with Bonferroni adjustments used to determine state-to-state differences. Age, gender, ethnicity, hours/week worked, year of graduation, number of years worked in current setting, patients seen per hour, highest PT degree obtained, and school setting with pediatric type patients were used as covariates.
[b] Indicates ranges possible in scores

Table 6.
Correlations Between Physical Therapist Health Promotion Behaviors and Self-Efficacy and Outcome Expectation Scores

Self-efficacy correlations				
	Psychological well-being score	**Nutrition/ overweight issues score**	**Physical activity score**	**Smoking cessation score**
% of time PT assists with psychological well-being	**.255** *p*<.0000001 (n=398)	.078 *p*=.124 (n=395)	.124 *p*=.013 (n=400)	.099 *p*=.051 (n=389)
% of time PT assists with nutrition/overweight issues		**.332** *p*<.0000001 (n=396)	.140 *p*=.005 (n=401)	.261 *p*<.0000002 (n=390)
% of time PT assists with physical activity			**.246** *p*<.0000007 (n=399)	.247 *p*<.0000008 (n=389)
% of time PT assists with smoking cessation				**.306** p<.0000001 (n=387)
Outcome expectation correlations				
	Psychological well-being score	**Nutrition/ overweight issues score**	**Physical activity score**	**Smoking cessation score**
% of time PT assists with psychological well-being	**.119** *p*=.020 (n=383)	.098 *p*=.057 (n=380)	.076 *p*=.135 (n=385)	.115 *p*=.027 (n=367)
% of time PT assists with nutrition/overweight issues		**.062** *p*=.231 (n=381)	.009 *p*=.854 (n=386)	.124 *p*=.018 (n=368)
% of time PT assists with physical activity			**.052** *p*=.312 (n=384)	.115 *p*=0.028 (n=367)
% of time PT assists with smoking cessation				**.155** *p*=.003 (n=366)

Table 7.
Multiple Regression Analyses of the Change in R When Self-Efficacy and Outcome Expectations Are Added to the Model.

	R^2 for control variables	R^2 with SE/OE variable	Change in R^2
Psychological well-being (n=325) SE $p<.00004$ OE $p<.538$ State practicing in $p=.003$	.059 [a]	.110 $p<.000003$	.051 $p<.00004$
Nutrition and overweight (n=321) SE $p<.00000001$ OE $p=.950$	.045 [b]	.140 $p<.00000004$	.095 $p<.00000001$
Physical activity (n=328) SE $p<.000006$ OE $p=.644$	.044 [c]	.099 $p<.000007$	.054 $p<.00003$
Smoking cessation (n=314) SE $p<.000004$ OE $p=.283$ Pediatric patients $p=.011$	.047 [d]	.129 $p<.0000003$	.082 $p<.000002$

[a] Age, gender, ethnicity, health educ/prom continuing education courses, and in-patient and home health settings were also used as control variables.
[b] Age, gender, ethnicity, health educ/prom in PT school, psychological well-being and nutrition/overweight continuing education courses, and in-patient and out-patient settings.
[c] Age, gender, ethnicity, health educ/prom continuing education courses, home health setting, and pediatric type patients.
[d] Age, gender, ethnicity, out-patient and home health settings, and pediatric and general medicine type patients.

CHAPTER 5

OTHER FINDINGS

A. Survey Return Rate

Originally, the anticipated survey return rate was a minimum of 20% even though Portney and Watkins (1993) suggested a 30-60% survey return rate in a clinical setting to be realistic. As Table 1 indicates, only 12.0% of the surveys were returned from the first mailing, thus a second mailing was deemed necessary and yielded 11.8% return.

The first mailing cost $0.60 in postage per envelope to mail and included a $.052 incentive magnet that was specifically designed to portray the importance of physical therapists promoting health. The envelope was a Loma Linda University, School of Public Health letterhead envelope with the message "Free Physical Therapy Gift Inside" stamped in blue ink and an eye-catching postage stamp placed on it. The total cost per envelope for the first mailing was $1.45. Mailing out 1,500 surveys cost a total of $2,175.00 and having received 180 usable surveys means the average cost of each usable survey was $12.08. The second mailing cost $0.37 in postage per envelope to mail and did not include the incentive magnet. The envelope was a Loma Linda University, School of Public Health letterhead envelope with the message "Attention Physical Therapists" stamped in blue ink and an average postage stamp placed on it. The total cost of mailing per envelope for the second mailing was $0.62. Mailing out 2,000 surveys cost $1,240.00 and having received 237 usable surveys means the average cost of each usable survey was $5.23. Thus, the most cost effective means of

Table 1.
Response Rates to Mailings

	Surveys	CA n (%)	NY n (%)	TN n (%)	Totals n (%)
First mailing (12-31-02)[a] *Incentive magnet included*	Total mailed	500 (33.3)	500 (33.3)	500 (33.3)	**1,500 (42.9)**
	Not practicing/ not applicable				18 (1.2)
	Returned as undeliverable	22 (4.4)	21 (4.2)	33 (6.6)	76 (5.1)
	Total not used				94 (6.3)
	Total used in analyses	67 (13.4)	54 (10.8)	59 (11.8)	**180 (12.0)**
Second mailing (02-03-02)[a] *Incentive magnet not included*	Total mailed	550 (27.5)	700 (35.0)	750 (37.5)	**2,000 (57.1)**
	Not practicing/ not applicable				14(<1)
	Returned as undeliverable	17 (2.7)	38 (2.3)	20 (4.5)	64 (3.2)
	Total not used				67 (3.4)
	Total used in analyses	78 (14.2)	73 (10.4)	86 (11.4)	**237 (11.8)**
Total surveys used in data analysis		**145 (13.8)**	**127 (10.6)**	**145 (11.6)**	**417 (11.9)**

[a] Reminder postcards were mailed two weeks after each mailing of surveys

administering this survey was eliminating the incentive magnet and increasing the mailing bulk.

As noted previously, the usable survey return rate for the first mailing was 12.0% and 11.8% for the second mailing. California had the highest usable survey return rate for both mailings (13.4 % and 13.8%) and New York had the lowest survey return rate for both mailings (10.8% and 10.4%).

B. Self-Efficacy and Outcome Expectation Items

The items used to create the summed self-efficacy and outcome expectation scores are of interest because they indicate what can be targeted in an intervention attempting to increase health promotion behavior through improving self-efficacy and outcome expectations.

1. Self-Efficacy. Table 2 summarizes what items were included in each summed score. In order to sum the scores appropriately, all four self-efficacy scores were reverse coded to indicate a high score for high self-efficacy. All items of the self-efficacy scale were included in the reliability analysis. However, language barrier and socioeconomic issues were determined to have no influence on self-efficacy in the areas of physical activity and smoking cessation during the qualitative interview process and thus were left out of the quantitative survey altogether. Thus, the total self-efficacy score reflects all items included on the quantitative survey.

2. *Outcome Expectations.* Table 3 summarizes what items were included in each summed score. The two outcome expectation statements that were inherently negative were assigned a negative number in order to indicate an overall positive score for outcome expectations. The two items assigned negative scores were: "more rushed

Table 2.
Items Included in the Self-Efficacy Summed Scores

	Psychological well-being	Nutrition/ overweight	Physical activity	Smoking cessation
When the patient is aware of the problem and/or desires to improve	X	X	X	X
When significant other/family is not supportive	X	X	X	X
When you have more time allotted per patient than currently available	X	X	X	X
When you are adequately educated to address the issue	X	X	X	X
When you have observed another PT promote the issue successfully	X	X	X	X
When you do not have the support of the referring physician	X	X	X	X
When you have the proper supportive materials to provide for the patient	X	X	X	X
When the issue interferes with PT goals	X	X	X	X
When the patient is already seeing a professional for the issue	X	X	X	X
When an appropriate source to refer the patient for additional assistance	X	X	X	X
When the patient has low socioeconomic status	X	X	a	a
When there is a language barrier	X	X	a	a
Cronbach's Alpha	.8786	.9253	.9331	.9508
Number of items	12	12	10	10
Total score possible	12-72	12-72	10-60	10-60

X Items included in the sum scores
a These items were eliminated during the qualitative interview process
b These items were eliminated during the reliability analyses using Cronbach's alpha

Table 3.
Items Included in the Outcome Expectation Summed Scores

	Psychological well-being	**Nutrition/ overweight**	**Physical activity**	**Smoking cessation**
More rushed with your patient	X	X	X	b
Patient demonstrates improved choices regarding the issue	X	X	X	X
Patient is able to address and achieve PT goals more readily	X	X	X	X
You are addressing an issue that is beyond the normal PT scope of practice	b	b	b	X
Patient rapport is hindered/weakened	b	b	X	b
You are reimbursed for assisting with the issue	a	b	b	X
Cronbach's Alpha	.7215	.7002	.7223	.8008
Number of items	3	3	4	4
Total score possible	3-18	3-18	4-24	4-24

X Items included in the sum scores

a These items were eliminated during the qualitative interview process

b These items were eliminated during the reliability analyses using Cronbach's alpha

with your patient" and "patient rapport is hindered/weakened." The reimbursement item was dropped from the psychological well-being scale during the qualitative interview process due to consistent responses indicating the item did not influence behavior and was dropped during reliability analyses in the area of nutrition and overweight. In addition, as noted in Table 3, at least one or two items were dropped per focus area in order to achieve sufficient reliability according to Cronbach's alpha.

Outcome expectations such as the amount of time allotted per patient, whether the patient improves in the health area or with physical therapy goals, all seem to contribute to the overall outcome expectation scale except in the areas of physical activity and nutrition and overweight as previously noted. Even though there is a linear relationship between the summed outcome expectation scores and health promotion behavior as demonstrated by significant correlations, according to multiple regression, they do not appear to independently influence practice behaviors as do self-efficacy expectations.

C. Means of Assisting in the Four Focus Areas

Although the frequency of practicing each of the four focus areas has been discussed, the question of how physical therapists assisted in each focus area was also addressed. During the quantitative interview process, four main ways in which physical therapists assist with health promotion topics were determined and included: discuss or listen, develop and set goals, refer, and educate. For each of the four topics, physical therapists were asked to indicate what percent of the time they used any of the aforementioned methods to assist their patients. In addition, physical therapists were asked what percent of their patients struggled in each of the four focus areas.

Table 4 outlines the means by which physical therapists assisted in each of the four focus areas and as well as what percent of patients experienced difficulties in the same areas. In the area of psychological well-being, respondents reported that 35.0% of patients were "unhappy, sad, depressed, or unsatisfied with life". Furthermore, their most frequent means of assisting was through discussing or listening (56.5%), followed by educating (39.7%), developing and setting goals (21.3%) and referring (14.6%). Significant state-to-state differences were noted for developing and setting goals (p=.016) and for educating (p=.003) with California significantly higher than New York and Tennessee for both methods (p=.021 and p=.002)

In the area of nutrition and overweight, respondents reported 46.8% of patients to be "overweight." Furthermore, their most frequent means of assisting were discussing or listening (37.8%), followed by educating (25.4%), referring (12.8%), and developing and setting goals (9.4%). No significant state-to-state differences were noted in this area.

In the area of physical activity, physical therapists reported 61.7% of patients "don't get much exercise". The two most frequent means of assisting patients in this area were discussing or listening (42.2%) and educating (42.0%) followed by developing and setting goals (34.3%) and referring (10.7%). Differences were noted across states for discussing or listening (p=.021) with California significantly higher than Tennessee (p=.020) and for educating (p=.001) with California significantly higher than Tennessee and New York (p=.001 and p=.005).

In the area of smoking cessation, 25.7% of physical therapy patients were estimated to be smokers. Significant differences were noted across states (p=.001) with Tennessee significantly higher than California (p<.0005). The most frequent means physical therapists used to assist patients were educating (25.8%) and discussing or listening (23.9%) followed by referring (8.5%) and developing and setting goals (4.8%).

In summary, physical therapists seem to feel most comfortable assisting through discussing or listening because this method was preferred in the areas of psychological well-being, nutrition and overweight, and physical activity and only second to educating in the areas of smoking cessation. Referring and developing and setting goals in all areas seemed to have noticeably low percentages. Yet, physical therapists who involve patients in goal setting feel this involvement will result in improved patient outcomes (Baker, Marshak, Rice, & Zimmerman, 2001). However, developing and setting goals in the areas of physical activity was moderately high possibly due to physical therapists feeling most competent in the area of physical activity. This is supported based on the fact that physical therapists assisted patients more in this focus area and had the highest self-efficacy expectations. In general, California had the highest percentages for assisting patients via discussing or listening and educating compared to New York or Tennessee in all four topics, however, developing and setting goals and referring varied between states. In addition, when state-to-state differences were noted in means of assisting patients, California consistently had the highest percentages.

This knowledge can be used to gain a better understanding of how physical therapists prefer to assist with health promotion topics during practice. Further research can target whether the preferred methods are the most effective methods and to

determine if methods should vary according to topic and regionality. Of importance is understanding what methods are currently be utilized and how to adjust these methods in order to be more effective providers of health promotion during practice.

Table 4.
Physical Therapists' Means of Assisting Patients and the Percent of Patients Struggling in the Four Focus Areas by State

	CA Mean (95% CI) n=109	NY Mean (95% CI) n=102	TN Mean (95% CI) n=115	Totals Mean (95% CI) n=326	P value [a]
	Psychological well-being [b]				
% of patients with poor psychological well-being	34.5 (29.6-39.1)	34.2 (29.6-38.7)	36.3 (32.2-40.5)	35.0 (32.6-37.4)	.758
Discuss or listen	64.1 (57.9-70.4)	53.3 (47.1-59.5)	52.0 (46.3-57.6)	56.5 (53.2-59.8)	.016
Develop and set goals	24.5 (18.7-30.4)	19.5 (13.7-25.3)	20.0 (14.6-25.3)	21.3 (18.2-24.4)	.442
Refer	15.7 (11.7-19.8)	15.5 (11.5-19.5)	12.5 (8.8-16.2)	14.6 (12.4-16.7)	.444
Educate	37.8 (31.7-43.8)	28.7 (22.6-34.7)	22.7 (17.2-28.1)	29.7 (26.5-32.9)	.003
	Nutrition and overweight [b]				
% of patients who are overweight	48.6 (44.7-52.6)	44.5 (40.6-48.5)	47.3 (43.7-50.9)	46.8 (44.7-48.9)	.350
Discuss or listen	42.5 (35.5-49.5)	37.2 (30.3-44.2)	33.5 (27.2-39.9)	37.8 (34.1-41.5)	.207
Develop and set goals	9.3 (5.6-13.1)	8.5 (4.8-12.3)	10.3 (6.9-13.7)	9.4 (7.4-11.4)	.785
Refer	9.5 (5.0-14.0)	16.3 (11.8-20.7)	12.8 (8.8-16.9)	12.8 (10.5-15.2)	.119
Educate	29.2 (23.2-35.1)	23.5 (17.5-29.4)	23.6 (18.2-29.0)	25.4 (22.3-28.5)	.333

[a] ANCOVA with Bonferroni adjustments used to determine state-to-state differences. Age, gender, ethnicity, hours/week working, year of graduation, number of years working in current setting, patients seen per hour, highest PT degree obtained, and school setting with pediatric type patients were used as covariates.
[b] Ranges possible are 1-100 percent

Table 4 Continued.
Physical Therapists' Means of Assisting Patients and the Percent of Patients Struggling in the Four Focus Areas by State

	CA Mean (95% CI) n=109	NY Mean (95% CI) n=102	TN Mean (95% CI) n=115	Totals Mean (95% CI) n=326	P value [a]
	Physical activity [b]				
% of patients who don't get much exercise	62.1 (57.6-66.5)	60.0 (55.5-64.4)	62.9 (58.9-67.0)	61.7 (59.3-64.0)	.619
Discuss or listen	49.9 (43.1-56.7)	40.1 (33.3-46.9)	36.5 (30.4-42.7)	42.2 (38.6-45.8)	.021
Develop and set goals	37.8 (31.4-44.1)	34.1 (27.8-40.4)	31.1 (25.3-36.8)	34.3 (31.0-37.6)	.337
Refer	10.4 (6.6-14.4)	12.6 (8.8-16.3)	9.2 (5.8-12.6)	10.7 (8.7-12.7)	.425
Educate	52.7 (46.3-59.0)	37.7 (31.4-44.1)	35.7 (30.0-41.5)	42.0 (38.7-45.4)	.001
	Smoking cessation [b]				
% of patients who smoke	21.4 (18.1-24.6)	25.5 (22.3-28.8)	30.3 (27.3-33.2)	25.7 (24.0-27.4)	.001
Discuss or listen	28.2 (21.9-34.5)	23.2 (16.9-29.4)	20.4 (14.7-26.2)	23.9 (20.6-27.3)	.226
Develop and set goals	3.2 (0.2-6.1)	5.5 (2.6-8.5)	5.8 (3.2-8.5)	4.8 (3.3-6.4)	.392
Refer	6.3 (2.1-10.5)	10.6 (6.4-14.7)	8.5 (4.7-12.4)	8.5 (6.3-10.7)	.389
Educate	30.0 (23.6-36.4)	24.4 (18.0-30.7)	22.9 (17.1-28.7)	25.8 (22.4-29.2)	.280

[a] ANCOVA with Bonferroni adjustments used to determine state-to-state differences. Age, gender, ethnicity, hours/week working, year of graduation, number of years working in current setting, patients seen per hour, highest PT degree obtained, and school setting with pediatric type patients were used as covariates.
[b] Ranges possible are 1-100 percent

CHAPTER 6

DISCUSSION

A. Health Promotion Practice Patterns

This study found that physical therapists assist patients in all of the four chosen focus areas of Healthy People 2010, but to varying degrees. As expected, the most frequent focus area physical therapists assisted patients with was increasing physical activity. Over 50% of physical therapists addressed this issue. In addition, 41% of physical therapists assisted patients in the realm of psychological well-being by reducing feelings of sadness, unhappiness, or depression and increasing feelings of satisfaction with life. However, the percentage of time physical therapists assisted with nutrition and overweight issues and smoking cessation was low (19% and 17%).

With the growing knowledge and emphasis on how to prevent chronic diseases that are due to poor lifestyle choices, the need for health promotion is well established. Many allied health professionals, including physical therapists, are needed to lead and develop health promotion plans and strategies in the work force in order to assist the nation in achieving Healthy People 2010 objectives (Gahimer & Morris, 1999; Lorish & Gale, 1999; Martin & Fell, 1999; Robinson, 1984). In 1986, several authors suggested that health-related behaviors such as cigarette smoking, diet and nutrition, exercise, and stress management must be emphasized over the continuum of time in all allied health professions (Bunker, Parcel, Phillips, & Simons-Morton, 1986). Health promotion issues that can be addressed with the disabled community include stress management, smoking cessation, coping strategies, recreational exercise, spirituality,

proper sleep habits and medication usage, substance abuse reduction, and good hygiene(Li & Yoshida, 1998; Rimmer, 1998). Lastly, issues such as safe physical activity, nutrition and stress management could be addressed with inactive, overweight or physically limited older adults (Haber, Loonery, Babola et. al., 2000).

B. California, New York and Tennessee Health Promotion Practice Patterns

A national survey (Wilson, Milligan, & Hernandez, 2000) conducted on faculty perspectives of health promotion in allied health curricula found that overall, 93.5% of faculty surveyed indicated that health promotion and disease prevention were either very or somewhat important to academic program goals. Of interest is that health promotion was more likely to be offered in curricula in the West and Northeast than in the Midwest and South. Thus, it was anticipated in this study that there may be some regional differences in practicing health promotion between California in the southwest, New York in the northeast, and Tennessee in the south. California, New York, and Tennessee were also chosen for the study because they represent distinctly different situations in which physical therapists practice. These different situations may influence how physical therapists practice health promotion.

In this study, physical therapists' health promotion behaviors varied between states in the area of psychological well-being with California being much higher than New York but no differences from Tennessee. No significant differences were noted between states in the areas of nutrition and overweight, physical activity and smoking cessation. There were surprisingly few state-to-state differences, but this could be due to the complex differences in environments across the three states. Even if more differences were noted, the reasons for the differences could only be speculative. The

possibility remains that regional differences exist in other areas of physical therapy practice.

C. Self-Efficacy and Outcome Expectations as Predictors of Practice

According to Social Cognitive Theory (Bandura, 1986), high self-efficacy and outcome expectations in a specific area are associated with a high frequency of behavior in that area. In other words, if confidence in the ability to perform the behavior (self-efficacy) is high and the outcome of that behavior is a desired or positive result (outcome expectation), then the behavior is more likely to occur. Social Cognitive Theory is supported by this study in that there were significant correlations between the percentage of time a physical therapist assists a patient with a given health promotion topic and the physical therapist's self-efficacy and outcome expectation scores regarding that topic. The only exception was that the physical activity and nutrition and overweight outcome expectation scores were not linearly associated with the percent of time physical therapists assisted patients in these focus areas. The reason for this lack of association may be related to the minimal variation in outcome expectation scores in these two focus areas. Furthermore, physical therapists may see addressing physical activity as a given in the treatment no matter what the outcome may be. Lastly, self-efficacy alone predicted behavior in all four focus areas when all other control variables such as age, gender, ethnicity, attendance of health education/promotion continuing education courses, type of practice setting and patient load were considered.

Since self-efficacy and outcome expectations are associated with health promotion practice patterns, and self-efficacy alone predicts health promotion behavior of physical therapists in all four focus areas, then it would seem helpful to develop an

action plan that would attempt to address self-efficacy and outcome expectations in an intervention. For example, in the survey, factors such as adequate education in the area of health promotion, more time allotted per patient, available supportive material for patients, proper significant other/family support, improved physician support or access to a quality referral source were used to create a self-efficacy score. By addressing the factors in the survey that were used to create the summed scores for each self-efficacy and outcome expectation in the four focus areas, the potential to increase the percentage of physical therapists who practice health promotion behaviors with patients is high. The APTA and CAPTE can aim to improve these factors through means such as publications, continuing education, and curricula requirements in order to enhance physical therapists' health promotion practice patterns across the Nation.

D. Other Findings

1. *Survey Return Cost.* Only 12.0% of the surveys were returned from the first mailing, thus a second mailing was deemed necessary and yielded 11.8% return. It appears that the original conservative survey return rate of 30-60% suggested by Portney and Watkins (1993) drastically overestimated the return rate of this survey. This may, in part, be due to the overabundance of promotional mail in our society today. The first mailing cost $1.45 per envelope. Mailing out 1,500 surveys cost a total of $2,175.00 and having received 180 usable surveys means the average cost of each usable survey was $12.08. The second mailing cost $0.62 per envelope. Mailing out 2,000 surveys cost $1,240.00 and having received 237 usable surveys means the average cost of each usable survey was $5.23. Thus, the most cost effective means of

administering this survey was the method used for the second mailing which was to eliminate the incentive magnet and increase the mailing bulk.

2. *Self-Efficacy and Outcome Expectation Items.* Since self-efficacy was the only predictor of health promotion behaviors in all four focus areas addressed, determining how to improve the items that created the summed self-efficacy scores would be ideal. Continuing education and/or specifically structured physical therapy education courses could easily include many of the self-efficacy items determined to predict behavior. For example, physical therapists could be taught how to encourage patient awareness and/or desire to improve, elicit positive significant other/family members involvement, facilitate support of referring physicians, build a good source to refer patients to when the issue is beyond the physical therapist's capabilities, and provide good support and/or educational materials to patients. Furthermore, a model of how to incorporate health promotion into practice could be created and implemented so physical therapists could observe the positive results of incorporating health promotion behaviors into practice.

3. *Means of Assisting.* Four main ways in which physical therapists assist with health promotion topics were determined and included: discuss or listen, develop and set goals, refer, and educate. For each of the four topics, physical therapists were asked to indicate what percent of the time they used any of the aforementioned methods to assist their patients. In addition, physical therapists were asked what percent of their patients struggled in each of the four focus areas.

Physical therapists seemed to feel most comfortable assisting through discussing or listening because this method was preferred in the areas of psychological well-being,

nutrition and overweight and physical activity and only second to educating in the area of smoking cessation. Referring and developing and setting goals in all areas seemed to have noticeably low percentages. However, developing and setting goals in the areas of physical activity was moderately high possibly due to physical therapists feeling most competent in the area of physical activity. In general, California had the highest percentages for assisting via discussing or listening and educating compared to New York or Tennessee in all four topics, however, developing and setting goals and referring varied between states.

This knowledge can be used to gain a better understanding of how physical therapists prefer to assist with health promotion topics. Further research can target whether the preferred methods are the most effective methods and to determine if methods should vary according to topic and regionality. Of importance is understanding what methods are currently be utilized and how to adjust these methods to be more effective providers of health promotion during practice.

E. Strengths and Limitations of Study

The strengths of this study include good pilot testing to develop the instrument, good internal reliability of the self-efficacy and outcome expectation scales according to Cronbach's alpha, the demographics of all three states combined seemed to parallel nationwide demographics which indicated a good representative sample of physical therapists, an adequate sample size obtained to provide adequate power to detect small effect sizes according to the multiple regression model, a strong theoretical base by using Social Cognitive Theory as a framework, and several regions of the United States were assessed.

This study was limited by having a cross-sectional design in that physical therapists were not followed over time. Therefore, no causal links can be made between self-efficacy and outcome expectation scores and health promotion practice patterns. Another limitation was the potential for responder bias that may have led physical therapists who were interested in the subject matter to respond more than those who were uninterested in the subject matter. The possibility exists that physical therapists who responded showed higher rates of health promotion behavior than the rest of the physical therapy population. In addition, this study was based on self-reports which may have resulted in responses differing from actual practice. Lastly, the results can only be generalized to California, New York and Tennessee. Although these states were chosen to represent distinctly different environments across the United States, little variation among states were noted. However, regional differences may still exist in other areas of physical therapy practice or across other states.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

Physical therapists are needed to lead and develop health promotion plans and strategies in the work force in order to assist the nation in achieving Healthy People 2010 goals (Bainbridge, 2000). Physical therapy educational and practice guidelines emphasize inclusion of health promotion and prevention (CAPTE, 2002; Rothstein, 2001). Furthermore, physical therapists are uniquely qualified to address health promotion during practice.

This study demonstrates that physical therapists are addressing health promotion topics with patients, however, in varying degrees and in lower than desirable percentages. In addition, this study supports Social Cognitive Theory by demonstrating a relationship between health promotion practice patterns and self-efficacy and outcome expectation scores in four focus areas of Healthy People 2010. Whether the distinctly different state-to-state situations in which physical therapists practice influenced the health promotion practice patterns in the four chosen areas can only be speculative at this point. This additional knowledge has the potential to assist the physical therapy profession in creating effective means of increasing physical therapists' health promotion practice patterns by addressing the factors that improve self-efficacy and outcome expectations. If health promotion practice patterns can be increased, the physical therapy field will more effectively assist the Nation in achieving Healthy People 2010 goals and preventing chronic diseases.

B. Application to Preventive Care

Clinical preventive care practitioners are particularly educated and qualified to assist physical therapists in developing increased preventive care/health promotion behaviors during practice. Preventive care practitioners not only have a broad knowledge and understanding of health promotion and education principles but are also able to apply these principles within a clinical practice setting.

Preventive care practitioners can assist physical therapists in increasing awareness of what preventive/ health promotion topics are within a physical therapist's scope of practice. In addition, they will be able to problem solve and make helpful and appropriate suggestions to physical therapy practices regarding how to best incorporate prevention/health promotion into practice. This will include identifying barriers to practicing prevention and suggesting alternative methods that enable increased health promotion behavior in physical therapists. According to this study, building physical therapists' self-efficacy could be at least one method used to increase health promotion behaviors during practice. Lastly, preventive care practitioners, in collaboration with physical therapists, can create continuing education and/or physical therapy curricula courses that incorporate practical information and tools that will enable physical therapists to practice prevention and health promotion topics with their patients with increased ease and frequency.

C. Recommendations

1. Encourage awareness among physical therapists regarding what health promotion/prevention topics are within a physical therapist's scope of practice.

2. Create a continuing education courses and/or curricular courses that target the factors which influence self-efficacy and outcome expectations, then follow-up to assess if the courses changed health promotion practice behaviors in physical therapists.
3. Research what the most effective means of addressing health promotion are during practice so as to teach and model the most effective means within continuing education and curricula.
4. Encourage CAPTE to more specifically clarify requirements for health promotion training within MPT/DPT curricula.

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Appendix A

Qualitative Interview Survey

Qualitative Interview Survey
Questions and Prompts

I. Introduction Script

A. Hello, my name is Brenda Rea and I am a physical therapist from California. I am doctoral student working on my dissertation in the area of health promotion practice in the field of physical therapy. I was wondering if you could spare about 10 minutes of your time in order for me to ask you a few questions?

B. Answer: Yes
Response: Thank you very much for your willingness to assist me. The questions will be divided into two main sections. The first section asks about how and how often you address the following four specific topics with your patients; sadness and depression, nutrition and overweight, cardiovascular fitness, and smoking cessation. The second section assesses factors that influence how you practice these four areas of health promotion and how positive or negative end results of addressing the four topics influence your practice. Proceed to Section I of this interview form.

C. Answer: Yes, but not right now.
Response: When can I call back?

D. Answer: No
Response: Thank you for your time.

II. Section 1: Physical Therapist Characteristics and Health Promotion Practice Patterns

A. I will ask you how and how often you assist your patients with the four health promotion topics I am assessing. To assist your patient means that you perform at least one of the following tasks for each given topic: **discussed/listened, referred, educated** or developed goals with your patient. Please feel free to inform me of any other ways in which you feel you assist your patients in the given topics discussed.

B. **Physical Therapy Health Promotion Practice Patterns**

1. On average, how many hours per week do you work?
2. On average, how many patients per hour do you see?
3. What percent of your patients are sad, unhappy, depressed, or dissatisfied with life?
4. How and in what % of your patients do you assist with reducing feelings of sadness, unhappiness, or depression and increasing feelings of satisfaction with life?
5. What percent of your patients are overweight?
6. How and in what % of your patients do you assist with making healthier food choices to promote a healthy weight?

7. What percent of your patients have low cardiovascular fitness?
8. How and in what % of your patients do you assist with increasing cardiovascular fitness?
9. What percentage of your patients smoke?
10. How and in what % of your smoking patients do you assist in reducing their smoking habits?

III. Section 2: Self-efficacy and Outcome Expectations in the Four Focus Areas

A. Self-Efficacy Section

1. **Psychological Well-being:** What factors make it easier or more difficult to assist your patient in reducing feelings of sadness, unhappiness, or depression and increasing feelings of satisfaction with life?
    a. Patients awareness of problem and/or desire to improve
    b. Support of significant other/family
    c. More time per patient allotted
    d. Education/Skill preparedness
    e. Successful modeling by other PTs
    f. Physician support to address issue
    g. Support materials available
    h. Economic issues
    i. Interferes with PT goals
    j. Already being addressed by psychosocial health care provider
    k. Good referral source
    l. Language barrier
2. **Nutrition/Overweight:** What factors make it easier or more difficult to assist your patients in making healthier food choices to promote a healthy weight?
    a. Patients awareness of problem and/or desire to improve
    b. Support of significant other/family
    c. More time per patient allotted
    d. Education/Skill preparedness
    e. Successful modeling by other PTs
    f. Physician support to address issue
    g. Support materials available
    h. Economic issues
    i. Interferes with PT goals
    j. Already being addressed by nutritionist
    k. Good referral source
    l. Language barrier
    m. Weight is linked with current disease process

3. **Cardiovascular Fitness:** What factors make it easier or more difficult to assist your patients with increasing cardiovascular fitness for overall health benefits?
   a. Patients awareness of problem and/or desire to improve
   b. Support of significant other/family
   c. More time per patient allotted
   d. Education/Skill preparedness
   e. Successful modeling by other PTs
   f. Physician support/guidelines to safely address issue
   g. Support materials available
   h. Economic issues
   i. Good referral source
   j. Language barrier
   k. Proper facility/equipment availability
   l. Functional status/diagnosis specific

4. **Tobacco Use:** What factors make it easier or more difficult to assist your patients in reducing their smoking habits?
   a. Patient's desire to improve
   b. Support of significant other/family
   c. More time per patient allotted
   d. Education/Skill preparedness
   e. Successful modeling by other PTs
   f. Physician support to address issue
   g. Support materials available
   h. Economic issues
   i. Interferes with PT goals
   j. Smoking is linked with current disease process
   k. Good referral source
   l. Language barrier

B. Outcome Expectations Section

1. **Psychological Well-being:** What positive or negative end results or outcomes will influence whether you assist your patient in reducing feelings of sadness, unhappiness, or depression and increasing feelings of satisfaction with life?
   a. Less time to address PT goals
   b. Reimbursement for services provided
   c. Status of patient's psychological well-being
   d. Patient response to physical therapy treatments
   e. Addressing an issue beyond the normal PT scope of practice
   f. Change in patient rapport

2. **Nutrition/Overweight:** What positive or negative end results or outcomes will influence whether you assist your patients in making healthier food choices to promote a healthy weight?
   a. Less time to address PT goals
   b. Reimbursement for services provided
   c. Status of patient's food choices and weight
   d. Patient response to physical therapy treatments
   e. Addressing an issue beyond the normal PT scope of practice
   f. Change in patient rapport

3. **Cardiovascular Fitness:** What positive or negative end results will influence whether you assist your patients with increasing their cardiovascular fitness for overall health benefits?
   a. Less time to address PT goals
   b. Reimbursement for services provided
   c. Status of patient's cardiovascular fitness and function
   d. Patient response to physical therapy treatments
   e. Addressing an issue beyond the normal PT scope of practice
   f. Change in patient rapport
   g. Patient had a coronary or respiratory event during cardiovascular training

4. **Tobacco Use:** What positive or negative end results will influence whether you assist your smoking patients in reducing their smoking habits?
   a. Less time to address PT goals
   b. Reimbursement for services provided
   c. Status of patient's cardiovascular fitness and function
   d. Patient response to physical therapy treatments
   e. Addressing an issue beyond the normal PT scope of practice
   f. Change in patient rapport

Appendix B

Quantitative Survey

THE ROLE OF HEALTH PROMOTION IN PHYSICAL THERAPY

PART I: PHYSICAL THERAPIST CHARACTERISTICS AND HEALTH PROMOTION PRACTICE PATTERNS.

A. PHYSICAL THERAPIST CHARACTERISTICS

1. Sex: ☐$_1$ Male ☐$_2$ Female

2. Year of Birth: 19___

3. Ethnicity: (check up to two as needed)
   ☐$_1$ African American ☐$_5$ Asian
   ☐$_2$ Native-American ☐$_6$ Hispanic
   ☐$_3$ White
   ☐$_4$ Other_____(please specify)

4. Highest physical therapy degree: (check one)
   ☐$_1$ Bachelors
   ☐$_2$ Masters
   ☐$_3$ Clinical Doctorate (DPT)
   ☐$_4$ Academic Doctorate (DScPT or DPTSc)

5. State and School from which you graduated:
   State$_a$ _____ School$_b$ _____

6. Year of graduation from highest physical therapy degree: _____

7. Which state are you currently practicing in? (check one)
   ☐$_1$ California ☐$_4$ None of these
   ☐$_2$ Tennessee ☐$_5$ Not practicing
   ☐$_3$ New York

8. How many hours per week are you currently practicing as a physical therapist? (check one)
   ☐$_1$ Not practicing ☐$_4$ 21-30 hours
   ☐$_2$ 1-10 hours ☐$_5$ 31-40 hours
   ☐$_3$ 11-20 hours ☐$_6$ 40+ hours

9. On average, how many patients do you see per hour?
   _____

10. What setting are you currently practicing in and what type of patients do you **primarily** treat? (check one box for each column)

Setting	Type of Patients
☐$_{1a}$ Inpatient	☐$_{1b}$ Neurology
☐$_{2a}$ Outpatient	☐$_{2b}$ Orthopedic
☐$_{3a}$ Home Health	☐$_{3b}$ Pediatric
☐$_{4a}$ School Setting	☐$_{4b}$ Sports
☐$_{5b}$ General Medicine	

11. How long have you been working in the setting indicated above? _____ (years)

12. Did you receive any education in health promotion or wellness while in physical therapy school?
   ☐$_1$ No ☐$_2$ Yes ☐$_3$ Don't Know

13. Have you attended any continuing education classes in health promotion or wellness since graduation?
   ☐$_1$ No (Skip 13a & b) ☐$_2$ Yes (answer 13a & b)

13a. Which of these topics did the classes you took cover? (check all that apply)
   ☐$_{1a}$ Sadness and depression
   ☐$_{1b}$ Nutrition and overweight
   ☐$_{1c}$ Physical activity
   ☐$_{1d}$ Smoking Cessation
   ☐$_{1e}$ Other:_____

13b. Name all health promotion or wellness continuing education classes you took:

_____

_____

14. Have you received any degree in addition to your physical therapy degree that would have educated you in the area of health promotion or wellness (i.e. exercise physiology, health science, or health promotion and education).
   ☐$_1$ No ☐$_2$ Yes Degree: $_a$_____

B. PT HEALTH PROMOTION PATTERNS

1. a. What percent of your patients do you feel are **unhappy, sad, depressed, or unsatisfied with life**? ___%
   b. What percent of the time do you assist these patients in **reducing feelings of sadness, unhappiness, or depression and increasing feelings of satisfaction with life**? ___%
   c. What percent of the time do you use any of the following four methods to assist these patients?
   discuss or listen $_a$____% refer $_c$ ____%
   develop & set goals $_b$ ____% educate $_d$ ____%

2. a. What percent of your patients do you feel are **overweight**? ____%
   b. What percent of the time do you assist your overweight in **making healthier food choices to promote a healthier weight**? ____%
   c. What percent of the time do you use any of the following four methods to assist these patients?
   discuss or listen $_a$____% refer $_c$ ____%
   develop & set goals $_b$ ____% educate $_d$ ____%

3. a. What percent of your patients **don't get much exercise**? ____%
   b. What percent of the time do you assist these patients with **increasing cardiovascular fitness**? ____%
   c. What percent of the time do you use any of the following four methods to assist these patients?
   discuss or listen $_a$____% refer $_c$ ____%
   develop & set goals $_b$ ____% educate $_d$ ____%

4. a. What percent of your patients **smoke**? ____%
   b. What percent of the time do you assist your smoking patients in **reducing their smoking habits**? ____%
   c. What percent of the time do you use any of the following four methods to assist these patients?
   discuss or listen $_a$____% refer $_c$ ____%
   develop & set goals $_b$ ____% educate $_d$ ____%

PART II: SELF-EFFICACY AND OUTCOME EXPECTATIONS IN FOUR HEALTHY PEOPLE 2010 FOCUS AREAS

A. SELF-EFFICACY QUESTIONS: DIRECTIONS FOR PARTS A: Circle one number for each statement according to the 1-6 Likert scale with 1 being Very Sure You Could Assist and 6 being Very Sure You Could Not Assist. Please answer even if you are not currently addressing these issues with your patients because these questions are trying to determine what would make it easier or more difficult for you to address these issues.

Example: How sure are you that you could assist your patients with psychological well-being issues when the patient is aware of the problem? **Answer:** Circle 1 if the patient being aware of the problem makes you very sure you could assist or circle 6 if the patient being aware of the problem makes you very sure you could not assist with the issue of psychological well-being.

1. How sure are you that you could assist your patients in reducing feelings of sadness, unhappiness, or depression and increasing feelings of satisfaction with life?

		Very Sure I Could Assist ←					→ Very Sure I Could NOT Assist
a.	When the patient is aware of the problem and/or desires to improve	1	2	3	4	5	6
b.	When significant other/family is not supportive	1	2	3	4	5	6
c.	When you have more time allotted per patient than currently available	1	2	3	4	5	6
d.	When you are adequately educated to address psychological wellness	1	2	3	4	5	6
e.	When you have observed another PT promote psychological wellness successfully	1	2	3	4	5	6
f.	When you do not have the support of the referring physician	1	2	3	4	5	6
g.	When you have the proper supportive materials to provide for the patient	1	2	3	4	5	6
h.	When psychological issues interfere with PT goals	1	2	3	4	5	6
i.	When the patient is already seeing a professional for psychological wellness	1	2	3	4	5	6
j.	When you have an appropriate source to refer the patient to for additional assistance	1	2	3	4	5	6
k.	When the patient has low socioeconomic status	1	2	3	4	5	6
l.	When there is a language barrier	1	2	3	4	5	6

2. How sure are you that you could assist your patients in making healthier food choices to promote a healthy weight?

		Very Sure I Could Assist ←					→ Very Sure I Could NOT Assist
a.	When the patient is aware of the problem and/or desires to improve	1	2	3	4	5	6
b.	When significant other/family is not supportive	1	2	3	4	5	6
c.	When you have more time allotted per patient than currently available	1	2	3	4	5	6
d.	When you are adequately educated to address nutrition and weight issues	1	2	3	4	5	6
e.	When you have observed another PT promote healthy food choices and weight	1	2	3	4	5	6
f.	When you do not have the support of the referring physician	1	2	3	4	5	6
g.	When you have the proper supportive materials to provide for the patient	1	2	3	4	5	6
h.	When weight issues interfere with PT goals	1	2	3	4	5	6
i.	When the patient is already seeing a professional for nutrition/weight issues	1	2	3	4	5	6
j.	When you have an appropriate source to refer the patient to for additional assistance	1	2	3	4	5	6
k.	When the patient has low socioeconomic status	1	2	3	4	5	6
l.	When there is a language barrier	1	2	3	4	5	6

3. **How sure are you that you could assist your patients with increasing cardiovascular fitness for overall health benefits?**

		Very Sure I Could Assist ←					→ Very Sure I Could NOT Assist
a.	When the patient is aware of the problem and/or desires to improve	1	2	3	4	5	6
b.	When significant other/family is not supportive	1	2	3	4	5	6
c.	When you have more time allotted per patient than currently available	1	2	3	4	5	6
d.	When you are adequately educated to address cardiovascular fitness	1	2	3	4	5	6
e.	When you have observed another PT promote cardiovascular fitness/health	1	2	3	4	5	6
f.	When the physician is supportive and provides safe exercise parameters as a guide	1	2	3	4	5	6
g.	When you have the proper supportive materials to provide for the patient	1	2	3	4	5	6
h.	When cardiovascular fitness is linked with specific diagnoses or is a part of PT goals	1	2	3	4	5	6
i.	When the proper facilities and equipment are available to the PT and/or patient	1	2	3	4	5	6
j.	When the patient exhibits low functional status	1	2	3	4	5	6

4. **How sure are you that you could assist your smoking patients in reducing their smoking habits?**

		Very Sure I Could Assist ←					→ Very Sure I Could NOT Assist
a.	When the patient is aware of the problem and/or desires to improve	1	2	3	4	5	6
b.	When significant other/family is not supportive	1	2	3	4	5	6
c.	When you have more time allotted per patient than currently available	1	2	3	4	5	6
d.	When you are adequately educated to address smoking cessation	1	2	3	4	5	6
e.	When you have observed another PT promote smoking cessation successfully	1	2	3	4	5	6
f.	When you do not have the support of the referring physician	1	2	3	4	5	6
g.	When you have the proper supportive materials to provide for the patient	1	2	3	4	5	6
h.	When smoking is linked with specific diagnoses or interferes with PT goals	1	2	3	4	5	6
i.	When the patient is already seeing a professional for smoking cessation issues	1	2	3	4	5	6
j.	When you have an appropriate source to refer the patient to for additional assistance	1	2	3	4	5	6

B. **OUTCOME EXPECTATION QUESTIONS: DIRECTIONS FOR PARTS B:** Circle one number for each statement according to the 1-6 Likert scale with 1 being Bad end results or outcomes and 6 being Good end results or outcomes. Please answer even if you are not currently addressing these issues with your patients because the questions are trying to determine what various outcomes may influence whether you would address these issues.

Example: How good or bad do you feel the outcome of being more rushed with your patient is if or when you assist with the issue of psychological well-being? **Answer:** Circle 1 if being rushed with your patient is a bad outcome or circle 6 if being rushed with your patient is a good outcome when you assist your patient with psychological well-being issues.

1. **How good or bad do you feel the following end results or outcomes related to assisting your patients in reducing feelings of sadness, unhappiness, or depression and increasing feelings of satisfaction with life are to you?**

		Bad ←					→ Good
a.	More rushed with your patient	1	2	3	4	5	6
b.	Patient develops more positive feelings and reports increased satisfaction with life	1	2	3	4	5	6
c.	Patient is able to address and achieve PT goals more readily	1	2	3	4	5	6
d.	You are addressing an issue that is beyond the normal PT scope of practice	1	2	3	4	5	6
e.	Patient rapport is hindered/weakened	1	2	3	4	5	6

2. **How good or bad do you feel the following end results or outcomes related to assisting your patients in making healthier food choices to promote a healthy weight are to you?**

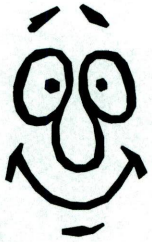
		Bad ←					→ Good
a.	More rushed with your patient	1	2	3	4	5	6
b.	Patient demonstrates healthier food choices or achieves a healthier weight	1	2	3	4	5	6
c.	Patient is able to address and achieve PT goals more readily	1	2	3	4	5	6
d.	You are addressing an issue that is beyond the normal PT scope of practice	1	2	3	4	5	6
e.	Patient rapport is hindered/weakened	1	2	3	4	5	6
f.	You are reimbursed for assisting with nutrition/weight issues	1	2	3	4	5	6

3. **How good or bad do you feel the following end results or outcomes related to assisting your patients with increasing their cardiovascular fitness are to you?**

		Bad ←					→ Good
a.	More rushed with your patient	1	2	3	4	5	6
b.	Patient demonstrates measurable improvements in cardiovascular fitness/health	1	2	3	4	5	6
c.	Patient is able to address and achieve PT goals more readily	1	2	3	4	5	6
d.	You are addressing an issue that is beyond the normal PT scope of practice	1	2	3	4	5	6
e.	Patient rapport is hindered/weakened	1	2	3	4	5	6
f.	You are reimbursed for assisting with cardiovascular fitness for overall health benefit	1	2	3	4	5	6

4. **How good or bad do you feel the following end results or outcomes related to assisting your smoking patients in reducing smoking habits are to you?**

		Bad ←					→ Good
a.	More rushed with your patient	1	2	3	4	5	6
b.	Patient demonstrates reduced smoking habits	1	2	3	4	5	6
c.	Patient is able to address and achieve PT goals more readily	1	2	3	4	5	6
d.	You are addressing an issue that is beyond the normal PT scope of practice	1	2	3	4	5	6
e.	Patient rapport is hindered/weakened	1	2	3	4	5	6
f.	You are reimbursed for assisting with smoking cessation	1	2	3	4	5	6



Thank You For Your Time!!!!

Appendix C

Cover Letters

The Role of Health Promotion in Physical Therapy

Dear Fellow Physical Therapists,

You are invited to participate in this survey about the practice of health promotion within the field of physical therapy. Some of you may know that aspects of health promotion are within our practicing guidelines. However, little is known about how often physical therapists practice health promotion or how confident and prepared they feel in addressing health promotion with their patients.

Purpose: This survey will assess current practice patterns of health promotion in physical therapy as well as self-efficacy and outcome expectations in the following four areas of Healthy People 2010: 1) disability and secondary conditions, 2) nutrition and overweight, 3) physical fitness and activity, and 4) tobacco use.

Procedures: This survey consists of two major sections which will take a total of 10-15 minutes to complete. Part One consists of physical therapist characteristics and health promotion practice patterns and Part Two assesses confidence and expected outcomes for practice patterns.

Confidentiality: The information collected in this survey is anonymous. Please do no put your name or any other identifying data on this survey. Participation is entirely voluntary.

Benefits/Risks: Risk of breach of confidentiality is minimal by collecting all information anonymously. This survey will promote a better understanding of health promotion practice patterns in the field of physical therapy and potentially determine factors that influence these patterns.

Please return the survey in the provided envelope as soon as possible. I want to thank you in advance for your time and consideration. A small token of appreciation is included in advance.

If you have any questions, please feel free to contact me at the e-mail address listed below or phone number (909) 558-4575. If you wish to contact an impartial third party not associated with this study regarding any questions or complaint you may have about the study, please contact the Office of Patient Relations, Loma Linda University Medical Center, Loma Linda, CA 92354, phone (909) 558-4547.

Sincerely from your fellow physical therapist,

Brenda Rea, MPT
Assistant Professor
Loma Linda University
brea@sph.llu.edu

The Role of Health Promotion in Physical Therapy

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Sincerely from your fellow physical therapist,

Brenda Rea, MPT
Assistant Professor
Loma Linda University
brea@sph.llu.edu

Appendix D

Reminder Postcard

Dear Fellow Physical Therapists,

Thank you for taking the time to fill out the questionnaire sent in the mail regarding health promotion practice patterns in the field of physical therapy. Your input is very valuable.

Please fill out the questionnaire now if you have not yet done so. The information gained from the survey will promote an increased awareness and understanding of the role physical therapy can play in health promotion. If you have lost your survey and would like to receive another one please contact me at the e-mail listed below.

Thank you for your time!!!

Brenda Rea, MPT
Loma Linda University
brea@sph.llu.edu