

“THE ROLE OF HEALTH PROMOTION IN PHYSICAL THERAPY SURVEY”
RELIABILITY AND VALIDITY TESTING

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A DISSERTATION

Submitted to the graduate faculty of The University of Alabama at Birmingham,
in partial fulfillment of the requirements for the degree of
Doctor of Science in Physical Therapy

BIRMINGHAM, ALABAMA

2011

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ABSTRACT

Purpose: Physical therapists (PTs) have a unique opportunity to play a meaningful role in educating patients on health and wellness to prevent chronic conditions, such as cardiac disease, cerebrovascular disease, pulmonary disease, cancer, diabetes, and obesity. No instrument has been validated to measure physical therapists’ views on health promotion and their practices. The purpose of this study was to evaluate the validity and reliability of a health promotion survey designed for physical therapists. **Method:** An expert panel of 9 physical therapists assessed the content validity of “The Role of Health Promotion in Physical Therapy Survey.” as developed by Rea and associates. Fifty-one members of the Alabama Physical Therapy Association participated in the test-retest reliability of the updated health promotion survey. **Results:** The expert panel and 3 members of the dissertation committee recommended significant changes to the original Rea survey, and the expert panel reached agreement on the majority of items in the survey. The test-retest study demonstrated an overall moderate agreement of the questions in the updated survey, however many items were found to have poor agreement. **Conclusion:** This instrument requires significant modification to be useful as a reliable and valid tool for assessing physical therapists’ self-efficacy and practices related to health promotion. A new instrument should be considered for development that has fewer items, has greater clarity and ease of administration.

Keywords: health promotion, physical therapy

DEDICATION

This dissertation is dedicated to my family, especially my husband James for his support and encouragement, and my children Aiden and Masielyn, who inspire me.

ACKNOWLEDGMENTS

The author would like to thank the following: the dissertation committee members, including Dr. Cecilia Graham (chair), Dr. John Lowman, Dr. David Morris, Dr. Connie Kohler, Dr. Jonathan Waugh; UAB Center for Clinical and Translational Science (CCTS) for assistance with statistical analyses; Dr. Diane Clark for editorial assistance; and Dr. Brenda Rea who provided the author with the instrument and initiated the process for a health promotion questionnaire for physical therapists.

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INTRODUCTION AND PURPOSE

Chronic diseases and unhealthy lifestyles plague millions of Americans.¹

Unhealthy lifestyle choices have increased the nation's costs and the prevalence of disabilities associated with chronic diseases. Poor lifestyle choices such as diet, physical inactivity, substance abuse, and other behaviors contribute to chronic diseases.¹

Currently, there are no medications that cure or vaccines that immunize people from conditions such as heart disease, cerebrovascular disease, cancer, respiratory disease, diabetes, and obesity. Strong evidence exists that positive changes in lifestyles promote healthy living and decrease premature death.¹ Health professionals must therefore rely on the promotion of healthy behaviors to help individuals improve their health.

Health promotion has been characterized as the science and art of helping people change their lifestyle toward a state of optimum health.² Health professionals have the potential capability to promote health and wellness in patients and the public.^{3,4} Health professionals are encouraged to take an active role in health promotion as endorsed by Healthy People 2020,⁵ a federal strategy aimed at reducing the incidence of disease and to improve the quality of life for the nation by setting goals in changing unhealthy behaviors. Healthy People 2020 proposes a set of specific health objectives that encourages health professionals to incorporate health promotion into their practices.⁵

Physical therapists (PTs) are professionals who play key roles in treating those who either already have chronic diseases or are at risk for developing these diseases. PTs

are uniquely positioned to address the health behaviors of many individuals.⁶⁻⁹ Over the past decade, physical therapy practice has developed a stronger focus on addressing primary care needs of individuals that include health promotion, wellness and prevention.

As PTs become stronger advocates for health promotion, potential implications could include improved health for our nation, a lessening in the disabilities associated with the development of chronic disease, a reduction in overall healthcare costs, a decrease in morbidity and mortality rates due to chronic disease, and an improvement in patient outcomes.^{3, 6-9}

The American Physical Therapy Association defines the PT's role to include providing patients/clients with education on prevention and promoting health, wellness, and fitness.¹⁰ Little research has been done to assess physical therapists' competence and confidence in the provision of health promotion. Given that PTs spend significant one-on-one time with many individuals that are living with or at risk for chronic diseases and conditions that could be improved by lifestyle changes, PTs have the opportunity to discuss and counsel patients/clients on healthy behaviors and help affect lifestyle changes.^{6, 8}

LITERATURE REVIEW

The position paper by Martin and Fell⁶ suggests that PTs could be key players in the fight for healthy living. Each day in practice, PTs encounter health promotion issues, such as tobacco abuse, decreased physical activity, inadequate nutrition and weight issues, and problems in psychological well-being.⁶⁻¹² By providing patients/ clients and the communities they serve with education on how to make good health choices, Martin and Fell⁶ believe that physical therapists have the potential to change patients' health behaviors. Additionally, PTs should be able to screen for individual health risks and behaviors that are outside of the scope of PT practice and recommend patients be referred to other professionals.⁶

Other physical therapy educators endorse the emphasis on health promotion within the PT practice. Dean^{8,9} detailed physical therapy practices for the 21st century that emphasized the need to address current health priorities with health promotion strategies directed at changing lifestyle behaviors that influence chronic diseases. These diseases include cardiovascular disease, hypertension, strokes, cancer, obesity, diabetes, cancer, and smoking related illnesses. Dean^{8,9} makes a compelling argument that PTs must be competent in the assessment of patients who smoke and their initiation of smoking cessation, basic nutritional assessments, recommendations for physical activity, stress assessment, basic stress reduction recommendations, and sleep assessment/recommendations. She cites overwhelming epidemiological evidence of these

lifestyle behaviors being linked to chronic disease and current global healthcare needs. Physical therapists should have the clinical judgment to refer patients, as needed, to appropriate health professionals and to provide care in wellness.^{8,9}

Shirley et al.¹¹ surveyed physical therapists and physical therapy students in Australia concerning their knowledge, confidence, role perception, barriers, feasibility and counseling of patients in promoting a physically active lifestyle. The survey was adapted from a questionnaire for primary care physicians. Study participants included 319 physical therapists and 279 physical therapy students. Ninety-six percent of participants thought that it was part of the physical therapists' role to give patients non-treatment physical activity advice. The majority of those surveyed (97%) also felt confident in the education of clients regarding the performance of physical activity and reported very few barriers.¹¹ One limitation of the study was that it only addressed the physical activity aspect of health promotion. Other studies have previously reported that PTs are more confident in performing health promotion in this area.¹² The generalizability of these findings among Australian participants to American PTs may be limited. The researcher did not report the reliability and validity of the survey utilized in the study.

With the increased focus in health promotion in physical therapy, a few studies addressing physical therapy participation in health promotion have emerged. A systematic review of strategies to advise patients on smoking cessation discussed potential implications for physical therapists.¹³ Perreault¹⁴ conducted a review of the literature and found few studies linking physical therapy to health promotion. Recommendations included strategies to increase research in this area. Research that has

addressed physical therapy participation in health promotion indicates that there are opportunities to improve involvement in health promotion. These studies also reported that PTs are aware of these limitations in practice. Three studies suggested that PTs may be able to enhance further their roles in discussing health promotion issues with their patients/clients.^{12, 15, 16}

Fruth et al¹⁵ observed 96 physical therapy sessions and recorded the number of health promotion or disease prevention statements that were made during each session. The observers documented and categorized statements using a checklist of Eberst's "Multi-dimensional Model of Health," that included the dimensions of social, mental, emotional, environmental, spiritual and vocational well-being.¹⁵ The study indicated that education statements occurred at a low frequency during physical therapy sessions (an average of 2.4 statements per session). A limitations of the study was that the authors did not report a formal reliability study of the checklist. Also, the study may not truly reflect physical therapy practice of health promotion for the individual patient since researchers observed only one of the individual's treatment sessions.¹⁵

Goodgold¹⁶ also conducted health promotion research using a questionnaire to sample pediatric PTs' practices. Only 54% of the 257 pediatric PTs polled incorporated wellness promotion into their practices.¹⁶ Researchers developed the questionnaire for pediatric PTs based upon the *Guide to Physical Therapist Practice*. A panel performed content validity testing on the questionnaire,¹⁶ but no other validity or reliability testing was reported. The questionnaire is limited to use in pediatric physical therapy.

Rea et al.¹² assessed physical therapy roles in 4 areas of health promotion. The

survey instrument consisted of questions from 4 areas of Healthy People 2010: physical activity, psychological well-being, nutrition and overweight issues, and smoking cessation.^{12, 17} A random sample of 3,500 PTs were surveyed from 3 states considered by the researchers to represent the demographic diversity of the nation.¹² Results indicated that PTs discussed health promotion issues on few occasions and reported low confidence in their abilities to discuss these topics with patients. As reported in other studies, PTs discussed the topic of increasing physical activity with their patients most frequently at 54% of the time. PTs' confidence in discussing increasing physical activity was also the highest of the four health promotion behaviors, scoring 85% in self-efficacy. The other health promotion behaviors were discussed less than half of the time with patients: assisting with psychological well-being (41% of the time), assisting with nutrition and overweight issues (19% of the time), and smoking cessation (17% of the time).¹²

Need For Current Study

The above studies^{12, 15-16} highlight the opportunities for broadening PTs' scope of practice in health promotion. The development and use of a reliable and valid tool to measure physical therapist practice and attitudes toward health promotion is critical to further research in this area. The questionnaire by Rea et al. was developed to ascertain physical therapists' health promotion practices and the confidence to perform health promotion. However, the instrument has not been established as reliable or valid at this time.

The Rea tool was designed to assess PTs' self-efficacy and outcome expectations in the practice of health promotion. The questionnaire was developed using Bandura's

social cognitive theory and information gained from randomly selected interviews with 23 PTs in three states.^{12,18} Bandura defines self-efficacy as the confidence to carry out a certain behavior in different situations that vary in difficulty and is related to the outcome expectation, or the beliefs about the consequences (outcome expected) of the behavior when performed.^{12, 18} Twenty therapists pilot tested the Rea tool but no reliability or validity testing was reported.¹² Further testing of the questionnaire's reliability and validity is needed to ensure its accuracy and that it is representative of the important dimensions of health promotion practice by PTs.

The tool developed by Rea et al., "The Role of Health Promotion in Physical Therapy Survey" assesses the self-efficacy and outcome expectations of PTs in the health promotion areas of smoking cessation, physical inactivity, nutrition and overweight issues, and psychological well-being.¹² The survey consists of 2 parts: Part 1 is "PT Characteristics and Health Promotion Practice Patterns" and Part 2 is the "Self-efficacy and Outcome Expectation" section. Part 1 is then subdivided into Part 1A, "PT Characteristics" that has 14 items and Part 1B, "Health Promotion Practice Patterns" that has 24 items. The "Self-efficacy" section has 34 items, and "Outcome Expectation" has 23 items.

Validation of a measurement tool is an important step in research to establish credibility of the data obtained from its use. According to Portney and Watkins,¹⁹ validity of an instrument means that the instrument measures what it intends to measure. A valid instrument is relatively free from errors and is reliable.¹⁹ Testing the validity of a survey is a process from the instrument's development and to its use with incremental phases assessing different types of validity and reliability.

There are 4 main types of validity: face validity, content validity, criterion-related validity, and construct validity.¹⁹ Face validity is the subjective opinion of an investigator that an instrument is an accurate measurement tool. Content validity refers to whether an instrument measures a specific domain of content, such as health promotion.¹⁹ Content validity is an important consideration of a questionnaire and should adequately reflect the domain being assessed. Both face and content validity are subjective, but content validity is a more stringent testing determined through a panel of experts.

To determine content validity, an expert panel reviews an instrument and determines whether the tool accurately assesses the content domain.¹⁹ The evaluation of the instrument by a panel of experts may also indicate needed changes to the instrument. It is for this reason that content validity is usually performed during the development of an instrument.¹⁹ With criterion-related validity, the tool is compared to a gold standard. Construct validity is based upon content validity. At present, there is no other comparable tool to the Rea et al. survey, so content validity should be assessed prior to construct validity.

According to Venetian and Hooper²⁰, the content validity ratio (CVR) developed by Lawshe²¹ is the best method for determining the content validity of questionnaires utilized in health education. The CVR method utilizes a panel of experts, is a structured process, and has a numerical index of the content validity for each item.²⁰ The CVR method provides an objective number for each item that is based upon the total number of panelists and the number of panelists that rate the item as “essential.”²⁰ For an item to remain in the survey, the item must score a value equal or greater to the minimum CVR, which is based upon the number of panelists. With this system, each item in the survey is

evaluated to determine if it is “essential,” “useful but not essential,” or “not necessary.” Those items identified to be “useful but not essential” or “not necessary” are modified or discarded.^{20, 21}

Reliability of an instrument is the ability of the tool to be consistent and free from error.¹⁹ Reliability can be measured through rater reliability, internal consistency, and test-retest reliability. Rater reliability assesses an individual rater’s consistency over multiple tests (intrarater reliability) or multiple raters scoring of the same subjects (interrater reliability). Internal consistency looks at an instrument’s correlation of items. Test-retest reliability is a way to test the stability of an instrument. Since the Rea et al survey involves self-reporting, it would be appropriate to assess the test-retest reliability prior to performing other reliability studies so that consistency between re-tests can be established.

According to Portney and Watkins,¹⁹ if a tool is reliable, the instrument should attain the same results with repeated administration of the test. The Intraclass Correlation Coefficient (ICC) or the weighted Kappa may be used to assess the test-retest reliability for agreement for each question within the survey. An ICC of greater than 0.75 is indicative of good test-retest reliability.¹⁹ Kappa values above 80% represent excellent agreement; values between 60% to 80% represent substantial levels of agreement, values between 40-60% represent moderate agreement, and values under 40% represent poor agreement.¹⁹ A weighted Kappa is utilized to assign greater weight to larger disagreements.¹⁹

The purpose of this study was to determine whether “The Role of Health Promotion in Physical Therapy Survey” was a valid and reliable measure to assess health

promotion in physical therapy practice. The hypotheses for the study were as follows:

Hypothesis 1: “The Role of Health Promotion in Physical Therapy Survey” will demonstrate content validity as a measure to assess health promotion practices in physical therapy as evidenced by a content validity ratio of 0.62 or greater with $P > 0.05$.

Hypothesis 2: “The Role of Health Promotion in Physical Therapy Survey” will demonstrate test-retest reliability as a measure to assess health promotion practices in physical therapy as evidenced by an intraclass correlation coefficient > 0.74 for each item.

METHODS

The Institutional Review Board of the University of Alabama at Birmingham (UAB) approved this study. The authors of the instrument gave their permission to utilize the survey.

Content Validation

A panel of experts was recruited to determine whether the content of the survey was reflective of an instrument to assess physical therapy health promotion practice in the 4 topic areas utilized by Rea et al.¹² Instructors from the University of Alabama at Birmingham identified physical therapists considered experts in the area of health promotion. Expert panel members were contacted through electronic mail. These selected individuals assisted in identifying other individuals considered experts in the field of health promotion and disease prevention. After the initial email, additional recruitment messages were sent to program directors at southeastern physical therapy school programs with a request that it be forwarded to individuals who have a background in health promotion. Email addresses for physical therapy program directors in southeastern states were obtained through the APTA website. Southeastern states consisted of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Tennessee, North Carolina, and South Carolina. Panelists utilized Question Pro to evaluate the survey. Question Pro is an internet program developed for creating and distributing

surveys.²² The qualifications for the expert panel were that the panelist was a PT and self-identified as an expert in health promotion.

For the first round of expert panel evaluation, 11 panelists completed the questionnaire answering whether each item was “essential,” “useful but not essential,” or “not necessary.” Each section consisted of the following open-ended questions: “Is the section easy and clear to understand? Consider the terminology. What changes would you make to the section?” Taking into consideration the CVR, open-ended comments from the expert panel, and input from 3 committee members, the survey was modified significantly. Even though panelists found some questions to be categorized as “essential,” the panelists also recommended changes to the format and wording of those items. To maintain consistency within the questionnaire, most items were modified. In addition, the last section, “Outcome Expectation,” was change to “Perceived Likelihood” which is a more variable aspect of outcome expectations. Perceived likelihood is that a given positive or negative outcome will be the result of a behavior. Perceived likelihood will help to predict “how likely the respondent is to do the behavior by looking at their perceived likelihood of the good outcomes versus their perceived likelihood of the bad outcomes.” (Connie Kohler, PhD, email communication, June 28, 2010)

A request to continue to participate in the validity portion of the study was sent to panelists through electronic mail with a link to the Question Pro online survey platform. Nine expert panelists viewed the updated survey about a month later. The 9 panelists rated each item “essential,” “useful but not essential,” or “not necessary” and determined whether each section of the survey was clear. Based on CVR methodology and a significance level of 0.05, a minimum CVR value of 0.75 was needed for each item. This

required that each evaluator rate each item as “essential” in order for an item to be retained.²⁰ Upon review of the second evaluations, raters did not meet this level of agreement. The dissertation committee chair suggested using a majority consensus method rather than the CVR method. Using this method, the majority of panelists found that all items on the second version of the survey were “essential” except 4 items. In the “Perceived Likelihood” section, the majority of expert panel members did not rate 3 items on the topic of tobacco use and 1 item on physical activity as essential. These questions were deleted. To maintain the consistency of the questions and design of the questionnaire, the same 3 questions were used in each topic area of the “Perceived Likelihood” section. Please see appendix A for the modified tool.

The expert panel that participated in the second round of evaluations consisted of 6 women and 3 men, all were Caucasian with ages ranging from 38 to 68 years. All the panelists practiced physical therapy for over 11 years and 3 had over 31 years of experience. Seven of the panelists had a PhD or equivalent as the highest degree earned. Their qualifications as health promotion experts ranged from teaching health promotion, serving as authors of health promotion content, and developing community-based health promotion programs.

Test-Retest Reliability

The original Rea et al. instrument had multiple types of scales. Upon modifications in the survey, the scales were all categorical nominal scales. Based upon recommendations from a statistical consultant, the decision was made to utilize the Kappa since the data was categorical nominal scales. Portney and Watkins¹⁹ also

recommend using the Kappa statistic when the measurement is a nominal scale (classification scales).

Using the Alabama Physical Therapy Association's database, a convenience sample of 400 licensed PTs were invited to participate in the reliability study. To ensure the members' privacy, the APTA sent an electronic mail invitation. The invitation included a link to the survey, which was created using the Question Pro online survey platform. To encourage participation, the PTs who completed the surveys had a chance to win in a random drawing for one of two \$50 Visa gift cards.

Informed consent was indicated by submission of the survey. Approximately two weeks after completing the initial survey, the participants received an electronic mail requesting that they retake the survey to determine test-retest reliability. Test-retest reliability assesses the stability of the instrument so that therefore the time between testing can be factored. The time interval between testing should attempt to avoid learning, memory effects, and genuine changes.¹⁹ There was no consensus in the literature concerning the most appropriate interval time for testing in test-retest of a questionnaire for health professionals. However, Marx and associates²³ compared 2 day and 2 week time intervals for health status instruments for test-retest reliability and found no statistical differences in the two time intervals. The 2 week interval between the initial test and retest was chosen to minimize memory and learning effects and because 2 weeks is most commonly used in reliability studies.^{19, 23}

Due to changes in methodology, the following revised hypotheses were developed:

Hypothesis 1: “The Revised Role of Health Promotion in Physical Therapy Survey” will demonstrate content validity as a measure to assess health promotion practices in physical therapy as evidenced by majority consensus on “essential” items by an expert panel.

Hypothesis 2: “The Revised Role of Health Promotion in Physical Therapy Survey” will demonstrate test-retest reliability as a measure to assess health promotion practices in physical therapy as evidenced by a weighted Kappa score of 60% or greater (substantial agreement) on all items on the survey.

RESULTS

Based upon the panelists' recommendations and input from the dissertation committee members, the survey was significantly modified. The questionnaire was decreased in length, the instructions and survey descriptions were clarified, definitions were added for pertinent topics, the rating scale used on the survey was changed from a visual analog scale to a Likert scale with verbal descriptors for the numeric scale, and the consistency and clarity of the questions were enhanced for the 4 focus areas (wellness, physical activity, weight/nutrition, and smoking cessation). The updated survey consisted of Part 1 "Physical Therapist Characteristics and Health Promotion Patterns" with 28 items and Part 2 "Self-efficacy" and "Perceived Likelihood" questions (outcome expectation) with 28 items. In the updated survey, the number of items was reduced from 107 to 56 (Appendix A and Appendix B).

In the modified survey, the demographics section ("Physical Therapist Characteristics") was condensed to consist of the following items: highest physical therapy degree earned, the setting that the respondent practices physical therapy, education background in health promotion, continuing education classes, and additional degrees and certificates in health promotion. In the "Health Promotion Patterns" and "Perceived Likelihood" sections, the consistency of the questions across the 4 topic areas was enhanced. The "Self-Efficacy" section was reduced to 4 questions for each topic (Appendix A).

For the reliability study, 83 participants initially completed “The Revised Role of Health Promotion in Physical Therapy Survey” and 53 participants completed the survey a second time. However, 3 participants were excluded due to incomplete data. Therefore, there were 50 qualified participants in the reliability study. Twenty-eight of the respondents had doctoral degrees. Half of the participants worked in an outpatient setting. Seventy-eight percent of the participants in the reliability component of the study did not receive health promotion education while in PT school, but 50 percent had continuing education in health promotion and 72 percent had certificates or degrees that provided education in health promotion (Table 1 and Table 2).

Table 1

Reliability Study Participants: Demographic Information (n = 50)

| Demographic Information | Number |
|---|--------|
| Highest Physical Therapy Degree | |
| Bachelors | 12 |
| Masters | 10 |
| PhD (or equivalent) | 4 |
| DPT (entry-level) | 17 |
| tDPT (transition) | 7 |
| Current Practice Setting | |
| Acute Care Hospital | 6 |
| Sub-acute Rehab Hospital (In-Patient) | 2 |
| Health System or Hospital Based Outpatient Facility or Clinic | 14 |
| Private Out-Patient Office or Group Practice | 11 |
| SNF/ECF/ICF | 6 |
| School System (Preschool/Primary/Secondary) | 4 |
| Academic Institution (Post-Secondary) | 0 |
| Health and Wellness Facility | 7 |
| Research Center | 0 |
| Industry | 0 |
| Other | 0 |

Table 2

Reliability Study Participants: Type of Health Promotion Education (n= 50)

| Type of Health Promotion Education | Number |
|--|--------|
| Education In PT School | |
| Yes | 7 |
| No | 39 |
| Don't Know | 4 |
| Continuing Education after PT School | |
| Yes | 24 |
| No | 26 |
| Degrees or Certificates in Addition to PT Degree | |
| Yes | 36 |
| No | 14 |

Average length of time to complete the survey was 14 minutes for the first test and 11 minutes for the retest. The time between testing ranged from 13 days to 43 days, with an average of 20 days, median of 17 days, and mode of 15 days. The weighted kappa for each question ranged from poor to moderate agreement, except for the 1 item that demonstrated substantial agreement. There was no apparent pattern in the weighted Kappa scores, either within the types of questions or within the focus areas (Table 3, Table 4, and Table 5).

Table 3

Section 1B: Kappa Scores for Health Promotion Patterns

| Item Number | Question Type | Weighted Kappa |
|-------------|-------------------|----------------|
| Q1A | Mental health | 0.41 |
| Q1B | Mental health | 0.30 |
| Q1C | Mental health | 0.60 |
| Q1D | Mental health | 0.43 |
| Q1E | Mental health | 0.55 |
| Q1F | Mental Health | 0.44 |
| Q2A | Nutrition/weight | 0.33 |
| Q2B | Nutrition/weight | 0.50 |
| Q2C | Nutrition/weight | 0.36 |
| Q2D | Nutrition/weight | 0.60 |
| Q2E | Nutrition/weight | 0.52 |
| Q2F | Nutrition/weight | 0.40 |
| Q3A | Physical activity | 0.26 |
| Q3B | Physical activity | 0.52 |
| Q3C | Physical activity | 0.46 |
| Q3D | Physical activity | 0.42 |
| Q3E | Physical activity | 0.42 |
| Q3F | Physical activity | 0.65* |
| Q4A | Tobacco abuse | 0.60 |
| Q4B | Tobacco abuse | 0.60 |
| Q4C | Tobacco abuse | 0.38 |
| Q4D | Tobacco abuse | 0.26 |
| Q4E | Tobacco abuse | 0.38 |

*signifies substantial agreement with weighted Kappa

Table 4

Section 2A: Kappa Scores for Self-Efficacy

| Item Number | Question Type | Weighted Kappa |
|-------------|-------------------|----------------|
| Q1A | Mental health | 0.33 |
| Q1B | Mental health | 0.59 |
| Q1C | Mental health | 0.27 |
| Q1D | Mental health | 0.30 |
| Q2A | Nutrition/weight | 0.39 |
| Q2B | Nutrition/weight | 0.36 |
| Q2C | Nutrition/weight | 0.50 |
| Q2D | Nutrition/weight | 0.45 |
| Q3A | Physical activity | 0.31 |
| Q3B | Physical activity | 0.51 |
| Q3C | Physical activity | 0.50 |
| Q3D | Physical activity | 0.43 |
| Q4A | Tobacco abuse | 0.29 |
| Q4B | Tobacco abuse | 0.33 |
| Q4C | Tobacco abuse | 0.43 |
| Q4D | Tobacco abuse | 0.16 |

Table 5

Section 2B: Kappa Scores for Perceived Likelihood

| Item Number | Question Type | Weighted Kappa |
|-------------|-------------------|----------------|
| Q1A | Mental health | 0.42 |
| Q1B | Mental health | 0.54 |
| Q1C | Mental health | 0.33 |
| Q2A | Nutrition/weight | 0.37 |
| Q2B | Nutrition/weight | 0.51 |
| Q2C | Nutrition/weight | 0.43 |
| Q3A | Physical activity | 0.21 |
| Q3B | Physical activity | 0.33 |
| Q3C | Physical activity | 0.31 |
| Q4A | Tobacco abuse | 0.34 |
| Q4B | Tobacco abuse | 0.32 |
| Q4C | Tobacco abuse | 0.46 |

In Part 1B of the “Health Promotion Patterns,” the majority of questions demonstrated at least moderate agreement with the weighted Kappa ranging from 40% to 60% in 14 of the 23 questions. There was only 1 of the 23 questions with substantial agreement (Table 3). Of the 16 questions in the “Self-Efficacy” section, poor agreement was demonstrated in over half of the questions. There were no questions that demonstrated substantial agreement (Table 4). Five of the 12 questions in the “Perceived Likelihood” section demonstrated moderate agreement and none demonstrated substantial agreement (Table 5).

DISCUSSION

Physical therapists have a unique opportunity to play a meaningful role in educating patients on health and wellness to prevent chronic conditions, such as cardiac disease, cerebrovascular disease, pulmonary disease, cancer, diabetes, and obesity.⁶⁻¹⁰ Physical therapists in the role of health promoter have the potential to affect changes in behavior that result in positive patient outcomes and improvement of the nation's health.⁶⁻⁹

Based upon increased focus in the area of health promotion in physical therapy practice, development of the survey by Rea et al. was indicated to assess physical therapists' practice of health promotion. The topics (psychological well-being, nutrition/weight status, physical activity, and tobacco use) are all relevant to physical therapy according to current literature and health care needs.^{6, 8-9, 13-14} The use of Bandura's Social Cognitive Theory as a starting point with the potential intervention strategies was insightful in anticipation of the need to educate practicing physical therapists in the area of health promotion.¹⁸ The endeavor of establishing a valid and reliable tool is an arduous process that requires many steps. The development of the Rea et al. tool was a valuable starting point in this process.

Based on the results of this study, "The Revised Role of Physical Therapists in Health Promotion Survey" demonstrated content validity as indicated by majority consensus on "essential" items by an expert panel. However, the researcher was unable

to implement the CVR method, which would have demonstrated more rigorous content validity. Test-retest reliability was not established. The low Kappa scores indicated that the questionnaire did not achieve test-retest reliability in the context of this study. All items except 1 scored poor to moderate in agreement.

The failure of the items to demonstrate substantial agreement ratings may have been the result of the unclear language and the length of the questionnaire. Most of the participants in the reliability component of the study indicated that they did not receive education in health promotion in physical therapy school. Definitions related to the concepts of health and wellness in the specific topics of tobacco use, mental health, and nutrition/weight status were added to the modified survey, but may have not provided enough background information for physical therapists to accurately complete the survey. The topics of nutrition/weight status, mental health and wellness, and tobacco cessation may be less familiar areas to practicing physical therapists. Studies have demonstrated that physical therapists believe that they are knowledgeable and confident in discussing the physical activity area of health promotion.^{11, 12} Surprisingly, the results did not produce more significant Kappa scores in the area of physical activity .

Since the first part of the survey (“Health Promotion Patterns”) consists of questions about the types of patient that the respondent sees, it would be expected that the scores of agreement would be lower since there may be variability in the types of patients treated within a 2 week period. However in Part 2 of the “Self-Efficacy” and “Perceived Likelihood” sections, the therapist’s confidence and outcomes expectations based upon providing a health promotion activity are assessed. One would expect these scores to be more consistent since they are exploring the therapist’s confidence and attitudes toward

health promotion. All sections within the modified instrument had low agreement.

Therefore, it is assumed that the low Kappa scores may be attributed to unclear language and length of the survey.

The overall moderate Kappa scores indicated limitations in test-retest reliability. There was not a clear pattern of reliability between the administrations of the instrument. Across the four topics of mental health/wellness, physical activity, nutrition/weight status, and tobacco use, the weighted Kappa ranged from poor to moderate. The results indicate that either the tool needs to undergo further changes and development, and/or additional reliability and validity studies, or an entirely new tool should be developed to assess physical therapists' attitudes concerning health promotion. Based on feedback on the language and the format of the instrument, further modification of survey items to achieve consistency and clarity of the questions to improve its reliability may be difficult. Further changes to the revised version of the survey may not be the most advantageous for the development a consistent, concise, reliable and valid tool.

The initial research by Rea et al.¹² provided good insight into practices of health promotion by physical therapists. Despite efforts to validate and improve the reliability of this tool, problems still exist. The moderate to poor agreement on the reliability portion of the study indicates that the tool may be flawed. Based on the results of this study, it is recommended that a new survey tool be developed. Methods such as focus groups and cognitive interviewing should be used and current professional guidelines related to health promotion should be incorporated.²⁵⁻²⁷ Continued emphasis should be placed on the development of a tool that addresses areas of health promotion that physical therapists view as important to improving the health well-being of their patients/clients.

By assessing current physical therapy practices in the area of health promotion, strategies can be developed to provide physical therapists with more resources to enhance their participation in health promotion activities. This should assist in recognition of physical therapists as key professionals in the prevention of chronic diseases and disabilities and promotion of health in all individuals.

Limitations

Both the content validity and reliability aspects of the study were limited by small sample sizes. Only 9 expert panelists participated in the second round of the validity study. This prevented use of the CVR, which is considered the best method for establishing content validity. Moderate attrition occurred in both the validity portion and the reliability portion of the study. Physical therapists' current caseloads may also have influenced the results. Since questions are based upon the type of patients seen by an individual physical therapist, the differences in the patient population that therapists see within the 2 weeks prior to the surveys could influence the responses on the questionnaire. There was variability in the intervals of the test and retesting in reliability, which also may have influenced the low Kappa scores. In addition, participants were included even if they were not currently seeing patients, so they may not have answered the questions based on recent experiences.

CONCLUSION

A new instrument should be developed and tested to establish its reliability and validity in the assessment of health promotion in physical therapy. The tool should be clear and concise with improved response choices. It may be advantageous to assess only 1 topic of health promotion rather than multiple topics in order to decrease the number of questions and provide increased focus within the pertinent topics. Physical therapists may then utilize the results of such an instrument to further shape and define the practice of physical therapy for primary prevention and health promotion.

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APPENDIX A

THE REVISED ROLE OF HEALTH PROMOTION IN PHYSICAL THERAPY
SURVEY

The Revised Role of Health Promotion in Physical Therapy Survey

For the purpose of the survey, the following definitions will be utilized.

Health promotion is the process of enabling people to increase control over their health and its determinants, and thereby improve their health. (World Health Organization (WHO), The Bangkok Charter for Health Promotion www.who.int/healthpromotion/.../6gchp/hpr_050829_%20BCHP.pdf)

Wellness is an “active process of becoming aware of and making choices toward a more successful existence.” (National Wellness Organization (2003) A Definition of Wellness. National Wellness Institute, Inc: Stevens Point, WI, USA as found in World Conference of Physical Therapy, Education Appendix C Glossary <http://www.wcpt.org/node/29562>)

Nutrition is the intake of food, considered in relation to the body’s dietary needs. Good nutrition (an adequate, well balanced diet combined with regular physical activity) is a cornerstone of good health. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity. (World Health Organization, (WHO) definition of nutrition <http://www.who.int/topics/nutrition/en/>)

Exercise is defined by physical activity per Center for Disease Control’s (CDC) standards. For adults (over the age of 18), physical activity for 150 minutes of moderate intensity and muscle strengthening activities on 2 of more days of week that work all major muscle groups, or 75 minutes of vigorous intensity aerobic activity every week and muscle strength 2 more days of week, or equivalent or moderate and vigorous. For children, 60 minutes a day. (Centers for Disease Control and Prevention Website <http://www.cdc.gov/physicalactivity/everyone/guidelines/index.html>)

PART I: Physical Therapist Characteristics and Health Promotion Practice Patterns.

A. Physical Therapist Characteristics

1. Highest physical therapy degree: (check one)

- 1 Bachelors
- 2 Masters
- 3 PhD (or equivalent)
- 4 DPT (entry-level)
- 5 tDPT (transition)

2. What setting are you currently practicing?

- 1 Acute care hospital
- 2 Sub-acute rehab hospital (in-patient)
- 3 Health system or hospital based outpatient facility or clinic
- 4 Private out-patient office or group practice
- 5 SNF/ECF/ICF
- 6 Patient's home/Home care
- 7 School System (preschool/primary/secondary)
- 8 Academic Institution (post-secondary)
- 9 Health and Wellness Facility
- 10 Research Center
- 11 Industry
- 12 Other

3. Did you receive any education in health promotion or wellness while in physical therapy school?

- 1 No 2 Yes 3 Don't Know

4. Have you attended any continuing education classes in health promotion or wellness since graduation from physical therapy school?

- 1 No 2 Yes

5. Have you received any degrees or certificates in addition to your physical therapy degree that would have educated you in the area of health promotion or wellness (eg, exercise physiology, health science, or health promotion and education).

- 1 No 2 Yes

Degree: a. _____ Certificates b. _____

B. Health Promotion Patterns in Physical Therapy Practice

1. a. In your practice, categorize how often you have patients/clients that present with mental health problems/mental disorders (such as being unhappy, sad, depressed, anxious, or unsatisfied with life).

- never _____
- seldom _____
- occasionally _____
- frequently _____

1. b. When providing care in a typical session for patients/clients with mental health problems/mental disorders, how often do you spend addressing mental wellness?

- never _____
- seldom _____
- occasionally _____
- frequently _____

1c. Please check the best description for the frequency with which you use the following strategies to address mental health problems/mental health disorders:

Discuss or listen

never____
seldom____
occasionally____
frequently____

1d. Please check the best description for the frequency with which you use the following strategies to address mental health problems/mental health disorders:

Develop & set goals

never____
seldom____
occasionally____
frequently____

1e. Please check the best description for the frequency with which you use the following strategies to address mental health problems/mental health disorders:

Recommend the services of another professional

never____
seldom____
occasionally____
frequently____

1f. Please check the best description for the frequency with which you use the following strategies to address mental health problems/mental health disorders:

Educate

never____
seldom____
occasionally____
frequently____

2a. In your practice, categorize how often you have patients/clients that have problems with nutrition and weight status?

never____
seldom____
occasionally____
frequently____

2b. When providing care in a typical session for patients/clients who have problems with nutrition and weight status, how often do you spend addressing nutrition and weight status?

never ____
seldom ____
occasionally ____
frequently ____

2c. Please check the best description for the frequency with which you use the following strategies to address nutrition and weight status:

Discuss or listen

never ____
seldom ____
occasionally ____
frequently ____

2d. Please check the best description for the frequency with which you use the following strategies to address nutrition and weight status:

Develop & set goals

never ____
seldom ____
occasionally ____
frequently ____

2e. Please check the best description for the frequency with which you use the following strategies to address nutrition and weight status:

Recommend the services of another professional

never ____
seldom ____
occasionally ____
frequently ____

2f. Please check the best description for the frequency with which you use the following strategies to address nutrition and weight status:

Educate

never ____
seldom ____
occasionally ____
frequently ____

3.a. In your practice, categorize how often you have patients/clients who do not meet the recommended guidelines for physical activity and fitness?

never ____
seldom ____
occasionally ____
frequently ____

3b. When providing care in a typical session for patients/clients who do not meet the recommended guidelines for physical activity, how often do you spend addressing physical activity and fitness?

never ____
seldom ____
occasionally ____
frequently ____

3c. Please check the best description for the frequency with which you use the following strategies to address physical activity and fitness:

Discuss or listen

never ____
seldom ____
occasionally ____
frequently ____

3d. Please check the best description for the frequency with which you use the following strategies to address physical activity and fitness:

Develop & set goals

never ____
seldom ____
occasionally ____
frequently ____

3e. Please check the best description for the frequency with which you use the following strategies to address physical activity and fitness:

Recommend the services of another professional

never ____
seldom ____
occasionally ____
frequently ____

3f. Please check the best description for the frequency with which you use the following strategies to address physical activity and fitness:

Educate

never____
seldom____
occasionally____
frequently____

4. a. In your practice, categorize how often do you have patients/clients who use tobacco products?

never____
seldom____
occasionally____
frequently____

4b. When providing care in a typical session for patients who use tobacco products, how often do you spend addressing tobacco use?

never____
seldom____
occasionally____
frequently____

4c. Please check the best description for the frequency with which you use the following strategies to address tobacco use:

Develop & set goals

never____
seldom____
occasionally____
frequently____

4d. Please check the best description for the frequency with which you use the following strategies to address tobacco use:

Recommend the services of another professional

never____
seldom____
occasionally____
frequently____

4e. Please check the best description for the frequency with which you use the following strategies to address tobacco use:

Educate

- never_____
- seldom_____
- occasionally_____
- frequently_____

●PART II: Self-Efficacy and Perceived Likelihood

A. **Self-Efficacy Questions:** Directions for parts A: Check one answer for each statement according to the 1 to 5 scale:

- 1 – Very Sure You Could Not Assist_____
- 2 – Sure You Could Not Assist_____
- 3 – Neutral_____
- 4 – Sure You Could Assist_____
- 5 – Very Sure You Could Assist_____

Please answer even if you are not currently addressing these issues with your patients/clients, because these questions are asked to determine what would make it easier or more difficult for you to address these issues. “Assisting” a patient/client includes one or more of the following methods:

- 1. discussing/listening
- 2. developing and setting goals for the problem
- 3. referring
- 4. educating

Example: How sure are you that you could assist your patients/clients with psychological well-being issues when the patient is aware of the problem?

Answer: Check 1 if the patient being aware of the problem makes you very sure you could NOT assist or check 5 if the patient being aware of the problem makes you very sure you could assist with the issue of psychological well-being.

1. How sure are you that you could assist your patients/clients in reducing feelings of sadness, unhappiness, anxiety, or depression?

a. When the patient/client is aware of the problem and/or desires to improve

- 1 – Very Sure You Could Not Assist_____
- 2 – Sure You Could Not Assist_____
- 3 – Neutral_____
- 4 – Sure You Could Assist_____
- 5 – Very Sure You Could Assist_____

- b. When significant other/family is not supportive
- 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____
- c. When psychological issues interfere with PT goals
- 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____
- d. When you have an appropriate source to refer the patient to for additional assistance if needed.
- 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____
2. How sure are you that you could assist your patients/clients with their nutrition and weight status for improved health?
- a. When the patient/client is aware of the problem and/or desires to improve
- 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____
- b. When you are adequately educated to address nutrition/weight status
- 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____
- c. When you have the proper supportive materials to provide for the patient
- 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____
- d. When nutrition/weight status is linked with specific diagnoses and/or is a part of PT goals
- 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____

3. How sure are you that you could assist your patients/clients with increasing physical fitness for overall health benefits?
 - a. When the patient/client is aware of the problem and/or desires to improve
 - 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____
 - b. When you are adequately educated to address cardiovascular fitness
 - 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____
 - c. When you have the proper supportive materials to provide for the patient
 - 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____
 - d. When cardiovascular fitness is linked with specific diagnoses and/or is a part of PT goals
 - 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____
4. How sure are you that you could assist your patients/clients who smoke in quitting?
 - a. When you are adequately educated to address smoking cessation
 - 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____
 - b. When you have the proper supportive materials to provide for the patient
 - 1 – Very Sure You Could Not Assist _____
 - 2 – Sure You Could Not Assist _____
 - 3 – Neutral _____
 - 4 – Sure You Could Assist _____
 - 5 – Very Sure You Could Assist _____

c. When smoking is linked with specific diagnoses or interferes with PT goals

- 1 – Very Sure You Could Not Assist ____
- 2 – Sure You Could Not Assist ____
- 3 – Neutral ____
- 4 – Sure You Could Assist ____
- 5 – Very Sure You Could Assist ____

d. When you have an appropriate source to refer the patient to for additional assistance if needed

- 1 – Very Sure You Could Not Assist ____
- 2 – Sure You Could Not Assist ____
- 3 – Neutral ____
- 4 – Sure You Could Assist ____
- 5 – Very Sure You Could Assist ____

B. **Perceived Likelihood Questions:** Directions for parts B: Check one number for each statement according to the 1-5 scale with 1 being Extremely Unlikely that the end results or outcome would occur and 6 being Extremely Likely with the end results or outcomes would occur.

- 1 – Extremely unlikely ____
- 2 – Unlikely ____
- 3 – Neutral ____
- 4 – Likely ____
- 5 – Extremely likely ____

Please answer even if you are not currently addressing these issues with your patients because the questions are asked to determine what various outcomes may influence whether you would address these issues.

Example: In assisting your patient with the issue of psychological well-being, rate whether the outcome would occur when being rushed with your patients.

Answer: Check 1 if being rushed with your patient would mean that assisting your patient with the issue of psychological well-being would be extremely unlikely or check 5 if being rushed with your patient would mean that assisting your patient with the issue of psychological well-being would be extremely likely.

1. How likely is it that the following end results or outcomes would occur if you assist your patients in reducing feelings of sadness, unhappiness, anxiety, or depression?

a. Patient is able to address and achieve PT goals more readily

- 1 – Extremely unlikely ____
- 2 – Unlikely ____
- 3 – Neutral ____
- 4 – Likely ____
- 5 – Extremely likely ____

b. Patient/client's perceived quality of life is improved.

- 1 – Extremely unlikely___
- 2 – Unlikely___
- 3 – Neutral___
- 4 – Likely___
- 5– Extremely likely___

c. Patient/client's general health is improved.

- 1 – Extremely unlikely___
- 2 – Unlikely___
- 3 – Neutral___
- 4 – Likely___
- 5 – Extremely likely___

2. How likely is it that the following end results or outcomes would occur if you assist the patient with nutrition and/or weight status ?

a. Patient is able to address and achieve PT goals more readily

- 1 – Extremely unlikely___
- 2 – Unlikely___
- 3 – Neutral___
- 4 – Likely___
- 5– Extremely likely___

b. Patient/client's perceived quality of life is improved.

- 1 – Extremely unlikely___
- 2 – Unlikely___
- 3 – Neutral___
- 4 – Likely___
- 5– Extremely likely___

c. Patient/client's general health is improved.

- 1 – Extremely unlikely___
- 2 – Unlikely___
- 3 – Neutral___
- 4 – Likely___
- 5 – Extremely likely___

3. How likely is it that the following end results or outcomes would occur if you assist your patients with increasing their physical fitness.

a. Patient is able to address and achieve PT goals more readily

- 1 – Extremely unlikely___
- 2 – Unlikely___
- 3 – Neutral___
- 4 – Likely___
- 5– Extremely likely___

b. Patient/client's perceived quality of life is improved.

- 1 – Extremely unlikely___
- 2 – Unlikely___
- 3 – Neutral___
- 4 – Likely___
- 5– Extremely likely___

c. Patient/client's general health is improved.

- 1 – Extremely unlikely___
- 2 – Unlikely___
- 3 – Neutral___
- 4 – Likely___
- 5 – Extremely likely___

4. How likely is it that the following end results or outcomes would occur if you assist your patients who smoke in quitting?

a. Patient is able to address and achieve PT goals more readily

- 1 – Extremely unlikely___
- 2 – Unlikely___
- 3 – Neutral___
- 4 – Likely___
- 5– Extremely likely___

b. Patient/client's perceived quality of life is improved.

- 1 – Extremely unlikely___
- 2 – Unlikely___
- 3 – Neutral___
- 4 – Likely___
- 5– Extremely likely___

c. Patient/client's general health is improved.

- 1 – Extremely unlikely___
- 2 – Unlikely___
- 3 – Neutral___
- 4 – Likely___
- 5 – Extremely likely___

APPENDIX B
EXAMPLES OF REVISION OF THE INSTRUMENT

Original Rea et al. Physical Therapy Health Promotion Survey Example:

Part 1B Health Promotion Practice Patterns

1a. What percent of your patients do you feel are unhappy, sad, depressed, or unsatisfied with life? ____%

Revised Survey Example:

Part 1B Health Promotion Practice Patterns

1a. In your practice, categorize how often you have patients/clients that present with mental health problems/mental disorders (such as being unhappy, sad, depressed, anxious, or unsatisfied with life)

never_____

seldom_____

occasionally_____

frequently_____

Original Rea et al. Physical Therapy Health Promotion Survey Example:

Part 2A Self-Efficacy

1.a.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?

a. When the patient is aware of the problem and/or desires to improve

Very Sure I Could Assist Very Sure I Could NOT Assist

1 2 3 4 5 6

Revised Survey Example:

Part 2A Self-Efficacy

1.How sure are you that you could assist your patients/clients in reducing feelings of sadness, unhappiness, anxiety, or depression?

a. When the patient/client is aware of the problem and/or desires to improve

1 – Very Sure You Could Not Assist_____

2_– Sure You Could Not Assist_____

3_– Neutral_____

4 – Sure You Could Assist_____

5 – Very Sure You Could Assist_____

APPENDIX C
IRB APPROVAL

