Patient Compliance in Physical Therapy

An Honors Thesis (HONRS 499)

by

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Abstract

Compliance in health care refers to the patient’s adherence to a prescribed medical regimen. With the shift in emphasis of health care from direct medical supervision to patient self-management, more of the responsibility of the success of treatment is placed on the patient. Health professionals are realizing of the impact patient compliance or noncompliance on health outcomes, and are thus increasing their attention to the issue of patient compliance. Some physical therapists believe that patient adherence to therapy programs is one of the most serious problems affecting their profession today. It is estimated that somewhere between one-third and two-thirds of patients are noncompliant with their therapy program. A number of factors influence a patient’s compliant or noncompliant behavior, such as: characteristics of the patient, characteristics of the patient’s illness, pain, characteristics of the patient regimen, and patient’s attitudes. A patient’s motivation and education concerning their illness and the therapy program prescribed to them affect the level of patient compliance to their therapeutic program. In the questionnaire developed for this research project, physical therapists reported a lack of formal knowledge concerning patient compliance and a strong belief in the significance of patient compliance in the physical therapy profession. They suggested using education, monitoring a patient’s progress, giving positive feedback, and shifting the responsibility of therapy to the patient as methods of increasing patient compliance. If information and methods concerning patient compliance are explored and shared among health care professionals, the level of patient compliance in physical therapy has the potential to rise. More patients can be rehabilitated and accurate assessments can be made concerning the quality of therapy provided. As a future physical therapist, I feel that the knowledge and insight gained from this research project will help to prepare me for upcoming challenges in the profession.
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Introduction

Since the foundation of the profession in the 1900’s, physical therapists have been advising and educating patients during their course of treatment (Sluijs, 1991). Physical therapists, by profession, accept the responsibility for the creation and implementation of physical conditioning and education programs designed to enhance behavioral and lifestyle changes (Ice, 1985). Physical therapists instruct their patients to perform and master motor skills, help integrate movement-behavior into daily life, and offer patients health advice with both curative and preventative purposes (Sluijs and Knibble, 1991). The four essential factors to a successful physical therapy program are the recognition of ill health, diagnosis of the illness, planning of treatment, and the patient’s adherence (or “compliance”) to the therapeutic plan (Becker, 1985).

Compliance is defined as “a disposition to yield to others” (Merrill, 1994). Compliant behavior may be defined as a class of behaviors resulting from a specific set of cues and consequences (Ice, 1985). Other terms have been associated with compliance in the health profession such as adherence, obedience, internalization, and therapeutic alliance (DiMatteo and DiNicola, 1982). Interest in health care compliance has risen dramatically mainly as the result of modern medical science providing patients with therapy worthy of compliance (Mayo, 1978). Compliance in health care has typically referred to the patient following the instructions of the health care professional (Merrill, 1994). The consequences of compliant behavior may be a relief of symptoms, a sense of well-being, personal satisfaction, or avoidance of disease (Ice, 1985).

With the shift in emphasis from direct medical care to continuous patient self-management, so much of the success of treatment involves the patient remaining under the advisement of the therapist and carrying out instructions at home (Mayo, 1978). Data indicate that noncompliance occurs wherever some form of self-
administration or discretionary action is involved (Becker, 1985). Developing methods to increase patient compliance in physical therapy requires an understanding of the factors which are responsible for noncompliant behavior. Discovering compliant-related factors may be the starting point to improve patient compliance. Medical literature cites over two hundred factors influencing patient compliance (Sluijs, 1993). Relevant factors influencing patient compliance include, but are not limited to: practitioner-patient relationship, culture, health-beliefs, motivation, attitudes, self-efficacy, psychological barriers, physical barriers, financial barriers, and priority of following health and safety programs (Merrill, 1994).

**Significance**

Spurred by the growing realization of the impact of patient compliance or noncompliance on health outcomes, an increase in attention has been given to the issue of patient compliance (Falvo, 1985). Some authorities maintain that patient adherence to therapeutic regimens as the most serious problem facing medical practices today (Becker, 1985). Many patients continue to be disabled or incapacitated by conditions for which effective treatments are available (Falvo, 1985). Noncompliance disrupts the benefits of preventative or curative services offered, generates further costs and possible health problems caused by the treatments themselves, negatively influences the client’s views about services received, and makes it impossible for health care professionals to conduct accurate assessments of the quality of care provided (Becker, 1985). Many patients simply do not follow the recommendations or advice of their health care provider (Falvo, 1985).

Research concerning cardiac rehabilitation, preventive fitness programs, and back schools reported an estimated one third to two thirds of patients are noncompliant with exercises (Sluijs, 1993). Forty-five to sixty percent of patients with arthritis in one study did not follow prescribed exercise regimens (Sluijs, 1993).
Physical therapists have estimated that sixty-four percent of their patients comply with short-term exercise regimens and only twenty-four percent continue exercising in a long-term regimen (Sluijs, 1993). One of the lowest degrees of compliance, in one study by Donabedian and Rosenfield, involved the inability of the patient to make recommended appointments (Mayo, 1978).

**Goals**

The purpose of this research is to investigate the issue of patient compliance in physical therapy. To this end, this research surveyed attitudes and opinions of practicing physical therapists. A questionnaire was developed and sent to physical therapists in the Indianapolis, Muncie, and Anderson area. Questions were formulated and divided into broad issues facing physical therapists and issues facing the individual physical therapist. The physical therapists were given the opportunity to respond honestly, while their identity remained anonymous. The physical therapists, who chose to participate in the survey, also had the option to respond to follow-up questions via e-mail and telephone interviews.

In order for patients to maximize their benefits from rehabilitation services, they must take an active role in their treatment. It is essential for patients to complete at-home exercise regimes, give an honest effort throughout the rehabilitation period, and maintain open lines of communication with the physical therapist. Without the patient's compliance, the goals of a physical therapy regimen can not be attained. The issue of patient compliance faces every physical therapist at some point in their practice. If methods and tactics of increasing patient compliance in physical therapy are investigated and shared among members of the profession, the problems of low patient compliance have the opportunity to be reduced.
Characteristics of the patient

Evidence relating a patient's sex, age, race, educational level or social status with patient compliance to exercise regimens appeared to be weak and contradictory results have been reported (Sluijs, 1993). Personality variables have generally been found to be unrelated to the level of therapeutic adherence (Becker, 1985). Little association has made between sociodemographic features and patient compliance (Mayo, 1978). However, the very young and very old are reported to show higher rates of noncompliance (Mayo, 1978). Problems with compliance increase in individuals over sixty-five years of age (Henry and Rosemond, 1999). An explanation for this phenomenon could be the difficulty for the medical professional to design treatment programs for people in this age category because of their impaired physical status (Henry and Rosemond, 1999). Women also tended to comply more than men in some cases, perhaps because they are historically more eager to take a dependent role and accept the orders of others (Mayo, 1978). In one study a patients' level of education was found to be related to compliance, with the highly educated patients being less compliant with home exercises than less educated patients (Friedrich et al., 1996).

Research pointed to a few indicators of compliance to health care regimens based on lifestyle choices. Previous exercise habits served as a predictor for exercise compliance (Stenstrom et al., 1997). A survey comparing the effects of various therapeutic treatments for rheumatic diseases concluded that noncompliance increased with less physically active patients (Stenstrom et al., 1997). Prior exercise behavior has been found to be a strong predictor of adherence in a study of adults with osteoarthritis (Swisher, 1997). Lorenc and Branthwaite used a person's living condition (ie, whether living alone or with someone) as the main demographic variable
related to compliance (Henry and Rosemond, 1999). Living with someone was shown to decrease the level of compliance (Henry and Rosemond, 1999). Research also cited patients who are married as less likely to adhere to an exercise regimen (Stenstrom et al., 1997).

**Characteristics of the patient’s illness**

Illness behavior refers to the various thoughts, perceptions, feelings, and acts that affect the social and personal meaning of symptoms and disability (Merrill, 1994). Social norms, earlier experiences, capacity to cope with the environment, and/or the social definition they apply to their symptoms has the potential to lead people to accept or reject a sick role (Merrill, 1994). Literature cited that the patient’s view of the seriousness of the disease affected compliance, and the actual severity of the illness appeared to have no influence on compliant behavior (Mayo, 1978). Patients with illnesses that cause disabilities and handicaps perceived their illness to be very serious were generally less compliant than those patients with less serious perception (Sluijs, 1993). Patients with acute illnesses appeared to be more compliant than those patients suffering from chronic illnesses (Sluijs, 1993). Patients with acute illnesses may be motivated to adhere to their prescribed regimens because of an expected recovery. Patients were less motivated to maintain exercising when they felt recovery was unlikely or impossible (Sluijs, 1993).

**Pain**

Pain, the most commonly cited reason for seeking medical treatment, is the primary motivating factor which forces people to abandon or delay normal daily activities (DePalma and Weisse, 1997). People experiencing pain are typified by facial and audible signals, a “protective” posture, limping, rubbing of the affected area, and avoidance of normal activities. Variables affecting pain include: mood, culture,
age, gender, physical attractiveness, and control. A person's display of pain can be reinforced by the patient's being excused from financial, social, and household obligations, as well as receiving increased "TLC" from members of the individual's social support group. Pain can be categorized as organic (relating to tissue damage) or psychogenic (relating to no tissue damage) (DePalma and Weisse, 1997).

Pain served as a stimulus to increase compliance with medical regimens (DePalma and Weisse, 1997). As a suggestion, physical therapists treating painful disorders or injuries should be familiar with those factors influencing pain perception and treatment approaches. Health care professionals are in need of understanding the origins and factors influencing pain in order to treat the pain. Pain is also perceived as a barrier to compliance because it has the potential to disrupt recovery from injury (DePalma and Weisse, 1997). Depending on the individual patient, pain can serve as a stimulus or as a barrier to compliant behavior. With the changing nature of health care to more managed care programs and the necessity to maximize compliance in a limited time frame, minimizing pain to whatever degree possible may contribute to increased compliance among patients.

**Characteristics of the patient regimen**

Aspects of the patient's medical regimen affect patient compliance including the complexity and duration of the treatment; the extent to which it changes established lifestyles; the type of relief it gives, curative or symptomatic; and the side effects associated with the regimen (Mayo, 1978). Complex and inconvenient regimens were known to increase the rate of patient noncompliance (Sluijs, 1993). Adherence appeared to drop when exercise regimens were not individualized to the patient's situation or daily routine (Sluijs, 1993). Most patients admitted that they simply lacked time to exercise or that their prescribed exercises did not fit into their daily life (Sluijs, 1993). The probability of adherence to exercise regimens may be optimized by
“tailoring” the activities prescribed with the prior interests or intentions of the patient (Dishman, 1982). One strategy a physical therapist might wish to consider to combat noncompliance is to coordinate the time of day of the exercise program is offered with the patient’s daily schedule (Ice, 1985). It may be easier and more effective to fit the program to the patient than to try to fit the patient to the program (Dishman, 1982). When the patient views the goals of a health program as beneficial, the patient is more likely to participate (Merrill, 1994).

The Transtheoretical Model, developed by Prochaska and colleagues and applied to compliance by Marcus, states that as a person changes behavior he progresses through five stages: Precontemplation (no intention to change behavior), Contemplation (intention to change behavior but not started yet), Preparation (behavior change that starts and stops), Action (consistent behavior change for longer than six months), and Maintenance (sustained behavior change for longer than six months) (Blanpied, 1997). Most therapists are quite skilled at designing treatments for patients in the Action stage, however, most of the noncompliant patients are in the Precontemplative or Contemplative stages (Blanpied, 1997). Therapists risk treating their patients poorly when they try to help sedentary populations with action-oriented interventions (Dishman, 1994). It is suggested that as the patient passes through the various stages, the treatment plan also changes with the patient (Blanpied, 1997). The therapist must determine what stage of change their patient is at and match their needs, rather than expect the patient to match action-oriented interventions (Dishman, 1994). In the Precontemplation and Contemplation stages, barriers outweigh the benefits, while the Preparation stage is characterized by the benefits and barriers taking an equal importance (Blanpied, 1997). It is not until the benefits outweigh the barriers in the Action and Maintenance stages that a person will, in theory, engage in changed behavior (Blanpied, 1997).

Health care professionals often overlook examining their own behavior as a
possible reason for a patient's noncompliance (Coy, 1989). A problem in communicating advice often stems from the health care professionals' inadequacies, the assumptions they make, or the structure of the clinic situation (Mechanic, 1976). A lack of clarity results when the health care provider assumes that their patients share their conceptual understanding of the situation (Mechanic, 1976).

One of the most fundamental elements of compliance is the relationship quality of the patient/health care provider (Merrill, 1994). Impersonality and brevity of the treatment session negatively affected patient behavior (Becker, 1985). Some authors reported that compliance was greater if the patient was seen by the same therapist at each visit (Mayo, 1978). A patient may come to the physical therapist with feelings of distress, fear, and anxiety concerning their health care status (Sluijs, 1991). Literature cited that when the physical therapist displayed concern and sympathy for patients' concerns, adherence greatly increased (Becker, 1985). A close relationship between the patient and the physical therapist led to a more satisfied and compliant patient (Sluijs, 1993). A good interpersonal relationship between the therapist and the patient also increased retention of information (Sluijs, 1991). As a patient changes their habits and lifestyle, the patient is likely to encounter adjustment problems. The therapist cannot assume the causes and reasons for noncompliant behavior during the adjustment process. The therapist is recommended to inquire about these problems and help to tackle them with the patient individually (Sluijs, 1993). Helping the patient explore stress-related problems and discuss ways the illness is affecting them, helps provide insight into the mind-body connection (Sluijs, 1991).

Supervised patients whose compliance was being monitored and received feedback about their efforts were more likely to adhere to their exercise regimens (Sluijs, 1993). A strong correlation was found in supervised groups with a better quality of exercise performance and a decrease in pain (Friedrich et al., 1996). Supervision can extend to reminder calls about the exercise regimen and upcoming
appointments (Becker, 1985). Oldridge reported that "adherence dropped from fifty-nine percent in supervised programs to twenty-nine percent after six months of unsupervised exercise" (Sluijs, 1993). Compliance can be significantly related to positive feedback that a patient receives. Theories of human behavior demonstrate the significant influence of positive consequences (Sluijs, 1993). Reinforcement, during or shortly after compliant behavior by the therapist with uplifting messages, was shown to improve compliance (Ice, 1985). Patients were more compliant when their therapist appeared satisfied with their exercising and commented on their efforts (Sluijs, 1993). Supervised exercise had many advantages including a low rate of injuries and better compliance due to motivation, positive feedback, and the clarity of instructions given by the therapist (Friedrich et al., 1996).

A significant difference existed between short-term supervised compliance and long-term nonsupervised compliance. An approach to short-term compliance based on behavioral theories and utilizing the self-regulation approach to long-term compliance can be applied (Sluijs and Knibble, 1991). Short-term compliance can be defined as compliance during supervised treatment and long-term compliance as compliance after the treatment period is over. Curative measures aim at the absence or removal of certain signs or behaviors and a preventative regimen directs itself at a certain goal which is essentially never achieved. Therapists need to determine the length of time compliance needs to be maintained and discriminate between curative and preventative measures before attempting to design a therapeutic regimen (Sluijs and Knibble 1991). Research indicated that long-term compliance was much more difficult to obtain than short-term compliance. One study indicated that at the moment of discharge, compliance with exercise prescription dropped from sixty-four to twenty-three percent (Sluijs and Knibble 1991). Decreased compliance was associated with preventative exercises, compared with therapeutic exercises (Henry and Rosemond, 1999). Preventative exercises usually had less meaning to the patient than curative
exercise (Henry and Rosemond, 1999). However, maintained performance of exercise as a daily routine after pain has been reduced or eliminated, as a preventative measure, was rarely accomplished (Blanpied, 1997). The behavioral approach in short-term compliance is based on the assumption that behavior is determined by its antecedents (stimulus of the therapist) and its consequences (feedback from the therapist) (Sluijs and Knibble, 1991). The behavioral theory maintains that as long as the intervention continues and the therapist can stimulate the desired behavior, compliance is likely to occur. In the self-regulation theory in long-term compliance, patients are the active agents of their therapy, selecting goals for themselves, and evaluating their progress in goal-attainment. The self-regulatory model suggests the existence of a mutual-participation relationship between the therapist and the patient, and the behavioral model implies a guidance-cooperation relationship (Sluijs and Knibble, 1991).

Forgetting and misinterpretations were linked to unintentional noncompliant behavior when a physical therapist gave unclear instructions and and failed to explain the reason and theory behind their instructions (Sluijs, 1993). Medical jargon was often confusing and misunderstood by the patient (Becker, 1985). The patient’s ability to remember the advice of the health care professional was a factor contributing to compliant behavior (Ice, 1985). Patients who are noncompliant most often mentioned forgetting to exercise as one of the reasons they did not comply with their regimens (Sluijs, 1993). Treusch and Krusen found that patients with rheumatoid arthritis who had multiple instruction periods complied better than those with just one (Mayo, 1978). A study on patient recall demonstrated that the elapsed time between presentation and recall had little relationship to success of recall, and only sixty-three percent of the information was recalled under the best of circumstances (Ice, 1985). Moderate anxiety was associated with significantly better recall than either low or high anxiety (Ice, 1985). Diagnostic statements tended to be recalled better than instructional
statements and specific instructions were more likely to be recalled than general advice. The amount of patient recall is influenced by shorter words and sentences, repetition, and the use of concrete-specific rather than abstract-general advice statements (Ice, 1985).

Physical therapists must influence patients in order to secure compliant behavior; persuasion and trust are the foundation of influence (Merrill, 1994). The success of the communicator and their message depend on four characteristics: expertness (knowledge about the topic), amiability of the communicator (warm, genuine, and empathetic), confidence and enthusiasm, and trustworthiness (altruistic and free of value judgments) (Merrill, 1994). According to the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, “It is well known that the way information is presented can powerfully affect the recipient's response to it. The tone of voice and other aspects of the practitioner's manner of presentation can indicate whether a risk of a particular kind with a particular incidence should be considered serious. Information can be emphasized or played down without altering its content. And it can be framed in a way that affects the listener--for example, 'this procedure succeeds most of the time' versus 'this procedure has a forty percent failure rate'” (Coy, 1989). The successful therapist must help the patient decide to take action and ignore the norms of procrastination and indecision of life (Merrill, 1994).

**Patient’s attitude**

Attitude can be defined as a “mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual’s response to all objects and situations with which it is related” (Merrill, 1994). A patient’s attitude and beliefs have incredible influence on compliance to therapeutic regimens. Exercise decreased when patients believed that exercising would not help
them very much (Sluijs, 1993).

Health beliefs have multiple origins and stem from cultural subgroups, parents' beliefs, prior experiences with an illness, misinterpretation of factual information, or acceptance of erroneous information from non medical sources (Becker, 1985). Research indicated a strong association between health beliefs and health-related behavior (Robertson and Keller, 1992). According to research, internal and external sources of communication existed and the patient utilized these sources in helping them to decide whether or not to follow medical advice (Squyres, 1980). Internal sources, accounting for more of an influence on a patient's behavior, included physiological signals, preexisting knowledge and beliefs, and factors in one's life situation (Squyres, 1980). External sources of communication included what was said by the health care professional and the media (Squyres, 1980). Compliance was influenced by the personal health beliefs of the patient (Merrill, 1994). When the physical therapist did not correlate the prescribed regimen with the patients' ideas about health care and illness, noncompliance was more likely to occur (Sluijs, 1993). Information and advice provided by the physical therapist that did not correspond with the demands and perceptions of the patient would likely result in noncompliant behavior (Sluijs, 1991). Patient compliance appeared to increase when a cooperation existed between the patient and the therapist concerning goal-setting and the decision making process (Becker, 1985). Setting specific time-oriented, flexible goals by the patient in consultation with the therapist was found to improve adherence (Ice, 1985). Therapists reported patients to be more compliant when the patient was asked to voice their ideas (Sluijs, 1993).

The extent to which a person feels he has control over his condition is referred to as the health locus of control (Merrill, 1994). The health locus of control has three dimensions: those under the control of the individual (internal), outside forces (external), and fate or chance, including divine intervention (supreme being) (Merrill,
Patients who believe that their health and wellness do not depend on their own behavior are termed as having an external locus of control. These people were typically less compliant than those with an internal locus of control (Sluijs, 1993). One model of social learning suggests an ongoing reciprocal influence of internal and external factors (Merrill, 1994). In order for any program to be internalized it must be relevant, feasible, agree with the person's belief system, and follow cultural norms. When the patient internalized the exercise program, therapeutic results were astonishing (Merrill, 1994). The benefits from taking responsibility for one's own health outlasted any improvements made from the short-term gains of specific knowledge (Squyres, 1980).

Bandura contends that human functioning involving a continuous interaction between behavior, personal factors, and the external environment, a phenomenon he calls "reciprocal determinism" (Brus et al., 1997). Behavior can, in theory, be predicted by the self-efficacy theory by evaluating the concepts of incentives, outcomes expectancy, and efficacy expectation (Robertson and Keller, 1992). Self-efficacy is defined by Bandura "as a judgment of one's capability to accomplish a certain level of performance" (Robertson and Keller, 1992). Patients may believe that a certain action or behavior will result in a desired outcome, but they may not think they can perform the activity and their behavior is subsequently influenced (Robertson and Keller, 1992). Patients may either lack confidence of the exercises to contribute to health and recovery, or lack confidence in their own ability to exercise and maintain the exercise regimen (Sluijs, 1993). Self-efficacy for exercise was the biggest predictor for compliance with exercise regimens in a study on compliance in rheumatic diseases (Stenstrom et al., 1997). The significance of self-efficacy expectation for compliance was demonstrated by Beck in a study of rheumatoid arthritis patients (Brus et al., 1997). This study showed that patients' predictions concerning their compliance was a good predictor of actual compliance (Brus et al., 1997).
Problems that a patient perceives are strong indicators of compliant behavior. Some of these problems are termed as "costs" in the decision theories and "perceived barriers" in the Health Belief Model (Sluijs, 1993). Considerable research supported the Health Belief Model and the idea that individual decision making was guided by attitudes and beliefs that may operate independently of levels of information, objective features or the conditions of the regimen (Becker, 1985). The Health Belief Model emphasized patients and their motivations, predispositions, or level of "psychological readiness" (Mechanic, 1976). Many patients formed opinions and ideas of their own concerning different medication and therapies prior to receiving treatment (Becker, 1985). When patients believed there to be many barriers to exercising, their compliance decreased (Sluijs, 1993). In one study including patients with renal disease, hypertension, diabetes, and cardiovascular disease, barriers were found to account for the largest percentage of variant behavior (Robertson and Keller, 1992). Perceived barriers that patients frequently mention were exercise that requires too much time, exercise not adjusted to their lifestyle, forgetting to exercise, exercise which causes pain, and a lack of motivation (Sluijs, 1993). Fear, embarrassment, and feeling too tired were also included as possible barriers to exercise compliance (Blanpied, 1997). The clinic or hospital system and the patient’s personal social system can inhibit compliance (Mayo, 1978). Patients may not exhibit compliant behavior due to financial and physical difficulties preventing them from obtaining treatment (Mayo 1978).

It is the physical therapist’s assumption that patients who comply with prescribed regimens will experience improved conditions and fitness, less fear and anxiety, more self-confidence, and lower infarction and mortality rates than patients who do not comply (Ice, 1985). The patient must integrate the therapeutic goals into their behavioral patterns and strive for the same outcome as the physical therapist in order for this assumption to be valid (Ice, 1985). The physical therapist has also made
the assumption that all cases of noncompliance are problems in need of a solution, the solution to the problem of noncompliance is compliance, all instances of compliance are non problematical, and the locus of the problem is the patient (Coy, 1989). The reasons behind a patient's noncompliant behavior may not be as simple as anxiety or pain, but based on intelligence or morality. Faithful adherence to medical advice does not guarantee achievement of the treatment goal (Squyres, 1980). The patient may refuse treatment for a number of reasons including a misdiagnosis, adverse reactions or side effects, or a change in their condition (Becker, 1985). The assumptions of noncompliance are also problematic from the moral point of view of informed consent (Coy, 1989). Many health care professionals view informed consent as a legal formality designed to protect the professional from malpractice, however, one goal of informed consent is for the patient to make decisions regarding his medical care. When medical treatment does not appear to be harmful, informed consent is often overlooked. Physical therapy is generally seen as "harmless" and involving low-harm and low-risk procedures. The two principles often in conflict are the Principle of Beneficence (producing benefits, or good outcomes for the patient) and the Principle of Autonomy (respecting a patient's right to self-determination) (Coy, 1989). The Principle of Beneficence is typically seen as the physical therapists' primary duty and they often feel a moral obligation to produce benefits and prevent harm to a patient. A moral conflict emerges when the physical therapist can not fulfill their duty of beneficence and the patient can not exercise their autonomy. Physical therapists may need to alter their approach and beliefs about how to tackle noncompliance from an autonomy-enhancing perspective. Patient have their own system of beliefs, values, and goals, and optimizing their health may or may not be one of their goals. Janet Coy suggests that informed consent needs to be an ongoing dialogue between the physical therapist and the patient in which the risks and the benefits of all treatment alternatives are weighed.
Motivation

Motivation refers to differential emotional arousal in individuals caused by some class of stimuli (Becker and Maiman, 1975). Motivational theories argue that motivation is particularly difficult when immediate benefits are difficult to distinguish (Friedrich et al., 1998). There is also no convenient or acceptable way to objectively validate the level of motivation (Friedrich et al., 1998). It has been difficult for investigators interested in studying underlying motivations to develop techniques for their clinical recognition and management (Mechanic, 1976). Research indicated an influence of motivational dispositions on health behaviors (Dishman, 1982). Compliance was closely related to motivation (Merrill, 1994). Motivation, like compliance, should be measured as a continuum (Friedrich et al., 1998). Motivation is a dynamic process and the willingness of a patient to adhere to a prescribes treatment may change over time (Friedrich et al., 1998). Health care providers need to be able to increase a patient's motivation for health and to make exercising a basic level need (Friedrich et al., 1998).

Two motivational models are the Health Needs Model, developed by Caplan, and the Intention-Behavior Model, by Ajzen and Fishbein. They both suggest that the relationship of a person's intention to follow a program may depend on his subjective need for improved health (Merrill, 1994). The Health Needs Model is based on the relationship between perceived need for health, motivation to respond, and the responses to the perceived need for health (Merrill, 1994). The model also implies that for every patient's subjective need for improved health, there is an objectively judged need, i.e., the diagnosis (Merrill, 1994). Caplan's model refers to the three components of motivation: expectancy that adherence can be performed, belief that performance will lead to the desired outcome, attractiveness to each outcome (Merrill, 1994). The idea that behavior can be predicted from the perceived value of an
outcome to an individual, and from the expectations that a given action will result in that outcome are characteristic of "value-expectancy" models (Becker and Maiman, 1975). The Intention-Behavior Model is based on the idea that beliefs serve as the informational base that ultimately determines attitudes, intention, and behaviors (Merrill 1994). Beliefs have been described as the fundamental building blocks to attitude formation (Merrill, 1994). A person forms their beliefs from observation, information from outside sources, or from information processes. Intention, a predisposition to action, is associated with with attitude, but does not predict actual behavior (Merrill, 1994). The Intention-Behavior Model can be used to discuss the interplay between health beliefs and attitudes (Merrill, 1994).

Rosenstock developed a theory, based on motivation, to predict compliance with preventative health recommendations (Becker and Maiman, 1975). The Health Belief Model is based on the following elements: 1) the individual's subjective state of readiness to take action; 2) the individual's evaluation of the advocated health behavior in terms of its feasibility; and 3) a cue to action must occur to trigger the appropriate health behavior (Becker and Maiman, 1975). Positive correlations existed between relatively high levels of subjective vulnerability and compliance with recommendations. Action was generally not taken unless the individual believed that becoming ill would bring serious organic and/or social repercussions. This referred to the patient's subjective perceptions. The probability of compliance was a function of the beliefs about the probable effectiveness of the recommended action in reducing the health threat, and the difficulties which must be encountered if such action is taken. Perception of benefits were also shown to be related to patient compliance with therapy (Becker and Maiman, 1975).

One motivational program demonstrating an increase in participant adherence in patients with chronic low back pain contains five components (Friedrich et al., 1998). (1) Counseling and information strategies are used to ensure the patients are
receiving clear instructions, emphasizing the importance of regular exercise in reducing pain and recurrent episodes. The therapist also tries to increase the patient's internal locus of control and help solve the patient's problems through mutual cooperation. (2) The therapist uses reinforcement techniques by giving the patient positive feedback about the patients' efforts. (3) A "treatment contract" is signed by the patient agreeing to exercise regularly at the time and duration specified in the contract. (4) Patients post the treatment contract in a location at home to remind them of their exercises. (5) Patients are involved in their care by reporting all exercises they do in an exercise journal (Friedrich et al., 1998). This motivational program shows decreased levels of distress, higher levels of internal control, and a better attitude towards exercising (Friedrich et al., 1998).

A combined exercise and motivation program increased the rate or attendance at scheduled physical therapy sessions, and reduced disability and pain levels in patients with chronic and recurrent back pain (Friedrich et al., 1998). A pilot study to determine the relationship between various motivational factors and the level of exercise compliance for patients in orthopedic physical therapy settings is underway (Harvey and Solomon, 1998). Results revealed so far that pain tolerance and schedule were significant predictors of the exercise compliance category into which therapists placed patients (Harvey and Solomon, 1998).

**Education**

Physical therapists feel that treatment is not complete without some form of education (Sluijs, 1991). Almost all of physical therapists involved in direct patient care teach patients, their families, and supportive personnel (May, 1983). Ninety-nine percent of physical therapists reported, in one study, that teaching is an important skill in their practice (May, 1983). Educating patients included the ability to adapt teaching to individual needs, teaching by demonstration, giving and receiving feedback, and
Methods

A research project was conducted in an attempt to obtain additional information concerning patient compliance in physical therapy. Research data was acquired by the responses of practicing physical therapists to a questionnaire. The questionnaire was developed to further investigate issues surrounding patient compliance in the physical therapy profession. The survey was divided into two sections, broad issues facing physical therapists and issues facing the individual physical therapists. The questionnaire contained ten items attempting to probe deeper into the factors contributing to patient compliance, methods of increasing patient compliance, and how practicing physical therapists view the issue of patient compliance within their profession. Demographic information was also obtained regarding the physical therapist's educational institution, years of practice and clinical setting. The responses to the questionnaire serve as an additional basis to draw conclusions and information regarding the complexity of patient compliance in physical therapy.

Letters were sent to physical therapists containing: a cover letter explaining the research project, a questionnaire, a self-addressed stamped envelope for the questionnaire's return and a separate self-addressed postcard indicating interest in participating in an interview. (see Appendix A,B, &C). Approximately eighty letters were sent to physical therapists in the Muncie, Anderson, and Indianapolis area that were made available through publications in the Yellow Pages and on the Internet. I received twenty-one returned questionnaires. The participant's identity remained anonymous and there were no markings to distinguish the source of the information obtained in the research project. The physical therapists who chose to participate in a follow-up interview answered a series of four questions via e-mail to complete the research project.
Broad issues facing physical therapists

The degree of formal education received concerning patient compliance varied with the following results: no education (11), formal education (6), continuing education (4). One physical therapist omitted this question. The best methods of increasing patient compliance included: educate patients on importance and proper execution of exercise (17), shift responsibility of therapy to the patient (7), financial repercussions (1), and involve family support in therapy program (1). When questioned about any formal suggested methods of increasing patient compliance that did not work well, 6 therapists did not know of any formal methods, 2 mentioned acting forceful and demanding with the patient, and 11 omitted the question.

The therapists reported the following as the biggest obstacles patients need to overcome mentally before physical therapy can help them: a lack of patient internal locus and active participation (9), patient misunderstanding of the purpose of therapy program (5), fear of pain (5), and denial of the reality of the injury/diability (4). Fifteen physical therapists felt patient compliance is an important issue facing the physical therapy profession, while four responded it is of minimal importance and three did not believe it to be an important issue.

Individual issues facing physical therapists

The physical therapists used the following methods to physically and mentally motivate their patients for therapy: set goals for the patient and monitor progress (8), exhibit and maintain a positive and encouraging attitude (7), and educate patient (6). Two therapists omitted their response to the question regarding physically and mentally motivating patients for therapy. The therapists viewed patient compliance as a problem with their patients according to the following: sometimes a problem (13), a problem with worker’s compensation patients (4), yes it is a problem (4), and not a problem (4). One therapist omitted the question concerning the problem of patient
# Table 1. Questionnaire Data

<table>
<thead>
<tr>
<th>Broad issues facing physical therapists</th>
<th># of Responses Falling Into the Following Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Have you ever received any formal education/ training concerning patient compliance? If so, please explain.</td>
<td></td>
</tr>
<tr>
<td>No Education</td>
<td>11</td>
</tr>
<tr>
<td>Formal Training</td>
<td>6</td>
</tr>
<tr>
<td>Continuing Education</td>
<td>4</td>
</tr>
<tr>
<td>(Omit)</td>
<td>1</td>
</tr>
</tbody>
</table>

2. What do you feel are the best methods of increasing patient compliance? Do you use any of these methods? Do they work well for you? Why?

- Educate patient on importance and proper execution of exercise | 17 |
- Shift responsibility of therapy to the patient | 7 |
- Financial repercussions | 1 |
- Involve family support in therapy program | 1 |

3. Are there any other formally suggested methods that do not work well? Why not?

- Do not know of any formal methods | 6 |
- Act forceful and demanding with the patients | 2 |
- (Omit) | 11 |

4. What do you feel are the biggest obstacles patients need to overcome mentally before physical therapy can begin to help them?

- Lack of Patient Internal Locus and Active Participation | 9 |
- Fear of Pain | 5 |
- Patient Misunderstanding of the Purpose of Therapy Program | 5 |
- Denial of the reality of the injury/disability | 4 |

5. Do you feel patient compliance is an important issue facing physical therapists?

- Yes | 15 |
- Minimal importance | 4 |
- No | 3 |
Table 1. Questionnaire Data

<table>
<thead>
<tr>
<th>Issues facing the individual physical therapist</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6. What do you do to physically and mentally motivate your patients for therapy?</td>
<td></td>
</tr>
<tr>
<td>Set Goals for the Patient and Monitor Progress</td>
<td>8</td>
</tr>
<tr>
<td>Exhibit and Maintain a Positive and Encouraging Attitude</td>
<td>7</td>
</tr>
<tr>
<td>Educate Patients</td>
<td>6</td>
</tr>
<tr>
<td>(Omit)</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Do you feel patient compliance is a problem with your patients?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes</td>
<td>13</td>
</tr>
<tr>
<td>Worker's Compensation Patients</td>
<td>4</td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
</tr>
<tr>
<td>(Omit)</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. Have you developed any of your own tactics to increase patient compliance? Please explain.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>6</td>
</tr>
<tr>
<td>Encouragement/ Positive Feedback</td>
<td>5</td>
</tr>
<tr>
<td>Monitor Progress</td>
<td>5</td>
</tr>
<tr>
<td>(Omit)</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. Do you feel there are any fluctuations in patient compliance based on.....</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Education level</td>
<td>11</td>
</tr>
<tr>
<td>Disability/ Injury</td>
<td>8</td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td>7</td>
</tr>
<tr>
<td>Age</td>
<td>6</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
</tr>
<tr>
<td>(Other)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10. How do you feel about the statement, &quot;Therapy is 90% mental and 10% physical?&quot;</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>8</td>
</tr>
<tr>
<td>Disagree</td>
<td>7</td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>5</td>
</tr>
<tr>
<td>(Omit)</td>
<td>2</td>
</tr>
</tbody>
</table>
compliance within their own patient load. Tactics to increase physical therapy compliance developed by therapists were grouped into the following categories: education (6), encouragement/ positive feedback (5), and monitoring progress (5). Four therapists omitted the question concerning development of personal tactics to increase patient compliance.

The therapists felt there were fluctuations in patient compliance based on the following: education level (11), disability/ injury (8), socioeconomic status (7), age (6), sex (1), and other (3). The statement, "Therapy is 90% mental and 10% physical," received responses which included: agree (8), disagree (7), somewhat agree (5). Two therapists did not comment on the statement, "Therapy is 90% mental and 10% physical." (For complete answers to all questions see appendix D).

**Follow-up data**

The physical therapists who participated in the follow-up interviews answered a series of four questions. Ten physical therapists participated in this portion of the research. Eight of the therapists believed physical therapy schools should incorporate patient education into their curriculum, while two said it was the responsibility of the physical therapists to develop their own methods to increase patient compliance. When asked whether patient education should be included during therapy along with physical activities, the responses were as follows: six therapists stated patient education concerning a patient's illness and the purpose of therapy is important, two stated some patients are unwilling to listen, and two said no because their time with patients is already limited. When asked about how big of a factor the therapists believe pain to be in the reluctance of the patient to comply during therapy, five therapists said pain limits the physical abilities of the patient, three stated pain is the only a small factor, and experiencing pain increases a patient's willingness to comply with therapy. The issue of "quality" time with patients to educate, listen, and treat them
was addressed to the therapists. Eight therapists felt they are often rushed during physical therapy sessions and often see more than one patient at a time. Two therapists reported that they had enough time to discuss concerns and problems.
Table 2. Follow-up Data

<table>
<thead>
<tr>
<th>Responses to follow-up questions concerning patient compliance</th>
<th># of Responses Falling into the Following Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you think it would benefit physical therapists to receive patient compliance training/education during PT school? Should it be included in the curriculum?</td>
<td></td>
</tr>
<tr>
<td>Yes, PT schools should incorporate patient compliance education into the curriculum</td>
<td>8</td>
</tr>
<tr>
<td>No, it is the responsibility of the physical therapist to develop their own methods to increase patient compliance.</td>
<td>2</td>
</tr>
<tr>
<td>2. Do you think patient education should also be included during therapy along with physical activities? Do you think it would greatly influence the success of therapy?</td>
<td></td>
</tr>
<tr>
<td>Yes, patient education concerning a patient's illness and the purpose of therapy is important.</td>
<td>6</td>
</tr>
<tr>
<td>Sometimes, some patients are unwilling to listen.</td>
<td>2</td>
</tr>
<tr>
<td>No, the time I have with patients is already limited.</td>
<td>2</td>
</tr>
<tr>
<td>3. How big of a factor do you believe pain to be in reluctance of the patient to comply during therapy?</td>
<td></td>
</tr>
<tr>
<td>Pain limits the physical abilities of the patient.</td>
<td>5</td>
</tr>
<tr>
<td>Pain is only a small factor.</td>
<td>3</td>
</tr>
<tr>
<td>Experiencing pain increases a patient's willingness to comply.</td>
<td>2</td>
</tr>
<tr>
<td>4. Do you feel you have enough &quot;quality&quot; time with your patients to educate, listen, and treat them? Do you feel like your patients are getting enough of your time attention?</td>
<td></td>
</tr>
<tr>
<td>No, treatment sessions are often rushed and many times I see more one patient at a time.</td>
<td>8</td>
</tr>
<tr>
<td>Yes, we have time to discuss concerns and problems.</td>
<td>2</td>
</tr>
</tbody>
</table>
Discussion

The questionnaire revealed that a high number of physical therapists did not receive any formal education/training concerning patient compliance. The therapists in the survey reported no specific training in any of the educational institutions which they attended, except for Northwestern University and the University of Florida. Approximately one-third of the therapists reported receiving some type of formal training designed to increase patient compliance. Formal education concerning patient compliance can be received in conferences, lectures, internship experience, within other continuing education courses, and company meetings.

A number of different methods of increasing patient compliance are used by physical therapists. Seventeen of the therapists reported involving patient education on the importance and proper execution of exercises to increase compliance. Many of these therapists believed the patient must see therapy as a necessity to prevent injury reoccurrence or to regain lost function. They educated patients using various handouts, demonstrations, pictures, and written instruction. This is congruent with literature that cites ninety-nine percent of physical therapists, in one study, believe teaching is an important skill in the success of their practice (May, 1983). A strong correlation exists between health beliefs and health-related activities (Robertson and Keller, 1992). Exercise is shown to decrease when the patient believes that exercising will not help them very much (Sluijs, 1993). Seven of the therapists reported shifting the responsibility of therapy to the patient as being an effective method of increasing compliance. Therapeutic results are noteworthy when the patient internalizes the exercise program and attains an internal locus of control of their health (Merrill, 1994). The most frequently used methods by the physical therapists in the survey to increase patient compliance are cited by research and literature to be effective.

Six of the therapists reported not being aware of any formal suggested methods
of increasing patient compliance that do not work well. Eleven therapists omitted the question in the survey regarding methods of increasing compliance that are ineffective. Two of the therapists stated that acting forceful and demanding too much of the patient does not help to increase patient compliance. One of these therapists mentioned that patients want guidance, not a "football coach". Literature cites the importance of the dynamics in the therapist/patient relationship. This is one of the most fundamental elements of compliance (Merrill, 1994). An impersonal and distant physical therapist negatively affects the patient's behavior (Becker, 1985). A physical therapist acting in an authoritarian manner with a lack of concern and sympathy for their patients only decreases the rate of adherence to an exercise regimen (Becker, 1985).

Patients have a number of obstacles to overcome mentally before physical therapy can begin to help them. Nine therapists reported that a lack of a patient's internal locus of control and inactive participation role contributed to the factors preventing patients from compliant behavior. Some of the responses to overcome this obstacle include: the patient's need to self-manage their health care needs, dismiss the idea they are only a "receiver" of services, become motivated, realize there is no "quick fix" that will heal their body. These suggestions are supported by numerous research projects. The shift in emphasis from direct medical care to continuous patient self-management places much of the responsibility of treatment success on the patient (Mayo, 1978). Patients who believe their health and wellness do not depend on their own behavior are typically less compliant than those with an internal locus of control (Sluijs, 1993). Research indicated an influence of motivational dispositions on health behaviors (Dishman, 1982). It is suggested that physical therapists need to be able to increase a patient's motivation for increased compliant behavior (Friedrich et al., 1998). The therapists in the survey also commented on a patient's need to understand the purpose of the therapy program. Five therapists discussed the patient's need to
know specifically how physical therapy will help them. They claimed that with this knowledge patients will become more willing to participate in therapy programs. Five therapists reported the presence of fear the of pain as an obstacle to the success of physical therapy. Comments by the therapists included a fear of the patient that the therapist will hurt them and that working through physical pain is extremely difficult for patients. Pain is seen to be a barrier to compliance because of its disruptive potential to recovery from injury (DePalma and Weisse, 1997). Literature also cited, however, that pain serves as a stimulus to actually increase compliance with medical regimens (DePalma and Weisse, 1997). The real importance lies in the ability of the therapist to treat painful disorders, the factors influencing pain, and various treatment approaches (DePalma and Weisse, 1997). Four of the therapists reported an obstacle to physical therapy efficiency when patients deny the reality of their injury or disability. One of the therapists discussed in his/her answer the existence of a mourning period for lost wellness in patients. After mourning, the patient then needs to accept their condition and make the best of their situation for therapy to be effective.

Many of the therapists involved in the survey had mixed feelings concerning the importance of the issue of patient compliance facing the physical therapy profession. Fifteen of the twenty-two responding physical therapists believed patient compliance to be an important issue facing their profession. Many of the responses included the increase in managed care and change in insurance reimbursement as reasons for the importance of patient compliance. This corresponds with literature which emphasized the significance of patient compliance in physical therapy practice. Managed-care is increasingly becoming the norm and the length of time a patient receives direct supervision of the physical therapist continues to decrease (Mayo, 1978). Adherence to exercise regimens drops when a patient’s behavior is no longer being monitored (Sluijs, 1993). Four of the therapists in the survey reported patient compliance as of minimal importance. Accountability, poor outcomes, poor referrals, changes in
physical therapy employment, and direct public access to physical therapy were issues cited by these four therapists as more important issues in the profession. Three of the therapists in the survey reported patient compliance as not being of significant importance in the physical therapy profession.

The physical therapists in the survey used a number of different methods to motivate their patients for therapy. Eight therapists reported setting goals for their patients and monitoring their progress as effective methods of increasing compliant behavior. Accentuating the progress a patient has made through positive feedback and visual diagrams and setting realistic goals for the patient are some of the techniques the therapists in the survey use. These methods prove to be effective with support from research and literature. When the patient view the goals of the therapeutic program as practical and beneficial, they are more likely to actively participate (Merrill, 1994). Compliance is significantly related to the positive feedback a patient receives (Sluijs, 1993). Patients are more compliant when their therapist comments on their efforts and monitors their progress (Sluijs, 1993). Seven therapists in the survey exhibit and maintain a positive and encouraging attitude to motivate their patients for therapy. A positive attitude, verbal encouragement, and smiling are included when working with patients. Reinforcement and uplifting messages are cited by literature to be effective in increasing patient compliance (Ice, 1985). Six of the therapist in the survey use education as a means of motivating their patients for therapy. These therapists mentioned keeping the educational program simple, utilizing charts, and explaining diagnosis with models. These methods were supported by literature on the effects of simple versus complex therapeutic regimens. A complex and confusing therapy program has been shown to increase the rate of patient noncompliance (Sluijs, 1993).

Of the therapists participating in the survey, thirteen felt patient compliance is a problem with their patients. They mentioned a lack of compliance as varying with time
and the individual patient. Four therapists in the survey believed compliance is not a problem with their patients, while four therapists believed compliance is a problem with their patients. Of the four therapists feeling compliance was not a problem in their practice, none of them have received any formal education/training concerning patient compliance. Perhaps they do not believe compliance to be a problem because they lack sufficient information to distinguish compliant and noncompliant behavior. Four therapists reported worker’s compensation patients as having a problem with complaint behavior in their practice. One of these therapists contended that worker’s compensation patients often have their mind made up ahead of time that therapy will not help. Another therapist commented that compliance is an issue that he/she strives with weekly to improve, especially with worker’s compensation clients. One therapist did not comment on this topic.

Many of the therapists in the survey developed tactics of their own to increase patient compliance. Six therapists reported using education to improve patient compliance. Explaining as much as possible, the use of pictures and diagrams, and providing information about their condition and the effectiveness of physical therapy were a few of the tactics the physical therapists use. Five therapists reported using encouragement and positive feedback as a means of improving patient compliance. One of these therapists stated that forming a trusting therapeutic relationship, inquiring how therapy in progressing, and verbal encouragement contribute to increasing patient compliance. Five therapists in the survey also reported monitoring progress to increase patient compliance. Keeping detailed and individualized patient records, having the patient demonstrate exercise progress as opposed to talking about it, and making follow-up phone calls are included in monitoring progress personal tactics of the therapists to improve compliance. Four therapists did not comment on developing personal tactics to increase patient compliance.

The therapists in the survey reported fluctuations in patient compliance based
on educational level, disability/ injury, socioeconomic status, age, sex, and other factors. Eleven of the therapists believed that the educational level of the patient impacts patient compliance. They stated that if a patient understands their disability, the principles of the program, and is a highly educated person, compliance will increase. However, one study found that highly educated patients are less compliant with home exercises than less educated patients (Friedrich et al., 1996). Eight therapists in the survey believed the patient’s disability or injury to affect patient compliance. One of these eight therapists mentioned that if the disability is cognitive, then the patient may not have the memory or initiative to be compliant. A couple of therapists commented that if a patient’s disability causes them too much pain, compliance may be affected. Research indicates that how a patient perceives their disability or illness is a contributing factor to compliance. Patients that perceive their illnesses to be very serious and those patients suffering from chronic illnesses show decreased levels of compliance (Sluijs, 1993). Seven of the therapists in the survey believed a patient’s socioeconomic status to affect patient compliance. They stated that transportation and monetary issues affect their compliance to therapy programs. These seven therapists believed that compliance increases with socioeconomic status. However, little association has been made in literature to link sociodemographic features to patient compliance (Mayo, 1978). Six of the therapists in the survey believed age to cause fluctuations in a patient’s level of compliance. They comment that the young and old show decreased levels of compliance to therapy programs. This corresponds with evidence in literature that the very young and very old show a higher rate of noncompliance (Mayo, 1978). Therapists often experience problems with compliance in individuals over sixty-five years of age (Henry and Rosemond, 1999). One therapist reported the sex of the patient to be a factor contributing to a patient’s compliance. In some cases, women tend to comply more than men in therapy programs, perhaps because of their historic eagerness to take a
dependent role and accept the orders of others (Mayo, 1978). Three therapists reported other reasons for causing fluctuations in a patient's compliance. These reasons included who was paying for the physical therapy and individual characteristics of the patient that can not be categorized. Evidence was weak and contradictory results exist relating a patient's sex, age, race, educational level or social status to patient compliance (Sluijs, 1993).

The therapists in the survey were asked to voice their opinion on the statement, "Therapy is 90% mental and 10% physical." Eight of the therapists agreed with the statement. Some of these therapists contended that mental commitment often controls symptoms, and that everything starts with the mind. One therapist commented on the major uphill battle if the patient feels they are not getting better with physical therapy. Another said that the traditional medical model needs to wake-up and realize the mind-body connection. Seven of the therapists in the survey disagreed with the statement and stressed the importance of the actual follow through with treatment and exercise. They contended that the effect of physical therapy is mostly physical and such a statement undermines the profession of physical therapy. Five of the therapists in the survey somewhat agreed with the statement and felt that therapy programs involve both mental and physical process. These therapists contended that the mental and physical components of therapy vary with the individual patient.

In the follow-up questions, an overwhelming majority of the physical therapists believed it was the responsibility of physical therapy schools to incorporate patient compliance education into the curriculum. One of the therapists commented that preparing future physical therapists for noncompliant patients needs to be a priority of physical therapy educational institutions. Over half of the therapists during the follow-up questions saw patient education concerning a patient's illness and the purpose of their therapy as extremely important. The participating therapists reported mixed feelings of the influence of pain on compliant behavior. Literature cites pain can be
both a stimulus and a barrier to patient compliance (DePalma and Weisse, 1997). Nearly all of the therapists reported a lack of quality time to educate, listen, and treat patients. Treatment sessions are often rushed and therapists reported treating multiple patients at the same time.
Conclusion

Summary

Physical therapists have a responsibility to their profession to help their patients regain lost function, prevent injury reoccurrence, and master skills to achieve maximum independence. One of the essential factors of a successful physical therapy program is the compliance of the patient to the prescribed regimen. The current shift in health care from supervised treatment to self-managed care places the responsibility of the success of the therapy program to the patient. Discovering the factors relating to compliant behavior may help to tackle the problems associated with noncompliance. Noncompliant behavior often results in further medical costs, poor health outcomes, and inaccurate measures of the quality of care administered. In order to maximize the benefits of physical therapy, the issue of patient compliance needs to be investigated to determine its influencing factors. If methods and tactics of increasing patient compliance are researched and shared among members of the profession, a low patient compliance rate has the potential to rise.

Weak and contradictory evidence relates a patient's characteristics, such as age, sex, education level, socioeconomic status, and disability/injury, to their level of compliance to a therapeutic program. The severity of a patient's illness is not linked to a patient's compliance to therapy programs. The very seriously ill and chronically ill show a decreased level of patient compliance. Pain can serve as a stimulus to increase patient compliance and can also act as a barrier to compliance.

The aspects of a patient's therapy regimen affect their level of compliance. The therapy program should fit the patient. Physical therapists often overlook their own behavior as a reason for a patient's noncompliant behavior. A good therapist/patient relationship helps to increase patient compliance. Supervision and progress that is monitored and communicated to the patient through positive feedback also contribute to high levels of patient compliance. Forgetting and misinterpretation of information
are linked to unintentional noncompliance. Physical therapists must influence their patients to comply with therapy programs. How a message is communicated by the therapist to the patient has an effect on the action a patient may take.

A patient's attitudes and beliefs affect their compliance with therapy. An patient's internal locus of control, the belief in their control of their health outcome, increases their compliance. Self-efficacy, judgment of one's ability to accomplish a goal, is shown to influence patient compliance. The patient's perceived "costs" or "barriers" are indicators of compliant behavior. The Health Belief Model emphasizes patients and their motivations, predispositions, and level of "psychological readiness" in guiding decision making.

Patients may not comply with therapy for reasons that are not problematic, such as moral and intelligent objections. The Principle of Beneficence and Principle of Autonomy are often in conflict between the therapist and patient. The physical therapist cannot fulfill their duty of beneficence and the patient can not exercise their autonomy. Perhaps a shift in informed consent to an ongoing dialogue between the therapist and the patient would lessen the severity of this dilemma.

Compliance is closely related to motivation. Therapists need to increase and maintain a patient's motivation for participation in therapy since the level of motivation has the possibility to change at any time. The Health Needs Model and Intention-Behavior Model suggest that a person's intention to follow a program depends on their subjective need for health.

Education is involved in virtually all therapy programs. Not all physical therapists are prepared in educational models and methods in teaching. The frequent contacts of the physical therapist and the patient are unique opportunities for education.

Compliance is difficult to measure and therapists' definitions of compliant behavior often vary. Self-reports of compliance by the patient are many times
inaccurate and exaggerated, however, self-reports are still the most frequently used methods of measure. Compliance can be measured by quantitative and qualitative measures.

The therapists involved in the survey had a wide variety of educational backgrounds and practice. Most of the therapists in the survey received no formal training concerning patient compliance. They reported educating patients on the importance and proper execution of exercise and shifting responsibility of therapy to the patient as the best methods of increasing patient compliance. They felt the biggest obstacles patients need to overcome mentally before physical therapy can help them are: a lack of the patient’s internal locus of control, patient’s misunderstanding of the purpose of their therapy program, denial of the reality of the disability/injury, and fear of pain. Over two-thirds of physical therapists believed patient compliance is an important issue facing physical therapists. The therapists set goals for the patient and monitor their progress, exhibit and maintain a positive and encouraging attitude, and educate their patients to physically and mentally motivate them for therapy. A majority of the physical therapists in the survey felt patient compliance is a problem with their patients. The therapists have developed their own tactics involving education, encouragement/positive feedback, and monitoring progress to increase patient compliance. The therapists in the survey reported fluctuations in patient compliance based on education level, disability/injury, socioeconomic status, age, and sex. The therapists reported mixed emotions on the extent to which therapy is affected by physical and mental components. A majority of the therapists in the follow-up questions reported a need to incorporate patient compliance education in physical therapy educational programs and a lack of "quality" time with patients during their treatment sessions.

The topic of patient compliance in physical therapy is currently at the center of many heated debates among members of the health care profession. It is difficult to
tackle the problem when unreliable instruments of measurement exist. It is my hope that physical therapists and health care professionals collaborate with one another to collectively solve the problem of patient compliance.

**Suggestions for Future Research:**

1. Future research in physical therapy requires a reliable and valid measurements to assess the degree of patient compliance, both with exercises and with the advice that they receive (Sluijs, 1993). Since a continuum of patient compliance exists, attention needs to be directed to the degree of compliance (Sluijs, 1993).

2. Research aimed to test the effectiveness of interventions at altering a patient’s perceptions of health beliefs and self-efficacy could help to evaluate interventions (Robertson and Keller, 1992). Little evidence is available which indicates the behavioral “dosage” which might maximize exercise adherence (Dishman, 1982).

3. Studies on the outcome of certain physical therapy procedures are in great need (Mayo, 1978).

4. It would appear very helpful to determine if patient compliance can be increased by applying a number of compliance-enhancing strategies (Sluijs, 1993). Minimal information is available to support the effectiveness of specific intervention strategies (Dishman, 1982). Perhaps looking beyond the physical therapy profession for ideas, such as the sales profession, for information and research on attitudes, perception, cultural norms, and identifying and studying the steps in the sales process (Merrill, 1994).

5. Long-term compliance in physical therapy is often aimed at primary and secondary prevention, and evidence has shown that the majority of patients are unable to maintain preventative regimens (Sluijs, 1993). Little knowledge exists about long-term compliance in physical therapy.

6. Broad and common categories of benefits and barriers experienced by patients
would be a valuable source of information for physical therapists in the future (Blanpied, 1997).

7. Assessing the pattern of information provision, including a study as to whether it would be more effective to spread the information a physical therapists provides to their patients over the entire length of treatment to improve patient recall, would be useful in planning patient education programs (Sluijs, 1991).

8. Future studies are needed to investigate whether more personal instruction, or more clinical supervision will improve the outcome of home exercise programs (Stenstrom et al., 1997).

9. Little research has been done to target the most appropriate number of exercises to prescribe (Henry and Rosemond, 1999).

10. Experimental attention should be given to the independent contribution of the various motivational interventions to motivation and compliance in specific personality types (Friedrich et al., 1998).

11. Additional studies emphasizing the economic element would be of interest in clarifying whether supervised therapy really has to be performed on an individual basis or whether therapy undertaken in groups would yield the same results (Friedrich et al., 1996).

12. The physical therapy profession needs to look at different treatment approaches and begin to more seriously address frequency and duration of physical therapy visits and patient compliance (Holmes et al., 1997).

13. More intervention studies are needed to determine whether matching treatment to stage makes intervention more effective (Dishman, 1994).
Literature Cited


March 3, 1999

Dear Sir or Madam:

As a senior at Ball State University, I am in the process of compiling my Honors Thesis for my approaching graduation in May. My research project, "Patient Compliance in Physical Therapy," is focused on the importance of a patient's active role throughout their rehabilitation period. It is extremely important for a working cooperation to exist between the patient and the physical therapist in order to maximize the benefits of rehabilitation. I am focusing on gathering information concerning methods of increasing patient compliance and what issues practicing physical therapists are facing with patient compliance. I will be applying to Physical Therapy school next Fall and I feel that this research will help me to prepare for my future in the profession.

In this envelope I have included a questionnaire addressing the issues of patient compliance. I would appreciate your participation in the survey and ask that you return it in the enclosed self-addressed stamped envelope. The survey will require approximately 15-20 minutes of your time. I ask that you do not include your name or any identifiable marks on the returned questionnaire, as all responses are anonymous. In addition to the questionnaire portion of my research, I will also be interviewing physical therapists. If you are interested in participating in this portion of my project, please make your response on the enclosed postcard and return it separately.

If you have any questions please feel free to contact me or my faculty advisor, Clare Chatot, Dept. of Biology, Ball State University, Muncie, IN 47306, (765) 285-8827.

Thank you for your time and cooperation. I am looking forward to this research project and would appreciate your response.

Sincerely,

Erin Brietzke
Dept. of Biology
Ball State University
Muncie, IN 47306
Appendix B

Demographic information:

Education (school, program philosophy): ____________________________________________
Clinical setting: __________________________________________________________________
Years of practice: __________________________________________________________________
Patient load: (please circle those that apply) stroke, accident, sports injury, orthopedic, work hardening, terminal

Questions:

Broad Issues Facing Physical Therapists

1. Have you received any formal education / training concerning patient compliance? If so, please explain. ____________________________________________

2. What do you feel are the best methods of increasing patient compliance? Do you use any of these methods? Do they work well for you? Why? ____________________________________________

3. Are there any other formally suggested methods that do not work well? Why not? ____________________________________________

4. What do you feel are the biggest obstacles patients need to overcome mentally before physical therapy can begin to help them? ____________________________________________

5. Do you feel patient compliance is an important issue facing physical therapists? ____________________________________________

Issues Facing the Individual Physical Therapists

1. What do you do to physically and mentally motivate your patients for therapy? ____________________________________________

2. Do you feel patient compliance is a problem with your patients? ____________________________________________

3. Have you developed any of your own tactics to increase patient compliance? Please explain. ____________________________________________

4. Do you feel there are fluctuations in patient compliance based on... (please circle)
   a) sex
   b) age
   c) education
   d) socioeconomic status
   e) disability or injury
   If so, please explain. ____________________________________________

5. How do you feel about the statement, “Therapy is 90% mental and 10% physical?” ____________________________________________
Postcard

Yes, I would like to participate in an interview.

Please return this postcard with the following information.

Name: ____________________________________________
Address: _______________________________________
Telephone number: ________________________________
E-mail address:___________________________________

Thank you for your participation. Your contribution is greatly appreciated!
Complete answers to the questionnaire

Broad Issues Facing Physical Therapist

1. Have you ever received any formal education/training concerning patient compliance? If so, please explain.

Not besides in PT School.

No (6)

Part of one semester in our education class. Not much formal training.

None- except for some non-formal information and discussion during various courses at U. of Indianapolis

One lecture- Ted Worrell

I can't recall formally, but I have always had good teaching skills of my own.

Yes, HealthSouth University internal...... provides training on patient compliance.

Indirectly. This topic is often included in many conferences.

Yes, one 2 hour session at recent company meeting.

Yes, education of the patient regarding their dysfunction and what needs to be done to make the patient better will improve compliance. Except for at home program, attendance compliance is another topic.

Yes, my thesis during internship was about compliance among patients with low back pain.

Not formal education, but my experience for 28 years gives me enough knowledge or background as to the importance of patient compliance in their progress during PT

No specific training except what is included in WH courses which gave us examples of how to increase compliance with work comp. client's.

Minimal

A few workshops- mostly given by academic staff who have little patient contact- most refer to transfer responsibility.

Yes, undergrad and grad level classes were conducted.
None specifically covered in curriculum.

2. **What do you feel are the best methods of increasing patient compliance? Do you use any of these methods? Do they work well for you? Why?**

Increasing compliance by having the patient in as much control as possible, showing them exercises to do at home.

Giving them functional goals that will meet personal needs. There is no reason for a patient to work on a certain task if they have never done it before and don’t intend to in the future.

PT education on injury and purpose of rehab, clear instructions, follow-up. Our patient population is very intelligent and motivated as a whole.

Explain importance of treatment in relation to patient’s desired goal; get them to buy into project and outcome.

PT education is the most important- patient has to understand why they are being asked to perform certain exercises and modifications in activity and how it will help them; written instruction and pictures are helpful.

Recheck ability to do at home exercises correctly. Yes. Yes. Can determine compliance/ motivator.

Education- why they’re doing it, record date, time, sets, on log sheet. Have patient demonstrate HEP at beginning of each session.

A method that works well for me is to explain to the patient about the physiological benefits of exercise and treatment. If the patient buys into the treatment plan compliance increases.

Put responsibility of rehab into patients hands. Tell them that I can help but it is up to them.

I stress to patients that time is of the essence. They can’t wait until 1 month after surgery to start exercises, they will be too stiff. I educate them. An educated patient is a more compliant patient.

Make physical therapy important- goal oriented. Patients work well- above reason.

Education on entire program. Keep program brief and ask every visit to demonstrate
home exercises to evaluate form.

Fee charged to patient- not insurance co. for no show or cancellation unless 24 hrs notice- fee $25 per missed visit. Each patient signs a form authorizing this charge on the 1st visit plus we call and remind each patient the day before their appt.

Providing patients with a written visual forms, giving them exercise equipment like therabands, weights, involving family members or caregivers in the program.

My method is basically to explain to the patient at their initial evaluation the importance of following the instructions and performing the task during PT.

Good quality care and a helping attitude towards clients help them to return for additional visits. Help decrease their pain. Reviewing policy/procedure of program

1. Ask patient each visit if he is doing his exercise, etc. 2. make sure patient understands why he needs to do these things. 3. Emphasize active rather than passive treatment.

I know of no specific methods. My approach is to approach each patient is different, based on the initial patient response. PT/ patient communication is the key.

Find common link between their real-life and therapy. Give them the responsibility for their treatment. Be supportive and encouraging. Education on their condition and the rehab process.

Teach the patient to be in charge of their rehab. This is easy to do with adults, very hard to do with children. Make the patient set some goals.

1. Education of mechanical processes; progression of disease; prognosis both if the patient takes an active role and prognosis if patient does not.

Patient education is important so they can understand how they can impact their rehabilitation. Giving written handouts and thorough instruction with demonstration and practice (multiple learning styles). Usually works well.

3. Are there any other formally suggested methods that do not work well? Why not?

Do not know of any. (6)

Giving out exercise sheets without explanation and/or demonstration.

Making demands on the patient because or therapist status.
More than 5-7 exercises or stretches.

Avoid subjective reading scales. They are meaningless.

Generally appearing or being "forceful" does not work; patients want guidance not a "football coach" mentality.

(question omitted= 11)

4. What do you feel are the biggest obstacles patients need to overcome mentally before physical therapy can begin to help them?

Some think it will hurt, or have had a bad experience somewhere else.

Denial, negative attitudes.

The need to know about their injury and specifically how PT will help them.

Anger over injury: why and how it occurred, how they were treated after injury, possible loss of job.

Patient has to take responsibility for their own health care needs and has to want to self-manage and not let symptoms control them.

Exercises are to their overall benefit along with proper body mechanics.

They must understand the why of their pathology and how the HEP addresses these dysfunctions-Accountability.

Fear that the therapist will hurt them.

Have to accept fact that patient may have some pain and will need to work hard.

Fear of pain, fear of failure.

Must buy into notion that they must become their own therapist.

They must believe that physical therapy will help them. They must overcome learned helplessness.

They are a participant in the process-not merely a receiver of services. They must take responsibility and be compliant.

Depression, feeling of helplessness, absence of motivation.
The patient has to believe in the physical therapy services as a medical procedure that can help them with their problems.

A lot of patients have other problems besides their injury (family, alcohol, abuse which are big obstacles)

Lack of motivation and or the belief that someone has to fix them and that they are passive participants in their care.

Most patients are very compliant- they want to get better. However, working through pain is very difficult.

The mourning for lost wellness, accept their condition and be prepared to make the best of their situation.

Self-motivation for some, frustration with the medical model of service delivery for others.

Most people today in this country want a quick fix or a pill to make them better, but do not want to take responsibility for their health.

Sometimes the pain factor; need motivator.

5. Do you feel patient compliance is an important issue facing physical therapists?

Yes, as there is more managed care, patient compliance is very important.

Not in this setting it is an OP setting.

One of the most important for home-based outpatient ortho. rehab.

Yes (5)

Yes, especially with managed care now causing less and less visits- patient self-management is so important.

Accountability is the most important issue; poor outcomes, poor referrals, no job.

No.

It's an issue but I see greater issues like direct public access to PT and the current changes in PT employment, drastic decline in pay scale are the largest issues.

Yes, especially with changes in insurance reimbursement. If we only get 2-4 treatments authorized. We have to make them count!
Always has been, always will.

Very important. Paramount for improvement.

Yes, some patients with lack of motivation or hidden agenda.

Most of my patients comply with the physical therapy program. It is important, but the rate of non-compliance is low.

Yes, you can not help someone get better that doesn’t want to comply or help themselves.

Not in my practice.

It is vital that patient are compliant due to decreasing length of stay and decreasing coverage for PT.

Usually not while the patient is in therapy; patient compliance with home programs are a different story. Many patients are not self-motivators.

Relative to what? There are many important issues today.

It is the number one practice issue in patient/practitioner relationship.

**Issues Facing the Individual Physical Therapists**

1. **What do you do to physically and mentally motivate your patients for therapy?**

   Explain what I am doing or what modalities I am using; use models to help explain their diagnosis.

   Set daily treatment goals within their reach and accentuate the progress that has been made.

   Watch daily progress; give continual feedback; weekly progress notes; patient contact.

   We discuss their response to previous treatment and I show and tell them improvements they are making.

   Ask them their goals and aim to meet them- reward them.

   Positive attitude, document and show objective progress to patient.
Explain each exercise and treatment technique; utilize charts in clinic, recall past successes.

Praise and encourage

I have a positive attitude and expect them to improve and also be positive.

Keep it simple- progress them systematically- teach a lot

Explain that the patient is responsible for getting themselves better, we will show you how.

Whatever it takes- cheerleader vs. dictator vs. listening ear.

I set goals that are realistic and practical.

A thorough explanation about the nature of their problem and effectiveness.

Again have positive attitude and make therapy enjoyable and a worthwhile experience.

Smile!

Play a lot of games with kids.

I get to know more about them personally- pick activities that support them.

1. Educate; 2. Be honest; 3. Discuss limitations of therapy

Form trusting therapeutic relationship, inquire frequently if they are complying and how its going; verbal encouragement.

(question omitted= 2)

2. Do you feel patient compliance is a problem with your patients?

With some patients yes, others it is not a problem.

No (3)

It is a primary importance and a problem with about 10% of my patients.

From time to time; but they all sign a contract at the initial evaluation.

With some elderly patients with decreased energy levels and no assistance at home,
with worker’s comp, and secondary gain issues.

30% of the time.

Yes, most do not want the responsibility to care for themselves, want passive exercises.

A small percent about 10%.

Sometimes, but mostly worker’s comp. patients.

Sometimes, some patients have their mind made up therapy won’t help them especially with worker’s comp.

Yes, with some they don’t return.

Some

Compliance will always be a problem for PTs and a number of their patients.

Yes, it is an issue we strive weekly to improve especially with worker’s comp. clients.

It is a problem for some, but not for others.

Some mainly with those who have less support at home.

No, except for children under 12 and that is to be expected.

That depends upon the level of secondary gains which motivate some patients.

Not usually.

(question omitted= 1)

3. Have you developed any of your own tactics to increase patient compliance? Please explain.

Explaining as much as possible to the patient so they can feel in control. Have the patients show me the exercises he is doing instead of telling them which to do.

When I worked with OP, if the patient was not willing to follow through with the instructions, I discharged them.

Detailed and individualized sheets, phone calls after 2 weeks.
Be straightforward, truthful, honest, and set guidelines.

Lots of patient education and encouragement.

If pain/ decreased mobility persist tell them their part in the responsibility for recovery.

Document- show progress to patient. Keep log of HEP, date, time, sets, reps.

Always ask how exercises are going and give patient opportunity to demonstrate them to me.

I use pictures and diagrams to help educate patients. I ask them if they have any questions.

Hold patient accountable for improving. Explain that they will not improve without their compliance. Try to get some relief the first visit.

It is necessary to point out progress made by patient, to stick to plan of treatment, modify as needed- pursue goals. Stay focused.

I get personal. I try to know my patients and how they feel. Get their.... and communicate on a personal level so they understand what I ask of them and why I demand their effort and compliance.

To educate my patient about their problem and the effectiveness of my services.

Informing our clients that not complying with WHP will usually result in the work comp. benefits being cut- usually helps the most.

We charge for missed appts.

Follow up phone calls after discharge, lots of positive feedback. Educate the patient about their condition- very important.

Talk to the patient and explain exactly why the patient is receiving PT and the good that hopefully will be accomplished.

Form trusting therapeutic relationship, inquire frequently if they are complying and how its going; verbal encouragement.

(question omitted= 4)

4. Do you feel there are any fluctuations in patient compliance based on...

education- sometimes; If people understand what is wrong, they are more likely to be
compliant.

disability or injury- if the disability is cognitive, they might not have the memory or initiative to be compliant.

age- teenagers low
education- must be educated enough to understand injury

no (2)

age- younger don't always understand why it is important to do things
older don't always have the energy
education- need to understand the principle behind the program
disability or injury- if chronic pain or a lot of pain sometimes less compliance

motivation and learning ability plus job satisfaction are key issues

sex, age, education, socioeconomic status, disability or injury

socioeconomic status- may be due to transportation issues or amt of charge patient is responsible for

education, socioeconomic status, disability or injury- people in lower socioeconomic class are less compliant and less motivated

education and disability or injury- if someone loves their job, they are more likely to improve or at least be motivated to improve

education and socioeconomic status- lower classes are less likely to become partners in rehab- they are more passive

age, education- younger kids are less compliant unless their is external reward (return to sport)

education, socioeconomic status, disability or injury- Yes, socioeconomic decreases compliance in many cases

compliance is an individual factor not based on the above examples

education, socioeconomic status, disability or injury- play a big role. Some people don't understand the benefits of PT. They are in too much pain so they don't come or can't afford gas money to get to PT.

age-elderly are often less compliant

Each person is unique. I have found no specific traits, except patient compliance may
be decreased in Alzheimer’s patients.

age & other- who is paying for the PT. self-insured much more motivated than worker’s comp

education and socioeconomic status- higher levels increase patient compliance.

disability or injury- work-related injuries & motor vehicle accidents generally exhibit decreased motivation- they may show up for appointments because they “have to” but do so reluctantly and put very little effort forward. This increases with the addition of any pending litigation.

I haven’t noticed any.

5. How do you feel about the statement, “Therapy is 90% mental and 10% physical?”

Often yes, patient’s work harder, do more if they feel comfortable with treatment- a negative attitude or someone who is unsure will be less compliant.

I think it is more like 50/50.

Close to the truth.

Depends on patient load and injury and hidden agendas.

I would agree- need to have the mental commitment and often the symptoms are controlled (good & bad) by mental/ psych status.

Somewhat correct. Motivation is primary in recovery and prevention of reinjury. Health factors (smoking, caffeine, nutrition) slow down healing also.

I think 80% physical (actual follow through with treatment and exercise) and mental (believe that it will help).

I would say more like 50-50%.

This is almost true.

May be for some patients, not for all.

I think it is more like 95% to 5%. It is a major up hill battle if the patient feels they are not getting better with PT. Once the patient is convinced PT will help, it is more the 90% to 10%.
An overstatement 90%, but close.

It is very true. Everything starts with the mind.

I do not agree. PT might have some placebo effect but it is mostly physical effect.

I would decrease to 50/50 or 60/40.

It is very true in most cases.

I don’t agree. Following the PT plan of treatment is very important.

Grossly invalid and demeaning to our profession. 70% physical; 30% cognitive.

Healing itself is probably 90% mental and 10% physical. The traditional medical model better begin to wake-up and realize the mind-body connection.

I feel both aspects are important, but I wouldn’t necessarily agree with the #'s.

(question omitted= 2)