

THE RELATIONSHIP BETWEEN LOCUS OF CONTROL,
PERCEIVED HOME ASSISTANCE, AND HEALTH BEHAVIOR OF PATIENTS
WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE
FOLLOWING A PULMONARY REHABILITATION PROGRAM

by

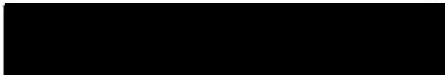
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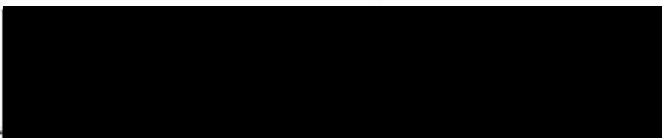
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CHAPTER I

INTRODUCTION

Compliance with therapeutic regimens has become increasingly more important to health care professionals as the cost of providing care increases and the population as a whole is living longer with more chronic diseases. Among these diseases, Chronic Obstructive Pulmonary Disease (COPD), has been treated through the development of pulmonary rehabilitation programs. These programs advocate a therapeutic regimen which benefits the individual with COPD by decreasing the number of hospitalized days following the program, when compared with the year prior to the program, increasing their exercise tolerance, decreasing the intensity and number of various symptoms and increasing their subjective well-being (Hodgkin, 1979). Compliance with the therapeutic regimen becomes important to the COPD population if they are to maintain the benefits over an extended period of time.

Each individual is unique and, upon entering the health care system, brings with him his own beliefs. It has been shown that one can measure an individual's health beliefs by using the Multidimensional Health Locus of Control Scale (MHLC) (Wallston & Wallston, 1978). These health beliefs may influence compliance with health regimens. Research using a hypertensive population has shown a relationship between MHLC and compliance when the variable of home assistance is added (Lewis, Morisky & Flynn, 1978). If this is true for a hypertensive population, then would compliance be related to locus of control and home assistance in the COPD population? Both groups have chronic conditions, although COPD

produces more overt symptomatology. If it can be demonstrated in the COPD population which locus of control groups are more compliant with therapeutic measures, then pulmonary rehabilitation strategies could be varied to increase compliance. It is the purpose of this study to focus on the relationship of locus of control and perceived home assistance to compliance in individuals with COPD following a pulmonary rehabilitation program.

Review of Literature

Compliance in chronic illness, such as Chronic Obstructive Pulmonary Disease (COPD) provides a challenge for health care professionals, patients, and their families, who are interested in attaining the ultimate goal of optimum health. Chronic illness influences the individual and his family because of its long-term nature, uncertainty of course and prognosis, probability of involving multiple body systems, disproportionate intrusiveness on the lives of patients and their families, common requirement of services from several types of providers and ambiguity of social roles of the person who is neither sick nor well (Haynes, Taylor & Sackett, 1979).

Pulmonary rehabilitation programs were developed to deal with many of the complex problems associated with COPD. The therapeutic measures advocated for COPD help an individual to gain control over dyspnea with resulting control over other areas in his life (Hodgkin, Balchum, Glaser, Miller, Haas, Shaw, Kimbel & Petty, 1975). This dimension of control over dyspnea in daily life gives individuals with COPD a sense

of well-being (Shapiro, Vostinak-Foley, Hamilton & Buehler, 1977). It is assumed that the sense of well-being can best be maintained through continued compliance with therapeutic measures advocated for COPD.

Compliance

Compliance is a complex phenomenon with many associated factors. Among those to be discussed are characteristics of the disease, which include such aspects as symptoms and disability, and the characteristics of the therapeutic regimen which include duration of treatment, complexity of regimen, side effects, and the level of professional supervision.

A characteristic of disease which affects compliance is the perception of symptom severity. With chronic illness, the patient is aware of more symptoms as the disease progresses. In COPD, this would be manifested by increasing shortness of breath, weakness, weight loss and signs of right heart failure. In two studies involving chronic diseases such as rheumatoid arthritis (Joyce, 1962) and alcoholism (Baekland, Lundwall & Shanahan, 1973) it was found that as the number of reported symptoms increased, the compliance level decreased. There have been no studies to demonstrate the relationship between perceived symptom severity and compliance among persons with COPD. Generally, as symptom severity increases, individuals become more disabled with COPD.

Another characteristic of the disease thought to influence compliance is the degree of disability. A positive relationship has

been found between the degree of disability and the level of compliance when studying chronically ill patients post hospitalization with more disabled patients being more compliant (Donabedian & Rosenfeld, 1962). A standardized measure of disability in individuals with COPD is the pulmonary function test. One component of this test, the forced expiratory volume in one second (FEV_1) adjusted to sex, age and height, is widely used in determining degree of disability. The results are reported in percentages with low numbers representing greater disability. The FEV_1 has been divided into categories for the purpose of classifying this group of individuals (see Appendix A) (Snider, Kory & Lyons, 1967). Although the FEV_1 is the most objective measure of disability, each individual determines their disability by how severe they perceive their symptoms and how much they allow these symptoms to affect their daily lives.

When considered together, studies of symptom severity and disability in patients with chronic disease show mixed results in relation to compliance. Because of the high degree of relationship between disability and perceived symptom severity in COPD and in light of equivocal results from other studies, one can only speculate on the relationship between these two factors and compliance. It would seem that if the individual perceived his treatment regimen useful in controlling progression of disease and deterioration is not rapid, that the probability of compliance is greater. In summary, it's probably not a direct relationship between disability and compliance.

Characteristics of the therapeutic regimen are also related to compliance. Duration of therapy plays a large role in explaining variation of compliance rates among individuals with COPD. For the rest of their lives, persons with COPD must comply with therapeutic measures to maintain an optimal level of wellness. In studying groups with hypertension (McKenney, Slining, Henderson, Devins & Barr, 1973), tuberculosis (Ireland, 1960), and obesity (Williams & Duncan, 1976), a negative correlation between compliance and duration of therapy has been found. Although no research has been conducted on patients with COPD, it can be speculated that similarly, due to its long-term nature, compliance may decrease with time.

Another characteristic of the regimen thought to influence compliance is complexity. Pulmonary rehabilitation programs advocate regimens which require complex behavioral changes. Programs generally include such components as avoidance of smoking and inhaled irritants, proper environment, adequate hydration, proper nutrition, multiple medications on a daily basis, oxygen and aerosol therapy, relaxation exercises, breathing retraining, chest physiotherapy and conditioning exercises (Hodgkin, et al., 1975). These changes require significant lifestyle changes for many individuals with COPD.

Much of the research on complexity has dealt with medication-taking behaviors (Brand, Smith & Brand, 1977; Hulka, Kupper, Cassel, Efird & Burdette, 1975; Neely & Patrick, 1968; Parker, Henney, Quik & Crooks, 1976). Generally, a negative correlation was found between complexity and compliance when populations with an acute illness were studied. The

relationship between complexity of the pulmonary regimen and compliance of individuals with COPD is not known.

In general, side effects of prescribed medications have played only a minor role in compliance. In thirteen studies dealing with acute and chronic medication-taking behaviors, when patients were asked why they were not taking their medication, only five to ten percent of the group even mentioned side effects as a reason for non-compliance (Haynes, et al, 1979). It is assumed that in these populations, side effects are only of minor importance to medication-taking behavior, depending on the extent to which they interfere with a person's lifestyle.

Medications frequently taken by individuals with COPD include theophylline, beta-adrenergics, and digoxin. Two of the most common complaints regarding side effects are nausea and shakiness. Steroids and antibiotics are frequently taken but only on a short-term basis. It has not been demonstrated whether side effects play a role in medication compliance behaviors of the COPD population.

The level of supervision (prescribed frequency of contact with health care providers) built into the regimen is the last aspect of the treatment regimen considered for its effect on compliance in chronically ill populations. It has been shown with tuberculosis patients that as supervision increases, compliance increases (Curry, 1968; Zaki, Edelstein, Josephson & Weisberg, 1968). This study deals with a population which is relatively short-term when compared with the COPD population. Individuals with COPD may require increased supervision because of their progressive disease process. Thus, more frequent

physician visits and hospitalizations may also affect compliance positively. The relationship between compliance in individuals with COPD and the level of supervision has not been investigated.

Studies of pulmonary rehabilitation programs have frequently looked at patient outcomes such as exercise tolerance and level of knowledge related to the therapeutic regimen for COPD. Exercise tolerance following a program has been studied by many researchers. All have shown that exercise tolerance does increase with participation in a pulmonary rehabilitation program (Petty, 1968; Burrows & Petty, 1971; Fishman & Petty, 1971; Kimbel, Kaplan & Alkalay; Shapiro, et al., 1977; Glass, 1981; Belman & Wasserman, 1981). The second outcome, level of knowledge, has been shown to increase by participation in a rehabilitation program (Perry, 1981). Some knowledge is necessary for compliance, but knowledge does not guarantee compliance. Although research has been done utilizing participants in pulmonary rehabilitation programs, none have studied compliance to the therapeutic regimen as an outcome.

In summary, it has been demonstrated in some chronically ill populations that there is a relationship between characteristics of the disease and regimen, and the level of compliance. It is not known in individuals with COPD which of these variables will affect compliance or the extent to which these variables will interact with one another. It can be predicted that characteristics of the disease and regimen will explain part of variance of compliance, but the individual's health beliefs may also influence compliance.

For example, in an earlier discussion, it was suggested that the relationship between disability and compliance may be influenced by the person's perception of the treatment regimen's control over disease progression. These beliefs about control may derive from the individual's life experiences and may be related to a more general construct of locus of control. The following section explores this concept and its relationship to compliance.

Locus of Control

A person's behavior is influenced by his locus of control. Locus of control is "a person's belief about whether or not a contingency relationship exists between his behavior (his actions) and his reinforcements (his outcomes)" (MacDonald, 1972). Locus of control had its origin in social learning theory. This theory explains behavior by the principle that reinforcement acts to strengthen an expectancy. An expectancy is a belief that a particular behavior or event will be followed by that reinforcement in the future. The early writing of Rotter (1966) described locus of control as a continuum with internal control at one end and external control at the other. Internally controlled persons believe their behavior, skills, or internal dispositions determine what reinforcements they receive. Externally controlled persons believe that reinforcements are not contingent upon their actions, but under the control of powerful others, luck, chance or fate.

Levenson (1974) questioned the conceptualization of locus of control as a unidimensional construct. She felt that internal control was orthogonal to external control, and that further understanding and prediction could be improved by studying fate and chance expectations separately from external control by powerful others.

From Levenson's work, Wallston and Wallston (1978) developed the Multidimensional Health Locus of Control Scale (MHLCS). This scale uses three categories, which are internal health locus of control (IHLC), and two external categories, powerful other health locus of control (POHLC) and chance health locus of control (CHLC).

Early research used Rotter's Internal-External Scale (I-E Scale) to examine locus of control. While studying patients with tuberculosis in the hospital setting, and diabetics, it was learned that internally controlled patients were active seekers of information (Lowery & Ducette, 1976; Seeman & Evans, 1962). While information is necessary for the individual to comply with a therapeutic regimen, health care providers disagree about the amount of knowledge needed to enable compliance. Also, the type and amount of information needed may vary for each individual. Since locus of control correlates with information seeking and information is necessary for compliance, then locus of control may also be correlated with compliance.

When diabetics were studied, using the I-E Scale, internally controlled individuals were initially more active seekers of information compared to externals. However, the amount of information which internally controlled diabetics obtained diminished with time until

internally and externally controlled diabetics were equal in their information. Internally controlled diabetics were less open to external influence, while externally controlled diabetics were more compliant. It had been hypothesized that internally controlled diabetics would be more compliant. When they were not, the researchers speculated that compliance among internally controlled diabetics diminished when they became aware that information would not completely control the disease. The externally controlled diabetics gained information and followed the physician's advice. Presumably, the physician was an authority figure (Lowery, & Ducette, 1976).

Participants in a weight control program were studied using the I-E Scale. The internally controlled individuals complied with the measures advocated in the program, lost more weight, and completed the program (Balch & Ross, 1975). It could be that a single strategy employed in a program will work for one group but not for the other in affecting compliance. Wallston applied this concept of different strategies for different locus of control groups and found that when strategies were matched with locus of control, both groups were successful (Wallston, Wallston, Kaplan & Maides, 1976).

Further work on the I-E Scale by Wallston and others produced the Health Locus of Control Scale (HLC) which is a more specialized scale of expectancy for use by health researchers (Wallston, 1976). This scale was used by Lewis in studying hypertension and compliance. The results of this work revealed four distinct groups, according to compliance and perceived home assistance. The highest level of compliance behavior was

reported by internally controlled individuals with perceived high levels of home assistance. The second highest compliance scores were found among those externally controlled individuals with low perceived levels of home assistance. The next to the lowest mean compliance scores were found among internally controlled individuals with perceived low home assistance. The least compliant group were the externally controlled individuals with perceived high levels of home assistance (Lewis, Morisky & Flynn, 1978). The researchers felt that this group lacked a sense of personal control over the outcomes of their behavior, even in the presence of environmental support. Using locus of control alone to predict compliance leads to conflicting results, but adding the variable of perceived home assistance increases the probability of compliance prediction according to these researchers.

Family Support

The family provides support for a particular behavior in a given situation. This support can reinforce the behavior directly or influence the individual's expectancies for reinforcement. Support from family members can function in many different ways. The family may function as a collector and disseminator of information about the world, as a feedback guidance system, as a source of ideology, as a guide and mediator in problem solving, as a source of practical service and concrete aid, as a haven of rest and recuperation, as a reference and control group, and a source and validator of identity (Caplan &

Killilea, 1976). With chronic illness, increasing demands for support are placed upon the family by the patient.

In studying families and compliance, it has been shown that family expectations and compliance of arthritis patients to a hand resting splint were positively correlated (Oakes, Ward, Gray, Klauber & Moody, 1970). Another group found that family coping behaviors of patients on dialysis were positively correlated with compliance (Pentecost, Zwerenz & Manuel, 1976). In the study by Lewis and colleagues, perceived level of home assistance and locus of control correlated positively with compliance. In addition, the home assistance provided by the family and level of patient compliance have been shown to be positively correlated.

Based on prior studies on patients with chronic disease, it was predicted that there would be a relationship between locus of control, perceived home assistance and self-reported compliance by individuals with COPD who have completed a pulmonary rehabilitation program.

Disability and symptom severity have also been shown to be related to compliance, though the direction of the relationship is unclear from prior studies. It is assumed in this study that perceived home assistance would relate with degree of disability for the obvious reasons that, as the individual's condition deteriorates, greater assistance is needed. Therefore, disability was used as a control in examining the degree of relationship between perceived home assistance and compliance. Prior studies have also indicated that compliance and level of supervision relate to compliance. All patients in this study had essentially the same regimen complexity and level of supervision.

The hypothesized relationships among variables are presented in Figure 1. Each variable type of health locus of control, perceived home assistance and disability have been shown with some populations to be related to compliance. It is not known whether these variables will interact with each other as well as relate directly to compliance among COPD patients.

Purpose of the Study

The purpose of this study was to explore the relationship of compliance among COPD patients participating in a pulmonary rehabilitation program to their locus of control over health and perceived home assistance while controlling for disability.

Research Questions

This study was designed to answer the following research questions:

1. What is the relationship between the subject's locus of control, perceived home assistance and self-reported compliance one month following a pulmonary rehabilitation program when disability, complexity of regimen and level of supervision are controlled?
2. How much of the variance in self-reported compliance is accounted for by perceived home assistance when disability is controlled?

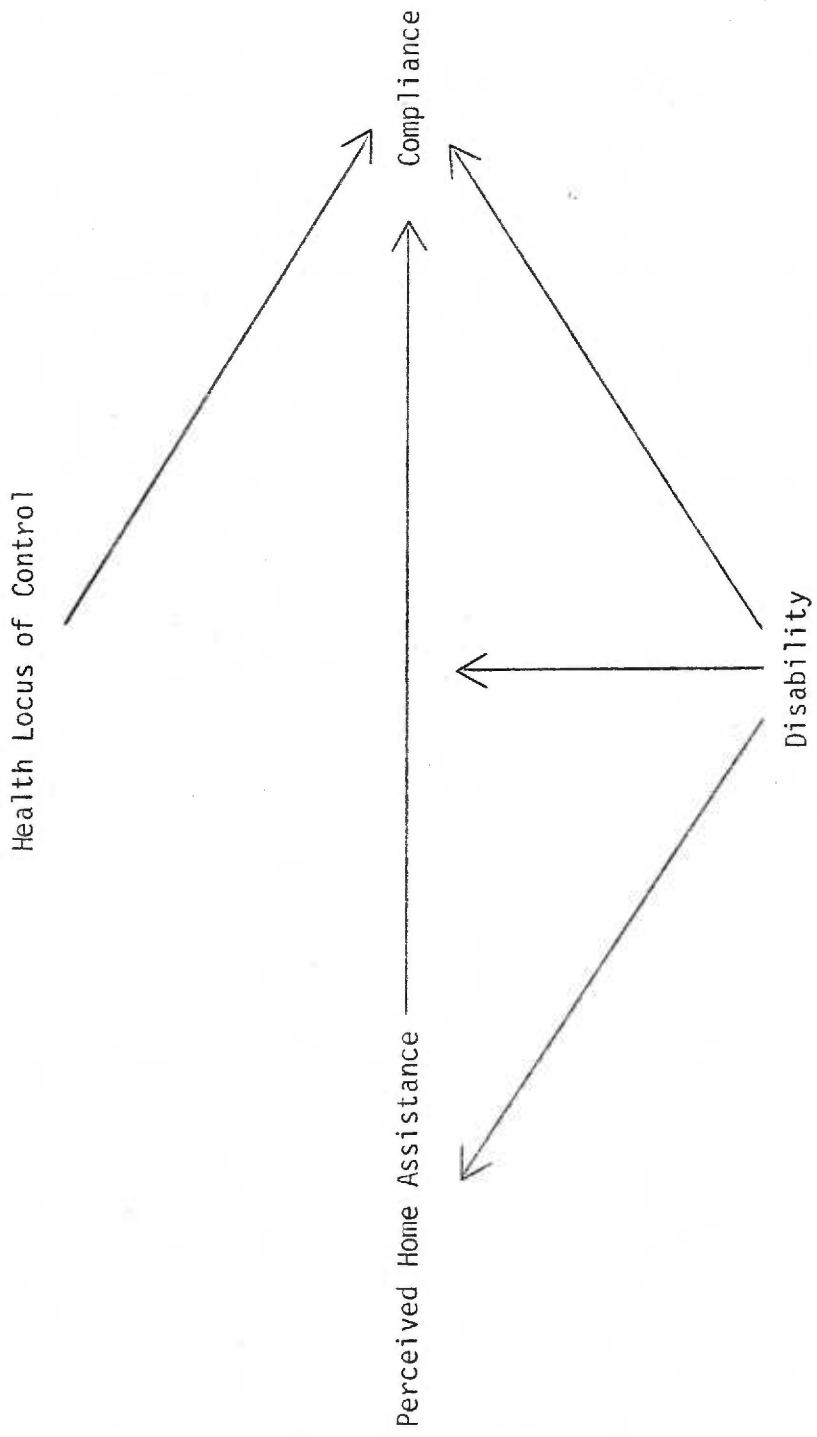


Figure 1. Hypothesized Relationships Among Variables

CHAPTER II

METHODOLOGY

Research Design

This study employed a descriptive correlational design to determine if there was a relationship between locus of control, perceived home assistance and compliance with therapeutic regimens among COPD patients who have completed a pulmonary rehabilitation program.

Variables

Predictor Variables

Locus of Control: Locus of control was defined as a person's belief about whether a contingency relationship exists between his behavior and his reinforcements. This was measured by the MHLC Scale which has the following three categories:

1. Internal Health Locus of Control: Internal health locus of control is a person's belief that his health is the result of his behavior or actions.
2. Powerful Other Health Locus of Control: Powerful other health locus of control is a person's belief that his health is controlled by powerful others.
3. Chance Health Locus of Control: Chance health locus of control is a person's belief that his health is a result of chance, luck or fate (Wallston & Wallston, 1978).

Perceived Home Assistance: Perceived home assistance is support from a significant other in the immediate environment, most frequently a family member. This is measured by the home assistance scale and includes such things as showing interest and concern in the patient and offers to help. This scale was modified for COPD patients (Lewis, et al., 1978).

Criterion Variable

Compliance: Compliance is defined as adherence to a therapeutic regimen in areas of medications, exercise, fluids, etc., as prescribed by the physician, nurse or physical therapist. Compliance is measured by a self-reported compliance questionnaire.

Control Variables

Disability: Disability is defined as respiratory dysfunction. Respiratory dysfunction was measured by the forced expiratory volume in one second (FEV_1) on the pulmonary function test.

Complexity of Regimen: Complexity of regimen is the type of health related measures prescribed for an individual. These health measures include such things as daily exercise, adequate fluid intake, reporting infections, postural drainage, pursed lip breathing, medications and relaxation techniques. This was controlled for by each patient being in the program involved with the same regimen.

Level of Supervision: The level of supervision is defined as prescribed frequency of contact with health care providers. This was controlled for by keeping it constant for all subjects.

Sample and Setting

Consent was obtained from two hospitals in a Northwest metropolitan area to study participants in their pulmonary rehabilitation programs (see Appendix B). A convenience sample was used including all those patients with COPD admitted to the pulmonary rehabilitation programs at the two hospitals, who agreed to participate after an informed consent. These programs serve a population of Oregon and southwestern Washington. Individuals may join the programs by either physician referral or at their own request.

The pulmonary rehabilitation programs are outpatient group programs which are conducted in the respective hospitals. Group size varies from two to eight, depending on whether or not family members attend. The program at hospital A has been in operation since the fall of 1977, while hospital B's was begun in the fall of 1979. Both programs were begun by the same nurse, so the structure and content are very similar. Both programs use a nurse for the instruction and practice in areas such as lung physiology, pathophysiology of COPD, chronic illness, airway management, medications, diet, fluids, energy conservation, complication prevention, relaxation and travel. The format is informal which allows participants to ask questions and discuss any problems they are experiencing. A physical therapist presents for the exercise portion of the program. Families of the participants are invited to attend and about three-quarters of the spouses do. The number of hours spent in the program varies from 22-27 over a three to four week period, from one to three-thirty in the afternoon. Each patient's health status is

evaluated by the team prior to joining the program by obtaining a chest x-ray, EKG, pulmonary function test including FEV₁, blood gas exercise testing and serum theophyllin level. After these results are evaluated, a treatment regimen is established. The cost of the program ranges between \$450 to \$550. Medicare pays for 80 percent of the expense for those 65 years of age or older. Insurance coverage for those under 65 varies with different insurance plans.

The sample of 14 subjects was obtained over a six month period. While participants in the program (17) signed consent forms agreeing to participate, only 14 returned questionnaires. Descriptive information such as age and sex was obtained for each program participant.

Data Collection Instruments

Three instruments were utilized for data collection. The first instrument was Form A of the Multidimensional Health Locus of Control Scale (MHLC) (See Appendix D). The MHLC is an 18 item Likert-type instrument with two forms--A and B (Wallston & Wallston, 1978). The three locus of control traits measured by this scale are internality, powerful other, and chance.

These forms were tested by Wallston and Wallston (1978) on individuals over 16 in airports, median estimated age of 35-44. The alpha reliabilities from the MHLC scales ranged from .673 to .767 and, when parallel forms were combined into 12 item scales, the alpha reliabilities increased from .830 to .859. The intercorrelations of the MHLC scale showed that the IHLC and PHLC scales are statistically

independent. The construct validity of the MHLC scale was measured by concurrently administering a Social Desirability Scale for bias. The only scale which correlated with Social Desirability was the CHLC-total, but that negative correlation accounted for less than six percent shared variance between the two instruments. Thus, MHLC measures are not significantly influenced by Social Desirability bias of respondents (Wallston & Wallston, 1978).

As an initial indication of predictive validity, Wallston reported correlations between MHLC scores and health status. Health status correlated positively with IHLC ($r = .403, p < .001$), negatively with CHLC ($r = -.275, p < .01$) and did not correlate with PHLC ($r = .055$) (Wallston & Wallston, 1978). The degree of internality, powerful other and chance health locus of control ranges between 6 and 36 on these three scales. The higher scores reflect a stronger belief in each construct.

The second data collection instrument employed was the Home Assistance Scale developed by Faas for use with hypertensive patients (Lewis et al., 1978). It was adapted for use by COPD subjects by substituting the word COPD for blood pressure and changing the wording to represent COPD therapeutic measures (see Appendix D). The range of scores in this scale is between 9 and 34, with 9 being perceived low home assistance and 34 perceived high home assistance. No validity and reliability were established for this scale after the modification by this investigator.

The third data collection instrument employed was Self-Reported Compliance which was developed by this investigator (see Appendix E). This instrument measured an attempt by individuals to comply with measures advocated in the program. Specific therapeutic measures included are exercise, water intake, medication use, reporting of symptoms, postural drainage, pursed lip breathing, intake of foods containing potassium, and use of relaxation techniques with shortness of breath. It was scored on a scale ranging from one to four with one being compliance none of the time, two being compliance some of the time, three being compliance most of the time, and four being compliance all of the time. Individual compliance scores were obtained for each measure since each varied depending on the number of medications a patient was taking. The medication score was totaled and divided by the number of medications to obtain one score. This gave a range of 8 to 32.

The last data collection instrument was the pulmonary function test. The FEV₁ is a specific part of the test used to determine disability. The scoring is based on a normal person receiving 100 percent and a low percent indicating lung damage.

Data Collection Method

An informed consent was obtained upon admission to the program from those who were willing to participate (see Appendix F). Descriptive data were also obtained at this time. The participants completed the program over a three to four week period. At one month following completion of the program, each participant was sent the MHLC scale,

Home Assistance scale, and Self-Reported Compliance instrument with instructions to fill them out (Appendix E) and return them in the stamped envelope provided. The one month interval was chosen because if one waits until individuals have gained some experience with the treatment regimen before measuring health beliefs, significant correlations can be obtained between compliance and health beliefs (Haynes, Sackett, Gibson, Taylor, Hackett, Roberts & Johnson, 1976).

Data Analysis

The data obtained on the MHLC scale, Home Assistance scale and Self-Reported Compliance instrument were analyzed using multiple regression with compliance as criterion measure and MHLC and Home Assistance as predictor variables. Control variables including level of supervision and complexity of regimen were kept constant by virtue of the program protocol. Disability was reported in percents from FEV₁ results with high percents being no lung damage and low percents being considerable lung damage. A partial correlation was also used to analyze the relationship between perceived home assistance and self-reported compliance while controlling for disability.

CHAPTER III

RESULTS

Introduction

Data were collected over a six month period, netting a sample of 14, which was less than expected. All analyses were conducted as planned, but it should be kept in mind that the sample size was quite small for analysis. Generalizations beyond this sample should be made with caution.

Sample Characteristics

A general description of the sample is included in Table 1. The subjects were evenly distributed among sexes with seven males and seven females. The age range in years was 51 to 74 with a mean of 65, standard deviation of 5.38; the median age was 62.50.

TABLE 1
Description of Sample on Major Variables

Variable	\bar{x}	SD	Range	
			High	Low
Internal HLC	25.71	6.99	34	9
Powerful Other HLC	22.36	5.93	30	11
Chance HLC	14.50	5.03	22	6
Home Assistance	21.64	5.57	28	8
Self-Reported Compliance	22.50	5.91	29	11
Disability	37.07	12.68	71	23

The level of disability measured by the pulmonary function test has a mean FEV_1 of 37, which is in the severe category of pulmonary dysfunction. The health locus of control (HLC) was divided into three categories. The mean internal HLC for the sample was 25.71, which is comparable to the normal healthy sample used in developing and testing the measure. Powerful other HLC ($\bar{x} = 22.36$) and chance HLC ($\bar{x} = 14.50$) for the sample was consistent with that reported for the original testing group. Perceived home assistance had a mean of 21.64 indicating moderate home assistance. Self-reported compliance had a mean of 22.50 indicating moderate compliance with the therapeutic regimen.

Research Question #1

The first research question was: What is the relationship between the subjects locus of control, perceived home assistance and self-reported compliance one month following a pulmonary rehabilitation program when disability, complexity of regimen and level of supervision are controlled?

In answering this question, first simple relationships were analyzed for correlation among all variables. Table 2 presents these relationships. The only correlations which were significant were between powerful other HLC and internal HLC ($r = .58$) and between self-reported compliance and perceived home assistance ($r = .58$). Since an $r = .53$ was needed for significance at the $p.05$ level, the relationship between self-reported compliance and perceived home

Table 2
Correlation Coefficients Among All Variables

	Internal HLC	Powerful Other HLC	Chance HLC	Home Assistance	Self-Reported Compliance
Powerful Other HLC	.58*				
Chance HLC	-.17	.16			
Home Assistance	-.21	.26	.06		
Self-Reported Compliance	-.32	-.08	-.18	.58*	
Disability	.10	-.42	-.28	-.45	.18

n = 14

r = .53

*p ≤ .05

assistance was statistically significant. A scattergram of the relationship has been included to show that the relationship between perceived home assistance and self-reported compliance may have been affected by two outlying scores (Figure 2).

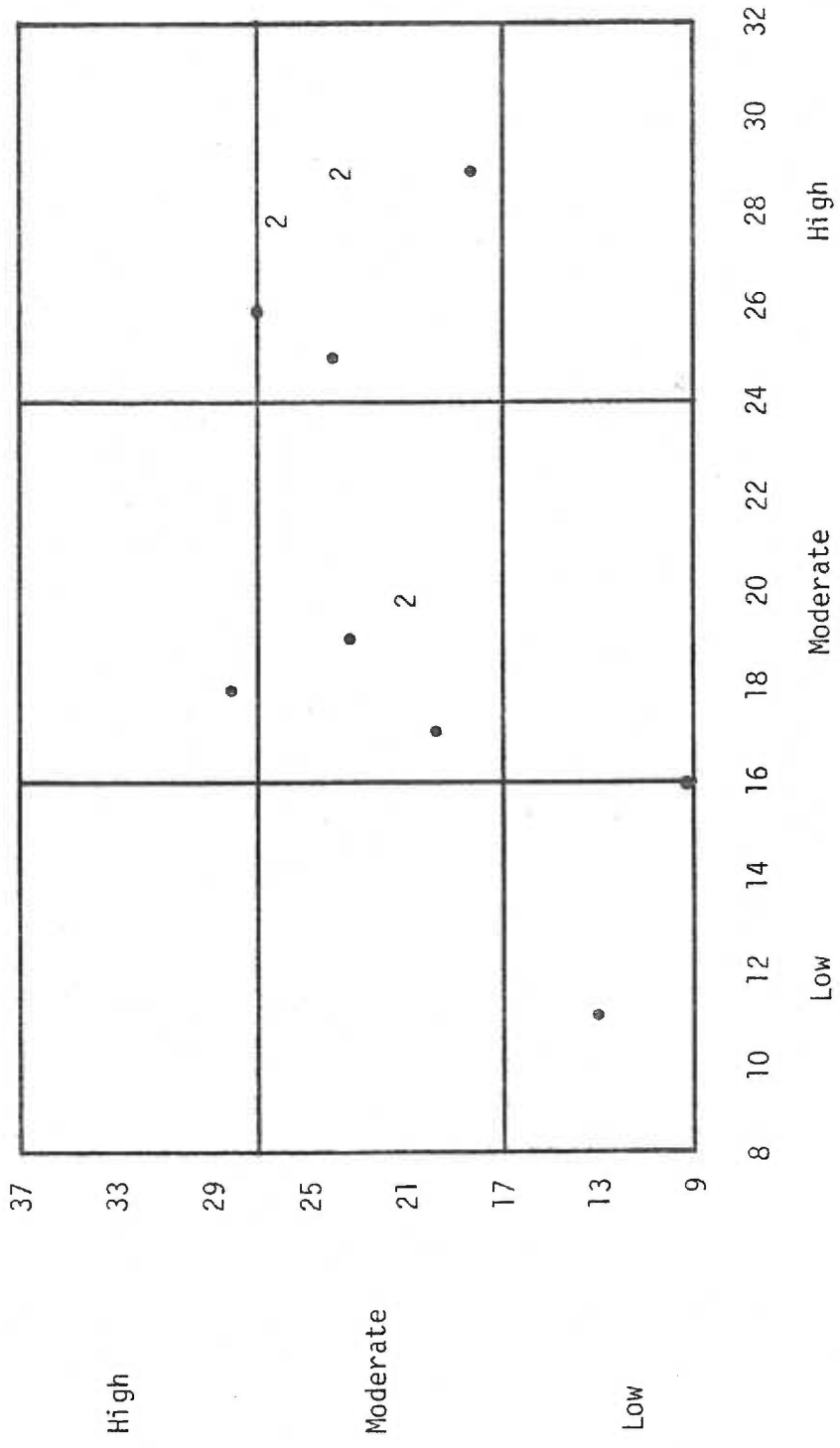
Two unexpected correlations were found. Powerful other HLC and internal HLC were shown to correlate significantly, and perceived home assistance and disability showed a negative correlation.

The coefficient and confidence intervals have been included in Appendix H. These have been included for developing a prediction equation.

Multiple regression was utilized to combine these simple correlations into one explaining the relationships between locus of control, perceived home assistance, disability and self-reported compliance. These are presented in Table 3. The best predictors of self-reported compliance were perceived home assistance and disability. Together, perceived home assistance and disability account for 57% of total variation. The health locus of control measures were not significant in predicting self-reported compliance. Internality HLC contributed to 4% of the variance, powerful other HLC 1% and chance HLC 2%.

Research Question #2

A partial correlation was used to answer the second question which asked: How much of the variance in self-reported compliance is accounted for by perceived home assistance when disability is controlled for? The



+Self-Reported Compliance

*Range 9-36
+Range 8-32

Figure 2. Scattergram of the Correlation Between Perceived Home Assistance and Self-Reported Compliance

Table 3 Multiple Regression Summary Table
 Dependent Variable Self-Reported Compliance

Variable Entered	Multiple R	R ²	R ² Change	Simple R	DF Residual	Overall F	Significance
Home Assistance	.58	.33	.33	.58	12	5.93	.03
Disability	.76	.58	.24	.18	11	7.47	.01
Internal HLC	.78	.62	.04	-.32	10	5.32	.02
Chance HLC	.79	.63	.01	-.18	9	3.80	.04
Powerful Other HLC	.80	.65	.02	-.08	8	2.95	.08

partial correlation between perceived home assistance and self-reported compliance ($r = .75$) was strengthened when disability was controlled. Perceived home assistance accounted for 56% of the variance in self-reported compliance, which is greater than when disability is not controlled for.

In summary, the relationship between disability, perceived home assistance and self-report compliance was significant. The multi-dimensional health locus of control measures of internal HLC, powerful other HLC and chance HLC were not useful in predicting compliance. The best two indicators of self-reported compliance were perceived home assistance and disability, with perceived home assistance being stronger when disability was controlled.

CHAPTER IV

DISCUSSION

This discussion will first examine the relationship between the individual variables of locus of control, perceived home assistance to self-reported compliance. Next, the combined relationship of these variables to self-reported compliance will be examined.

The locus of control measures of internality, powerful other and chance did not correlate with any variable. The construct of locus of control has been found to be useful in determining who will actively seek information and in determining who will initially learn more (Lowery & Ducette; Seeman & Evans, 1962). Locus of control, by itself, does not explain compliance to a therapeutic regimen.

Although it was not the purpose of this study to examine the relationships among the locus of control subscales, a significant relationship was found between internality and powerful other. This did not support work by Wallston & Wallston (1978) when the scale was being developed. They found no correlation between the two locus of control measures. Both populations had similar means, so there would be no reason to expect a difference from the normal population. The small sample size may have contributed to this finding.

A significant relationship was found between perceived home assistance and self-reported compliance. This would indicate that if an individual believes his family to be supportive, then he would more readily comply. Studies on family support have also shown a significant

positive relationship between family support and an individual member's compliance (Oakes, et al., 1970 & Pentecost, et al., 1976). Because of the progressive nature of lung dysfunction in COPD, the family's role becomes increasingly more important for physical and emotional support.

The last variable which has been shown to interact with compliance was disability (Donabedian & Rosenfeld, 1962). The investigator did not find a significant relationship between these two variables. The direction of the relationship was negative which was surprising. This could be explained by the fact that disability in COPD is related to an individual's attitude about his disease. Some individuals with severe lung dysfunction can function on a daily basis with very little thought to the limitations of the disease, while others with a lesser degree of lung dysfunction are very much limited by the symptomatology of the disease. It could be that the FEV_1 , as a measure of disability, was not the best indicator. A better measure of disability for the person with COPD would include such things as shortness of breath experienced during activities of daily living or walking as well as ability to cope with progressive lung dysfunction.

From the above discussion, it can be seen that only perceived home assistance was significantly related to self-reported compliance. The next section discusses their combined relationship with self-reported compliance.

This study did not support the idea that health locus of control and perceived home assistance together are good predictors of self-reported compliance. This had been shown earlier by Lewis et al., (1978) when

studying a hypertensive population. It was assumed that hypertension and COPD were similar, both being chronic diseases. This assumption may have been incorrect because of the difference in symptomatology between the two diseases. Hypertension has a covert symptomatology while COPD has symptoms which must be dealt with on a daily basis. With hypertension medication and a few lifestyle modifications, one can keep the disease under control. COPD, on the other hand, requires many lifestyle changes which can most of the time keep the disease under control.

When the relationship of locus of control, perceived home assistance and disability to compliance was examined, only perceived home assistance and disability were significant for predicting compliance. When disability was controlled for, the relationship between perceived home assistance and self-reported compliance was even stronger. This could be explained by the fact that, although a person who is disabled by COPD is receiving a large degree of home assistance, he may not perceive this as meeting his needs. An example of this would be an individual with COPD who is severely disabled and relies upon his family for every need while he sits in an easy chair all day. The demands upon the family are great and at times, they may not be able to meet each of his needs. Although they are providing a large degree of home assistance, it is not perceived as enough to meet the needs of individuals with COPD.

One variable which was not included in this study and may account for some of the findings is the effect of the regimen on disease progression. It has been demonstrated earlier that the treatment

regimen will increase exercise strength and endurance and also improve the individual's subjective feeling of well-being, but it will not necessarily prevent disease progression (Hodgkin, 1979). If the treatment regimen is not perceived as worthwhile in controlling symptoms and disease progression, then compliance with it is not valued as important. The family may support the individual, but if the regimen does not provide control of the disease progression, then compliance can not be expected as an outcome.

In summary, locus of control does not correlate with perceived home assistance and self-reported compliance. The best two predictors of self-reported compliance are disability and perceived home assistance, with the relationship between perceived home assistance and compliance being greater when disability is controlled. Due to the small sample size, these findings may be spurious and it is not possible to generalize beyond this study.

CHAPTER V
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Compliance with therapeutic regimens is important to healthcare professionals because of the increase in the cost of providing healthcare to an enlarging population which is living longer with more chronic diseases. Among these, chronic obstructive pulmonary disease has been treated by the development of pulmonary rehabilitation programs. These programs have been shown to benefit the individual with COPD by decreasing number of days hospitalized each year, increasing exercise endurance and increasing his subjective well-being. To maintain these benefits, compliance with his therapeutic regimen is necessary.

The literature has shown that compliance is a complex phenomenon. Studies of characteristics of the disease such as perception of symptom severity and disability showed mixed results in relation to compliance. Because of the relationship between disability and perceived symptom severity in COPD, one would expect they would be related to compliance.

Characteristics of the therapeutic regimen including complexity and level of supervision were shown to affect compliance. Professionals who direct pulmonary rehabilitation programs advocate a regimen which requires many lifestyle changes and provide the supervision during the program to initiate these changes. While characteristics of the condition and regimen explain part of the variation in compliance, a

person's perception of the treatment regimen's control over disease progression may also be a variable. Beliefs about control may derive from an individual's life experiences and may be related to the more general construct of locus of control.

Locus of control is belief about whether or not a contingency relationship exists between an individual's behavior and reinforcements. Rotter (1966) described locus of control as a continuum with internal control at one end and external control at the other. Levenson (1974) questioned the conceptualization of locus of control as a unidimensional construct and separated external control to include powerful others as one group and chance as the other. Since these earlier tools for measuring locus of control were generalized measures of expectancy, Wallston and Wallston (1978) developed the Multidimensional Health Locus of Control Scale which was more specific in measuring health related expectancies.

Studies using the locus of control construct found internals to be active seekers of information, while externals gained the same information over time (Lowery & Ducette, 1976; Seemans & Evans, 1962). Also, participants in a weight program were successful when teaching strategies were matched to locus of control (Balch & Ross, 1975). By adding the variable of perceived home assistance to locus of control, the probability of predicting compliance was increased when studying a hypertensive population (Lewis et al., 1978).

Based on prior studies of patients with chronic disease, it was predicted that there would be a relationship between locus of control,

perceived home assistance and self-reported compliance by individuals with COPD who have completed a pulmonary rehabilitation program. Disability, level of supervision and complexity of regimen were controlled for because earlier studies demonstrated their effect upon compliance.

The study employed a descriptive correlational design to determine if there was a relationship between locus of control, perceived home assistance and compliance with therapeutic regimens among COPD patients one month following completion of a pulmonary rehabilitation program.

The data were collected over a six month period from COPD patients entering pulmonary rehabilitation programs in two northwest metropolitan hospitals. All patients agreed to participate, but three did not return their questionnaires. The final sample consisted of 14 individuals.

Multiple regression analysis revealed the best predictors of self-reported compliance to be perceived home assistance and disability. Together, perceived home assistance and disability account for 57 percent of total variance. None of the health locus of control measures were significant in predicting self-reported compliance. A partial correlation coefficient revealed a strong relationship between perceived home assistance and self-reported compliance when disability was controlled.

In summary, locus of control was not found to be a predictor of self-reported compliance, while perceived home assistance and disability were predictors of self-reported compliance in this study. The relationship between self-reported compliance and perceived home

assistance was strengthened when disability was controlled for. Locus of control may not have predicted compliance among the COPD population, because the best compliance does not guarantee remission of the disease.

Conclusions

The conclusions which can be drawn from this study of compliance among COPD patients who participated in a pulmonary rehabilitation program are: Perceived home assistance and disability are predictors of self-reported compliance; Locus of control does not predict self-reported compliance; and the assumed similarity of perceived home assistance and compliance between COPD and hypertensive populations was not verified.

Recommendations

It is recommended that further research be pursued as a result of this study. The study should be repeated on a larger sample of COPD patients with a greater range in variables including the family expectations.

The relationship between disability and perceived home assistance should be examined further since, from the literature review, it appeared that they would be related. This study found no significant relationship between the two, while the direction of the relationship was negative. A measure of disability, including dyspnea related to activities of daily living, may prove more useful in predicting compliance than the FEV₁ on the pulmonary function test.

The relationship between disability, perceived home assistance and compliance might be enhanced by using an actual measure of home assistance rather than the perceived one. This could be used with both the family and the patient for comparison.

Locus of control as a predictor of compliance was not found to be useful in this study. It could be that the construct of locus of control may need to be revised with chronically ill populations, where control is not always possible.

For the nurse practitioner, this study does have implications. Whenever a therapeutic regimen is advocated, the nurse needs to assess the family's ability to assist the patient in complying with the regimen and the patient's ability to carry out activities of daily living.

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APPENDIX A
CRITERIA FOR SEVERITY OF VENTILATORY DEFECT

CRITERIA FOR SEVERITY OF VENTILATORY DEFECT

The forced expiratory volume in one second (FEV_1) is a standardized test performed in hospital laboratory setting with trained personnel.

Degree of Severity

Mild: 65 - 79% of predicted value

Moderate: 50 - 64% of predicted value

Severe: 35 - 49% of predicted value

Very Severe: below 35% of predicted value

(Snider, Korry & Lyons, 1967)

APPENDIX B
HOSPITAL CONSENTS



**PORTLAND
ADVENTIST
MEDICAL
CENTER**

10123 SE
MARKET STREET
PORTLAND, OREGON
97216
(503) 257-2500

April 28, 1981

Kerry Moyer, R.N.
Pulmonary Clinical Specialist

Dear Kerry;

We have reviewed the thesis proposal entitled, "The Relationship Between Locus of Control, Home Assistance, and Health Behavior of Patients with Chronic Obstructive Pulmonary Disease Following A Pulmonary Rehabilitation Program", and are agreeable to the Pulmonary Rehabilitation Program at Portland Adventist Medical Center being used to collect part of the data.

Sincerely,

Medical Director
Pulmonary Medicine

Aubrey Burke, R.R.T.
Director
Pulmonary Medicine

GAS:AB:man

PROVIDENCE
MEDICAL CENTER

700 N.E. 47TH AVENUE
PORTLAND, OREGON 97213
PHONE: (503) 234-8211



43

SISTERS OF
PROVIDENCE

SERVING IN THE WEST SINCE 1856


April 29, 1981

Kerry Moyer
Portland Adventist Medical Center
10123 S.E. Market St.
Portland, Oregon
97216

Dear Kerry,

Thank you for your interest in studying compliance of the COPD patient to his rehabilitation class material. I have checked with Dave Warrilow and he says that as long as we have the patients and physicians approval it will be all right to carry out the study on our patients. I can obtain the above for you.

Sincerely,


SUZANNE BITHER, RN
Coordinator, Pulmonary
Rehabilitation

APPENDIX C
BELIEFS ABOUT HEALTH AND ILLNESS

BELIEFS ABOUT HEALTH AND ILLNESS

Everyone has certain beliefs about important health-related issues. Below are a set of statements describing beliefs about illness.

Please answer all the statements as honestly as you can. THERE ARE NO RIGHT OR WRONG ANSWERS. Please circle the one response that best describes your beliefs about your health and illness.

1. If I get sick, it is my own behavior which determines how soon I get well again.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

2. No matter what I do, if I am going to get sick, I will get sick.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

3. Having regular contact with my physician is the best way for me to avoid illness.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

4. Most things that affect my health happen to me by accident.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

5. Whenever I don't feel well, I should consult a medically trained professional.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

6. I am in control of my health.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

7. My family has a lot to do with my becoming sick or staying healthy.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

8. When I get sick, I am to blame.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

9. Luck plays a big part in determining how soon I will recover from an illness.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

10. Health professionals control my health.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

11. My good health is largely a matter of good fortune.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

12. The main thing which affects my health is what I myself do.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

13. If I take care of myself, I can avoid illness.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

14. Whenever I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

15. No matter what I do, I'm likely to get sick.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

16. If it's meant to be, I will stay healthy.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

17. If I take the right actions, I can stay healthy.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

18. Regarding my health, I can only do what my doctor tells me to do.

Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Moderately Agree (5)	Strongly Agree (6)
-----------------------------	-------------------------------	-----------------------------	--------------------------	----------------------------	--------------------------

APPENDIX D
HOME ASSISTANCE SCALE

HOME ASSISTANCE SCALE

Please circle the best answer.

1. Does your family help you follow the doctor's advice?

YES	NO
(2)	(1)

2. During the past week, has your family reminded you to take your medicines, or put them out so you wouldn't forget?

All the time	Some of the time	Seldom	No
(4)	(3)	(2)	(1)

3. During the past week, has your family ever told you to drink more water?

All the time	Some of the time	Seldom	No
(4)	(3)	(2)	(1)

4. During the past week, has your family ever helped you with your pursed lip breathing?

All the time	Some of the time	Seldom	No
(4)	(3)	(2)	(1)

5. During the past week, has your family reminded you to relax?

All the time	Some of the time	Seldom	No
(4)	(3)	(2)	(1)

6. During the past month, has your family reminded you that you had a physician's appointment?

YES	NO	No scheduled appointment
(2)	(1)	(0)

7. How much of the time do you think that your family expects you to take the medications prescribed by your physician to be taken every day for your breathing?

All the time	Only when I feel sick
(4)	(3)

Only when I'm having severe breathing problems
(2)

I don't have to take my medicine.
(1)

8. What do you think your family would say if you told them that you were going to stop seeing a doctor for your chronic obstructive pulmonary disease? Would they say that

You should continue to see a doctor
(4)

That it's okay to stop seeing a doctor
(3)

They don't care what you do
(2)

You don't know
(1)

9. During the past week, has your family ever reminded you to exercise?

All the time
(4)

Some of the time
(3)

Seldom
(2)

No
(1)

10. Would your family provide transportation to get you to the physician's office or pharmacy for medications should you be unable to drive yourself?

YES
(2)

NO
(1)

APPENDIX E
SELF-REPORTED COMPLIANCE

SELF-REPORTED COMPLIANCE

Circle the answer which best describes what you do.

1. I do some form of exercise as outlined for me during the program.

- | | |
|-----------------------------|-----------------------------|
| (a) all of the time
(4) | (b) most of the time
(3) |
| (c) some of the time
(2) | (d) none of the time
(1) |

2. I drink eight glasses of water each day.

- | | |
|-----------------------------|-----------------------------|
| (a) all of the time
(4) | (b) most of the time
(3) |
| (c) some of the time
(2) | (d) none of the time
(1) |

3. Place the name of each medication you are currently supposed to take on a daily basis in the blank provided. Then circle the answer.

1) I take _____

- | | |
|-----------------------------|-----------------------------|
| (a) all of the time
(4) | (b) most of the time
(3) |
| (c) some of the time
(2) | (d) none of the time
(1) |

2) I take _____

- | | |
|-----------------------------|-----------------------------|
| (a) all of the time
(4) | (b) most of the time
(3) |
| (c) some of the time
(2) | (d) none of the time
(1) |

3) I take _____

- | | |
|-----------------------------|-----------------------------|
| (a) all of the time
(4) | (b) most of the time
(3) |
| (c) some of the time
(2) | (d) none of the time
(1) |

4) I take _____

- | | |
|-----------------------------|-----------------------------|
| (a) all of the time
(4) | (b) most of the time
(3) |
| (c) some of the time
(2) | (d) none of the time
(1) |

5) I take _____

- | | |
|-----------------------------|-----------------------------|
| (a) all of the time
(4) | (b) most of the time
(3) |
| (c) some of the time
(2) | (d) none of the time
(1) |

6) I take _____

- | | |
|-----------------------------|-----------------------------|
| (a) all of the time
(4) | (b) most of the time
(3) |
| (c) some of the time
(2) | (d) none of the time
(1) |

7) I take _____

- | | |
|-----------------------------|-----------------------------|
| (a) all of the time
(4) | (b) most of the time
(3) |
| (c) some of the time
(2) | (d) none of the time
(1) |

8) I take _____

- | | |
|-----------------------------|-----------------------------|
| (a) all of the time
(4) | (b) most of the time
(3) |
| (c) some of the time
(2) | (d) none of the time
(1) |

4. The last time I got a respiratory infection

- | |
|---|
| (a) I called my doctor right away
(4) |
| (b) I waited until I was sure I was sick
(3) |
| (c) I waited until I couldn't go any further
(2) |
| (d) I didn't call
(1) |

5. I use postural drainage to help bring up secretions

- | |
|--|
| (a) when I have increased secretions
(4) |
| (b) when I have difficulty getting up secretions
(3) |
| (c) as a last resort
(2) |
| (d) only when I'm in a hospital and my physician has ordered it
(1) |

6. I use pursed lip breathing

- (a) during my daily activities
(4)
- (b) only when I'm short of breath
(3)
- (c) when I feel like it
(2)
- (d) none of the time
(1)

7. I eat foods that are high in potassium

- | | |
|---------------------------|-----------------------------|
| (a) each day
(4) | (b) most of the time
(3) |
| (c) once in awhile
(2) | (d) none of the time
(1) |

8. When short of breath, I use the relaxation techniques

- | | |
|----------------------------|-----------------------------|
| (a) all of the time
(4) | (b) most of the time
(3) |
| (c) when I remember
(2) | (d) none of the time
(1) |

APPENDIX F
INFORMED CONSENT

UNIVERSITY OF OREGON HEALTH SCIENCES CENTER
INFORMED CONSENT

I, _____, herewith agree to serve as a subject in the investigation named, "The Relationship Between Locus of Control, perceived Home Assistance, and Health Behavior of Patients with Chronic Obstructive Pulmonary Disease Following a Pulmonary Rehabilitation Program", conducted by Kerry Moyer, R.N., B.S.N., under the supervision of Christine Tanner, R.N., Ph.D., at the University of Oregon Health Sciences Center, School of Nursing. The investigation aims at discovering if there is a relationship between an individual's health beliefs and their willingness to follow prescribed behaviors following a pulmonary rehabilitation program.

I understand that:

1. One month after completion of the program, I will receive three questionnaires in the mail, with a stamped, addressed envelope to send them back.
2. The questionnaires will take approximately 20 minutes to complete.
3. I will not benefit directly, but my participation in this study will help nurses in planning teaching programs for patients with breathing problems.
4. The information you supply will be kept confidential by using code numbers, by being kept in a locked place, and by reporting the results in aggregate form so that no one individual is associated with an answer.
5. Kerry Moyer has offered to answer any questions I have about participation in this study, and can be reached at 239-6134.
6. I understand I am free to refuse to participate or withdraw from participation in the study at any time without effect on my relationship with or treatment at Portland Adventist Medical Center or Providence Medical Center.
7. It is not the policy of the Department of Health and Human Services or any other agency funding the research project in which you are participating, to compensate or provide medical treatment for human subjects in the event the research results in injury. The University of Oregon Health Sciences Center, as an agency of the State, is covered by the State Liability Fund. If you suffer an injury from the research project, compensation would be available to you only if you establish that the injury occurred through the fault of the Center, its officers or employees. If you have further questions, please call Dr. Michael Baird, M.D., at (503) 225-8014.

I have read the foregoing information and agree to participate in the study.

Date _____ Signature _____

Witness _____

APPENDIX G
INSTRUCTIONS FOR QUESTIONNAIRES

Kerry Moyer
1012 S.E. 130th Ave.
Bancouver, Washington 98664

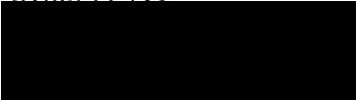
53

Dear

Thank you for agreeing to participate in this study. Enclosed you will find three questionnaires. Fill them out and return them in the stamped envelope provided.

If you have any questions, feel free to call me at 257-2500.

Sincerely,



Kerry Moyer

APPENDIX H
COEFFICIENT AND CONFIDENCE INTERVALS

COEFFICIENT AND CONFIDENCE INTERVALS

VARIABLE	B	STD ERROR B	T	95.0 PCT	CONFIDENCE INTERVAL
Home Assistance	.75	.27	2.78	.13	1.38
Disability	.28	.13	2.20	-.13 E-01	.57
Internal HLC	-.33	.28	-1.19	-.96	.31
Chance HLC	-.19	.28	-.70	-.81	.43
Powerful Other HLC	.24	.34	.68	-.56	1.03
Constant	1.78	11.94	.15	-25.76	29.32

AN ABSTRACT OF THE THESIS OF
KERRY MOYER

For the MASTER OF NURSING

Date of Receiving this Degree: June 11, 1982

Title: THE RELATIONSHIP BETWEEN LOCUS OF CONTROL, PERCEIVED HOME ASSISTANCE AND HEALTH BEHAVIOR OF PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE FOLLOWING A PULMONARY REHABILITATION PROGRAM

Approved: _____

Christine Tanner, Ph.D., Thesis Advisor

This descriptive study determined the relationships between health locus of control, perceived home assistance and self-reported compliance, after controlling for disability, in individuals with chronic obstructive pulmonary disease (COPD) following a pulmonary rehabilitation program. The data were obtained from 14 individuals with COPD who attended the outpatient pulmonary rehabilitation programs in one of two hospitals. The subjects completed questionnaires one month following the program. The tools used to measure these variables were the Multidimensional Health Locus of Control Scale (Wallston & Wallston, 1978), Perceived Home Assistance Questionnaire developed by Faas and adapted by this investigator for individuals with COPD (Lewis et al., 1978), the Self-Reported Compliance Questionnaire developed by the

investigator, and the forced expiratory volume in one second on the pulmonary function test as a measure of disability.

The first research question was: What is the relationship between the subject's locus of control, perceived home assistance and self-reported compliance one month following a pulmonary rehabilitation program when disability, complexity of regimen and level of supervision are controlled? It was answered using multiple regression analysis. The second research question was: How much of the variance in self-reported compliance is accounted for by perceived home assistance when disability is controlled? This question was answered by using a partial correlation coefficient.

No relationship was found between locus of control, perceived home assistance and self-reported compliance. A significant correlation was found between perceived home assistance, disability and self-reported compliance. When disability was controlled for, the relationship between perceived home assistance and self-reported compliance was stronger.

From this study, it can be demonstrated that perceived home assistance and level of disability were the best two predictors of self-reported compliance. A different measure of disability is recommended in future studies, since the FEV_1 does not measure an individual's response to lung dysfunction on a daily basis. The findings of this study cannot be generalized beyond this study.

This study does have implications for nursing, although these may be somewhat premature. The practitioner can gain valuable information for determining compliance to a therapeutic regimen by assessing the level of disability and family assistance for each individual with COPD.