



The effect of health perception on compliance with prescribed medications by cardiovascular patients  
by Donna Marie Piltingsrud

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF NURSING  
Montana State University

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**Abstract:**

Twenty-nine private clinic patients with cardiovascular disease in a Montana city were interviewed by the investigator. The patients were asked to describe their daily medication—taking routine. Compliance with their prescribed medications was determined by comparing the patients' routines with that noted on the charts. Patients were also asked if they would describe themselves as sick or well. There was no relationship found between patients' perceptions of themselves as sick or well and compliance with prescribed medications.

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May 25, 1978

THE EFFECT OF HEALTH PERCEPTION ON COMPLIANCE  
WITH PRESCRIBED MEDICATIONS BY  
CARDIOVASCULAR PATIENTS

by

DONNA PILTINGSRUD

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

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## ABSTRACT

Twenty-nine private clinic patients with cardiovascular disease in a Montana city were interviewed by the investigator. The patients were asked to describe their daily medication-taking routine. Compliance with their prescribed medications was determined by comparing the patients' routines with that noted on the charts. Patients were also asked if they would describe themselves as sick or well. There was no relationship found between patients' perceptions of themselves as sick or well and compliance with prescribed medications.

## INTRODUCTION

In 1962, Doris Schwartz (1962) wrote:

Great care is taken in the hospital to insure that the proper medicine is given to the right patient at the right time. . . However, when the patient is sent home, often he must assume full responsibility for taking a large number of medications.

Ten years later, Dr. Barry Blackwell (1973) wrote, "Much time, effort and expense is spent in the study of the effects of drugs, but little attention is devoted to whether or not they (patients) take them." The literature compiled in the past twenty years has documented this concern over the use of medication by the patient. Studies of patients and their medication-taking practices show that from nineteen to seventy-two percent of persons who have prescribed medications do not take those medicines as prescribed, either by omitting drugs, taking too many drugs, taking the wrong dosage, or using improper time intervals. Stimson's (1974) review of the literature indicates that the average number of persons who default from their medication regime is thirty percent.

The majority of studies on patients' compliance with their medication regime have focused on two areas:

- 1) The identification of the numbers of persons who do

not take medication as instructed, and 2) the identification of characteristics of persons who do not comply so that health care persons may predict the behavior of patients. The quantification of the numbers of noncompliers has alarmed health care persons because of the resultant inadequacy of treatment and the augmentation of the drug programs because one drug seems to be ineffective. The identification of the characteristics of those who do not comply has been contradictory from study to study. As Marston (1970) concludes, in her review of literature,

Demographic variables such as age, sex, socioeconomic status, education, religion, marital status, and race when examined apart from other variables has rarely been predictive of compliance.

Stimson (1974) states that the studies of noncompliance have been approached from the physician's viewpoint and the problem has been seen as one of conformity versus deviancy. He suggests we need to look at medication

. . . from the point of view of the patient, who is seen as a decision making individual living in a culture from which he is receiving information about health and illness. The pattern of drug use becomes understandable in the terms of the patient's perspective on his illness and treatment.

In any society, an individual fulfills many roles in his daily routine. Roles are defined by Talcott Parsons as an "organized system of participation of an individual

in a social system and are the main forces of communication between persons and the social system." (Kassebaum et al., 1965) In other words, roles are products of each society to govern the behavior of the individual in the good of that society. Roles may contain one task or a plurality of tasks which consist of a "definite set of physical operations performing some function or functions in relation to the role."

Parsons (1966) states that health and illness are conceptions which are built into the institutionalized role-structure of societies. He defines health as "a state of optimum capacity of an individual for the effective performance of the roles and tasks for which he has been socialized." He goes on to define illness as "an impairment of the individual's capacity for effective performance of social roles and of those tasks for which he has been socialized." A somatic illness is defined in social terms as impairment at the task level, that is, "an incapacity to carry out the bodily operations which are necessary in the performance of social roles." Incapacity includes situations in which it is possible for the individual to perform, but which would be done at an important risk to his future health. When a person is socially defined as having

a somatic illness, according to Parsons, he assumes the sick role which has the following characteristics:

1. The person is relieved of his usual social responsibilities,
2. he has a condition which needs care,
3. he wants to get well,
4. he assumes a dependent role. (Vincent, 1975)

From the perspective of the individual, his responsibility to seek competent health care and to cooperate with that health care personnel in his treatment, depends on how he perceives society's definition and expectations of his situation.

Diseases of the cardiovascular system embody a large percentage of the chronic diseases in American society today. One out of every two deaths in 1974 was related to cardiovascular disease. (U.S. Bureau of the Census, 1977) For each patient that dies, eleven others are chronically ill. It is estimated that fourteen and a half million adults suffer from known heart disease and nearly as many have suspected heart disease. (Smolensky, 1968) In addition, of the total expenditure for drugs in the United States, about ten percent is for treatment of cardiovascular disease. (Smolensky et al. 1968)

Limited research has been done with the medical cardiovascular patient in terms of compliance with his medication program, albeit more has been done with life-style. In one study of hypertensive patients, Podell and Gary (1976) state:

Teaching the public about high blood pressure probably increases the detection of high blood pressure but by itself seems to have little effect on most patient's pill-taking compliance.

Many of the educational programs begun in hospitals today are aimed at informing the patient about his disease, and the names and actions of his drugs. These studies have dealt only with the accumulation of knowledge and have not dealt with the problem of compliance.

If the person with a cardiovascular disease is disabled or unable to fully carry out those social tasks society demands or expects, does he perceive himself as sick? If the cardiovascular patient sees himself as sick, does that influence his cooperation with the medical treatment, compliance, as expressed in Parsons' fourth characteristic of the sick role?

## STATEMENT OF THE PROBLEM

STATEMENT OF THE PROBLEM: To determine if the self-perception of an individual with a diagnosed cardiovascular disease as sick has an effect on his compliance with his medication regime.

$H_0$ : There is no correlation between compliance with the medication regime and the individual's perception of being sick.

$H_1$ : There is a correlation between compliance with the medication regime and the individual's perception of being sick.

## REVIEW OF LITERATURE

A technique, developed in 1948 to determine excretion of the anti-tuberculin drug P.S.A., provided the impetus for some of the earliest studies of patient compliance on home medication programs. A study by Dixon and associates (1957) of 151 patients on P.A.S. showed only a fifty percent rate of compliance. Reasons for defaulting were given as gastro-intestinal side effects, the patient felt well and could see no need for medications, and forgetfulness. A study done by Mohler et al. (1955), using an interview technique to assess the adherence of patients treated with oral penicillin for acute pharyngitis or otitis media due to beta-hemolytic streptococcus, revealed thirty-four percent of those patients admitted to not taking the drug as prescribed. In this study, the most frequent reason for stopping consumption of the drug was that the patient "felt well." The populations of these two studies differed in age and in types of disease, but these early studies pointed to an area of patient care which still needs to be explored today.

Early nursing studies by Schwartz (1962) and Curtis (1961) revealed a non-compliance incidence rate of sixty percent, using the same medication error definition.

Schwartz identified persons at "high risk" of non-compliance as those who lived alone, were over the age of seventy-five, and who were "coping poorly" by the subjective assessment of the nurse. Curtis found a definite relationship between the number of medications a patient was taking and the number of mistakes he made. Both of these studies were done using the interview technique and a general medical population. Stimson (1974), in his review of the literature, reports noncompliance ranged from nineteen to seventy-two percent of the population studied, with the majority of the studies showing a noncompliance rate of thirty percent. Studies still being reported describe an incidence of medication error or noncompliance at fifty percent. (Podell et al. 1978)

One of the problems in determining the true incidence of noncompliance is the varying definitions of compliance and the methodology used. Marston (1970) concluded that "the degree of objectivity with which compliance can be measured varies and investigators differ in their operational definitions of compliance." Some investigators have based compliance on only one urine sample when testing for drug excretion, and others have based

their measures on repeated samplings. When repeated urine samples were used, some investigators allowed negative results in fifty percent of the samples and other investigators allowed only one negative sample to determine compliance. Pill counts have also been used to ascertain compliance, using pharmacy records for proper refill times, asking patients to bring in bottles at appointed times, and at-home checks by visiting nurses or interviewers. Marston concludes that the return of the patient at the appropriate time is not an indication of compliance as there is no guarantee the patient has swallowed his pills.

Gordis et al. (1969) found that the interview technique was insufficient as discrepancies occurred when statements regarding compliance were compared to results of urine tests. They concluded that "when patients admit to being noncompliers, they are indeed noncompliers. However, many patients who claim to have been compliers do not in actuality take their medications at home." Similarly, McInnis (1970) found a discrepancy between patient statements and urine specimen findings. Brand et al. (1972) argue that the interview technique permits a more in-depth study which can reveal the more subtle types of errors, and was used by Bille (1977) and Vincent (1971).

It has been generally agreed that age, sex, marital status, education, current activity, number of people in the household, and social class are not predictors of patient compliance. (Marston, 1970, Hecht, 1974, Hulka et al., 1976) Vincent (1971) found that pairing variables such as age and sex, and sex and marital status, suggested some clues to noncompliance. Bille (1977) found that the older patient reported he was more compliant than the younger person, using the telephone as his method of collecting data. Hulka et al. (1976) found that the rates for some types of errors were reduced when functional knowledge was reasonable for all drugs involved. Schmidt (1977) and Bille (1977) reported that there was no relationship between achievement of knowledge and subsequent compliance with medication.

Illness variables are another area in which prediction of compliance/noncompliance has been attempted. Marston (1970) concluded that there was an absence of association between the severity of illness and compliance. Hulka et al. (1976) found that the duration of disease and the number of other current diseases was not associated with drug error. Blackwell (1973), however, states that noncompliance is likely to occur when:

. . . the illness is chronic or prolonged, especially when the treatment is supportive or prophylactic; the condition is mild or asymptomatic; the consequences of not taking the medication are delayed; or forgetfulness, complacency or boredom occurs.

McKinnis (1970) found no difference in compliance between those patients taking medication for treatment or for prophylaxis.

Blackwell (1967) writes: "Depending upon the situation, a patient who is unreliable at one time may be completely reliable at another. So all patients are potential defaulters." While this does not answer the question of why patients default, it does exemplify the frustration of looking at compliance, up to this point.

In 1951, Talcott Parsons (1966) identified the sick role model as a way of looking at an individual's behavior when he is ill. Parsons describes the social system as one of "dynamic equilibrium." The individual is constantly involved in a "reciprocal relationship," that is, a socially preconditioned interaction of two or more persons. The importance of any particular interaction is not in the physical act itself, but in the interaction. An interaction is defined as "any event in which one party tangibly influences the overt actions or the state of mind of the other." The social identities of the participants, that

is, their status and role, are the key factors in the function, maintenance, and change of the reciprocal relationship. Status and role provide the cues for and are pre-determiners of behavior. Status is a socially identified position; role is the behavior that is expected of persons who occupy a particular status. Roles are defined in terms of a task or a plurality of tasks which are physical operations.

Parsons (1966) defines health and illness as he perceives of them in Western society, although health and illness are conceptions which are built in the accepted role structure of any society. Health is "the state of optimum capacity of an individual for the effective performance of the roles and tasks to which he has been socialized." Illness is the "impairment of the individual's capacity for effective performance of social roles and of those tasks which are organized subject to role expectations." Capacity as used here is differentiated from ability in that capacity is a conception relative to the "normal developmental stages and patterns." Ability is a factor of potentiality which is either given through the genes or is learned through education and training. Somatic or physical illness, as differentiated from a psychia-

tric or mental illness, is an impairment of the individual's performance at the task level. This impairment includes situations in which it is possible for the individual to perform his task, but it would be done at an important risk to his future health.

Because the person who is sick cannot fulfill his normal roles relative to his status, he must assume some position in the society. Parsons suggests, therefore, that the sick person assumes the behaviors appropriate to this state. He terms this group of behaviors as the sick role model, in which the sick person fulfills certain requirements. The characteristics of the sick role are:

1. It is a partially and conditionally legitimized state in which others are expected to treat the sick person with compassion, support and help; it is not to be evaluated in itself as a "good thing."
2. It is the basis of a series of legitimized exemptions from the fulfillment of normal expectations in work, family obligations, and even in showing consideration and good temper towards others.
3. Through the conception of incapacity the individual is not held responsible for his state, in the sense he could become well through "pulling himself together" by an act of will.
4. It has a definitely ascribed goal of action which is given priority over other goals, namely "to get well." The patient himself is expected both to seek competent technical help and to cooperate actively with therapeutic personnel in getting well.

Gordon (1966) concluded in his investigation of the sick role that there are at least two distinct and unrelated statuses and complementary role expectations associated with illness states. When the prognosis is believed to be serious and uncertain, the behavior expectancies termed the sick role occurred, which adhered to Parson's description of the sick role. When the prognosis is believed to be better known and non-serious, the "impaired" role occurs and role expectations tend to support normal behavior. Gordon also concluded that there was an implied consensus throughout his population in terms of behavioral expectations relevant to the sick role and this was not dependent upon socioeconomic status. Differences in role expectations regarding illness states appeared to be related not to differing conceptions of who is and is not sick. Of all the factors studied, according to Gordon, the single most important factor in the validation of the status "sick" is prognosis.

Legitimacy to the sick role, in Petroni's (1969) study, was contingent upon age, that is, the older person had the more right to the sick role than did a younger person with the same symptoms. He also found more right was given to assume the sick role to those with a chronic

condition, such as heart trouble, diabetes or arthritis, than for those persons with acute illnesses. Petroni (1969) also claimed support for his prediction that the sick role behavior of an individual is influenced by the perceived support of a significant other, but admits that a relationship was not clearly established. This behavior seemed to be more true for males than for females, that is, the male was more influenced by his wife's perception of him as sick than was the wife influenced by her husband's perception of her as sick.

The persons more willing to adopt the sick role in Phillip's (1965) study were those with more than a high school education, Protestants and younger persons, compared with less well-educated, Catholics and older persons. Those who placed a positive emphasis on health and little emphasis on self-reliance were more likely to seek medical help for symptoms than were those who were very self-reliant and did not place as high an emphasis on health. Phillips stresses that both of these conditions have to be fulfilled, not just one. Vincent (1971) found that Catholics were more compliant than Protestants in her study and related it to the obedience to higher authority that Catholics are more accustomed to than are Protestants.

Petroni (1969) found an inverse relationship between perceived sick role legitimacy and social class, that is, that middle and upper classes were more disdainful of sick role behavior than the lower classes. This he felt to be related to the American middle class work ethic and was in support of Parsons' theory. McBroom (1970), however, found that there was no evidence to believe that lower-status individuals were more inclined to over-report or overreact to their symptoms than were those of the middle or upper classes.

Segal (1976) states that Parsons' sick role concept cannot be fully accepted, but neither can it be rejected. Segal states that the studies of a person's willingness to consult a doctor are not the only indication of adoption of the sick role. The studies have used diverse populations, such as male college freshmen, young married housewives, and county employees who were presented with hypothetical situations. In addition, most studies were done in urban settings as compared to rural areas. Segal states, "Further research is required to determine how closely general public perception of the rights and duties of the sick role correspond to the Parsonian conceptual model."

The National Commission on Chronic Illness in the United States has set up five criteria for chronic illness: permanency of disease; some residual disability caused by irreversible pathological process; requires special training for rehabilitation; needs long period of observation and care. (Callahan et al. 1966) If a person meets one or more of these criteria, his or her illness can be considered chronic. Kassebaum and Baumann (1965) found in their study of chronically ill patients that the emphasis on various dimensions of the sick role such as dependence, role performance, reciprocity, and denial are determined by the way in which the specific diagnosis affects the specified roles of the individuals involved. The conditions characteristic of chronic illness were: the impossibility of resuming full role-participation at pre-illness capacity; necessity for adjusting to a permanent condition rather than overcoming a temporary one; emphasis was on retaining rather than regaining an optimal level of role-performance and autonomy.

Callahan et al. (1966) identified three American values which affect the sick role: activism, "this-worldly" orientation and individual achievement. All three values place a high value on getting well and to achieve

this, the person is expected to seek competent medical help. When the person has a chronic illness, however, he is not going to get well. According to Cogswell and Weir, there is no developed social definition of a disabled or chronic disease role in American society. Thus, the person is considered either sick or well. (Callahan et al. 1966)

## METHODOLOGY

A pilot project for this paper was carried out in the winter quarter of 1978. The patient population was identified as those persons discharged from the coronary care unit of one hospital in a Montana city, with the diagnosis of myocardial infarction. An interview guide used in this study was designed to determine variations in behaviors toward taking medication and compliance with the medication program.

Of eighty-three patients admitted to the coronary care unit from January 20 to March 1, eighteen patients had diagnosed myocardial infarctions. Four of these 18 patients expired in the hospital; four patients were discharged without medication; one patient refused to be interviewed; three patients were from a distance out of the city. The researcher did interview six persons in their homes, so practice using the interview guide and doing interviews was obtained.

The interview guide was revised following this project as the open-ended questions were difficult for the patients to answer, as well as to evaluate for the researcher. The researcher's question regarding behaviors was derived from the article by Vincent (1975). Subse-

quently, the question, "Does the cardiovascular patient see himself as sick or well, and does this affect his compliance?"

Because of the difficulty in obtaining a population of patients meeting the criteria of a myocardial infarction, another population was determined.

This is a descriptive study of cardiovascular patients in one Montana city and surrounding area who visited their physicians in a private clinic setting. Of approximately four hundred patients who had appointments in the Department of Medicine of the Clinic on April 18, 19, 20, 21, 1978, thirty-two patients met the criteria for inclusion in the study. There was no attempt to randomly select patients. There are eleven physicians in the Department of Medicine and all agreed to participate in the study. Two physicians were out of town the week of the study.

The patients were selected by the investigator from the charts kept at the appointment desk the afternoon prior to the appointment. The diagnosis sheet kept at the front of the chart was used to determine the diagnosis of a cardiovascular problem. Patients were selected according to the following criteria:

1. Were between twenty and seventy years of age,
2. had a medical diagnosis of essential hypertension, congestive heart failure, arteriosclerotic heart disease, post-myocardial infarction,
3. were free of diabetes or other chronic disease for which a regular medication program was prescribed,
4. were primarily responsible for taking their own drugs,
5. had been seen at least one time previously by a physician in the Department of Medicine for a cardiovascular problem,
6. had not been previously interviewed by the investigator.

A list of those patients who met the criteria was given to the nurses at each appropriate station the morning of the appointment. To avoid any interference in the physician's routine, the patient was approached by the investigator following the physician's consultation. The patient was approached in the following manner: "My name is Donna Piltingsrud and I am a nursing student at Montana State University. I am doing a study to learn about people who are seeing a doctor for high blood pressure or for their heart. I would like to ask you a few questions.

Perhaps your answers and answers from other people will help us understand how these problems affect people's lives. The answers you give are strictly confidential. Would you agree to talk with me?" If the patient agreed, the interview was conducted in an unused office and only the researcher and patient were present. The physician was not informed as to which patients the investigator was approaching. The researcher was dressed in regular clothes with a lab coat and a name tag identifying her by name and as a Montana State University student.

A list of appointment times and last names of patients who met the criteria was kept daily by the investigator. Each appointment time was numbered, and if the patient agreed to be interviewed, his interview guide was numbered to correspond to the list kept by the researcher. This was done so the patient's chart could be checked for the medications the doctor prescribed, according to the progress notes. No assessment of compliance/noncompliance was made until all of the interviews were completed.

The definition of noncompliance was submitted to the nine physicians who had office hours the week the data was collected. The physicians were asked to agree or disagree with each item in the definition. One physician dis-

agreed with all of the items as he felt patients generally follow the advice they want to and disregard the rest. Item one, the daily consumption of nonprescription medication, excluding vitamins, was subject to some disagreement. Five physicians agreed and two disagreed with this item. One physician stated that the daily use of aspirin or tylenol would not be in error and another physician indicated all vitamins should be considered compliant. With the exception of the one physician, the physicians (six) agreed with the other three items. Two physicians did not return the forms.

The scoring of compliance was done independently by three persons: the investigator and two R.N.s. There were two patients who were not scored unanimously by the three, and the definition used by two of the three was accepted.

The data collected regarding a patient's compliance and his self-perception as sick or well was subjected to the chi-square analysis of independence. The chi-square analysis, which is a nonparametric test, is appropriate when a nominal or classificatory scale is used as a level of measurement when numbers are used to classify characters. (Miller, 1970) Because of the small sample size, (N=29), Yates correction for continuity formula was used.

This must always be used when any of the expected values in a 2x2 contingency table is less than five and some writers suggest it be used when any expected frequency is less than ten. (Ferguson, 1976) This formula brings the expected and observed frequency closer together and decreases the value of chi-square.

#### LIMITATIONS:

1. The dynamics by which each person defines himself as sick or well are not investigated in this study.
2. There is no attempt to randomly select a sample from the general population. The data cannot be generalized to a larger population.
3. Demographic variables are not correlated with compliance.
4. Physician interaction with the patient which may influence congruency of roles, knowledge of disease, and rehabilitation of the patient is not studied.
5. The progress notation is used as the criteria of the prescribed medication program.

## ASSUMPTIONS:

1. It is assumed that the patient will report his medication-taking practice as he performs it.

## DEFINITIONS:

Cardiovascular disease: a medical entity defined in terms of biological and physiological function. It is the diagnosis of congestive heart failure, essential hypertension, post myocardial infarction, and arteriosclerotic heart disease as it appears on the patient's chart.

Illness: a social entity, a status defined in terms of social functioning. (Wu, 1973)

Noncompliance: A patient will be considered non-compliant if he:

1. daily takes a medication that was not prescribed by the physician, excluding multivitamins,
2. omits once a week or more often a medication which was prescribed by the physician,
3. takes a prescribed medication in an incorrect dosage,
4. takes a prescribed medication at improper time intervals.

Hospital time schedules will be used as guidelines

for the following prescribed routines:

1. BID (twice a day): 9 A.M. and 6 P.M. or at time intervals not less than 9 hours,
2. TID (three times a day): 9 A.M., 1 P.M., 5 P.M., or regular spacing through the waking hours,
3. QID (four times a day): 9 A.M., 1 P.M., 5 P.M., 9 P.M., or regular spacing through the waking hours.

If the drug is ordered every four hours, one hour variation in either direction is allowed.

If the drug is ordered every six or every eight hours, two hours' variation is allowed for adjustment of sleep pattern.

Example: every eight hours - 8 A.M., 4 P.M., 10 P.M., would not be an error.

Prescribed medication: a medication prescribed by a physician in the Department of Medicine at the Clinic, as recorded on the progress notes.

Sick: the reaction of the individual in terms of his own feelings and reaction of others toward his disease.

(Wu, 1973)

## ANALYSIS OF DATA

Thirty-two patients met the criteria for inclusion in the study conducted in a private clinic setting in a Montana city. The Clinic serves a geographical area which is both urban and rural and no discrimination in these two groups was made. There are eleven physicians in the Department of Medicine, but two were out of town during the time of the study. Approximately four hundred patients were scheduled for appointments on April 18, 19, 20, and 21, 1978.

Three patients were excluded from the study, two were excluded prior to interview and one patient was interviewed and later excluded. One patient had been interviewed in the pilot study; one patient was interviewed and later excluded as there was no physiological basis established for her palpitations. One patient declined to be interviewed and denied any problem with his heart; he was, however, on Lanoxin and had congestive heart failure. A total of twenty-nine patients, seventeen males and fourteen females remained in the study.

Sixteen persons had a diagnosis of essential hypertension; six were diagnosed congestive heart failure; four were post myocardial infarction; three had arteriosclerotic

heart disease. (Appendix, Table I) The ages ranged from 29 to 69 with fourteen persons, or fifty percent of the population, in the fifty to fifty-nine age group.

(Appendix, Table II) This grouping may reflect the increased incidence of cardiovascular disease occurring at younger ages. It may also reflect a higher number of persons excluded from the study in the sixty to sixty-nine years of age group because of an increased incidence of additional disease processes.

Twenty-seven of the subjects were married; one male was a widower and lived with his children, and the other male was single. Twenty-one of the subjects were Protestant; seven were Catholic; one was listed as other.

Twenty-two of the twenty-eight subjects had a high school education; ten of those twenty-two had at least some college work. Five persons quit school between the eighth grade and high school graduation; one finished eighth grade; one dropped out below the eighth grade. (Appendix, Table III)

All of the hypertensive patients described themselves as well and also stated they were able to lead what they considered a normal life. This group included ten women and six men. The hypertensive patient's perception

of his family or friend's description of him as sick or well was one-hundred percent congruent with his self-perception. The patients with congestive heart failure also had one-hundred percent congruence in self-perception and their friends and family's description of them as sick or well. Four patients with congestive heart failure saw themselves as sick and two described themselves as well. The two patients who described themselves as well were ages thirty-nine and fifty; both stated they were able to perform at work, and to lead normal lives. (Appendix, Table IV)

Three of the four patients with a post myocardial infarction were congruent in their self-perception and their statement of their family's description of them as sick. The fourth patient, a sixty-seven year old male who had been self-employed, saw himself as sick because he had been under a doctor's care since 1974. He thought his family would describe him as well because "they protect me and know my limitations."

The three males with arteriosclerotic heart disease described themselves as well, with only one stating his family would describe him as sick. This forty-three year old male stated his family "noticed earlier than I do when

I have my ups and downs."

Twenty of the twenty-one subjects who described themselves as well also stated they were able to lead normal lives. The one person in this group who felt he could not lead a normal life was a forty year old self-employed carpenter. This man had not worked as a carpenter since the first of March because of angina with exertion. He described himself as "working", however, as he stated he was "catching up on paper work." Because of the recent onset of this man's symptoms, his description of himself as "well" may be a form of denial.

Ten patients did not know the names of their drugs and described them as "high blood pressure pills" or else by color, such as "a red and white capsule" or a "green pill." Only two patients could specify the dosage of medication they were taking. Patients were specific about the number of pills they took, as one man knew he took eight Isordil a day, and another man knew he took twenty-one pills a day.

The total number of patients who were compliant was seventeen and the number of noncompliant patients was twelve. The noncompliant rate is forty-one percent of the study population and is in the range reported in most other

studies. Slight differences may be accounted for in the definition of compliance, and also in reliance on the interview technique and chart data.

Of the noncompliant patients, five saw themselves as sick and seven persons described themselves as well. In the compliant group, three patients described themselves as sick and fourteen saw themselves as well. The data was subjected to the chi-square analysis of independence. Chi-square was not significant at the  $p=0.05$  level, with one degree of freedom. (Appendix, Table V) Therefore, the null hypothesis was accepted.

The errors of the noncompliant group were primarily those of omission. This constituted errors in which the patient stated he forgot at least once a week to take his pills, and errors in which a medication was not reported, but which was prescribed according to the progress notes. Scheduling errors occurred only once. Two patients took medication not prescribed; one patient altered her dosage if she thought she was going to be under a lot of strain, but also routinely took a much lower dosage of medication than that prescribed, again, according to the data on the chart.

## CONCLUSION

The purpose of this study was to investigate the self-perception of patients, with diagnosed cardiovascular disease, as sick or well, and to relate this to compliance with medications. Twenty-nine patients, with essential hypertension, congestive heart failure, post myocardial infarction, or arteriosclerotic heart disease, who saw their physicians in a private clinic setting were the population studied. The clinic is in a Montana city which serves a surrounding rural area. The dates of the data collection were April 18, 19, 20, 21, 1978.

One of the characteristics of Parsons' sick role theory is that the person who occupies the sick role will seek competent help and cooperate with that help in getting well. Therefore, if the person perceives himself as sick and also sees support in this role from his family and friends, he would be more likely to comply with his physician's prescribed medication program.

The patients in this study, who were limited in physical activity, described themselves as sick and stated their family would also describe them as sick. The patients who volunteered the information that their families protected them and knew their physical limitations

are probably fulfilling the sick role with its dependency and release from normal responsibility. The patients, in this study, who were able to lead normal lives described themselves as well and also stated their families would describe them as well. It seems, therefore, that the state of "sick" was dependent upon the degree to which a normal life style could be achieved.

Chi-square analysis of self-perception as sick or well, and compliance with medications was not significant at the  $p=0.05$  level. The null hypothesis was accepted. In accepting the null hypothesis, the complexity of identifying factors which influence a person to comply is apparent.

Forty-one percent, or twelve of the twenty-nine patients, were noncompliant, which is within the range reported in other studies. The variability of compliance definitions used must be considered when comparing studies. In this group, five of the twelve described themselves as sick. Three patients seemed to believe they were compliant as they were very specific about the medication they took and denied ever forgetting to take their pills. When the chart information was recorded, however, there were discrepancies between medication prescribed and that consumed.

Patient errors may not have been errors as the possibility exists that the chart may not have been up to date. The other two patients took medication not prescribed by the physician and consisted of continued use of a discontinued medication and the use of calcium and potassium pills.

Gordon's identification of two roles, the sick and impaired role, may have implications for this study, that is, that prognosis is the determiner of who is and who is not sick. It may also be that with an absence of observable symptoms, such as the hypertensive, and the ability to lead a normal life, the social roles are normal. Therefore, the person is well. The responsibility to maintain this state may influence behavior towards compliance. All six of the males who were hypertensive were compliant and they perhaps feel responsible to function in normal social roles. Six of the eleven compliant hypertensive patients had some college level education. Perhaps they were, as a group, more cognizant of health care as Phillip's study indicated. The influence of media campaigns regarding medication for control of hypertension is also unknown.

The timing of the interview could have been a factor in statements of compliance as the interview followed the physician's consultation in which drugs may have been re-

viewed. This may have refreshed the patient's memory so he reported compliance. The interview technique may also indicate a higher degree of compliance as Gordis et al. claim.

The size of the population is small and a larger population would be desirable for evaluation of data. That nine of the twenty-nine patients saw themselves as sick may indicate as Segall suggests that further investigation is needed into Parsons' sick role theory in terms of general public perception of the sick role and how expectations are influenced by sociocultural factors.

#### Implications for Nursing:

The types of errors made, with the exception of omissions because of forgetting, are amenable to correction. The scheduling, use of nonprescription medicine and incorrect dosage errors have to be detected and this is most conveniently done by interview. It is not worthwhile to ask the patient what medication he takes, as he will list them correctly. To ask, "You are taking your Lanoxin?", again, will result in an affirmative answer from the patient, but perhaps continued errors in dosage or schedule. It seems that recitation by the patient of his pill-taking

routine on a daily basis is a simple but effective method of detecting these types of errors.

Knowledge of the names of medications and dosages particularly were not known by a large number of patients. A lot of effort in patient education in the hospital has been directed at increasing the patient's knowledge of his medication. If the patient does not go to the hospital, this kind of education may not be available to him.

Nursing has a real role in these two areas. Often-times, the nurse is seen as less intimidating to the patient than the physician, and is seen as one who has time as compared to the "busy physician." One of nursing's roles is teaching and what better place to begin than in the area of medication.

#### Recommendations:

1. This study could be replicated with patients with more similar cardiovascular diseases, that is, excluding hypertensives. This may yield more definitive information on cardiac rehabilitation as well as compliant behaviors.

2. This study could be replicated with other disease entities, such as diabetes or chronic obstructive

lung disease.

3. Validating the medication program the physician believes the patient is on is necessary. The physician could be asked to indicate if the medications as listed are up to date, without releasing the confidentiality of the patient.



































