The Effect of Social Support upon Compliance as Measured by Functional Health Patterns

Olivia Catolico-Dixon

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Abstract

THE EFFECT OF SOCIAL SUPPORT UPON COMPLIANCE
AS MEASURED BY FUNCTIONAL HEALTH PATTERNS

by

Olivia Catolico-Dixon

Observation of client noncompliance with therapeutic
regimens prompted this study. The purpose of this study was
to investigate the client's social support system and its
effect on compliance. The null hypothesis constructed was:

$H_0$: There will be no relationship between social
support and compliance as measured by functional
health patterns in the Chronic Obstructive
Pulmonary Disease Client (COPD) ($\alpha = 0.05$).

A convenience sample of 38 subjects from the outpatient
Pulmonary Clinic at a Southern California Veterans'
Administration Hospital were interviewed for this study.
Using a structured interview format, the investigator
administered four questionnaire tools to each of the
subjects. A Demographic Data Tool served to record
confounding variables and descriptive information about the
sample. The Compliance Behavior Inventory served to identify
those therapeutic regimens followed by the subjects. The
Norbeck Social Support Questionnaire identified the social
support system of the sample and divided the sample into
high, moderate, and low levels of support received. The
Functional Health Pattern Tool measured subject compliance
and divided the sample into functional, impaired, and
dysfunctional levels of health. From the raw data, the following were computed for each subject: 1) intensity of social support, 2) quality of functional health, 3) functional health pattern means, and 4) compliance behavior inventory means.

The Spearman rho rank order correlation test was applied to the paired variables of intensity of social support and functional health pattern means. This was one of three pairs of variables, but the most central one in terms of this study. Statistical findings for the paired variables of intensity of social support and functional health pattern means gave $r=0.275$ ($p=0.095$). Based on this finding, the null hypothesis was retained.

Major conclusions of this study are: 1) that statistical findings show no significant relationship between social support and compliance as measured by functional health patterns; and 2) that further study needs to be done using a heterogenous sample and more valid, reliable, and sensitive indicators of compliance and functional health.
LOMA LINDA UNIVERSITY
Graduate School

THE EFFECT OF SOCIAL SUPPORT UPON COMPLIANCE
AS MEASURED BY FUNCTIONAL HEALTH PATTERNS
by
Olivia Catolico-Dixon

A Thesis in Partial Fulfillment
of the Requirements for the Degree
Master of Science in Nursing

March 1986
The persons whose signatures appear below certify that this thesis in their opinion is adequate in scope and quality, as a thesis for the Degree Master of Science.

Lucile Lewis, Professor of Nursing

Grenith Zimmerman, Professor of Biostatistics

Renee Hills, Coordinator, Pulmonary Rehabilitation
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CHAPTER I
THE PROBLEM

Introduction

Client noncompliance with recommended therapeutic regimens has long been a problem. Several situations have been observed in the clinical setting which bring this problem to light. One of these is that many post-surgical thoracic patients who manage to comply with therapeutic regimens under close nursing supervision in a critical care setting, when transferred to an intermediate care patient unit or discharged home, resume habits which were recommended they not pursue for health reasons. These may include smoking, neglecting to exercise, unhealthful dietary intake, and inconsistency or neglect in taking medications. These behaviors are often resumed in spite of educational and behavioral strategies previously employed to promote compliance.

It is not uncommon for a patient with chronic illness to repeatedly return to the clinic or for hospitalization for a recurring problem which the patient is unable to manage outside the setting of the clinic or hospital. The continuance of unhealthful behaviors and repeated visits to a health care institution become costly in time, energy, and finances for both the patient and his family.
It is this investigator's opinion that a factor which may affect patient behaviors and health care outcomes is the patient's social environment, namely, his social support system. If more were known about the effect of social support on patient behaviors, implications for nursing intervention could be specifically focused not only upon teaching the patient but upon effectively expanding the patient's social support system prior to discharge from the health care institution.

**Background and Need for the Study**

The background and need for this study arise out of concepts of compliance, social support, functional health, and chronic illness.

There are two factors documented in the literature which substantiate the need for this study. One of these is that from a behavioral standpoint, it is known that clients do not comply regardless of their capability to direct personal health-related behavior (Barofsky, 1976). The second is that clients with chronic illness have permanent, nonreversible, pathophysiological alterations that require care, rehabilitation, and observation over a long period of time (National Commission on Chronic Illness, 1956). As the population of aged persons with chronic illness increases it is imperative that health care providers assist clients to care for their own health when they cannot be under the direct surveillance of a professional caretaker (Marston, 1970). An additional
factor which substantiates the need for this study is that no nursing studies were found to date which document the effects of social support and compliance in a Chronic Obstructive Pulmonary Disease (COPD) population.

Three components essential to compliance are identification of a target behavior, performance of a functional analysis of the behavior, and rearrangement of the environment to facilitate occurrence of the behavior (Zifferblatt, 1975). The client's social support system can be considered one aspect of the environment which may facilitate compliance behavior.

Social support can serve as a mechanism to augment, buffer, or decrease bio-psycho-social-emotional events so that the client system is assisted toward maintenance of a steady state. This is accomplished by reducing the social isolation of the client, increasing client accountability for his actions, and providing assistance to the client in executing medical recommendations (Feldman, 1982).

An expected outcome of client compliance with therapeutic regimens is functional health. Bio-psycho-socio-emotional evidence of functional health include the following (Craig and Edwards, 983, pp. 397-404):

1. Management and compliance with medical recommendations;
2. Management of functional disabilities;
3. Maintenance of functional health;
4. Satisfaction in a variety of compensatory activities and intellectual pursuits;

5. Acceptable role definition;

6. Appropriate levels of independence;

7. Appropriate supportive behavior by family and significant others;

8. Family integration.

It would appear that evidence of functional health would indicate client compliance with prescribed therapeutic regimens. This study will focus on the social support system and its effects on compliance as measured by functional health patterns.

The health care team and social support system facilitate the client's assumption of self-responsibility for functional health patterns by providing affect, affirmation, and aid. In studying client social support systems, a major benefit could be derived by helping shift the responsibility for maintenance of functional health from the caregiver to the client system. Information can be gained from doing this study therefore, to assist the professional caregiver in helping clients lead healthier lives.

Statement of the Problem

The central problem of this study is patient noncompliance with therapeutic regimens and its relationship to social support.
Purpose of the Study

It is the purpose of this study to investigate the client's social support system in order to determine its effect upon compliance, which therefore could improve the health and wellbeing of the Chronic Obstructive Pulmonary Disease client.

Objective of the Study

The objective of this study is to investigate the relationship between social support and compliance as measured by functional health patterns in the Chronic Obstructive Pulmonary Disease client.

Research Questions

The major research question states: What is the effect of social support upon compliance? Other questions are: Who comprises the COPD client's social support system? To what degree does the COPD client's social support system affect compliance?

Hypotheses

For the purpose of this study the following hypothesis was constructed:

\[ H_1: \text{There will be a positive correlation between the level of social support and the level of compliance as measured by functional health patterns in the Chronic Obstructive Pulmonary Disease client (} \alpha = 0.05). \]

A null hypothesis was constructed from the hypotheses which states:
H0: There will be no correlation between the level of social support and the level of compliance as measured by functional health patterns in the Chronic Obstructive Pulmonary Disease client ($\alpha = 0.05$).

**Conceptual Framework**

**General Systems Theory**

A broad, unifying theoretical framework for investigating the relationships in this study is the General Systems Theory developed by von Bertalanffy (1968). Systems Theory is a science of wholeness and integration based on the premises that 1) a system is a set of interrelated parts or components that are organized; 2) a change in one part of the system will affect all other parts; 3) the system is more than the sum of its parts. Within the framework of Systems Theory man can be viewed as an open system in constant dynamic interaction with groups of other open systems, such as social support systems.

**Nursing and Systems Theory**

Nursing is involved in dynamic interaction with man and his environment. In translating General Systems Theory into a nursing role McKay emphasizes the following:

Nursing is a bio-psychosocial process in which the nurse-patient dyad can be analyzed according to inputs and outputs of information and/or energy exchanges. Thus, nursing brings a source of energy/information from the distal to proximal environment to maintain the client steady state (McKay, 1969, p. 397).

Similarly, Putt states that two processes in General
Systems Theory, entropy and negentropy, can be used in nursing assessment and intervention. Priorities for intervention are determined according to the rate at which the patient demonstrates entropy/negentropy. Therefore, nursing intervention provides input in an effort to expand, contract, or stabilize the patient's subsystems and maintain equilibrium between entropy and negentropy (Putt, 1978, pp. 26-27). Subsequently, the individual receives input through interaction with other open systems which influences or modifies his beliefs and behaviors.

**Loma Linda University School of Nursing Framework**

The Loma Linda University School of Nursing Conceptual Framework is consistent with General Systems Theory (LLU, SN, 1979, p. 3). It provides a rationale for this study:

Man is a 'bio-psycho-socio-spiritual' being whose nature is wholistic. As with any other open system, what affects one aspect of his being affects the whole. The wholeness of man is dependent upon his ability to function, to maintain a dynamic interaction between the resources he receives and uses from the environment and those he gives to it.

**Role Theory**

A more specific framework that offers rationale with which to pursue this study is the Role Theory developed by Mead (1934). Role Theory addresses the context in which behavior takes place in a social system. The context of this interaction is further clarified, interpreted, and utilized by Meleis (1975, p. 265):
Roles chosen by the patient are validated by the acceptance of his significant others such as the nurse and members of his family. Once a role evolves, the need to reciprocate in role behaviors becomes actually a need for benefits received in order to continue receiving them.

Meleis further identifies conditions predisposing to problems with role transitions. Among these conditions are two areas relevant to this study. One is a developmental transition from adulthood to old age accompanied by gerontologic problems related to identity, retirement, and chronic illness. Any changes in one role bring about reinforcing or complementary changes in the counter-role. A second condition which lends itself to difficulty in role transition is that of a health-illness transition—the gradual or sudden changes from a state of wellness to chronic illness. Role transitions and the accompanying changes that they bring about need to be considered in light of the context of the system in which they occur.

The patient cannot be considered as an isolated unit, but changes in his condition must be explored and considered in terms of his relationship in a network of significant others (Meleis, 1976, p. 266).

Dracup and Meleis have utilized Role Theory as a theoretical base from which to pursue the issue of compliance. Some important assumptions made by Dracup and Meleis in viewing compliance from an interactionist perspective include (Dracup and Meleis, 1982, pp. 31-36):

a) compliance/noncompliance is an outcome of a health transaction; it is a result of man's interactions with significant others and his environment;
b) compliance is enhanced when relevant other roles are congruent and/or complementary with client roles;

c) compliance is enhanced if the compliance role is reinforced by significant others and other reference groups (See Figure 1.1).

Discussion

From literature documentation and the conceptual frameworks previously discussed, several ideas about compliance, social support, health, and chronic illness can be postulated. These ideas are as follows:

1. COPD is a chronic illness which requires that the client assume responsibility for self-care and that he comply with prescribed therapeutic regimens;

2. Compliance with prescribed therapeutic regimens contributes to the health of the COPD client.

3. A therapeutic environment of significant others constitutes the client's social support system;

4. Compliance is enhanced if the compliance role is reinforced by significant others;

5. Compliance with prescribed therapeutic regimens enhances the client's health status and the quality of his functional health patterns.

If the above postulates are true, it should follow that the higher the level of social support a client receives, the better he will comply with his therapeutic regimen.
Figure 1.1. Compliance: The proposed interactionist conceptualization (Dracup and Meleis, 1982, 31-36).
Assumptions of the Study

For the purposes of this investigation the following assumptions are made about the client, about health, and about social support:

1. The client is an informed willing partner in the execution of any maneuver designed to alter compliance behavior (Sackett and Haynes, 1979, p. 4);

2. The client is capable of making informed, independent, and competent choices about his health care behavior (Cox, 1982, p. 46);

3. The client accepts responsibility for adhering or not adhering to the laws of health and being subject to the consequences (LLU, SN, 1979, p. 8);

4. Health is affected by compliance;

5. Health is affected by social support systems;

6. Optimum health, or behavioral stability, is the desired condition for all systems;

7. Health is a basic right of each system, but this right may be compromised by hereditary and environmental factors beyond the control of the system (LLU, SN, 1979, p. 8);

8. Social support is a determinant of behavior;

9. Individuals have a need to be accepted by their social group (Suchman, 1967, p. 197-209);

10. A social support system, or community, provides system-relatedness and interdependence for existence, continuance, identity, purpose, and proximity (LLU, SN, 1979, p. 7).

Identification of Variables

The dependent variable in this study is compliance as measured by functional health patterns. The independent variable is social support.
Operational Definition of Terms

For the purpose of this study the following operational terms are defined:

Social Support: The functional and network characteristics of social support as measured by the Norbeck Social Support Questionnaire (NSSQ) (See Appendix B.3). Functional characteristics include affect, affirmation, and aid. Network characteristics include network membership, duration of relationship, and frequency of contact. Functional and network characteristics are categorized into high, moderate, and low levels.

Stable Interrelationship: Primary and secondary group members who provide continuous or intermittent support to the client and who have known the client for six months or more.

Primary Social Support Group Members: Family of origin which include parents, siblings; nuclear family which include husband, wife, offspring; extended family which include grandparents, aunts, uncles, cousins, relatives-in-law; any one or more of these persons are considered primary group members in the client's social support system.

Secondary Social Support Group Members: Close friends; may include one or more persons.

Compliance: A set of therapeutic, health-promoting compliance behaviors, performed by the client, and identified
as high, moderate, or low compliance.

**Chronic Obstructive Pulmonary Disease (COPD):** A group of diseases (bronchial asthma, chronic bronchitis, emphysema) characterized by increased resistance to flow in the airways of the lungs, usually resulting in variable degrees of dyspnea, easy fatigueability, wheezing, and cough productive of sputum (Hodgkin, 1979). Subjects will be classified into degrees of COPD according to a) forced expiratory volume in one second (FEV₁), approximately 80% in non-COPD subjects, and b) the ratio of forced expiratory volume in one second (FEV₁) to the forced vital capacity (FVC) which is the total amount of air expired after a full inspiration (FEV₁/FVC). This FEV₁/FVC ratio is approximately 75% in non-COPD subjects (Haas and others, 1979, p. 50; Zagelbaum, 1982, p. 12):

- mild COPD: FEV₁ 60-74% predicted, and FEV₁/FVC 60-74% predicted;
- moderate COPD: FEV₁ 40-59% predicted;
- severe COPD: FEV₁ less than 40% predicted;

(Hodgkin and others, 1980).

**Functional Health Patterns (FHP):** The psychosocial and physical capacity of the client to lead a productive life as evidenced by healthful behaviors which include (Haas and others, 1979, p. 64-65, 145):

1. The ability to perform activities of basic self-care;
2. The ability to endure physical work without fatigue, dyspnea;
3. The ability to resist adverse physiological conditions which may result from human-environment interactions (such as infection);

4. The ability to maintain an overall positive outlook and attitude toward self and life in general.

Subjects will be classified according to functional health, impaired health, and dysfunctional health for the past six months. For subjects who do not fit distinctly in the determined boundaries of functional, impaired, or dysfunctional health patterns, and who have marked responses in Levels A, B, and C on the self-care question of the Functional Health Pattern Tool, (See Appendix B.4) data will be treated in the following manner:

1. The subject will be categorized in Level A if 35% or less of all responses on the Functional Health Pattern Tool are under Level B;

2. The subject will be categorized in Level C if 36% or more of all responses on the Functional Health Pattern Tool are under Level B.

Summary

Client noncompliance with therapeutic regimens is a primary nursing concern which needs study. As a result of noncompliance the client may risk a reduction in general health and wellbeing. It is hypothesized that social support provided by a stable network of significant others will promote compliance behaviors in the client and ultimately serve to increase client health and wellbeing.
CHAPTER II
REVIEW OF LITERATURE

For the purpose of this study, the literature on social support and compliance was reviewed to offer substance to the conceptual framework chosen for this study, and to review results of similar research studies.

Social Support

Conceptual Definitions of Social Support

Definitions of social support found in the literature vary. Several researchers have focused on social support in an attempt to operationalize the concept. According to Caplan, social support is characterized by enduring sets of relationships, intermittent or continuous, with significant others. Such support may be spontaneous and natural or organized. Caplan (1974, p. 6-7) states that social support serves the following purposes:

1. Help the individual mobilize his psychological resources and master his emotional burdens;
2. Share his tasks;
3. Provide him with extra supplies of money, material, tools, skills, and cognitive guidance;
4. Offer direction and interpretation of reality-based feedback cues;
5. Act as refuge or sanctuary for rest and recuperation.
A similar definition of social support is offered by Cobb (1976, p. 300-301). Social support consists of three classes of information which tend to encourage independent behavior: 1) information leading the subject to believe that he is cared for and loved; 2) information leading the subject to believe that he is esteemed and valued; 3) information leading the subject to believe that he belongs to a network of communication and mutual obligation.

Another definition of social support proposed by Kahn (1979, p. 85) is an interpersonal transaction that includes:

- the expression of positive affect of one person toward another; the affirmation or endorsement of another person's behaviors, perceptions, or expressed views;
- the giving of symbolic or natural aid to another.

Included in Kahn's definition is the term "convoy" which is the set of persons on whom an individual relies for support and those who rely on the individual for support. Kaplan and others (1977) described social support in terms of the degree to which the individual obtains affection, empathy, esteem, security, belonging, and identity from interaction with others.

The family group is the natural primary group often conceived to fulfill social support functions of mutual responsibility, caring, communication, and response (Dean and Lin, 1977, p. 407). Relationships outside the immediate nuclear family can provide additional support and information through a wider circle of acquaintances and contacts (Turkat, 1980).
Common issues that generally emerge from the literature are the attempts to identify 1) characteristics of people seeking social support; 2) circumstances or life events under which that support is sought; and 3) the kinds of support appropriate to the characteristics of the seeker and the surrounding circumstances. Findings in the social support literature have revolved around the following proposals: 1) social support moderates the impact of stressful life events; 2) social support moderates stress for healthy individuals as well as for ill individuals.

Social Support and Stressful Life Events

A number of studies show positive evidence for the stress buffering effect of social support. It is thought that the support obtained from one's network assists in coping with crises, adapting to changes, and buffering stressful life events. In two groups of women undergoing life changes, Hirsh (1980) investigated the relationship between natural support systems and mental health. Findings revealed a significant positive correlation between social support variables, especially cognitive guidance, and measures of mental health. Nuckolls and others (1972) found that women with high life change scores and low social support had more medical complications during pregnancy than those with high life change scores and high social support.

Another specific example of the stress-buffering role of
social support is presented in the work of Bell and others (1982). In examining the relationships among social support, stressful life events, and depressive symptoms, the researchers proposed that if social support is an important mediating factor in the relationship between life changes and psychiatric illness, it is clinically significant to direct efforts at strengthening social support. In their study, subjects were given an extensive interview to measure mental health, social wellbeing, psychiatric symptoms, social functioning and interpersonal relationships. Stressful life event, social support, and depression inventories were used. The researchers concluded that social support does serve a mediating function against the negative effects of life stress, and that increasing levels of social support ameliorate the effects of life events upon depressive symptoms (1982, p. 336).

Langner and Michael (1963) documented the relationships between socioeconomic status, severity of psychiatric disturbance, and life stressors. It was found that the low socioeconomic group at every level of stress was at a greater risk for psychiatric disturbance. Similarly, in 1982 Thoits replicated a study that was done by Kessler in 1979. That study tested the stress buffering effect of social support among members of disadvantaged groups. The demographic variables of age, sex, marital status, and occupational status were used in Thoits's study. A total of 938 subjects
were interviewed about recent life events, help-seeking behavior, physical and psychological wellbeing. After a two-year time span 720 of this original group were reinterviewed. Data collection employed in the study measured psychological stress, life stress, and social support. Mixed findings included strong evidence for vulnerability to life stressful events with disadvantaged groups and little evidence for the hypothesis that social support has a stress buffering effect among disadvantaged groups (Thoits, 1982, p. 358).

In a longitudinal study with a general population of 2,234 persons, Williams and others (1981) studied the contribution of life events and social support to mental health. The study substantiated the conclusions that 1) social support predicts mental health over time and 2) life events and physical limitations predict a deterioration in mental health over time. Contrary to other studies reviewed, the researchers also concluded that 1) effects of life events and physical limitations on mental health do not vary according to the amount of social support, and 2) differences in measurement strategies for life events and social support produce some variance in results, but not in conclusions about whether effects on mental health are additive or interactive (1981, p. 324-334).

Research results such as those described above led Thoits (1982) to recommend that research findings be
interpreted with caution for two main reasons. One reason is
existence of inadequate conceptualization and operationali-
ization of social support. The concept of social support with
its many qualitative and quantitative aspects can not be
easily measured. The second reason for looking at research
results with caution is that the direct effects of life
events upon social support must not be confounded with the
interactive, buffering effect of events with social support.
Therefore, the question is proposed,

... are life events distressing because they demand
readjustment in daily patterns, or are they distressing
because they deprive the individual of important support

**Social Support in Health and Illness**

Social support needs to be studied from the perspective
of its stress buffering role in the primary prevention of
illness (Dean and Lin, 1977, p. 413). Mutual interactions
between instrumental and expressive support systems have also
been identified as a key for research (Dean and Lin, 1977, p.
407):

... to the extent that the individual maintains his
expressive relationship in the face of instrumental
changes such as work and income, he may be 'protected'
from illness inducing stress.

Although there is an identified relationship between
social support and a stressful life event such as illness
onset or chronic illness, the prolonged state of impaired
health is in itself a stressful life event. Therefore, the
presence or absence of social support and the internal resources of an individual will determine the ability of the individual to maintain psychological and physical equilibrium (Mechanic, 1977).

External resources also affect the individual's equilibrium. In illness and disease Kaplan (1977, p. 49; p. 54-55) proposed that 1) the greater the structural properties of social support such as anchorage, density, reachability, range, communication, the greater the health protectiveness; 2) the greater the social support functions, the more health protective is the network. Israel (1982, p. 68) also noted that personal factors, situational properties, and physical and psychological wellbeing also influenced an individual's social support network. The event of illness itself alters the support network in such a way that support is gained, lost, or used reluctantly. In instances where significant support is lacking, health care professionals can be more active in providing it (Murawski and others, 1978, p. 368-370).

Other evidence in the literature specific to the client population selected for this study identified the need for social support in relation to the health of the Chronic Obstructive Pulmonary Disease (COPD) client (Windsor and others, 1980; Jensen, 1983; Rowlett and Dudley, 1978; Dudley and Sitzman, 1979). Major factors which assist the COPD client in reaching and maintaining a state of health are 1)
the clinician who guides the patient by providing information, instruction, and social support, and assistance in evaluating the patient's skills and capabilities; 2) the social context in which behavior is executed; 3) the most central environmental variable—the patient's family; 4) social networks; and 5) the development of new patterns of behavior and new interpersonal roles (Hamburg and Killelea, 1979; Mechanic, 1977; Adams and Lindeman, 1974).

The relationship between illness and social support has been depicted by Bruhn and Philips (1984, p. 164-165) as a dose/response curve (see Figure 2.1). It can be seen that the response of the client to intensity and duration of stress and to degree and length of illness is dependent upon the low or high degree of social support. It is expected that high levels of social support will produce high functioning in the client system and low levels of social support will produce low functioning in the client system. Likewise, it is expected that high levels of social support will produce the ability to give and receive support in the client system, whereas low levels of social support will produce an inability to give or receive social support in the client system.

A number of studies substantiated the dose/response relationship between illness and social support presented above. Holmes and others (1961) found that tuberculosis treatment failures occurred in patients with lower levels of
Figure 2.1. A paradigm of social support: Hypothetical dose/response-type curve under two conditions of social support (Bruhn and Philips, 1984, 163).
social support. De Araujo and van Arsdel (1973) found that asthmatic adults with low social support and many life changes required three to four times more steroids than those with fewer life changes and little social support. Similarly, Medalie and Goldbourt (1976) found that spousal support helped to reduce the risk of angina pectoris in the presence of other high risk factors such as age, serum cholesterol, blood pressure, electrocardiogram abnormalities, and diabetes mellitus. Croog and others (1972) found that well integrated individuals receive more assistance. Persons who reportedly obtained low aid from one source also obtained minimal aid from other sources.

In a study of the association between perceived social support and psychological wellbeing in four data sets, Turner (1981, p. 357-366) found that 1) although the concept of social support cannot be totally divorced from the concept of psychological wellbeing, it contains discriminable elements; 2) there is a significant causal relationship between social support and psychological wellbeing; 3) there are significant direct main effects versus interactive effects in stressful circumstances in the relationship between social support and psychological wellbeing.

Epidemiological evidence examining social support and mental health was also found in the literature. In a nine-year study of 7,000 community adults Berkman and Syme (1979) found that mortality rates were lower among people who
experienced the more intimate ties of marriage and contact with friends and relatives than among those people without such ties. Crago (1972) found that admission rates to psychiatric facilities are lowest among the married and highest among the divorced or separated. Studies by Lynch (1977) and Henderson and others (1978) also provided evidence for mortality and morbidity in the absence of affectional bonds. Tolsdorf (1976) found that the most distinguishing factor between Veterans' Administration medical patients and Veterans' Administration psychiatric patients was their orientation toward mobilizing and using their interpersonal networks in times of stress. The literature provides evidence that there is less illness among those with social support than among those without such support systems.

Studies of social support and specific diseases have also been generated in the literature. In a group of rheumatoid arthritic women, Lambert (1985, p. 60-63) examined the relationships of social support and severity of illness to psychological well-being. Results included a positive correlation between severity of illness and the variables of pain and dependence upon others, and a negative correlation between age and the variables of tangible support and psychological well-being. Lambert concluded that a plan of physical and psychosocial care can be directed toward pain control and independence in activities of daily living in increasing psychological well-being.
In a group of myocardial infarction patients, Hilbert (1984) tested the hypothesis that a positive relationship exists between spouse support and compliance. Results included nonsignificant correlations between spouse support and compliance, and between compliance and number of myocardial infarctions, length of time since myocardial infarctions, and other demographic variables. Hilbert reported that total compliance however, was significantly related to rehabilitation status as compliance was found to be higher in those still attending a cardiac rehabilitation program. Further research on the variables in that study was advocated.

Social Support, Health, and Nursing's Role

The cited literature review demonstrates that health outcomes are affected by social support. A conceptual model for integrating social support into clinical practice has been proposed by Norbeck (1981) (See Figure 2.2). Norbeck's model incorporated the nursing process with factors that affect the client system. These factors include health, illness, environment, and personal characteristics. In the assessment phase, properties of the person, situation, and need for social support versus support actually available are considered. The intensity of the support may vary depending upon the duration of support required. In the planning phase, factors to consider are capacity of the social network
Social support adequate: Greater likelihood of positive outcome

Properties of the person: age, needs, abilities

Need for social support vs. Actual social support available

Properties of the situation: demands, resources, stressors

ASSESSMENT

Planning Intervention

Evaluation

Social support inadequate:Greater likelihood of negative outcome

Figure 2.2. Framework for guiding research for incorporating social support into clinical practice (Norbeck, Social Support: A model, 1981, 43-59).
to change, possession of interpersonal skills to establish and maintain contact with network members, individual needs in coping with stressors, type of long-term help to maintain an adequate network. Intervention is directed at enhancing the natural support system unless it is pathological. The final component in Norbeck's model is evaluation of actual outcomes in which the nature of relationships can be further refined (1981, p. 43-59).

Compliance

Conceptual definitions of compliance, hypothesized models of compliance behavior central to this study, and relevant compliance research in light of the variables chosen for this study were reviewed.

Conceptual Definitions of Compliance

Sackett and Haynes (1976, p. 2) defined compliance as:

... the extent to which the patient yields to health instructions and advice, whether declared by an autocratic authoritarian clinician or developed as a consensual regimen through negotiation between a health professional and a citizen.

To attain a treatment goal or health outcome that coincides with an additive or restrictive clinical prescription, compliance emphasizes behavior, lifestyle changes, and the role of an informed, willing partner assumed by the patient (Sackett and Haynes, 1976, p. 3-5).

Kirscht and Rosenstock (1979, p. 194) defined compliance in two parts--a professional recommendation and the
behavioral performance in light of the recommendation. Zifferblatt (1975, p. 4) defined compliance as what people should actually do and the conditions under which the behaviors must occur. In contrast, noncompliance emphasized that which varies from the clinical prescription by commission or omission.

Operational definitions of compliance in the literature lack uniformity. Compliance in the literature is often operationalized on the basis of the objective of a particular study. Consequently there was little uniformity among the findings of various studies (Kirscht and Rosenstock, 1979, p. 195; Marston, 1970, p. 312). It is not surprising that a number of problems in compliance measurement have surfaced (Gordis, 1976, p. 512; Marston, 1970, p. 312-321). With direct measurement in which body fluid or blood samples are taken from the patient, problems include accuracy and timing of measurement, the potential effect of compliance measurement on the patient's behavior, consistency of compliance levels over time, and the setting in which tests are carried out. Indirect measurement of compliance includes therapeutic outcome, physician estimate of compliance, prescription filling, pill count, metabolic consequence, and patient interview. Problems with indirect measurement include the effect of good medical care on patient outcome as mediated by compliance, and external factors affecting
compliance outcome such as socioeconomic and cultural factors, and occupational exposure.

In light of problems identified with conceptual and operational definitions of compliance, Neufeld (1976, p. 88-89) recommended that compliance studies be done using outcome measures to determine anticipated and unanticipated results. An outcome measure of compliance found in the literature was functional health status which included physical activity, mobility, and change in degree of major activity. Functional health status as an outcome measure of compliance reflects the capacity to perform usual activities for the patient's age and social role (Given and others, 1979, p. 88).

Clearly, it was found that compliance behavior was not enacted in a vacuum but rather in a social context involving the roles of the client, health care professional, and significant others (Gillum and Barsky, 1974; Feldman, 1982). Hypothesized models of compliance behavior found in the literature address this context.

Models of Compliance Behavior

Two models of compliance behavior found in the literature which pertained to this study were Role Theory and the Applied Analysis of Behavior Model (A.B.A.).

Role Theory. Role Theory pursues compliance from an interactionist approach. Role enactment requires the
following factors: 1) identification of self; 2) behavior in given situations appropriate to this identification; 3) a background of related acts by others (counter-roles) that serve as cues to guide specific performance; and 4) an evaluation by the individual and others of the role enactment (Mead, 1934; Lindesmith and Strauss, 1968: Lambert and Lambert 1981; Conway, 1978).

Role Theory with its interactive and communicative processes is the basis for the compliance model proposed by Dracup and Meleis (1982). As there are four factors required for role enactment, according to Dracup and Meleis there are four like-factors required for compliance behavior. These are: 1) the enactment of behaviors in a new role; 2) the individual's self-concept in a role transition from a well role to a sick role or an at-risk role; 3) counter-roles played by health professionals, spouses, and significant others; and 4) periodic evaluations of roles enacted by self and those in counter-roles (Dracup and Meleis, 1982, p. 33) (See Figure 1.1). Clearly, counter-roles played by spouses and significant others in the client's social support system offer feedback and reinforcement in helping the client system integrate compliance behaviors to promote or maintain health.

**Applied Analysis of Behavior Model (A.B.A.).** Although the physician makes the decision regarding therapy, the patient makes decisions regarding compliance. In order for the patient to correctly make a decision, he needs to know
not only what and how, but why, what if and what if not, and the like. It follows that the goal of compliant behavior is to achieve client-focused and provider-focused objectives. A common objective is improved health status.

Zifferblatt pursued a behavioral approach to facilitate compliance. In the framework of this model, the client is encouraged to make self-observations, set goals, determine realistic means to achieve goals, and evaluate outcomes. In the A.B.A. model, dimensions affecting compliance behavior are (Zifferblatt, 1975, p. 178):

1. Salience: the degree to which the event is significant or meaningful to the patient;
2. Compatibility: the degree to which the event can be readily and easily accommodated into the patient's everyday routine.
3. Latency: delay between the event and actual implementation of compliance behavior;
4. Explicitness: the degree to which an event is clearly or solely related to compliance behavior.

Antecedent cueing and consequent reinforcement, especially that reinforcement which is immediate and desirable, facilitate compliance behavior and behavior change.

Compliance Research

The literature addressed patient compliance as it pertained to the counter-roles played by health professionals and significant others in the patient's social support system. Steidl and others studied the relationship between adherence to treatment, family functioning, and medical
status in patients on long-term dialysis. Compliance to regimens was measured by a structured video-taped interview of each family unit with subsequent analysis of family interaction by six independent raters. The results of the study demonstrated a significant relationship between patient compliance, medical condition, and aspects of family functioning in the areas of shared adult leadership, parental coalitions, individual responsibility, problem-solving skills, and open opinion of others (1980, p. 1026-1027).

Miller and others (1985) examined beliefs as they related to adherence behavior in persons with ischemic heart disease. Multiple hypotheses included the proposals that: 1) intentions during hospitalization are related to attitudes and perceptions of the beliefs of others concerning one's intentions; 2) adherence to the medical regimen six to nine months post-hospitalization is related to one's attitudes and perceptions of others' beliefs post-hospitalization. Health intention and health behavior scales were used for attitudinal measurement. Diet, smoking, activity, medication, and control of stress constituted health behaviors for the study. Statistical analysis revealed significant correlations for both the above hypotheses. These findings suggest inclusion of the significant other for maximal effectiveness of therapeutic interventions during hospitalization and post-hospitalization.

The following studies identified the counter-role of the
health care professional in effecting compliance behavior in the client system whether the behavior was restrictive, additive, or modifying in nature. In a group of elderly women with stable chronic angina, one of several hypotheses proposed by Chang and others was that significant interactions exist between components of care and subjects' hypothetical intent to adhere. Subjects viewed a series of videotape simulations with nurse-patient interactions. Components of the videotape simulations included patient participation and psychosocial care. Psychosocial care was defined as the number of cues followed or issues explored by the caregiver relevant to the patient's reaction to illness and treatment. Subjects were asked to make comments as to whether they would perform various recommended behaviors had they been the patient in the simulation. Data analysis showed that the most significant factor in the subjects' intent to adhere was psychosocial care.

In another study, subjects with hypertension were studied over a three-month period in an occupational setting. The purpose of the study was to determine whether teaching patients about hypertension or self-care monitoring, or both, without supervision or support from health care providers would promote compliance to antihypertensive medical regimens (Kerr, 1985). Subjects were divided into one of four groups: 1) control, 2) education and self-monitoring, 3) self-monitoring only, and 4) education only. For each group mean
diastolic blood pressures were recorded pre- and post-intervention, and the differences between the two means were also recorded.

The results of the study indicated that 1) no significant differences in mean diastolic blood pressures were obtained at the end of the study, and that 2) none of the intervention strategies increased compliance when ongoing support was not provided. Kerr concluded that efficient, effective supervision or supportive contact by the caregiver coupled with self-monitoring intervention strategies would be useful in promoting compliance.

In an outpatient clinic setting, Spector and others (1978) studied medication compliance in a sample of medical patients taking two or more drugs, at least one of which was digoxin or methyldopa. The purpose of the study was to determine if a clinical nurse using practical intervention strategies could improve the level of medication compliance. Findings provided no evidence that intervention by a nurse improved medication compliance. The researchers proposed that the following methodological issues may have had some bearing on the outcome of the study: 1) methodology of compliance measurement, 2) the prevailing level of medication compliance in outpatients, and 3) experimental design of the study.

Therapeutic recommendations by the caregiver to the client occur in complex settings with their attendant
processes of care. This aspect of compliance as it is affected by the context in which behavior must occur has also been addressed in the literature. To deal with the complexities affecting compliance in an ambulatory care setting, Berkowitz and others (1963) attempted to obtain a measure of levels of patient follow-through in the outpatient department. Clinic physicians were asked to complete a questionnaire for each of their patients over five clinic sessions. The questionnaire pertained to patient follow-through with prescribed treatments and activities. Low correlational findings in the study reflected that: 1) patient compliance with recommendations is a series of partially related performance variables—degree of follow-through in one area is not necessarily related to performance in another area; 2) the level of patient compliance is affected by the nature of the follow-through requirement; and 3) compliance is lowest in those areas in which the patient has exclusive responsibility for his own care at home.

Given and others (1979) also researched the relationship between processes of care and patient outcomes. Subjects in their study had uncontrolled hypertension, a diastolic blood pressure of 95 mm Hg or greater, and no cerebrovascular involvement. Hypotheses investigated were the relationships between 1) diagnostic approach and patient outcome, 2) comprehensive therapeutic approach and patient outcome, and
3) patient compliance and patient outcome. Patient outcome criteria were functional health status, clinical health status, patient perception and satisfaction with health status and management of care, and lastly, patient knowledge and understanding of the problem and the corresponding therapeutic regimen.

Compliance criteria were patient reports of compliance behavior including taking medications, following dietary guidelines, and observing recommended changes in habits, activity, and work. Diagnostic and therapeutic processes included information extracted from the patient's record. Significant relationships were found between 1) comprehensive therapeutic approach and improvement in clinical health status and patient perception of health status, and 2) patient compliance and improvement in clinical health status and knowledge of disease and medications.

**Compliance, Health, and Nursing's Role**

Clients are capable of making rational behavioral choices given correct information and supportive professional guidance. Responsibility for health lies with the individual client. The literature has shown that client compliance with prescribed regimens does not always occur. Factors influencing these findings include the health care professional, significant others, environment, processes of care, and intervention strategies employed.
A professional responsibility of nursing is to assist clients in leading optimally healthy lives. This responsibility may be met by facilitating compliance in the client system through utilizing a variety of strategies. One strategy may be enhancing the individual's social support system.
CHAPTER III

METHODODOLOGY

Overview

This is a Level I relation-searching inquiry to determine the strength of the relationship between social support and compliance as measured by functional health patterns in the Chronic Obstructive Pulmonary Disease (COPD) patient. The study was designed to test the hypotheses:

$H_1$: There will be a positive correlation between the level of social support and the level of compliance as measured by functional health patterns in the Chronic Obstructive Pulmonary Disease client ($\alpha = 0.05$).

$H_0$: There will be no correlation between the level of social support and the level of compliance as measured by functional health patterns in the Chronic Obstructive Pulmonary Disease client ($\alpha = 0.05$).

Subject Sampling and Selection

Convenience Sample

Over a three-month period, a convenience sample of subjects (N=38) with chronic illness, COPD, were interviewed for this study. Subjects were selected from an outpatient pulmonary clinic at a Veterans' Administration (V.A.) hospital in Southern California. This V.A. hospital administered an outpatient pulmonary rehabilitation program, coordinated and implemented by a multidisciplinary team of health care professionals.
A convenience sample representative of the ambulatory COPD population that returned for clinic appointments was necessary for this study. Many of the clinic patients came to the V.A. for multiple appointments in one day, thus making it difficult for the investigator to arrange a specific time for data collection with the subject. Other factors which made convenience sampling necessary for this study were appointment cancellations, failure to keep appointments without prior notification or rescheduling of appointments, procedural delays such as check-in and check-out, clinic waiting time, and the physical status of the patient.

Prior to the selection of subjects for voluntary study participation in this research, the investigator checked the appointment schedule in the pulmonary clinic for potential participants. Medical records of potential subjects were utilized to gather data regarding criteria for study participation. Those who met the study criteria and who gave their written consent to participate also furnished additional data required for the study.

Criteria for Admission to the Study

The following criteria defined the population for this study:

1. Male and female veterans;

2. Age range of 50-73 years (Wittle and Rowe, 1983, p. 2-3; 36-37; Murray and Zentner, 1975);

3. Written documentation of the diagnosis of COPD in the subject's clinical record according to past
history and physical examination and spirometric measurement (Petty, 1982, p. 411).

4. Ability to comprehend, read, and write in the English language as evidenced by completion of the Demographic Data Tool (see Appendix B.1).

Extraneous variables which potentially influenced the study were recorded on the Demographic Data Tool. These variables included:

1. Presence of other disease entities or disabilities documented in the subject's medical record that limit the subject's mobility and ability to execute activities of daily living (ADL), such as crippling arthritis, paresis, amputation;

2. Use of prescribed psychotropic drugs;

3. Concurrent participation in any of the following programs:
   - exercise rehabilitation
   - patient teaching
   - individual/group/family psychotherapy, counseling
   - occupational rehabilitation
   - pulmonary rehabilitation

4. Home visits by a rehabilitation, public health, or home health care agency;

5. Employment status

6. Means of financial support (see Appendix B.1).

Independent and Dependent Variables

The independent variable of this study is social support including its functional and network characteristics. The dependent variable of this study is compliance as measured by functional health patterns.
Instrumentation

Reliability and Validity

Tools used in this study were 1) Demographic Data Tool (DDT), 2) Compliance Behaviors Inventory Tool (CBI), 3) Functional Health Pattern Tool (FHP), and 4) the Norbeck Social Support Questionnaire (NSSQ). All these tools except the Norbeck Social Support Questionnaire were developed by the investigator for the purpose of this study.

Demographic Data Tool (DDT) (See Appendix B.1). This tool served as a criterion measure for selection of subjects and as a record of confounding variables which may have affected the outcome of this study. The tool was reviewed by a committee of experts in medical-surgical nursing and biostatistics and used in a pilot study prior to the actual data collection procedure.

Compliance Behaviors Inventory Tool (CBI) (See Appendix B.2). This tool was used to 1) identify types of compliance behaviors recommended by a health care professional for subjects to implement and 2) categorize subjects into high, moderate, or low levels of compliance. This tool was not a direct measure of the subject's compliance.

For the purpose of this study, compliance behaviors included:

1. Taking medications,
2. Adherence to a therapeutic diet,
3. Keeping appointments for follow-up care,

4. Modifications in activities of daily living necessary to facilitate the performance of compliance behaviors:
   a) body care/personal hygiene/movement (such as dressing, working, bathing, lifting objects, ambulation, sexual activity);
   b) eating (such as food preparation, medication preparation);
   c) home management (such as cleaning dishes, dusting, vacuuming, doing laundry, ironing, banking, gardening, lawn care, home repairs);
   d) recreation/social (such as hobbies, driving, traveling, attendance at movies, dining out, visiting with friends, attendance at social clubs, sporting events (Lareau, 1983).

Inclusion of items on this tool for the study was determined by the investigator from compliance behaviors identified in the literature (Marston, 1970; Sackett and Haynes, 1976; Kirscht and Rosenstock, 1979). Additionally, items selected for this tool were specific for the COPD population selected for this study (Lareau, 1983). More direct inventory of compliance behaviors such as pill counts and physiologic markers would have posed economic and time constraints.

The tool was reviewed by a committee of experts in medical-surgical nursing and biostatistics and used in a pilot study prior to the actual data collection procedure.

Norbeck Social Support Questionnaire (NSSQ) (See Appendix B.3). Written permission was obtained from the author of the NSSQ to use this copyrighted tool for the
purposes of this study. This questionnaire was used to measure functional and network properties of social support. Three main variables were included in the NSSQ. These were total functional properties of affect, affirmation, and aid; total network properties of number in network, duration of relationship, frequency of contact; and total loss properties of number of categories of persons lost and amount of support lost.

Reliability and validity have been established with the NSSQ (Norbeck, 1981; Norbeck and others, 1983). For each of the functional and network properties of the NSSQ, a high degree of test-retest reliability was found (0.85-0.92). Social desirability response bias was ruled out with correlations of 0.01-0.17 between the NSSQ and the Marlow Crown Test of Social Desirability. Construct validity was established with moderate correlations of the NSSQ and the FIRO-B scales for inclusion, affection, and control (Schutz, 1978). Concurrent validity was established with correlations of 0.35-0.41 between the NSSQ and the Personal Resource Questionnaire (PRQ), and another social support tool (Brandt and Weinert, 1981).

Predictive validity of the NSSQ was established with the Negative Life Events Tool (Sarason, 1978) and the Profile of Mood States Tool (McNair, 1971). An $r^2$ value of 0.351 was obtained for functional components of the NSSQ and an $r^2$ value of 0.3671 for network properties of the NSSQ.
For the purpose of this study, the NSSQ was chosen instead of the Personal Resource Questionnaire, another social support instrument. Both tools consider the multi-dimensionality of social support, but the NSSQ provides a specific evaluation of the personal support network identified by the subject instead of the more global evaluation of social support obtained with the PRQ (Norbeck and others, 1983, p. 8). Also for physiological reasons identified by Sexton (1983) concerning research with COPD subjects, the NSSQ is a simpler tool to administer.

For this study the NSSQ was also used to identify high, moderate, and low levels of social support. Functional characteristics of levels of social support were determined as follows:

1. High level of support: a "4-5" ranking given to a primary/secondary network member by the subject;
2. Moderate level of support: a "3" ranking given to a primary/secondary network member by the subject;
3. Low level of support: a "1-2" ranking given to a primary/secondary network member by the subject;

Network characteristics of social support were divided into high, moderate, and low levels as follows:

Network membership:

a) high network membership: 8-12 or more persons;
b) moderate network membership: 4-7 persons;
c) low network membership: 0-3 persons;
Duration of relationship:
   a) high duration of relationship: 2-5 years or more;
   b) moderate duration of relationship: 6-23 months
   c) low duration of relationship: less than 6 months;

Frequency of contact:
   a) high frequency of contact: weekly or daily;
   b) moderate frequency of contact: once monthly or once every 2 months;
   c) low frequency of contact: 0-2 times a year.

Functional Health Pattern Tool (FHP) (See Appendix B.4). This tool was prepared by the investigator for the purpose of this study. Inclusion of items on this tool were chosen from functional health indices identified in the literature. These indices included: 1) subjective indicators of health such as personal satisfaction, social usefulness, and level of perceived ability for self-care (Given and other, 1976; Crewe and Athelstan, 1980, p. 292-292), and 2) objective indicators of health such as weight, episodes of compromised immunity, work, exertion and endurance capacity (Wilson, 1981, p. 462; Katz and others, 1963; Hollen, 1981; Haas, 1979; Petty, 1982; Gordon, 1982). The items of the FHP tool are sensitive indicators of health and afforded a broad and integrated view of the subject's life and how it was affected by disease.

This tool was used as the measure of the subjects' levels of compliance (i.e. high, moderate, or low) by
categorizing the subjects into one of three health patterns--functional, impaired, or dysfunctional. Levels of compliance were defined as follows:

1. High compliance: 75-100% of functional health patterns;

2. Moderate compliance: 50-74% of functional health patterns;


Levels of functional health were determined as follows:

A functional health pattern was characterized by:

a) a statement of "much" personal satisfaction and social usefulness;

b) an overall perceived ability of Level A - Level B for self-care;

c) weight maintained within ± 1-2 pounds;

d) 0-1 episodes of compromised immunity (such as respiratory infections);

e) Level A - Level B exertion, endurance and work capacity;

An impaired health pattern was characterized by:

a) a statement of "some" personal satisfaction and social usefulness;

b) an overall perceived ability of Level C - Level D for self-care;

c) weight maintained within ± 5 pounds;

d) 2-4 episodes of compromised immunity;

e) Level C - Level D exertion, endurance and work capacity;

A dysfunctional health pattern was characterized by:

a) a statement of "little" or "no" personal satisfaction and social usefulness;
b) an overall perceived ability of Level E for self-care;

c) weight fluctuation of ± 10 pounds;

d) chronically compromised immunity;

e) Level E exertion, endurance and work capacity.

As there was not a biologic cutoff point available to define noncompliance in this study, two strategies identified by Gordis (1976, p. 52) were employed to divide the study population into compliant and noncompliant groups as measured by functional health patterns. One of these strategies was to determine on a statistical basis as described above compliance/noncompliance as measured by functional health patterns. To avoid subject response bias, Levels 0, I, II, III, and IV were used solely for the investigator's analysis and interpretation of data. For the subject interview Levels 0, I, II, III, and IV were the equivalent of subject responses A, B, C, D, and E respectively. The second of these strategies was to approach the measurement of compliance by functional health patterns as a continuous variable—functional health pattern, impaired health pattern, and dysfunctional health pattern. This approach was helpful in determining the relationship between levels of social support and levels of compliance (Gordis, 1976, p. 52).

The tool was reviewed by a committee of experts in medical-surgical nursing and biostatistics and used in a pilot study prior to the actual data collection procedure.
Pilot Study

A pilot study was conducted with the Demographic Data Tool, the Compliance Behavior Inventory Tool, the Functional Health Pattern Tool, and the Norbeck Social Support Questionnaire prior to initiation of the actual data collection. The pilot study was needed to verify the clarity of the questions asked of the subjects. Each of these tools was administered to a convenience sample of four subjects from the outpatient pulmonary clinic who met the criteria for the study. No modifications were made in these tools. Approximately 30-45 minutes were required for completion of data collection tools for each subject.

Collection and Recording of Data

Data Collection

Since this was a relation-searching inquiry, no treatment or intervention as such was applied to the subject population. The tools for use in this study were presented to the subject in the form of a structured interview with printed response cards placed in front of the subject. The interview was conducted solely by the investigator. The data collection tools lent themselves to a structured interview as the information requested was factual.

A structured interview that included written visible place cards of potential responses from the subject instead of a self-completed questionnaire by the subject served the
important purposes of conserving the subject's energy levels and preventing increases in the subject's frustration levels (Sexton, 1983). There were a number of other benefits derived by collecting data in this manner. This format allowed pacing of the interview to further conserve the subject's energy levels (Polit and Hungler, 1978, p. 352), thereby permitting a greater number of subjects to participate.

Reliability and validity of the study were additionally enhanced with the structured interview format for the following reasons: 1) there was avoidance of introduction of bias if significant others were to respond for the subject in the event that he/she could not complete a self administered questionnaire (Polit and Hungler, 1978, p. 353); 2) the quality of data gathered was more equivalent and complete (Polit and Hungler, 1978, p. 352; Isaac and Michael, 1981, p. 140); 3) the investigator was able to determine how much prodding was necessary to obtain needed information; 4) the investigator was able to clarify ambiguous or confusing questions; and 5) the chances of having missing data were minimized (Polit and Hungler, 1978, p. 352-353; Isaac and Michael, 1981, p. 138).

A major concern considered in the data collection process was increased respiratory dysfunction in the subject related to fatigue, worsening of COPD symptoms, hypoxemia, hypercapnia, anxiety, and emotional discomfort. If such
dysfunction ensued during the interview process, alternative procedures available to the subject were:

1. The subject chose to rest and continued the interview following necessary treatments or medications;

2. The subject made arrangements with the researcher to complete the interview within a one-month period when he/she returned to the pulmonary clinic for the next appointment;

3. The subject made arrangements with the researcher to complete the interview at home;

4. The investigator chose to drop the subject from the study and the interview process was discontinued regardless of the subject's consent to participate in the study;

5. The subject chose to withdraw from the study.

After completion of the structured interview the data collection tools were reviewed by the researcher to ensure that the subject gave appropriate information. The subject was then discharged from the study. Following data analysis, each subject was sent a letter of appreciation for participating in the study and was given information about the findings of the study.

Data Processing and Recording

Using a structured interview format with response cards in view of the subject, each subject was administered the tools in the following order--Demographic Data Tool, Compliance Behavior Inventory Tool, Norbeck Social Support Questionnaire, and Functional Health Pattern Tool. Questions were asked of each subject in a consistent manner. Coded raw
data completed by each subject for each tool were transcribed and classified onto flow sheets and statistically analyzed.

**Demographic Data Tool.** Responses from the Demographic Data Tool were used to provide descriptive information about the population for this study.

**Compliance Behavior Inventory Tool.** For each subject, data generated on this tool were recorded on a flow sheet. A mean compliance behavior score was calculated and subsequently analyzed in conjunction with functional health patterns data (compliance measure) and social support data using a Spearman rho rank order correlation statistic (see Appendix C.2).

**Norbeck Social Support Questionnaire.** Data from the NSSQ were tabulated and scored according to direction given by the author of the tool. These data provided descriptive information about the population used in this study. The data also provided a quantitative measure of support by summing responses of each network member listed by the subject (see Appendix C.4).

In addition to the measurement of total functional and total network properties measured by the NSSQ, social support was classified into high, moderate, and low levels for the purposes of this study. A scoring sheet was used to categorize levels of social support. The scoring sheet for this information contained a list of the subject's network
members. For each network member listed, the ranking given that network member, the duration of relationship, and frequency of contact with that network member as indicated by the subject were recorded.

For each subject's network membership, a sum of total high, total moderate, and total low rankings was obtained. A mean overall ranking of the subject's network membership was then determined. Also for each subject's network, a sum of total high duration of relationship, total moderate duration of relationship, and total low duration of relationship was recorded. Following, a mean duration of relationship score was determined.

The same procedure described above was used to determine total high frequency of contact, total moderate frequency of contact, and total low frequency of contact with each network member. Mean frequency of contact score was then determined for the subject. Based on the mean ranking of network membership, mean duration of relationship, and mean frequency of contact, the subject's mean level of social support available was recorded and analyzed with other variables using the Spearman rho correlation statistic (see Appendix C.3).

**Functional Health Pattern Tool (Compliance Measure).** Raw data from the Functional Health Pattern Tool were recorded and categorized on a scoring sheet. Each response on the Functional Health Pattern Tool was appropriately
recorded under "functional pattern," "impaired pattern," or "dysfunctional pattern." Each of these categories was assigned a point value so that total functional, total impaired, and total dysfunctional sums could be obtained (See Appendix C.5).

Reviewing data in this way, as with other tools, allowed identification of those patterns of behavior which affected the subject's way of life the most or the least. Finally, a mean functional health pattern score (compliance score) was determined for the subject. The mean functional health pattern score from this tool was analyzed in conjunction with compliance behaviors inventoried, and social support using a Spearman rho rank order correlation statistic.

Treatment of Missing Data

If the subject omitted a response to a question, the question was omitted from computation of the subject's "sum total score" and "mean score" for the specific level of a variable. This information was recorded and included in the reporting of results.

Protection of Human Subjects

The investigator obtained written approval from the Chief of Nursing Service and the Internal Review board at the V.A. hospital to proceed with the study. Written approval was also obtained from the Ethics Committee, Loma Linda University, School of Nursing, to proceed with the study.
In order that the subject’s anonymity and confidentiality be ensured, each subject was assigned a code number. This number was used to tabulate subject responses. Written consent was obtained from the subjects participating in this study. The subject was given a verbal explanation of the purpose, potential risks, benefits, and participation requirements of the study. The subject was given a copy of the signed consent form (see Appendix A) and a work phone number where the investigator could be reached should the subject have any questions in the post-data collection period pertaining to the study.

Informed consent by the subjects who participated in this study met the following criteria:

1. Subjects were informed of the nature and purpose of the study;

2. Subjects were informed of potential risks and benefits of the study;

3. Privacy, anonymity, and confidentiality of information was maintained:
   a) data collection forms did not contain information that allowed the subject to be identified by name, appearance, or data;
   b) individual raw data were destroyed after they were converted into categories of data and after statistical analysis was done

4. Subjects had the following freedoms:
   a) freedom from physical, mental, and emotional harm or coercion;
   b) freedom from unjustifiable pressure;
   c) freedom from unjustifiable remuneration;
d) freedom to withdraw from the study at any time without prejudice.

The subject had the opportunity to ask questions of the investigator prior to giving consent to participate in this study.

**Statistical Analysis**

A total of 38 subjects were interviewed. The investigator noted that there was little variability among subjects for each of the variables in this study. In reviewing the raw data, it was also noted that any variability that existed among subjects in levels of social support and levels of functional health was lost in the mean social support score and mean functional health score calculated for the subjects. In comparing equivalent compliance behavior means and functional health means, there were no qualitative differences evident between subjects who had a greater number of people in their support system and subjects who had a lesser number of people in their support system.

It was decided by the thesis committee and a consulting statistician in biostatistical analysis to treat the data in such a way that fairness to the following would occur:

1. Variations in social support among subjects would not be lost in the mean scores;

2. Differentiation among subjects would be accounted for in terms of numbers of persons in the subject's social support network;
3. Differentiation among subjects would be accounted for in terms of quality of functional health and intensity of social support.

Instead of performing the correlational analysis using mean scores, new variables representing quality and intensity of social support were defined and used in the analysis.

Intensity of social support was defined by:

Intensity of social support = member rank x frequency of contact, where:

\[
\text{Intensity} = \text{total possible for each subject dependent upon total number of persons in social support system with scores ranging from 25-175;}
\]

Member rank = rank of each network member in subject's social support system with raw scores ranging from 1-5;

Frequency of contact = subject contact with each network member with raw scores ranging from 1-5 (See Table 1).

Quality of functional health was defined by:

Quality of functional health = functional health x compliance, where:

\[
\text{Quality of functional health} = \text{total possible score for each subject with the highest score possible being 9;}
\]

Functional health = ranked functional health pattern means with possible scores ranging from 1-3;

Compliance = ranked compliance behavior inventory means with possible scores ranging from 1-3 (See Table 1).
Table 1. Summary table of variables (N=38)

<table>
<thead>
<tr>
<th></th>
<th>Total Persons in Support System</th>
<th>Total Support Available</th>
<th>Intensity of Support (rank x frequency)</th>
<th>Functional Health Pattern Means (FHP)</th>
<th>Compliance Behavior Inventory Means (CBI)</th>
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Table 1. (continued) Summary table of variables (N=38)

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Table 1. (continued) Summary table of variables (N=38)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Total Persons in Support System</th>
<th>Total Support Available</th>
<th>Intensity of Support (rank x frequency)</th>
<th>Functional Health Pattern Means (FHP)</th>
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<th>Quality of Health (FHP x CBI)</th>
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</table>
For each subject an intensity of social support score and a quality of functional health score was obtained as described above. A mean compliance behavior inventory score was also obtained for each subject.

The Spearman rho rank order correlation test was applied to the paired variables of intensity of social support and mean functional health pattern scores (Table 2). Correlations were also computed for the paired variables of intensity of social support/quality of functional health, and intensity of social support/compliance (See Table 2). Scatter diagrams for each of the above paired variables were plotted (see Figures 3.1, 3.2, 3.3).

**Methodological Assumptions**

For the purpose of this study, the following methodological assumptions were made:

- Tools used in this study were estimated valid and reliable based on documentation in the literature as such and committee review by a panel of experts;

- The investigator remained unbiased and consistent with all subjects in obtaining written consent, in giving verbal explanation regarding the nature and purpose of this study, and in asking subjects direct questions as they were written on the data collection tools;

- Subjects were honest in their responses;

- Statistical analyses applied to the data were appropriate for making inferences about the data.
Table 2. Summary table of assigned ranked values for correlational analysis (N=38)

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Table 2. (continued) Summary table of assigned ranked values for correlational analysis (N=38)

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</table>
Figure 3.1. Relationship between social support and functional health. N=38; r=0.275 (p=0.095).
Figure 3.2. Relationship between social support and quality of functional health. N=38; $r=-0.059$ (p=0.095).
Figure 3.3. Relationship between social support and compliance means. N=38; r=-0.129 (p=0.095).
Limitations of the Study

Major limitations of this study were related to the target population of COPD clients that were sampled. A number of factors specific to this target population which may have affected the data collection process are (Sexton, 1983, p. 378-380):

1. Limited respiratory reserve,
2. Activity restriction,
3. Hypoxemia or hypercapnia which influenced the personality and functioning of the subject.

To minimize these limitations, a closed-ended structured interview format was used in data collection allowing brief and direct answers from the subject.

Another limitation was related to quantification of variables chosen for this study. The possibility existed that compliance behaviors defined for this study may not have been compliance behaviors that were recommended to the subject. Likewise, behaviors chosen to quantify functional health patterns for this study may not have been in the subject's repertoire of activities.

Lastly, there were subject-related variables beyond the researcher's control that were potentially limiting to the outcome of this study. These were lack of transportation and miscommunicated or misunderstood messages regarding return appointments.
Summary

Raw data were collected using the Demographic Data Tool, Compliance Behavior Inventory Tool, Norbeck Social Support Questionnaire, and Functional Health Pattern Tool. Responses on the Functional Health Pattern Tool (compliance measure) and the Norbeck Social Support Questionnaire were further categorized into three levels respectively--functional, impaired, and dysfunctional health; high, moderate, and low levels of social support. Numerical point values were assigned to the various levels of responses for these tools so that: 1) relationships between various levels of responses could be identified, and 2) mean scores could be derived for social support and functional health patterns.

Interpretations made on demographic data, compliance behaviors inventoried, and persons in the subjects' social support network are descriptive. Spearman rho rank order correlation statistics were calculated for intensity of social support and functional health pattern means, intensity of social support and quality of functional health, intensity of social support and compliance behavior means. The most important of these pairs in terms of the research hypotheses was social support and functional health pattern means.
CHAPTER IV
PRESENTATION OF FINDINGS

Descriptive and statistical findings will be reviewed followed by a discussion of findings in the study of the relationship of social support to compliance of COPD client.

Findings

Descriptive Findings

Major distinguishing characteristics of the subjects in this study are that they were primarily caucasian, 61-73 years of age, married, retired and/or disabled, were receiving disability or Social Security payments, and had a 12th grade education. A small percentage of the sample had education beyond 12th grade (See Figure 4.1). Eighteen percent of the subject population were concurrently participating in a pulmonary rehabilitation program.

Data from the Compliance Behavior Inventory Tool are presented in Table 3. This table indicates recommended compliance behaviors and frequency of subject compliance. Major compliance recommendations by a health care professional included taking medication, using oxygen, maintaining a therapeutic diet, and keeping clinic appointments. Taking medications and keeping clinic appointments were behaviors performed 75-100 percent of the time in approximately 100 percent of the sample, followed by
Figure 4.1. Demographic characteristics of sample (N=38)
Income source

- Social Security (29%)
- Pension (26%)
- Disability (37%)
- Welfare (5%)

Concurrent program participation

- Counseling (5%)
- Patient education (3%)
- Exercise rehabilitation (11%)
- Occupational rehabilitation (3%)
- Pulmonary rehabilitation (18%)

Home visitation

- Public Health (3%)
- Home Health Care (16%)

Figure 4.1. (continued) Demographic characteristics of sample (N=38)
Ethnic background

- Black (3%)
- Caucasian (71%)
- Hispanic (3%)
- Native American (18%)

Education:
Highest grade completed

- 8th (13%)
- 9th (5%)
- 10th (3%)
- 11th (3%)
- 12th (37%)
- Post-secondary (23%)

Figure 4.1. (continued) Demographic characteristics of sample (N=38)
Table 3. Frequency of responses: Compliance Behavior Inventory (N=38)

<table>
<thead>
<tr>
<th>Total &quot;yes&quot; responses for compliance behaviors recommended</th>
<th>Frequency of performance of compliance behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n+</td>
</tr>
<tr>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Take medications</td>
<td>38</td>
</tr>
<tr>
<td>Tranquilizers</td>
<td>9</td>
</tr>
<tr>
<td>Pain medication</td>
<td>7</td>
</tr>
<tr>
<td>Oxygen</td>
<td>15</td>
</tr>
<tr>
<td>Nebulizer treatments</td>
<td>6</td>
</tr>
<tr>
<td>IPPB* treatments</td>
<td>10</td>
</tr>
<tr>
<td>Diet maintenance</td>
<td>19</td>
</tr>
<tr>
<td>Modify ADL**</td>
<td>14</td>
</tr>
<tr>
<td>Body care/movement</td>
<td>10</td>
</tr>
<tr>
<td>Food/medication preparation</td>
<td>16</td>
</tr>
<tr>
<td>Home management:</td>
<td>16</td>
</tr>
<tr>
<td>Indoor chores</td>
<td>13</td>
</tr>
<tr>
<td>Outdoor chores</td>
<td>13</td>
</tr>
<tr>
<td>Recreation/social activities:</td>
<td>13</td>
</tr>
<tr>
<td>Hobbies</td>
<td>13</td>
</tr>
<tr>
<td>Dining out</td>
<td>13</td>
</tr>
<tr>
<td>Traveling</td>
<td>13</td>
</tr>
<tr>
<td>Visiting friends</td>
<td>13</td>
</tr>
<tr>
<td>Attendance at sporting events</td>
<td>13</td>
</tr>
<tr>
<td>Driving</td>
<td>13</td>
</tr>
</tbody>
</table>

*IPPB = Intermittent Positive Pressure Breathing Treatments
**ADL = Activities of Daily Living
oxygen usage 75-100 percent of the time in 40 percent of the sample, and diet maintenance 75-100 percent of the time in 27 percent of the sample.

According to medical record documentation severity of illness was determined by the pulmonary function test, forced expiratory volume in one second (FEV₁). Table 4 shows that the majority of subjects were diagnosed as having severe COPD.

The frequencies with which various persons were listed in the subjects' social support system are presented in Table 5. Family members, relatives, and spouses were the predominant persons in the subjects' social support systems. This system generally consisted of one to two persons, with the maximum being seven. The quality of support subjects obtained from their own social support systems is presented in Table 1 (See Chapter 3, page 58).

**Statistical Findings**

The relationship between intensity of social support and functional health pattern means is indicated in figure 3.1 (page 65). The Spearman's rank order correlation coefficient applied to the paired variables of intensity of social support and functional health pattern means gave $r_s = 0.275$ ($p=0.095$). This $p$ value is significant at the 0.10 level, but not at the 0.05 level. As a result, the null hypothesis was retained, which stated:
Table 4. Documentation of admission criteria: pulmonary function, degree of COPD, other diseases (N=38)

<table>
<thead>
<tr>
<th>FEV₁</th>
<th>FEV₁/FVC**</th>
<th>Degree of COPD</th>
<th>Medical record documentation of other diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>---</td>
<td>38%</td>
<td>Severe</td>
</tr>
<tr>
<td>2</td>
<td>.78 (25%)</td>
<td>29%</td>
<td>Severe</td>
</tr>
<tr>
<td>3</td>
<td>2.70 (75%)</td>
<td>67%</td>
<td>Mild</td>
</tr>
<tr>
<td>4</td>
<td>---</td>
<td>38%</td>
<td>Severe</td>
</tr>
<tr>
<td>5</td>
<td>.98 (35%)</td>
<td>51%</td>
<td>Severe</td>
</tr>
<tr>
<td>6</td>
<td>.98 (35%)</td>
<td>38%</td>
<td>Severe</td>
</tr>
<tr>
<td>7</td>
<td>2.90 (84%)</td>
<td>69%</td>
<td>Mild</td>
</tr>
<tr>
<td>8</td>
<td>.85 (27%)</td>
<td>36%</td>
<td>Severe</td>
</tr>
<tr>
<td>9</td>
<td>.28 (38%)</td>
<td>54%</td>
<td>Severe</td>
</tr>
<tr>
<td>10</td>
<td>1.22 (65%)</td>
<td>50%</td>
<td>Mild</td>
</tr>
<tr>
<td>11</td>
<td>1.90 (52%)</td>
<td>64%</td>
<td>Moderate</td>
</tr>
<tr>
<td>12</td>
<td>2.80 (73%)</td>
<td>64%</td>
<td>Mild</td>
</tr>
<tr>
<td>13</td>
<td>.60 (19%)</td>
<td>42%</td>
<td>Severe</td>
</tr>
<tr>
<td>14</td>
<td>2.40 (69%)</td>
<td>72%</td>
<td>Mild</td>
</tr>
</tbody>
</table>

*FEV₁ = Forced expiratory volume in one second:
60-70% = mild disease
40-59% = moderate disease
40% = severe disease

**FVC = Forced vital capacity
Table 4. (continued) Documentation of admission criteria: pulmonary function, degree of COPD, other diseases (N=38)

<table>
<thead>
<tr>
<th>FEV₁</th>
<th>FEV₁/FVC**</th>
<th>Degree of COPD</th>
<th>Medical record documentation of other diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>1.20 (38%)</td>
<td>44%</td>
<td>Severe</td>
</tr>
<tr>
<td>16</td>
<td>2.10 (69%)</td>
<td>85%</td>
<td>Severe</td>
</tr>
<tr>
<td>17</td>
<td>1.05 (35%)</td>
<td>62%</td>
<td>Severe</td>
</tr>
<tr>
<td>18</td>
<td>1.02 (29%)</td>
<td>67%</td>
<td>Severe</td>
</tr>
<tr>
<td>19</td>
<td>1.20 (38%)</td>
<td>---</td>
<td>Severe</td>
</tr>
<tr>
<td>20</td>
<td>.63 (19%)</td>
<td>35%</td>
<td>Severe</td>
</tr>
<tr>
<td>21</td>
<td>---</td>
<td>75%</td>
<td>Mild</td>
</tr>
<tr>
<td>22</td>
<td>1.53</td>
<td>41%</td>
<td>Severe</td>
</tr>
<tr>
<td>23</td>
<td>.35</td>
<td>19%</td>
<td>Severe</td>
</tr>
<tr>
<td>24</td>
<td>---</td>
<td>45%</td>
<td>Moderate</td>
</tr>
<tr>
<td>25</td>
<td>1.49 (57%)</td>
<td>51%</td>
<td>Mild</td>
</tr>
<tr>
<td>26</td>
<td>---</td>
<td>55%</td>
<td>Mild</td>
</tr>
<tr>
<td>27</td>
<td>1.10</td>
<td>34%</td>
<td>Moderate</td>
</tr>
<tr>
<td>28</td>
<td>.87 (38%)</td>
<td>38%</td>
<td>Severe</td>
</tr>
<tr>
<td>29</td>
<td>1.60 (44%)</td>
<td>29%</td>
<td>Severe</td>
</tr>
<tr>
<td>30</td>
<td>1.15 (32%)</td>
<td>39%</td>
<td>Severe</td>
</tr>
<tr>
<td>31</td>
<td>3.20</td>
<td>63%</td>
<td>Mild</td>
</tr>
<tr>
<td>32</td>
<td>4.80</td>
<td>75%</td>
<td>Mild</td>
</tr>
</tbody>
</table>
Table 4. (continued) Documentation of admission criteria: pulmonary function, degree of COPD, other diseases (N=38)

<table>
<thead>
<tr>
<th>FEV₁</th>
<th>FEV₁/FVC**</th>
<th>Degree of COPD</th>
<th>Medical record documentation of other diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>1.00 (26%)</td>
<td>32% Severe</td>
<td>---</td>
</tr>
<tr>
<td>34</td>
<td>1.20 (34%)</td>
<td>38% Moderate</td>
<td>---</td>
</tr>
<tr>
<td>35</td>
<td>0.70</td>
<td>40% Severe</td>
<td>Arthritis</td>
</tr>
<tr>
<td>36</td>
<td>2.25</td>
<td>40% Severe</td>
<td>Angina</td>
</tr>
<tr>
<td>37</td>
<td>1.00 (26%)</td>
<td>--- Severe</td>
<td>Congestive heart failure, tricuspid regurgitation</td>
</tr>
<tr>
<td>38</td>
<td>1.00 (26%)</td>
<td>--- Severe</td>
<td>Sleep apnea</td>
</tr>
</tbody>
</table>
Table 5. Frequency of responses for categorization of social support system (N=38)

<table>
<thead>
<tr>
<th>Category</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family/relative</td>
<td>28</td>
</tr>
<tr>
<td>Spouse/partner</td>
<td>26</td>
</tr>
<tr>
<td>Friends</td>
<td>11</td>
</tr>
<tr>
<td>Neighbors</td>
<td>7</td>
</tr>
<tr>
<td>Health care provider</td>
<td>7</td>
</tr>
<tr>
<td>Minister/priest/rabbi</td>
<td>4</td>
</tr>
<tr>
<td>Work/school associates</td>
<td>0</td>
</tr>
<tr>
<td>Counselor</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
</tbody>
</table>
There will be no correlation between the level of social support and the level of compliance measured by functional health patterns in the Chronic Obstructive Pulmonary Disease client ($\alpha = 0.05$).

To determine the usefulness of the Functional Health Pattern Tool as an index of compliance, Spearman's rank order correlation coefficient was applied to the following paired variables:

1. Intensity of social support and quality of functional health;
2. Intensity of social support and compliance behavior inventory means.

For intensity of social support and quality of functional health $r_s = -0.059$. For intensity of social support and compliance behavior inventory means $r_s = -0.129$ (See Figures 3.2 and 3.3; pages 66, 67).

Discussion of Findings

The objective of this study was to investigate the relationship between social support and compliance as measured by functional health patterns in the COPD client. Statistical analysis did not support the alternative hypothesis. Therefore the null hypothesis, there is no significant relationship between social support and compliance as measured by functional health patterns, was retained.

The lack of a strong relationship between intensity of social support and functional health pattern means can be related to issues of measurement with the tools developed by
the investigator for this study. With the Functional Health Pattern Tool there were no difficulties encountered with subjects crossing predetermined boundaries for the self-care question as anticipated. Generally subjects maintained their mobility and were able to perform self-care activities regardless of the severity of their disease. A reason for this finding may be primarily social. With the majority of subjects being male, it is not unusual that society has equated the male role with that of being strong and being the breadwinner in the household. Therefore, perhaps a greater effort was made to do self-care, to preserve control over physical needs, and to avoid overwhelming dependency upon others. Denial of illness may also have been a reason for this finding.

Other issues on the Functional Health Pattern Tool brought to light in this study were those of work and self-satisfaction. Subjects stated that their exertion and endurance for physical work was limited, but their exertion and endurance for cognitive work was unlimited. In self-satisfaction, subjects were able to globally place themselves in a major response category but attached the statement that self-satisfaction was clearly related to compliance.

The high compliance behaviors of taking medications including oxygen usage, can perhaps be attributed to the fact that noncompliance with these behaviors would immediately
result in adverse effects, specifically, compromised respiratory function. Subjects generally volunteered their knowledge of medications with respect to action, dosage, and side effects experienced.

The high compliance behavior of keeping clinic appointments can be attributed to socioeconomic factors. First, subjects who came to this facility were eligible for care because of their veteran status. Second, as a significant number of these subjects were receiving Social Security payments as a primary income source, perhaps there was no other facility to which they could go for affordable health care.

Modification in activities of daily living (ADL) was not a high priority recommendation given to the subjects, nor was it an activity that was given attention by the subjects. Subjects generally stated that modification in ADL became self-imposed secondary to physical limitations of COPD.

The statistical findings of this study do not strongly support the major findings in the literature that social support serves as a stress buffering mechanism in illness and that compliance enhances health and wellbeing. Some bias may have been created, however, by the convenience sampling of subjects who were compliant in keeping clinic appointments for follow-up care and who were available for the investigator to pursue.

The demographic findings of this study do agree with the
literature that families and spouses play a major role in providing social support in this population. Perhaps had it not been for this kind of support from this group of people, the subjects would not have been as self-sufficient in meeting their own self-care needs.

Other findings that deserve attention here pertain to the small number of subjects in this study characterized by the following (See Figures 3.1 and 3.2; pages 65, 66):

1. High intensity of social support with impaired functional health pattern;
2. Low intensity of social support with impaired functional health pattern;
3. Low intensity of social support with functional health pattern.

These findings imply two things. First, perhaps regardless of the intensity of social support provided, the subject may have reached a deterioration in his physical health where he is unable to function. Second, perhaps the intensity of social support provided by a health care professional and a non-health care professional in the person of a spouse carries more significance than that which could be provided by other non-health care professionals such as friends and neighbors.

If the support provided by spouse and professional care giver were weighted twice that given by friends, neighbors, and relatives, maybe a difference in intensity of social support provided to the subject would become more evident.
Summary

The social support system of the sample in this study can be characterized as small in number and composed of primarily spouse and family. Mean levels of social support ranged from moderate to high. Subjects reported high compliance with taking medications, using oxygen, and keeping clinic appointments. Mean compliance scores ranged from moderate to high. Mean functional health pattern scores ranged from moderate to high. Raw scores for levels of social support were used in computing quality of social support. Functional health pattern means and compliance behavior inventory means were used in computing quality of health scores. These calculations were done to afford a measure of intensity and quality among the scores obtained. Spearman's rank order correlation coefficient was applied to the following paired variables:

1. Quality of social support and functional health pattern means;
2. Quality of social support and quality of health;
3. Quality of social support and compliance behavior inventory means.

The most significant of these pairs was the quality of social support and functional health pattern means. The $r_s$ value of 0.275 ($p = 0.095$) obtained for quality of social support and functional pattern means indicates that there is little relationship between social support and compliance as measured by functional health patterns in the COPD subject.
CHAPTER V
SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Summary

It was the purpose of this study to investigate the relationship between social support and compliance as measured by functional health patterns in the Chronic Obstructive Pulmonary Disease client. Compliance is an important issue because clients need to assume personal responsibility for their health and wellbeing. Social support is important because compliance behavior occurs in a context of social roles. Based on these relationships the null hypothesis stated:

H₀: There will be no correlation between the level of social support and the level of compliance as measured by functional health patterns in the Chronic Obstructive Pulmonary Disease client (α = 0.05).

General Systems Theory, Role Theory, and the Loma Linda University School of Nursing Conceptual Framework were chosen as the conceptual bases for this study. Findings in the literature provided positive evidence that social support plays a major role in buffering stressful life events and the impact of illness. The literature also provided evidence that compliance is facilitated by social support. Based on this evidence, the health provider clearly can assist the client toward compliance, and ultimately health by identifying the roles assumed by those in the client's social

85
support system, and by intervening to enhance the client's social support system.

A structured interview format with visual response cards was used to obtain data from the subjects. A total of four tools were presented to the subject from which data were collected. The four tools used in this study were the Demographic Data Tool, Compliance Behaviors Inventory Tool, Norbeck Social Support Questionnaire, and the Functional Health Pattern Tool. All but the Norbeck Social Support Questionnaire were developed by the investigator for this study. From these data the following information was obtained:

1. Descriptive information about the subject population;
2. Descriptive information about compliance behaviors;
3. Intensity of social support (rank x frequency);
4. Quality of functional health (functional health pattern mean x compliance behavior mean).

To test the proposed hypothesis the Spearman rho rank order correlation statistic was applied to the paired variables of intensity of social support and functional health pattern means.

Conclusions

Descriptive data showed that subjects ranged from 61-73 years of age, were married, and were receiving disability insurance and/or Social Security payments as income. High compliance levels were obtained with taking medications,
using oxygen, and keeping clinic appointments. Significant persons in the subjects' social support system were spouse and family members.

Statistical analysis gave an $r_s = 0.275$ ($p = 0.095$) between intensity of social support and functional health pattern means indicating no relationship between these two variables at the 0.05 level of significance. Therefore, the null hypothesis that there will be no correlation between the level of social support and the level of compliance as measured by functional health patterns, was retained.

A major limitation of the study was the homogeneity of the sample group. Another limitation was the bias created by sampling those compliant patients who attended the clinic for follow-up care. This may have resulted in the low variability among subjects for the mean scores obtained for each of the variables. As a result of the convenience sampling of this study, these findings cannot be generalized to a broader population.

**Nursing Implications**

Although the statistical findings indicated no significant relationship between social support and compliance as measured by functional health patterns, a number of other questions pertaining to compliance, functional health, and social support have surfaced as a result of this study. These questions are as follows:
Compliance: Which behaviors are essential to functional health in an ambulatory COPD population?

Functional Health Patterns: Were the parameters selected for functional health patterns appropriate ones for an ambulatory COPD population?

Social Support: Is a small, intense social support system characteristic of the older adult population used in this study? Is this type of social support system characteristic of both males and females in this age group?

The fact that few losses of significant others in the past year were reported on the Norbeck Social Support Questionnaire raises yet another question. With increasing age, how is the subject's social support system affected or changed? Do diminished social contacts with increasing age and chronic illness affect the quality and composition of the social support network? Perhaps if the "loss" question on the Norbeck Social Support Questionnaire were rephrased to include significant losses over a greater time span, this would afford a more global look at the quality and amount of support the subject has lost with respect to the subject's stage of development in the life span.

Furthermore, who and what is important in terms of social support to the COPD veteran? What kind of
support is needed under which circumstance? Is the support the client requires from the health caregiver much different from that required by spouse and family? How does the support required by the client differ between acute illness and chronic illness? An optimum state of health and wellbeing in the client system for which the client assumes responsibility remains an important focus of these questions.

Recommendations

Further study is needed to identify the relationship between social support and compliance. A wider and more diverse sample should be used to test the variables used in this study. It would be beneficial to know how health care professionals define health in a chronically ill population. It would also be beneficial to know how chronically ill clients define health for themselves.

Further study could be aimed at identifying what major stresses the chronically ill perceive. From this it could be determined the quality, intensity, and composition of social support network that would best meet the clients' needs.

Further research also is needed to develop tools that are sensitive, valid, and reliable indicators of health, compliance, and social support. The development of such tools in nursing research would be applicable to a broad spectrum of the population, would assist in the identification of client needs, and would identify more
effective and efficient ways in which nursing can maximize
the unique resources available to offer the client system.
Appendix A

LOMA LINDA UNIVERSITY

AGREEMENT TO PARTICIPATE IN RESEARCH

INFORMATION ABOUT: The Effect of Social Support upon Compliance as measured by Functional Health Patterns in the Chronic Obstructive Pulmonary Disease Patient.

I have been asked to participate in the above study about social support (significant others) and compliance (following special recommendations from a health provider such as taking medications, treatments, following a diet, modifying activities). This research study is being conducted by Olivia Catolico-Dixon, R.N., graduate nursing student at Loma Linda University, at the site of the Veterans' Administration Outpatient Pulmonary Clinic, Loma Linda, California.

I HAVE BEEN INFORMED THAT:

1. The major purpose of this study is to find out what effect significant others in my life have upon my following special recommendations of a health care provider. Another purpose of this study is to assist nursing in identifying ways to help pulmonary patients lead healthier lives.

2. I will be required to complete an interview with the investigator which will take about 45 minutes or less. This interview will not interrupt my scheduled clinic appointment.

3. There is no potential risk involved in this study.

4. As my energy levels may be related in some degree to my breathing capacity, if I tire I may:
   a. rest and continue the interview following necessary treatments or medications,
   b. make arrangements with the researcher to complete the interview within a one-month time period when I return to the pulmonary clinic for my next appointment,
   c. make arrangements with the researcher to complete the interview at home,
   d. choose to withdraw from the study.

5. I may contact Ray Quinto, Administrative Officer, Research Service, V.A. Hospital, Loma Linda, 714-825-7084, extension 2264 if I sustain physical injury
resulting from the research procedure.

6. Potential benefits to me are that a) important results of the study will be mailed to me; b) I will be assisting nursing in finding ways to help patients lead healthier lives.

7. I am free to withdraw from the study at any time without pressure, prejudice, penalty, or jeopardy of medical care, as my participation is voluntary, without monetary inducement/remuneration/third party reimbursement. My refusal to participate in this study will involve no penalties or loss of benefits to which I am entitled and I may still receive, following my withdrawal.

8. The information obtained in this study is confidential and my name and identity will not be disclosed without my consent in any published document.

9. Participation in research study: place an "x" next to your response:
   a.____I have not participated in any research study within the past three (3) months; b.____I have participated in a research study within the past three (3) months. My participation occurred on (day/month/year)________________________ and involved ________________________________

INFORMED CONSENT:

I have read the contents of this consent form and have listened to the verbal explanation given by the investigator. My questions concerning this study have been answered to my satisfaction. I hereby give my voluntary consent to participate in this study. I may call Olivia Catolico-Dixon, R.N. at work, 714-825-7084, extension 2378, 2564, beeper #235, if I have additional questions or concerns. I have been given a copy of this consent form and a copy of the Patient's Bill of Rights.

SIGNATURE OF SUBJECT:________________________ DATE:_____

I have reviewed the contents of this form with the person signing above. I have explained potential risks and benefits of the study.

SIGNATURE OF INVESTIGATOR:____________________ DATE:_____
WORK PHONE NUMBER OF INVESTIGATOR:____________________

I indicate having knowledge of this research participation.
SIGNATURE OF PHYSICIAN:________________________ DATE:_____

Appendix B.1
Demographic Data Tool (DDT)
(Code number: __)

Place an "x" next to the responses that apply to the subject.

1. **Age group:**
   - □ 45-50 years  □ 61-65 years
   - □ 51-55 years  □ 66-70 years
   - □ 56-60 years  □ 71-75 years

2. **Marital status:**
   - □ Single
   - □ Married
   - □ Divorced
   - □ Separated
   - □ Widowed

3. **Work status:**
   - □ Employed
   - □ Self-employed
   - □ Unemployed
   - □ Retired
   - □ Disabled

4. **Means of financial support:**
   - □ Salary
   - □ Unemployment pay
   - □ Social Security Disability
   - □ Social Security Income
   - □ V.A. pension
   - □ Welfare assistance
   - □ Other (specify) ___________

5. **Are you currently participating in any of the following programs?**
   - a. exercise rehabilitation
   - b. patient teaching program
   - c. individual/group/family psychotherapy, counseling
   - d. occupational rehabilitation
   - e. pulmonary rehabilitation

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Are you currently visited at home by caregivers from any of the following agencies?

<table>
<thead>
<tr>
<th>Agency</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Rehabilitation agency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Public health agency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Home health care agency</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Ethnic background:

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Asian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Black</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Caucasian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Hispanic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Native American</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Other (specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. What is the highest grade of regular school that you have completed? (circle response)

<table>
<thead>
<tr>
<th>Grade</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Grade school:</td>
<td>1 2</td>
<td>3 4 5 6 7 8</td>
</tr>
<tr>
<td>b. High school:</td>
<td>9 10</td>
<td>11 12</td>
</tr>
<tr>
<td>c. College:</td>
<td>13 14</td>
<td>15 16</td>
</tr>
<tr>
<td>d. Graduate School:</td>
<td>17 18</td>
<td>19 20 21</td>
</tr>
</tbody>
</table>
Appendix B.2
Compliance Behavior Inventory (CBI)
(Code Number: )

Place an "x" next to the subject's response to each of the following questions. Indicate which of the following compliance behaviors were recommended to the subject by a health care team member (a health care team member may include a physician, nurse, clinical specialist, occupational therapist, respiratory therapist, social worker, psychologist). If a "yes" response is indicated under "Compliance Behavior", then completion of "Performance of Behavior" and "Percentage of Time Behavior Performed" is required.

<table>
<thead>
<tr>
<th>Compliance Behavior:</th>
<th>Performance of Behavior:</th>
<th>Percentage of Time Behavior Has Been Performed Within the Past Six Months:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take prescribed medications</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>In addition to the breathing medications prescribed for you, do you take any of the following prescribed medications?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) tranquilizers (sedatives)</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>(2) anti-depressants</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>(3) pain medication</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>Are any of the following treatments prescribed for you at home?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) use of oxygen</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>(2) nebulizer treatments</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>(3) IPPB-Intermittent Positive Pressure Breathing Treatments</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>Compliance Behavior:</td>
<td>Performance of Behavior:</td>
<td>Percentage of Time Behavior Has Been Performed Within the Past Six Months:</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>2. Maintain/follow a therapeutic diet (such as low salt, low fat, low cholesterol, decreased caffeine or alcohol consumption)</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>3. Return to clinic for followup appointments</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>4. Alter, change, or modify activities of daily living</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. body care/personal hygiene/movement (such as dressing, washing, bathing, lifting objects, walking, sexual activity)</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>b. food preparation/medication preparation activity</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>c. home management:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) indoor household chores</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>(2) outdoor household chores</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>d. recreation/social:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) hobbies</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>(2) traveling</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>(3) dining out</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>(4) visiting with friends</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>(5) attendance at sporting events</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
<tr>
<td>(6) driving</td>
<td>Yes__No__</td>
<td>75-100% 50-74% 0-49%</td>
</tr>
</tbody>
</table>
Appendix B.3
Norbeck Social Support Questionnaire

For each person you listed, please answer the following questions by writing in the number that applies.

1 = not at all
2 = a little
3 = moderately
4 = quite a bit
5 = a great deal

Question 1:
How much does this person make you feel liked or loved?

1. ___________________________
2. ___________________________
3. ___________________________
4. ___________________________
5. ___________________________
6. ___________________________
7. ___________________________
8. ___________________________
9. ___________________________
10. ___________________________
11. ___________________________
12. ___________________________
13. ___________________________
14. ___________________________
15. ___________________________
16. ___________________________
17. ___________________________
18. ___________________________
19. ___________________________
20. ___________________________
21. ___________________________
22. ___________________________
23. ___________________________
24. ___________________________

Question 2:
How much does this person make you feel respected or admired?

1. ___________________________
2. ___________________________
3. ___________________________
4. ___________________________
5. ___________________________
6. ___________________________
7. ___________________________
8. ___________________________
9. ___________________________
10. ___________________________
11. ___________________________
12. ___________________________
13. ___________________________
14. ___________________________
15. ___________________________
16. ___________________________
17. ___________________________
18. ___________________________
19. ___________________________
20. ___________________________
21. ___________________________
22. ___________________________
23. ___________________________
24. ___________________________

GO ON TO NEXT PAGE
Question 3:
How much can you confide in this person?

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 
12. 
13. 
14. 
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16. 
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18. 
19. 
20. 
21. 
22. 
23. 
24.

1 = not at all
2 = a little
3 = moderately
4 = quite a bit
5 = a great deal

Question 4:
How much does this person agree with or support your actions or thoughts?

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 
12. 
13. 
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20. 
21. 
22. 
23. 
24.
Question 5:

If you needed to borrow $10, a ride to the doctor, or some other immediate help, how much could this person usually help?

1. __________________
2. __________________
3. __________________
4. __________________
5. __________________
6. __________________
7. __________________
8. __________________
9. __________________
10. __________________
11. __________________
12. __________________
13. __________________
14. __________________
15. __________________
16. __________________
17. __________________
18. __________________
19. __________________
20. __________________
21. __________________
22. __________________
23. __________________
24. __________________

Question 6:

If you were confined to bed for several weeks, how much could this person help you?

1. __________________
2. __________________
3. __________________
4. __________________
5. __________________
6. __________________
7. __________________
8. __________________
9. __________________
10. __________________
11. __________________
12. __________________
13. __________________
14. __________________
15. __________________
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17. __________________
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19. __________________
20. __________________
21. __________________
22. __________________
23. __________________
24. __________________

GO ON TO NEXT PAGE
**Question 7:**
How long have you known this person?

1 = less than 6 months
2 = 6 to 12 months
3 = 1 to 2 years
4 = 2 to 5 years
5 = more than 5 years

**Question 8:**
How frequently do you usually have contact with this person?
(Phone calls, visits, or letters)

5 = daily
4 = weekly
3 = monthly
2 = a few times a year
1 = once a year or less.

**PERSONAL NETWORK**

<table>
<thead>
<tr>
<th>First Name or Initials</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<tr>
<td>2.</td>
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<td>23.</td>
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<tr>
<td>24.</td>
<td></td>
</tr>
</tbody>
</table>

PLEASE BE SURE YOU HAVE RATED EACH PERSON ON EVERY QUESTION. GO ON TO THE LAST PAGE.
9. During the past year, have you lost any important relationships due to moving, a job change, divorce or separation, death, or some other reason?

   0. No
   1. Yes

IF YES:

9a. Please indicate the number of persons from each category who are no longer available to you.

   ______ spouse or partner
   ______ family members or relatives
   ______ friends
   ______ work or school associates
   ______ neighbors
   ______ health care providers
   ______ counselor or therapist
   ______ minister/priest/rabbi
   ______ other (specify) ______________________________

9b. Overall, how much of your support was provided by these people who are no longer available to you?

   0. none at all
   1. a little
   2. a moderate amount
   3. quite a bit
   4. a great deal
Appendix B.4

FUNCTIONAL HEALTH PATTERN TOOL (FHP)
(Code number___)

For each question, place an "x" next to the response indicated by the subject.

1. For the past 6 months I have felt:
   a. ___ "much personal satisfaction and social usefulness."
   b. ___ "some" personal satisfaction and social usefulness.
   c. ___ "little" or "no" personal satisfaction and social usefulness.

2. For the past 6 months there has been a variation in my weight of:
   a. ___ plus or minus 1-2 pounds.
   b. ___ plus or minus 5 pounds.
   c. ___ plus or minus 10 pounds.

COPD Symptoms:

3. In a 24 hour period I have:
   a. ___ no cough/mild coughing
   b. ___ moderate coughing
   c. ___ severe coughing

4. In a 24 hour period I have:
   a. ___ 0 sputum production/1 ounce of sputum production.
   b. ___ 2-4 ounces of sputum production.
   c. ___ 5 ounces or more of sputum production.

5. In a 6 month period I have had:
   a. ___ 0 respiratory infections/1 respiratory infection.
   b. ___ 2-3 respiratory infections.
   c. ___ I have respiratory infections all of the time.
6. Self-Care Activities for the past six months:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I use no help.</td>
<td>I use equipment</td>
<td>I use human assistance.</td>
<td>I use equipment and human assistance</td>
<td>I am unable to do the activity.</td>
</tr>
</tbody>
</table>

- a. feeding
- b. dressing
- c. home maintenance
- d. bathing
- e. grooming
- f. shopping
- g. toileting
- h. general mobility
- i. bed mobility
- j. cooking

(continued on next page)
<table>
<thead>
<tr>
<th>Exertion/Endurance Capacity</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Dyspnea (shortness of breath)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. level walking</td>
<td>I can walk 3-4 level city blocks or more at my own pace</td>
<td>I can walk 2-3 level city blocks at my own pace</td>
<td>I can walk 1-2 level city blocks at my own pace</td>
<td>I can walk half a level city block at my own pace</td>
<td>I am unable to walk at all</td>
</tr>
<tr>
<td>b. incline walking</td>
<td>I can climb 2 flights of stairs</td>
<td>I can climb 1 flight of stairs</td>
<td>I can climb 1-4 steps</td>
<td>I am unable to climb any stairs</td>
<td></td>
</tr>
<tr>
<td>8. Work</td>
<td>I have no Endurance impairment--I can work</td>
<td>I can work a full day with rest periods arranged</td>
<td>I can work half the day</td>
<td>I can work only 1-2 hours a day</td>
<td>I am unable to work at all</td>
</tr>
</tbody>
</table>
## Appendix C.1

**Data Sheet for Subject Participation**

<table>
<thead>
<tr>
<th>Name:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\text{FEV}_1$:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\text{FEV}_1/\text{FVC}$:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of COPD:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate:</td>
<td></td>
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<tr>
<td>Severe:</td>
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<td></td>
</tr>
<tr>
<td>Written Consent Obtained:</td>
<td></td>
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</tr>
<tr>
<td>Copy of Bill of Rights given:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assigned code number:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Documentation of other diseases that limit mobility, activity:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix C.2

#### Scoring Sheet: Compliance Behavior Inventory (CBI)

<table>
<thead>
<tr>
<th>Question</th>
<th>&quot;Yes&quot; = 1 point</th>
<th>&quot;no&quot; = 0 point</th>
<th>75-100% = 3 points</th>
<th>50-74% = 2 points</th>
<th>0-49% = 1 point</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a(1)</td>
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<td>(2)</td>
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<td>b</td>
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<td>c(1)</td>
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<tr>
<td>(6)</td>
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<tr>
<td>Totals:</td>
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<tr>
<td>19 points possible</td>
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<tr>
<td>Mean CBI Score:</td>
<td></td>
<td></td>
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</tbody>
</table>
Appendix C.3

Scoring Sheet: Levels of Social Support

<table>
<thead>
<tr>
<th>Network Membership</th>
<th>Ranking of Network Member</th>
<th>Duration of Relationship with Network Member</th>
<th>Frequency of Contact with Network Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
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<tr>
<td>3.</td>
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<td></td>
<td></td>
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<tr>
<td>4.</td>
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<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
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<tr>
<td>6.</td>
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<tr>
<td>7.</td>
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<td></td>
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<tr>
<td>8.</td>
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<tr>
<td>9.</td>
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<tr>
<td>10.</td>
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</tr>
<tr>
<td>11.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Sum totals:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High=</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate=</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low=</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean &quot;ranking&quot; score:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sum totals:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High=</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate=</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low=</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean &quot;duration&quot; score:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sum totals:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High=</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate=</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low=</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean &quot;contact&quot; score:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mean social support level score:
Scoring: Levels of Social Support

Functional Characteristics

For each network member listed from whom the subject obtains affect, affirmation, and aid, levels of social support offered to the subject by that member will be quantified as follows:

<table>
<thead>
<tr>
<th>Point value</th>
<th>Affect, affirmation, aid:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>&quot;high&quot;=4-5, &quot;quite a bit&quot;, &quot;a great deal&quot;;</td>
</tr>
<tr>
<td>2</td>
<td>&quot;moderate&quot;=3, &quot;moderately&quot;;</td>
</tr>
<tr>
<td>1</td>
<td>&quot;low&quot;=1-2, &quot;not at all&quot;, &quot;a little&quot;;</td>
</tr>
</tbody>
</table>

Network Characteristics

For each network member listed the duration of relationship and frequency of contact between the subject and network member will be quantified as follows:

<table>
<thead>
<tr>
<th>Point value</th>
<th>Duration of relationship:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>&quot;high&quot;=2-5 years or more;</td>
</tr>
<tr>
<td>2</td>
<td>&quot;moderate&quot;=6-23 months;</td>
</tr>
<tr>
<td>1</td>
<td>&quot;low&quot;=less than 6 months;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Point value</th>
<th>Frequency of contact:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>&quot;high&quot;=weekly/daily;</td>
</tr>
<tr>
<td>2</td>
<td>&quot;moderate&quot;=monthly;</td>
</tr>
<tr>
<td>1</td>
<td>&quot;low&quot;=0-few times a year.</td>
</tr>
</tbody>
</table>
Appendix C.4
Scoring Sheet - Social Support Questionnaire

Demographic Data: Age ______, Sex ______
Ethnicity ______, Education (yrs) ______
Marital Status ______
Type of Group

<table>
<thead>
<tr>
<th>No. in Network</th>
<th>SOCIAL SUPPORT QUESTIONNAIRE</th>
<th>Supplemental Scoring Sheet</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Ques. 1</th>
<th>Ques. 2</th>
<th>Ques. 3</th>
<th>Ques. 4</th>
<th>Ques. 5</th>
<th>Ques. 6</th>
<th>Person Totals (from Ques. 1-6)</th>
<th>Ques. 7</th>
<th>Ques. 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(54)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(39)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(56)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(97)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(58)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(59)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(60)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(81)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(82)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(53)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(64)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(65)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(66)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(67)</td>
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<td></td>
</tr>
<tr>
<td>15.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(68)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(69)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(70)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(71)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(72)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(73)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(74)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(75)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(76)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(77)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Question Totals

0 = No, 1 = Yes

Category codes: [13] (99) [46] (50) [42] (60) [63] (64) [62] (65) [60] (68) [69] (70)
Appendix C.5

Scoring Sheet: Levels of Functional Health

<table>
<thead>
<tr>
<th>Question</th>
<th>Functional</th>
<th>Impaired</th>
<th>Non-functional</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7a.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7b.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
\begin{align*}
\text{Sum totals:} & \quad \text{Sum totals:} & \quad \text{Sum totals:} \\
\text{Functional=} & \quad \text{Impaired=} & \quad \text{Non-functional=} \\
\end{align*}
\]

Mean Functional Health Pattern Score:
Scoring: Functional Health Pattern Tool

Responses to each question will be quantified as follows:

Point value: 3  
Questions 1-5:  
An "a" response = functional;  
A "b" response = impaired;  
A "c" response = non-functional;  

Point value: 2  

Point value: 1  

Point value: 3  
Questions 6-8:  
Level 0-Level I response = functional;  
Level II-Level III response = impaired;  
Level IV response = non-functional.
APPENDIX C.6

Scoring of Norbeck Social Support Questionnaire

Responses from each subject were transferred to a one-page scoring sheet. Prior to transferring the subject's responses to the scoring sheet, the "Source Category" was obtained by entering the appropriate category code for each of the network members listed. In the relationship column of the personal network list on the NSSQ, the subjects indicated the type of relationship. These entries were coded as follows:

0 = none
1 = spouse or partner
2 = family or relatives
3 = friends
4 = work or school associates
5 = neighbors
6 = health care providers
7 = counselor or therapist
8 = minister, priest, rabbi
9 = other

The first of the recent loss items on page six of the NSSQ was coded: 0 = no; 1 = yes. The total number of persons indicated in question 9a was entered for "number lost." The number indicated for each category was also entered. The number checked by the subject for question 9b was entered for "amount of support lost." For subjects who answered the question with a "no" response, special scoring for questions 9a and 9b were done to avoid subsequent problems with missing data on the Total Loss variable. Since these subjects did not answer questions 9a and 9b, answers indicating no losses
were supplied. For each category within 9a, a "0" response was entered. For question 9b, an "o" was entered for "amount of support lost."

The subject's ratings for questions 1-8 were transferred to the scoring sheet. The columns for questions 1-8 were added on the scoring sheet and the sums entered in the "Question Totals" row. The coding and entering of data from the recent loss items were described above. These scores were entered along the bottom of the scoring sheet--57-73.

Calculating Subscales. Affect, affirmation, and aid were each measured through the ratings made in response to two questions. These were combined into a single score for each subscale as follows:

Affect 1 + Affect 2 = Affect
Affirmation 3 + Affirmation 4 = Affirmation
Aid 5 + Aid 6 = Aid

Calculating Variables. Each of the three main variables was composed of three subscales:

Total functional variable (T1) = affect, affirmation, aid subscales;

Total network properties variable (T1) = number listed, duration, and frequency of contact subscales;

Total loss variable (T1 loss) = loss, loss number, and loss amount.
Appendix D.1
Permission to use Norbeck Social Support Questionnaire

NSSQ Scoring Instructions

APPENDIX A

Request Form

I request permission to copy the Norbeck Social Support Questionnaire (NSSQ) for use in research in a study entitled: The Effect of Social Support Upon Compliance As Measured By Functional Health Patterns in the Chronic Obstructive Pulmonary Disease Patient (completion of degree requirements for Master's Degree at Loma Linda University, Loma Linda, California).

In exchange for this permission, I agree to submit to Dr. Norbeck a copy of the one-page scoring sheet for each subject tested. These data will be used to establish a broad normative database for the instrument for clinical and non-clinical populations. Aside from use in the pooled data bank, no other use will be made of the data submitted. Credit will be given to me in reports of normative statistics that make use of the data I submitted for pooled analyses.

Signature:
September 30, 1985
Olivia Catolico-Dixon, RN, CCRN, RN, C.
Critical Care Instructor
V.A. Hospital (118A)
11201 Benton Street
Loma Linda, California 92357
(714) 829-7084, ext. 2378, 2564.

Permission is hereby granted to copy the NSSQ for use in the research described above.

Signature:
Jane S. Norbeck
October 4, 1985

Please send two signed copies of this form to:
Jane S. Norbeck, D.N.Sc.
Department of Mental Health and Community Nursing
University of California, San Francisco
NS05-Y
San Francisco, California 94143
To enable us to compare the results of this study with people from different groups and situations, we would like some additional information about your background. Please complete the following items.

1. AGE 34

2. SEX
   - 1. male
   - 2. female

3. MARITAL STATUS
   - X 1. single, never married
   - 2. married
   - 3. divorced or separated
   - 4. widowed

4. EDUCATIONAL LEVEL
   What is the highest grade of regular school that you completed? (Circle one)
   
<table>
<thead>
<tr>
<th>Grade School</th>
<th>High School</th>
<th>College</th>
<th>Graduate School</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8</td>
<td>9 10 11 12 13 14 15 16</td>
<td>17 18 19 20 21 22</td>
<td></td>
</tr>
</tbody>
</table>

5. ETHNIC BACKGROUND
   - X 1. Asian
   - 2. Black
   - 3. Caucasian
   - 4. Hispanic
   - 5. Native American
   - 6. Other (Specify)

6. RELIGIOUS PREFERENCE
   - X 1. Protestant (Specify)
   - 2. Catholic
   - 3. Jewish
   - 4. Other (Specify)
   - 5. None

7. PARTICIPATION IN RELIGIOUS ACTIVITIES
   - 1. Inactive
   - 2. Infrequent Participation (1-2 times a year)
   - 3. Occasional Participation (about monthly)
   - 4. Regular Participation (weekly)
Appendix D.2

Research Approval by Veterans' Administration Hospital Internal Review Board

Veterans Administration

Memorandum

Date: August 23, 1985
To: Ms. Olivia Catolico-Dixon (118A)
From: Chairman, R&D Committee
Subj: "The Effect of Social Support Upon Compliance as Measured by Functional Health Patterns in the Chronic Obstructive Pulmonary Disease Patient"

1. At the R&D Committee Meeting on August 14, 1985 the committee voted for unanimous approval of the above mentioned proposal.

2. Thank you for your time and effort in this matter.

FLORIAN ZIELINSKI, Ph.D.
Chairman, R&D Committee
REFERENCES


Larreau, S. Shortness of breath assessment questionnaire. Pulmonary Rehabilitation Program, Jerry L. Pettis Veterans' Administration Hospital, August, 1983.

Loma Linda University School of Nursing. Conceptual Model (Framework) for Nursing, 1977, 1-20.


McKay, R. Theories, models, and systems for nursing. Nursing Research, 18(5), September-October, 1969, 397.


