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AN EXPLANATION OF THE ROLE OF FAMILY PARTICIPATION IN A MEDICATION INFORMATION PROGRAM ON SCHIZOPHRENIC CLIENTS' MEDICATION ADHERENCE BEHAVIORS

by

Judy Ingram

A Thesis Submitted to the Faculty of the
COLLEGE OF NURSING
In Partial Fulfillment of the Requirements For the Degree of
MASTER OF SCIENCE
In the Graduate College
THE UNIVERSITY OF ARIZONA
1987
STATEMENT BY AUTHOR

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ABSTRACT

The purpose of this study was to describe family members' influence on medication adherence rates for schizophrenic clients following an educational program presented simultaneously to both client and family member.

Three chronic schizophrenic clients participated in this study, two were females, and the other was male. The two family members who provided data were husbands of the two female clients. The obtained scores and responses of two questionnaires was indicative of improved medication adherence for clients and family members. The level of adherence was similarly perceived by the clients and their family members as obtained scores and responses were similar across both time periods. However, family members' attendance at the program presentation did not influence the level of reported medicated adherence behaviors of their wives as compared to the client who attended the program alone because the greatest increase in obtained scores was reported by the client who attended the program alone.
CHAPTER I

INTRODUCTION

Frequently a lack of compliance or adherence to prescribed antipsychotic medications contributes most to an increase in schizophrenic symptomatology and hospital recidivism (Anderson, Hogarty & Reiss, 1981; Ayd, 1976; Davis, 1975; Hogarty & Goldberg, 1973; Kane, 1983). Although drug therapy has been documented as necessary for the reduction of schizophrenic symptomatology, "these drugs cannot help the patient to learn social skills, to comply with the treatment regimen or to cope with environmental stresses" (Gallant, 1983, p. 15).

The course and treatment outcomes of chronic schizophrenic illness also has been linked to interpersonal qualities describing social connectedness. For example, schizophrenia is considered by some to be a stress-related illness where hostile, critical, or emotionally overinvolved attitudes toward the client by relatives have initiated symptom relapse (Brown, Birley & Wing, 1972; Kuipers, 1979; Vaughn & Leff, 1980). Levels of expressed emotion, deviations in communication patterns, stressful life events and other aspects of a stressful environment have been identified as variables related to psychotic symptom relapse (Brown & Birley, 1968; Birley & Wing, 1972; Goldstein, Rodnick, Evans, May & Steinberg, 1978; Leff & Vaughn, 1980; Leff, Kuipers, Berkowitz, Fries & Sturgeon, 1984; Luckoff,
In addition, researchers and clinicians have identified other social variables such as network size, density, clustering (defined as a group of individuals having a greater density of interconnection with each other than any of them has with others), relationship durability, stability, multiplexity (defined as the extent to which network members have multiple role relationships with each other) and frequency of social or interpersonal contact, as pertinent factors influencing schizophrenia symptom relapse (Beels, 1981; Chrisman, 1977; Garrison, 1978; Lehman, 1980; Lipton, Cohen, Fisher & Katz, 1981; Liberman, 1982; Pattison, deFrancisco, Wood, Frazier & Crowder, 1975; Sokolovsky, Cohen, Berger & Geiger, 1978; Sokolovsky & Cohn, 1978; Tolsdorf, 1976). For example, alteration in social-environmental stressors has been identified among medication compliant patients just before symptom relapse; i.e., increased loneliness, unemployment and a society that fears him or her (Hirsch, 1983; Leff, Hirsch, Gaind, Rohde & Stevens, 1973; McEvoy, Howe & Hogarty, 1984).

In regards to the medication nonadherence rate of the schizophrenic population, a 40 to 50% nonadherence rate has been reported (Kane, 1983). Furthermore, it has been estimated that 40% of those individuals started on antipsychotic medication(s) stop within the first year despite therapy following hospital discharge (Hogarty & Goldberg, 1973). Finally, Diamond (1983) determined that schizophrenia was included among a group of categorized illnesses with the lowest medication adherence rates.
Statement of the Problem

Despite the known benefits of antipsychotic medication for schizophrenic clients, medication nonadherence continues to be a major health problem for this group of patients. The efficacy of educational programs designed specifically to improve medication adherence behavior(s) in the schizophrenic population have not been well addressed. Whether or not family intervention programs can facilitate the use of a medication by chronic schizophrenic patients is a needed area for research (Goldstein, 1984). Educational programs which emphasize family communications and involve family members in the treatment plan seem to have been somewhat successful in reducing client symptomatology and rates of hospital recidivism (Goldstein & Kopekin, 1980). Recognizing the need to develop intervention strategies which impact positively on the medication adherence behaviors of schizophrenics, this study incorporates family members into an educational program designed originally for only clients. Specifically, this research examines the impact of a medication-information program presented simultaneously to schizophrenic clients and at least one family member on the medication adherence behaviors of clients.

Rationale

An educational and supportive group initiated by the community health nurse may help the client, the family, and others in the community to better understand the nature of the clients' needs relative to his or her required medication regimen. Family members
may have been misinformed or have little knowledge regarding the process of schizophrenic mental illness, and their behaviors may act as a powerful influence on the noncompliant patterns of their ill family member. Negative comments (i.e., hostile, critical, intrusive or disappointing) or a lack of positive reinforcement from family members also may have an adverse effect on the clients' mental health and acceptance of medical care (Leff, Kuipers, Berkowitz, Fries & Sturgeon, 1982; Vaughn & Leff, 1976). The simultaneous presentation of didactic information to the client and family member may provide the participants with an opportunity to interact in a helpful and supportive manner with one another. The presented information may encourage the client and his or her family member to become more actively involved in treatment planning and implementation of treatment strategies.

Health care providers must interrupt the medication nonadherence behavior of schizophrenics if optimal mental health is to be attained and repeated hospitalizations are to be minimized. If families can facilitate this interruption of continued noncompliant behavior, the development of family intervention programs are important to community maintenance programs for the chronically mentally ill (Anthony & Nemec, 1984).

Theoretical Perspective

Reciprocal Determinism (Bandura, 1974; 1977) is utilized as the theoretical grounding for this study. Bandura's social learning model incorporates psychosocial phenomena into a framework identified
by three major components: environmental influences, cognitions or intellectual personal factors, and individual behavior. Each phenomena or component affects the others in an interactive pattern through a "bidirectional influence", as shown in Figure 1.

The significance of social or environmental influences is cited frequently in the literature relative to specific health behavior outcomes for all patients. Caplan (1974), a social psychiatrist and founder of the community mental health movement suggested that:

Significant others help the individual to mobilize his psychological resources and master his emotional burdens, they share his tasks; and they supply him with extra supplies of money, material, tools, skills and cognitive guidance to improve his handling of the situation (p. 6).

Viewing community health nurses as significant health care providers, Marston (1977) and Roberts (1984) stated that community nurses, by virtue of their numbers and amount of client contact time, have the greatest potential for exerting an environmental impact on client health behavior. For example, routine inquiries by community nurses about the clients' self-medication routines and side effects, may help to maintain compliance (Van Putten, 1982).

Besides the community health nurse and other health care professionals, the family may be viewed as another environmental condition or influence. The family often represents the client's sole or primary source of emotional and material support, yet, the family may not be directly included as a community resource in the designed treatment program (Falloon, Boyd, McGill, Razani & Moss, 1981). Perhaps much could be gained by expanding family involvement.
E - Environmental events

P - Cognitive and other internal events that can affect perception and actions

B - Behaviors of the individual

Reciprocal Determinism: The production of effects by events. "Determinants (environmental events, cognitive and behavior events) can affect each other proximally or distally but, whatever the time course may be, they involve the sequentiality of mutual influence" (Bandura, 1983, p. 166).

Environment: External factors to the individual (Bandura, 1978). For purposes of this study environment specifically relates to the family members.

Cognitions: Imagery representations of past and current experiences presented in symbolic form (Bandura, 1978). More specifically, cognition is viewed as the product of encoding, transformation, storage, and use of information for the purpose of regulating behavior (George & Neufeld, 1985).

Behavior: Medication adherence practices of each schizophrenic client. Although medication adherence is seen as one unit of behavior, Becker (1980) noted that a multiplicity of factors are involved in understanding this phenomenon. For example, clients' knowledge concerning the specifics of their therapies (the complexity, duration, and amount of behavioral change desired) can directly affect the efficacy and convenience with which care is provided or accepted.

Figure 1. Schematic representation of the bidirectional reciprocal influence of model concepts
in the community management of schizophrenia. For example, family members, having frequent client contact as a life time commitment, are likely to have a greater impact on client health behaviors than a health care professional seeing the client on a short-term, less frequent basis. The importance of family inclusion in treatment planning is supported further by additional research (Parkes, Brown & Monck, 1962; Wilcox, Gillan & Hare, 1965). Both studies reveal the positive influence family members can have on medication adherence behavior(s) for outpatient management of schizophrenic clients.

A second component of Bandura's model depicting reciprocal interaction is the cognitive, intellectual, or knowledge level of each individual. According to Bandura (1974, p. 860), "information-processing capacities" provide the basis for insightful behavior. Cognitive capacities were viewed as partly determining which external events would be perceived, whether or not perceptions would leave any lasting effect(s), and whether or not the perceptions would have value or efficacy for the individual. How the information is conveyed determines how the information will be organized for future use. Thus, thought and awareness were acknowledged as playing a major role in the original mastery of any behavior. Without relevant information to apply and substantiate cognitive operations, individuals were seen to lose their ability to cope effectively with the demands of everyday life. Bandura assumed that individuals were endowed with "self generating capacities", or the ability to learn from observation and instruction, and these capacities were seen to directly influence behavior.
The third or final component of the Reciprocal Determinism Model is behavior. Bandura (1978) viewed behavior as a "psychosocial" phenomena. Explanations of human behavior previously had favored unidirectional causal models emphasizing either environmental or internal determinants of behavior. Bandura (1978) argued that such a view was limited, and he proposed an explanation of human behavior that viewed psychological functioning as a continuous reciprocal interaction between behavioral, cognitive, and environmental influences. He described reciprocal determinism as a model for analyzing psychosocial phenomena at the level of intrapersonal development, interpersonal transactions, and interactive functioning.

Bandura's theory of Reciprocal Determinism is used in this study as a guide to understanding the medication-taking behavior of schizophrenic clients. The interdependence of the three major model phenomena (environment, cognition and behavior) is a critical theoretical assumption and offers nurses the opportunity to individualize treatment strategies across each of the three areas. The three major model phenomena are specifically outlined in this study as: 1) environmental condition: the community health nurse as an influential community agent who initiates a teaching program to include both clients and family members in the presentation; 2) cognitive condition: individual knowledge gained by the client and family members as a result of the instructional program on medication and medication adherence; and 3) behavioral condition: self-reports by client and family member participants of the medication taking behaviors of the client.
This study includes the three major phenomena and focuses on one aspect of the Reciprocal Limb between "environment" (family) and individual behavior (chronic mentally ill client).

**Research Questions**

The literature suggests that family member involvement in treatment programs is helpful in decreasing schizophrenic clients' symptom relapse rate. However, a minimal amount of research has been conducted which specifically examines family members' influence on medication adherence rates for schizophrenic clients following an educational program presented simultaneously to both client and family member. Therefore, the following questions are presented:

1. Is there a significant difference between the medication adherence behavior(s) of clients whose family members attend the medication program presentation from the medication adherence behavior(s) of clients whose family members do not attend the program presentation?

2. Is there a significant difference between schizophrenic client's and at least one family member's perception of the medication adherence behavior(s) of the client?
The past three decades have witnessed a change in the focus of care for the chronically mentally ill (CMI). Patients have been discharged from the institutional setting to be maintained in a variety of community settings (Cuttler, 1985). Reason for this change was due to increased professional concern over the long-term effects of hospitalization on individuals and the advent of psychotropic medications. Stanton & Schwartz (1954) observed that the effects of long-term hospitalization promoted much of the observed client symptomatology. Mental health professionals came to realize that the large mental hospital isolated the client from the community and his or her relatives, undermined clients' motivation to return to the community, and induced a disability that was above and beyond the consequences of the defined mental condition (Mechanic, 1969).

In response to these clinical observations, legislative mandates were implemented which recommended the decrease in size of psychiatric hospital clientele and the establishment of programs to care for the CMI in the community (Kerfoot & Crowell, 1984). The concept of deinstitutionalization utilized in this study is defined as "the right of any individual to receive treatment in an environment which is least restrictive (Kerfoot & Crowell, 1984, p. 269)."
Law project of 1973 defined "least restrictive" environment as:

...a person should not be hospitalized with drastic curtailment of liberty involved, if he can be treated in a setting less restrictive than an institution as required by the constitutional principle of the least drastic means. The Constitution requires that whenever a government is going to restrict a person's liberty against his will in order to accomplish a legitimate governmental objective, it must impose the least drastic restriction necessary (Schaerenberger, 1976, p. 126).

Although legislative mandates for the care of chronically mentally ill persons dictated deinstitutionalization, it has been documented that fewer than 50% of the clients discharged from inpatient facilities ever receive outpatient treatment (U.S. Steering Committee, 1981). Critics of deinstitutionalization have suggested that the movement of clients from the hospital to the community often is neither effective nor humane, citing as evidence the development of community "backwards" (Bassuk & Gerson, 1978; Lamb & Goertzel, 1972) and the "revolving door syndrome" (Redlich & Kellert, 1973; Talbot, 1979). In contrast, Wyatt (1980) found that most schizophrenic clients experienced a rapid return to functioning within the community following a psychotic episode. Despite these conflicting findings, patterns of repeated relapses and rehospitalization maintain the illness of schizophrenia as the country's primary mental health problem (Wyatt, 1980).

Cutler (1985) noted that chronically mentally ill persons may be found in group homes, foster homes, jails, high security hospitals and mandatory aftercare situations. Some say the situation is not
of deinstitutionalization but one of "transinstitutionalization" (Talbot, 1979). Furthermore, Talbot (1979) stated that the plethora of new living and support situations has resulted in modern human systems' problems of "falling through the cracks". One critic wrote, "the ideals of community treatment have become a matter of empty words rather than practice" (Erickson & Hyerstay, 1980, p. 35). In summary, studies have indicated that community aftercare treatment, goals, and strategies are fragmented and inconsistent.

Medication Compliance or Medication Adherence

Becker & Maiman (1980) have stated that the problem of enlisting patient cooperation is a critical aspect of all recommended and prescribed therapies requiring self administration of medications. Some authorities believe that securing patient cooperation is the most serious problem facing medical practice today (Dunbar & Stunkard, 1979). For example, one reviewer noted,

> In an era when efficacious therapies exist or are being developed at a rapid rate, it is truly discouraging that one-half of patients for whom appropriate therapy is prescribed fail to receive full benefit through inadequate adherence to treatment (Haynes, 1976).

A basic area of concern in the literature discussing medication adherence is that of defining or labeling the specific behavior. Some researchers use the term "compliance". Barofsky & others (1978) defined "compliance and "quality of life" as opposing views of the same phenomena; i.e., the core issue in defining compliance is measuring social control - the core issue in quality of life assessment
appears to be measuring social consequence. Others have suggested that the term "compliance" be avoided since the word implies coercion or passivity on the part of the client (Blackwell, 1973). Instead of the term "compliance", the term "adherence" has been used by Blackwell (1973) and "therapeutic alliance" by Zola (1977). Both authors argue that the type of patient-provider relationship implied by these terms is a more appropriate description of a desired alliance between consumer and caregiver and, as such, ought to replace the term "compliance".

Other researchers and clinicians examining the phenomena of compliance have suggested that certain kinds of information or education about various aspects of the medication regimen may influence client cooperation. For example, some studies conducted with medical clients have shown that poor patient or client recall is a major problem. It was found by Ley (1973) that after five minutes, clients forgot about half of the doctor's instructions and remembered best the material in the first one third of the presentation. Some studies have found that lack of adequate information about how to take prescribed medicine and about the medication's desired effectiveness is associated with patient nonadherence (Caplan, Robinson, French, Caldwell & Shinn, 1976; Huika, Cassel, Kuiper & Burdette, 1976; Joyce, Caple, Mason, Reynolds & Matthews, 1969; Svarstad, 1976). Dunbar & Stunnkard (1979) determined that the regimen itself and knowledge of the regimen were the single most important predictors of client adherence. Blackwell (1979) speculated that possibly two thirds of the real problems in adherence stem from faulty comprehension on the
part of the patient. Diamond (1983) and Hogan, Awad & Eastwood (1983) found that knowledge of which pills to take, when to take these pills, and why the pills were prescribed was central to improved client adherence.

Hogarty (1984) felt that education regarding the nature of schizophrenia and the role and management of stress is desirable for not only the clients but their families as well. Similarly, Beck & Rush (1975) stated that the "cognitive interpretation" of a stimulus determined whether or not a client perceived the impact of a stressor as positive or negative. They suggested that if schizophrenic clients labeled the acquisition of side effects from medication as "severe", these clients would suffer more when the side effects actually occurred than if they could be instructed to categorize side effects into more specific groups such as "severe vs. nonsevere", or "tolerable", and "negligible". Linden & Chaskel (1981) also concluded that it would be helpful to educate the client on how to better cope with side effects in their daily activities.

Data regarding the relationship between knowledge and adherence behavior is in the "aggregate, neither consistent nor clear-cut" (Becker, 1980, p. 114). For example, some studies have found no significant relationship between levels of patient information and adherence to medication therapy (Haynes, 1976; Podell, 1975; Sackett, 1976). Becker (1980) has suggested one possible approach to understanding the seemingly conflicting results between adherence and knowledge is to view knowledge as a "sin qua non" for correct compliance. In addition, he stated that it was important to recognize
that certain kinds of information may, under certain circumstances, be insufficient to produce adequate patient cooperation. He suggested that other variables may be associated with the production of better communication of pertinent information to the patient; i.e., careful organization of information, specific and individualized instructions, brief and selective information necessary for compliance, repetition of important information, and oral as well as written instructions given to clients for future referral.

Medication Adherence and the Chronically Mentally Ill

Because many individuals diagnosed with schizophrenia have symptoms that respond well to psychotropic medication, the value of using a continued medication regimen in preventing relapse and promoting community adjustment has been clearly established (Falloon, 1984). Davis & Gierl (1984) also have stated that antipsychotic medications are responsible for positive results in the treatment of many schizophrenics, and that patients not treated with drugs have a worse prognosis. For example, in a study comparing symptom relapse rates between clients who were successfully stabilized on antipsychotic medications and those given placebo therapy, Hogarty (1984) noted that only 15% of the medication group suffered symptom relapse while 65% of the placebo group suffered symptom relapse. In addition, Schooler & Levine (1983) viewed antipsychotic medication as making an important contribution to the individual's adjustment by functioning to insulate the client from a range of stressful social stimuli.
Although antipsychotic medications are known to diminish schizophrenic symptomatology, many schizophrenic clients refuse to comply with their prescribed medication regimen. Thus, many research efforts have been devoted to examining possible causes of patient noncompliance (Becker, 1980). For example, Blackwell (1977) identified critical indices of nonadherence behavior to maintenance medications such as uncomfortable side effects and the illness, itself, in which going off the medication did not make the client feel any worse. Because many schizophrenic clients are encouraged to take maintenance doses of medication which can produce uncomfortable side effects, one must recognize that these individuals are in a high risk category for noncompliance. Clients' interpretation of the altered physiology induced by the medicated state also have been noted as determinants of medication adherence (Hogan, Awad & Eastwood, 1983; Van Putton, May, Marder & Wittmann, 1981). Furthermore, Van Putton, Crumpton & Yale (1976) have made an interesting observation that some clients seemed to actively seek a delusional state of mind and learned ways to cultivate psychotic states by discontinuing their medication. These authors also found that clients who refused medication and those who consented to antipsychotic medication therapy offered in both their attitudes toward adherence and clinical symptomatology.

It is apparent from the above discussion that medication nonadherence among schizophrenic clients presents a complex problem to mental health professionals. To further confuse the issue of understanding medication nonadherence behavior among schizophrenics, Blackwell (1976) suggested that poor adherence patterns tended to
disappear under "scrutiny". He noted that clients who were likely to participate in a study were not necessarily representative of the entire population, in that they may be more willing to comply with their treatment regimen. He also noted that measurement issues may skew research findings on adherence/nonadherence rates. He cited that most studies focused on errors of omission and failed to include instances in which clients took excessive amounts of medication, took medication irregularly, or took less medication than prescribed.

In contrast to the research findings presented above which connote a positive correlation between increased medication adherence behavior and increased knowledge pertinent to the issues of medication and schizophrenia, Soskis (1978) found that schizophrenic clients seemed to be considerably more knowledgable than medical inpatients about the medications they were receiving. Despite the increased knowledge, only 56% of the schizophrenic clients said they would adhere if they had the choice. In contrast, 93% of the medical clients stated they would adhere to their regimen if given a choice. Data regarding the relationship, knowledge and acquisition of medication adherence behavior is not consistent. More conclusive data is needed.

In summary, the deinstitutionalization of schizophrenic clients, as a major treatment emphasis, has provided a pertinent role for the community health nurse. Because nurses spend a great deal of time relating to persons with health needs, they are in a pivotal position to potentially influence client health behaviors. Hogue (1979) stated that nurses have traditionally used teaching both about characteristics of the disease and the details of its treatment as the time-honored
approach to enhancing adherence behavior of schizophrenic clients. However, transmitting knowledge alone has not been enough to overcome the prevalence of medication nonadherence within the schizophrenic population.

Education programs implemented by nurses to combat medication nonadherence for schizophrenic clients has not been well addressed in the literature (Cohen & Amdur, 1981; Common, 1979; O'Brien, 1978; Schlofane, 1977). Slavinsky & Krauss (1982) related this lack of emphasis to a difficulty in investigating sensitive, personal measures of treatment outcome for the schizophrenic population. More studies are needed to be conducted in regard to those treatments that most effectively maintain individuals at functional levels in the community. Strategies need to be provided at reasonable cost and implemented in a time efficient manner. The development of an effective approach to the total syndrome of schizophrenia is incomplete (Keith, 1982), and medication adherence is only one part of the treatment program outlined to combat disease symptoms.

Relapse or Rehospitalization Issues and the Chronically Mentally Ill

With the advent of antipsychotic medication, the entire treatment program for the chronically mentally ill was altered. Through maintenance medication, many schizophrenics were able to remain out of the hospital and function adequately in the community. For example, Cole, Goldberg & Davis (1966) found that 70% of studied schizophrenic clients showed substantial improvement on an antipsychotic drug and almost none showed a worsening of their condition. In contrast, when
a placebo medication was administered, only 25% showed a similar improvement and about 45% worsened.

The concept of symptom relapse frequently is found in the literature relative to inadequate long-term treatment with maintenance antipsychotic medication. However, despite the wide use of the "relapse" concept, Falloon (1984) noted the absence of a generally accepted operational definition. Neuchlertein & Dawson (1984) stated that a common definition of "relapse" has been "rehospitalization". Unfortunately, this translation of the concept is heavily influenced by such factors as clients' social functioning, community support systems, cultural definition of "deviant", and presence of non-schizophrenic symptoms. The lack of a clear consensus about what constitutes "relapse" limits the generalizability of findings from study to study (Neuchlertein & Dawson, 1984).

In response to the dilemma surrounding the concept of relapse for schizophrenic clients, Falloon (1984) recommended several ways to standardize an operational definition. His suggestions included: 1) the concept should be operationally defined in a way that specifies the qualitative and quantitative symptomatic characteristics that qualify as relapse; 2) social functioning, community tenure, and non-schizophrenic symptoms should be assessed independently of the concept of schizophrenic relapse; 3) the concept of relapse in relation to studies of treatment outcomes for schizophrenics should be restricted to symptoms that are characteristic of schizophrenia, such as delusions, hallucinations, conceptual disorganization, thought insertion, thought broadcasting, and thought withdrawal; and 4) a
"target symptom" approach in which return of a patient's idiosyncratic patterns of symptoms, known from past episodes, is specified as the relapse criterion.

**Impact of Family Interaction on Rehospitalization or Escalated Symptomatology**

An estimated 50 to 60% of all schizophrenic clients discharged from the hospital return home to family members (Lamb & Oliphant, 1978; Minkhoff, 1979). Evidence has accumulated that highlights interpersonal processes within the family as one of the most powerful predictors of relapse in the schizophrenic population (Leff, 1975). Tarrier & others (1979) have claimed that preventative antipsychotic medication could protect these patients against the strain of everyday living, but the quality of the emotional relationship between the patient and the person he lives with often contributes most to precipitating relapse. In turn, symptom relapse leads to repeated admissions to the hospital.

A review of the literature regarding social interactions and schizophrenic clients highlighted the finding that these individuals have smaller social networks than persons without psychiatric disorders (Pattison, deFrancisco, Wood, Frazier & Crowder, 1975; Sokolovsky, Cohen, Berger & Geiger, 1978). Thus, the range of possible social resources seems severely limited. Similarly, Tolsdorf (1976) noted that the networks of schizophrenic patients contained a higher proportion of kin members than the networks of other medical patients. High kin network membership is a problem according to Brown and others
(1972) because of the interactive qualities expressed within relationships of schizophrenic families. In particular, within those families with a high level of interpersonal or social criticism, hostility, or emotional overinvolvement, the schizophrenic client was more susceptible to relapse (Vaughn & Leff, 1976; Berkowitz et al., 1981). When the high expressed emotion was reduced, patients did much better (Leff et al., 1982).

In contrast to study results that depict the negative influence family members have on the relapse of schizophrenic symptomatology, other research has shown that family involvement can be a vital resource for outpatient management of schizophrenic clients. Family members involved in an educational program about schizophrenia were found to have a positive influence on relapse reduction (Falloon, Boyd, McGill, Razani, Moss & Gilderman, 1982; Snyder & Liberman, 1981). Although somewhat successful, many of these educational programs varied greatly in their format, making it difficult to know what aspects of these family-intervention, educational programs were significantly related to relapse prevention; i.e., program length, number and location of sessions; whether clients attended the session at all; number of family members present; or goals of the sessions (Goldstein, 1984). Mosher & Keith (1980) state, "What remains to be learned from these studies is a more refined definition of the specific and nonspecific ingredients in each program that result in optimal recovery" (p. 37).
CHAPTER III

METHODOLOGY

Introduction

Families are perceived as a central resource influencing client health behavior outcomes. Specifically, family members may have a beneficial effect on the schizophrenic clients' medication adherence behavior(s) when they are given additional knowledge about the illness and medications. Therefore, an educational program on antipsychotic medication(s) was evaluated in terms of its effect on the following: 1) medication adherence behavior(s) of schizophrenic clients whose family members attend the same didactic presentation; 2) medication adherence behavior(s) of schizophrenic clients whose family members do not attend the presentation.

Definitions

Schizophrenic Client or Person: Any adult diagnosed with schizophrenic symptomatology for a minimum of one year and described by the following criteria: 1) presence of certain psychotic features during the active phase of the illness; 2) characteristic symptoms involving multiple psychological processes including disturbances in the form of thought; 3) deterioration from a previous level of functioning; 4) onset before age 45; and 5) the disturbance is not due to an Affective Disorder or Organic Mental Disorder, DSM III (APA, 1980, p. 181).
Adherence: A standard external criterion which exists for both the recipient and prescriber of medication that is palatable or tolerable to both parties (Barofsky, Sugarbaker & Mills, 1979). For this study, adherence is defined as the medication taking behavior(s) of chronically ill schizophrenic clients which promote or maintain a recognized functional level and is measured by questions in the Medication Adherence Assessment Tool (MAAT) and Self-Report Scale Predictive of Drug Compliance (SSPDC) questionnaires (see Appendix A for MAAT and Appendix B for SSPDC).

Chronicity: The time from the beginning of the illness, during which the individual began to show signs of illness or disease process (including prodromal, active, and residual phases) more or less continuously, is greater than two years, DSM III (APA, 1980, p. 181).

Family: "A group of individuals usually composed of two generations and two sexes where each individual: 1) expresses different needs, perogatives and obligations; 2) establishes relationship by firm erotic and affectual ties; and 3) forms a shelter for other group members against the larger society" (Hofling & Lewis, 1980, p. 51).

Human Subjects Review

Following human subjects' approval by the Ethical Review Committee of the University of Arizona College of Nursing (see Appendix D for the letter of confirmation), the proposal was presented to a local community mental health clinic for review and approval by their research protocol committees. The agency was chosen based on the large number of chronically mentally ill population served and because this
southwestern facility was centrally available to the Hispanic community or other ethnic/minority groups. Within the city where this study was conducted, Hispanics comprise over 15% of the overall population and thus represent a significant portion of the society as a whole (Tucson Trends, 1986). In addition the selected agency offered a full range of treatment modalities plus a variety of referral and support services to chronically mentally ill clients.

Clinic Setting

The total number of clients seen within the selected agency for the fiscal year 1986 was 3993 (LaFrontera Center, Inc., Annual Report, 1986). The profile of these clients included 59% (2347) persons with non-chronic mental illness, while 12% (428) chronically mentally ill persons were seen in specialized treatment programs, 19% (750) persons were abusing or addicted to drugs and 12% (468) were persons with alcoholism problems (LaFrontera Center, Inc., 1986). The profile of clients treated in community-oriented behavioral health services statewide is somewhat similar to that of the selected mental health agency (Adams, Schwegler, Office of Community Behavioral Health, State of Arizona, 1986). For example, non-chronically mentally ill persons (25,678) made up only 42% of the clients treated statewide, 36% (21,068) persons had alcoholism problems, and 13% (7,385) persons abusing or addicted to drugs.

Medication Information Program

Selection of a specific previously established clinic-directed medication information program was based upon a match between the
established program's content and the medication adherence focus of this research study. The program's content included: 1) theoretical orientations to schizophrenia; 2) illustrations of the physiological impact of routinely prescribed antipsychotic medication on the brain; 3) identification of commonly prescribed drugs used in the treatment of schizophrenia and usual drug dosage ranges; 4) descriptions of commonly experienced medication side effects and effective methods to counter undesirable effects; and 5) a discussion time for clients and family members to express concerns and/or questions about the program content (LaFrontera Center, Inc., 1986). The program was approximately 45 minutes in length, and was scheduled at a convenient time and day when clients and/or family members could attend and also pick up needed medications.

The instructor of the program was an experienced psychiatric nurse who is directly involved with the ongoing therapy regimen for outpatient clients at the selected mental health center. She has been involved in treatment programs for mentally ill clients for longer than 10 years, and currently she is involved with the conduction of mental health assessments, teaching medication information programs, and providing follow-up screening or intervention services to referred clients within the selected facility.

Sample Selection

Subjects were selected for study inclusion by agency therapists familiar with clients' therapy progress. This original screening process was requested by the agency as a means to protect clients from
over-involvement in current research programs conducted in cooperation with other university and agency personnel and to insure client readiness for program participation. Criteria for selection of clients consisted of the following: 1) a diagnosis of chronic schizophrenia; 2) able to read and comprehend written or spoken English; and 3) not currently involved and/or over-involved in other research projects based upon each therapist's judgment as documented by client records; and 4) family members available in the community who might also be willing to participate in the study.

After individual therapists had identified prospective participants, letters from the clinic were sent to 14 clients describing the educational program and inviting clients and family members to attend. A brief description of the research study and a request for study participation also was included in this introductory letter. In addition, each agency therapist made a personal phone call to all the potential subjects encouraging them to attend and participate in the research study.

Instrument Development and Scoring

This exploratory study utilized a questionnaire format to elicit responses from subjects. One assessment tool developed specifically for this study, the Medication Adherence Assessment Tool or MAAT (Appendix A), was coupled with a previously validated scale on drug compliance, the Self-Report Scale Predictive of Drug Compliance or SSPDC (Appendix B) and a demographic survey (Appendix C).
The Medication Adherence Assessment Tool (MAAT) is a six-item, investigator-developed scale consisting of open-ended, semi-structured questions about medication adherence. Because the MAAT is a newly developed scale, no reliability and validity measures are available. The MAAT was primarily developed to assess patient and family members' responses about specific medication adherence behavior(s) of the schizophrenic client. No other known scales were available to assess the desired information for this study. The format is open-ended and not a forced choice therefore responses are individualized. In addition, the format provides a contrast to other instruments used in the study which employ a "forced choice" option as valuable comparison information.

The Self-Report Scale Predictive of Drug Compliance (SSPDC) developed by Hogan, Awad & Eastwood (1983) was a 30 item instrument derived from stepwise discriminant analysis of responses from 150 schizophrenic patients. Validation in the form of discriminant classification assigned 89% of the original sample to either compliant or noncompliant responses. A second discriminant function analysis was performed where the original 30 items were entered into the analysis until an optimal set of items for group membership was reached which discretely distinguished compliant from noncompliant clients. The means for compliant and noncompliant patients, 0.71 and -0.84 respectively, and had relatively little overlap.

Across validation was done on a reduced 10 item scale on a sample of 19 patients. Therapists rating of compliance levels as either compliant or noncompliant was used as the criterion, and a value of
compliance levels as either compliant or noncompliant was used as the criterion, and a value of 68% agreement was obtained. With such a small sample and the rating of compliance in a subjective manner by therapists this process can only be considered a preliminary attempt at cross validation. Reliability analysis was done on the original 30 item scale and indicated an internal consistency of .93 (p=0.001) and a test-retest reliability of .82.

Twelve items were selected from the larger scale of 30 items for use in this study. The selected items represented the six discriminating highest mean scores for both compliant and noncompliant responses. The scale was primarily reduced so that clients and family members could answer all questions of the combined questionnaires in a reasonable amount of time. The 12-item scale was used for this study has practical limitations in that no validity and reliability measures have been done and the reduced number of items may affect the psychometric properties of the instruments. However, selected items retained a high level of face validity and the diversity of discriminant values between compliant and noncompliant responses reported for the original 30-item scale suggest that psychometric instrument properties are retained.

Responses for the 12-item questionnaire or instrument used in this study were collected in a likert format with response scores ranging from (1) "not at all" or 0% to (7) "always" or (100%). The number value (7) was assigned to the highest degree of medication adherence and the number value (1) was assigned to the lowest level of medication adherence behavior. For example, item #10 states
"unnatural to take medication" requires a reverse scoring from respondents originally assigned number to depict greater knowledge and medication adherence practices surrounding the schizophrenic illness. Other items which were reversed scored include items 7 - 12 (see Appendix B). Individual item scores were summed together to obtain a total estimate of each client's medication compliance level. In addition, a compliance percentage score can be computed using value comparisons between obtained scores for individual client's and total possible scale scores.

The Demographic Survey is a 15-item multiple choice scale asking questions regarding the schizophrenic clients' and family members' age, race, education, marital status, living arrangement, employment, occupation and source of income. The format and instructions are clear and easy to respond to.

Data Collection

Immediately following the medication program presentation, all clients and family members in attendance agreed to participate in the research study. All respondents completed the Medication Adherence Assessment Tool (MAAT), the Self-Report Scale Predictive of Drug Compliance (SSPDC), and the Demographic Survey. A parallel form of each scale and the demographic survey was provided for family members (see Appendix A and B). Clients and family members were encouraged to complete all scales and the demographic survey as best as possible. The investigator was present to clarify instructions or provide definitions for unfamiliar words.
Approximately two months later, participants who completed the first questionnaire set were asked to complete the same overall questionnaire minus the demographic survey. Questionnaires were sent to participant's homes; however, not everyone responded to this second request for information. Additional phone calls and visits to the home were done by the researcher to obtain completed questionnaires and/or to clarify this data collection process. The time between data collection points was specifically selected because the stability of measures over time is greater if test-retest periods are at least one or two months apart (Polit & Hungler, 1983).
CHAPTER IV

RESULTS

Descriptive Statistics

A sample of three adult chronic schizophrenic clients was obtained from a local mental health outpatient clinic. All participants attended a one hour, clinic-directed, educational program on antipsychotic medication, and all subjects could read and speak English. Although seven individuals participated in the educational program, only five individuals provided usable data for initial data analysis. The two individuals who were not included in the primary analysis procedures were two mothers of chronically mentally ill sons who attended the medication information program without the designated client.

Of the three chronic schizophrenic clients who participated in this study, two were females, ages 52 and 56, and the other was male, age 25. All three clients were Caucasian, came from families with two or more siblings, and were supported financially with SSI. The two female clients were middle children and the male client was the first born of three children. Both female clients were married and living with their spouse. In addition, they each had more than three children. The male client was single; however, he did report that his "partner" had recently died. He claimed he had no children and lived within 20 miles of his family members.
The two family members who attended the medication information program were husbands of the two female clients. The husband's ages were 63 and 68, and both of them were Caucasian. The two husbands were middle children of their families of origin and each had more than three siblings. See Table 1 for a review of sample characteristics.

**Data Analysis**

**Research Question 1**

To answer the research question, "Was the medication adherence behavior(s) of clients whose family members attended the program presentation significantly different over time from the medication adherence behavior(s) of clients whose family members did not attend the program presentation?", a comparison of total scale scores was first computed for the Self-Report Scale Predictive of Drug Compliance (SSPDC) across the two data collection points. Because the sample size was small, only frequency distribution calculations were computed on this quantitative instrument as comparative data across both time periods and no further statistical procedures were advisable (see Table 2).

The beginning and end point obtained total scale scores of the Self-Report Scale Predictive of Drug Compliance (SSPDC) improved from Time 1 to Time 2 for all clients, indicative of improved medication adherence for the small sample of participants. However, the mean scale scores decreased slightly at Time 2 for clients who's family members attended the program presentation. Similarly, the
Table 1. Characteristics of Subjects and Family Members

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Group 1 Clients Attending Program Without Family Member (n = 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Group 2 Clients Attending Program With Family Member (n = 2)</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>Males</td>
</tr>
<tr>
<td>Age</td>
<td>25</td>
<td>63, 68</td>
</tr>
<tr>
<td>Race</td>
<td>White</td>
<td>White</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Single</td>
<td>Married</td>
</tr>
<tr>
<td>Living Arrangements</td>
<td>Halfway House</td>
<td>Spouse</td>
</tr>
<tr>
<td>Income</td>
<td>SSI</td>
<td>SSI</td>
</tr>
<tr>
<td>Education</td>
<td>Some College</td>
<td>High School or Less</td>
</tr>
<tr>
<td>Frequency of Hospitalization</td>
<td>3 or more Years</td>
<td>None</td>
</tr>
<tr>
<td>Duration of Hospitalization</td>
<td>Questioned</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-6 Days</td>
</tr>
</tbody>
</table>
Table 2. Range and Total Scale Score Comparisons Across Two Time Periods For the Self-Report Scale Predictive of Drug Compliance*

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
<td>S.D.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range</td>
<td></td>
<td>Range</td>
</tr>
<tr>
<td><strong>Clients</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended</td>
<td>68</td>
<td>-14; +13</td>
<td>72</td>
<td>-12; +12</td>
</tr>
<tr>
<td>(n = 2)</td>
<td></td>
<td>54-81</td>
<td></td>
<td>60-84</td>
</tr>
<tr>
<td>Not Attending</td>
<td>38</td>
<td>0</td>
<td>49</td>
<td>0</td>
</tr>
<tr>
<td>(n = 1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D.</td>
<td></td>
<td>Range</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>54-81</td>
<td></td>
<td>57-84</td>
<td></td>
</tr>
<tr>
<td><strong>Family</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>71</td>
<td></td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>S.D.</td>
<td>-14; +13</td>
<td></td>
<td>-8; +7</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>57-84</td>
<td></td>
<td>57-72</td>
<td></td>
</tr>
</tbody>
</table>

* Higher scores reflect a higher level of drug adherence with possible range from 12-84
beginning and end point of obtained total scale scores for family members who attended the program with the clients also improved from Time 1 to Time 2, yet the mean scale scores also decreased. It was noted that family member's mean scores dropped considerably between Time 1 and Time 2 as compared to only a slight decrease in similar mean value scores across the same time period for the clients, themselves. The obtained raw total scale score for the one client who attended the program alone improved from Time 1 to Time 2, a pattern similar to that reported for the other two clients. However, this client's total scale score was much lower at both time periods than the other two client's scores.

In addition, an examination and comparison of responses from the open-ended Medication Adherence Assessment Tool (MAAT) across both time periods also provided valuable information regarding adherence practices of clients. Clients attending the medication information program with family members and family members themselves included more information at Time 2 as compared to Time 1 responses on this scale. For example, both clients did not report the nonprescription medications they were taking at Time 1; however, at Time 2, this information was given. One female client did not list the name or the amount of a prescription medication she was taking at Time 1 but provided this information at Time 2. Both family members provided additional information at Time 2 by giving the amount of prescription medications that their wives were on in table format. Refer to Table 3, page 36, for review of responses on Medication Adherence Assessment Tool (MAAT).
Table 3. Responses of Subjects for the Medication Adherence Assessment Tool (MAAT)

<table>
<thead>
<tr>
<th>TIME 1</th>
<th>Immediately After Program Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group 1: Clients Attending Program Without Family Member</td>
</tr>
<tr>
<td>Questions</td>
<td>Clients (n = 1)</td>
</tr>
<tr>
<td>Prescription Medications</td>
<td>Theodur, Dimetapp, Intal, Azulfidine, Loxitane, Artane, Halicon</td>
</tr>
<tr>
<td>Non-Prescription Medication</td>
<td>Mylanta, Aspirin</td>
</tr>
<tr>
<td>Frequency of Prescription Medications</td>
<td>Three X daily</td>
</tr>
<tr>
<td>Frequency of Non-Prescription Medications</td>
<td>PRN</td>
</tr>
<tr>
<td>Frequency Changes of Prescription Medications</td>
<td>No change</td>
</tr>
<tr>
<td>Amount Changes of Prescription Medications</td>
<td>No change</td>
</tr>
<tr>
<td>Last Hospitalization Date</td>
<td>1982; February to April</td>
</tr>
<tr>
<td>Medication Change With Last Hospitalization</td>
<td>No change</td>
</tr>
</tbody>
</table>
Table 3. Continued

<table>
<thead>
<tr>
<th>Questions</th>
<th>Group 1: Clients Attending Program Without Family Member</th>
<th>Group 2: Clients Attending Program With Family Member</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group 1: Clients Attending Program Without Family Member</td>
<td>Group 2: Clients Attending Program With Family Member</td>
</tr>
<tr>
<td></td>
<td>Clients</td>
<td>Family Member</td>
</tr>
<tr>
<td>Prescription Medications</td>
<td>Theodur, Dimetapp, Proventil, Intal, Azolfidine, Loxitane, Artane, Halicon prn</td>
<td>Lithium, Artane and Haldol: Navane, Benztropine</td>
</tr>
<tr>
<td>Non-Prescription Medication</td>
<td>Mylanta, Aspirin</td>
<td>No response</td>
</tr>
<tr>
<td>Frequency of Prescription Medications</td>
<td>Three X daily</td>
<td>Daily Lithium &amp; Artane, Haldol shot (monthly); Twice Daily</td>
</tr>
<tr>
<td>Frequency of Non-Prescription Medications</td>
<td>PRN</td>
<td>No response</td>
</tr>
<tr>
<td>Frequency Changes of Prescription Medications</td>
<td>No, they still remain</td>
<td>No</td>
</tr>
<tr>
<td>Amount Changes of Prescription Medications</td>
<td>Yes, they increased by 10 mg. for psychotic Symptoms</td>
<td>Yes</td>
</tr>
<tr>
<td>Last Hospitalization Date</td>
<td>5 years ago</td>
<td>2 years ago</td>
</tr>
<tr>
<td>Medication Change With Last Hospitalization</td>
<td>No they weren't</td>
<td>No; Yes</td>
</tr>
</tbody>
</table>
It was interesting to note that the responses from the Medication Adherence Assessment Tool (MAAT) for the male client (who attended the medication information program alone) did not change from Time 1 to Time 2 (see Table 3, page 36). At each data collection period, his answers were explicit and quite complete.

In summary, due to a lack of an adequate sample size, no statistical procedures which specifically addresses change differences could be computed. A visual comparison of frequency scores indicated that no differences were seen in the medication adherence behavior(s) of clients whose family members attended the program presentation as compared to the clients whose family members did not attend the program presentation.

Research Question 2

To answer the question, "Do schizophrenic clients and at least one family member similarly perceive the medication adherence behavior(s) of the client?", a comparison of total and mean scale scores for the Self-Report Scale Predictive of Drug Compliance (SSPDC) was examined for family members and their spouses across the two data collection points (see Table 2, page 34). The raw total scale scores for the two clients with family members were higher across both time periods in comparison to a similar score for the one client who attended the program presentation alone. The level of adherence was similarly perceived by the clients and their family members, as range of scores of both were within six points of one another. In addition, the overall range of obtained total scale scores and mean scores for
clients and their family members increased across the two data collection periods for both groups. Thus, both seemed to similarly perceive an improvement in medication adherence behaviors over time. Although family members viewed the adherence practices of their spouse at a much higher level than did the clients themselves (see Table 2, page 34), married client's total scale scores and mean scores were higher than the scores reported for the client who attended alone for each data collection period.

The responses for the Medication Adherence Assessment Tool (MAAT) of both the clients and family members who attended the medication information program were very similar. For example, the names of prescription medications reported by both were similar for each pair (client and spouse). One husband indicated at Time 1 his wife was taking "prescription medications". Similarly the wife (client) indicated she was taking "three prescription medications". Also, the amount of information given by both groups increased from Time 1 to Time 2. For example, responses for questions one and two at Time 2 for a husband and wife included "30 mg. Navane, 10 mg. Cogentin, twice daily" and responses for the same questions at Time 1 were "yes, prescription medications (2)". One additional response by a family member at Time 2 stated, "I have definitely seen an improvement in my wife's attitude toward her prescribed medications and her compliance too".
Additional Data Analysis

The two family members who attended the medication information program alone were both mothers of sons diagnosed as chronic schizophrenics. One mother had two children and the other mother had five children (see Table 4 for additional sample characteristics). The raw score on the Self-Report Scale Predictive of Drug Compliance (SSPDC) for one mother did slightly increase across both data collection periods whereas the other mothers' raw score remained unchanged (see Table 5). It is interesting to note that these family member total scale scores were slightly lower than family members' responses who attended the program with the clients. In addition, it should be noted that family participants who attended the medication information program with the clients were both husbands whereas family members who attended the information program alone were both mothers.

Both mothers were not able to identify the medications their sons were taking during data collection at Time 1. Only one mother was able to give information about the prescription medication (name, amount and frequency) that her son was taking for Time 2. Other responses given by both mothers included, "can't remember name", "don't remember", "uncertain", "he usually doesn't take it", and "I think it was one year ago when hospitalized". Several questions were not answered by these mothers.
Table 4. Sample Characteristics for Group 3: Family Members Attending Program Without Client (n = 2)

<table>
<thead>
<tr>
<th>Variables</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Female</td>
</tr>
<tr>
<td>Age</td>
<td>50, 65</td>
</tr>
<tr>
<td>Race</td>
<td>Hispanic</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Married, Divorced</td>
</tr>
<tr>
<td>Living Arrangements</td>
<td>Spouse &amp; Son, Alone</td>
</tr>
<tr>
<td>Income</td>
<td>SSI, Employed</td>
</tr>
<tr>
<td>Education</td>
<td>9th, 8th</td>
</tr>
<tr>
<td>Siblings</td>
<td>3 or more</td>
</tr>
<tr>
<td>Birth Order</td>
<td>First, Middle</td>
</tr>
</tbody>
</table>
Table 5. Comparison of Family Member Score Responses on the Self-Report Scale Predictive of Drug Compliance (SSPDC) Across Two Time Periods

<table>
<thead>
<tr>
<th></th>
<th>TIME 1</th>
<th>TIME 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Immediately After Program Presentation</td>
<td>Two Months Following Program Presentation</td>
</tr>
<tr>
<td>Family Members Attending With Clients (n = 2)</td>
<td>Mean 71</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>S.D. -14; +13</td>
<td>-8; +7</td>
</tr>
<tr>
<td></td>
<td>Range 57-84</td>
<td>57-72</td>
</tr>
<tr>
<td>Family Members Attending Without Clients (n = 2)</td>
<td>Mean 62</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>S.D. -7; +6</td>
<td>-7; +6</td>
</tr>
<tr>
<td></td>
<td>Range 55-68</td>
<td>57-70</td>
</tr>
</tbody>
</table>
CHAPTER V

DISCUSSION

Because the sample size was small, caution must be taken when interpreting study results due to the limited input of scores across adopted instruments. The obtained sample size of the five primary participants is not viewed as adequate for statistical data manipulation because it is generally recommended that a sample size of at least 10 and preferably 20-30 be selected for every subdivision of the data (Polit & Hungler, 1983). Therefore, results of this study are not generalizable to a population of chronically mentally ill schizophrenic clients or their family members.

It is evident that very few individuals responded to the invitation to participate in this program presentation and research study. However, despite this limitation, trends in study findings can be compared with other reports documented in the literature as one way to validate study results. In addition, the obtained information always can be viewed as an initial description of client and family members perceptions and as a preliminary description for validation of the educational process.

The medication group experience seemed to enhance the medication adherence behavior(s) of the participating schizophrenic clients. For example, the schizophrenic clients and family members felt relaxed enough to share concerns and/or fears about medications and illness.

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Some of the questions posed by family members included: "Should I try to get him to leave his room? All he does is sleep all day. How can I get him to take his medications?" Clients asked, "Is work too much stress for me? Do you think I can type?" These findings replicate a similar program success reported by Cohen & Amdur (1981). In addition, study participants gained experience with social interaction, knowledge acquisition, and the establishment and/or strengthening of personal relationships during this medication program, results also reported by Cohen & Amdur (1981). For example, family members interacted with each other and one mothers' response during the program presentation included, "It's nice to see other family members have similar concerns as I do". Both mothers who attended the program stated that it would be good to call one another for encouragement and support. Knowledge acquisition was evidenced by a husband's remark stating "knowing this information can help me see the importance of my role".

Equally important to the program goal of acquisition of knowledge about medication adherence was the attempted goal to alter members' attitudes or cognitions about their roles as patients and/or family members. Often participants reported their questions had been previously left unanswered because they did not want to bother significant others, the therapist, or the doctor with "trivial" concerns. For example some of the family members' concerns about their role as husband or mother included, "Should I call the doctor every time he doesn't take his medication?" "Does he act this way because he was spoiled?" "Can we change the schedule of our medications
so that she isn't so sleepy during the day?" Members were encouraged to ask their unanswered questions. In addition, the program instructor acknowledged when participants asked "good", "important", or "common" questions pertinent to their individual situations. Participants also were told when their concerns were "valid" or "not valid".

Another indication that the medication information program may have had some positive influence on the medication adherence/behaviors of both groups of clients as reflected in the increased total scale scores of the Self Report Scale Predictive of Drug Compliance (SSPDC) from Time 1 to Time 2. However, family members' attendance at the program presentation may not have significantly influenced the level of reported medication adherence behaviors of their wives as compared to the client who attended the program alone because the greatest increase in total scale scores from Time 1 to Time 2 was reported by the client who attended the program alone.

The elevated family member scores above their partner's scores on the Self-Report Scale Predictive of Drug Compliance (SSPDC) may suggest that family members' wanted to recognize their wives (clients) as achieving a higher adherence rate than wives, themselves, perceived or had actually achieved. Perhaps these inflated scores were one manner of encouragement to their spouses, or the family members needed to describe their mate in as near normal a fashion as possible. For example, one husband's remark during the program presentation was, "There is nothing wrong with her mind when she takes her medication. She has a better memory than mine".
Perhaps the client who attended the program presentation alone had the most realistic perception of his level of adherence due to consistently high scores across both data collection points. In addition, this client's scores may have been more realistic because no family member was close by to influence how he answered the questionnaires. A larger sample size and replication of this study's design in other mental health facilities may better interpret the influence of family member's attendance with clients at a medication information program on client's medication adherence behaviors.

It was interesting to note that all three clients who attended the program were unemployed and both clients and all family members indicated a high level of financial stress. Economic deprivation and unemployment are findings frequently reported in the literature describing lifestyles of schizophrenic clients (Farr, 1984; Spivack, Siegal, Sklaver, Deuscher & Garrett, 1982; Tessler, 1982). This pattern of subjects' limited economic resources also was reported by the mental health agency selected for client contact in this study. For example, 76% of the agency's chronically mentally ill clients in referral treatment programs were unemployed and received less than $10,000 annually for income (La Frontera Center, Inc. Annual Report, 1986). It also was interesting to note that the youngest client did not indicate any future plans for employment yet the older female client, age 56, reported that she wanted to work but was ambivalent about her ability to do so. "I can type 50 words a minute. Maybe I can find a job typing."
Relative to this finding of joblessness and its consequential poverty status, the following questions must be asked: Is it the nature of the schizophrenic illness and the routine lack of adherence to medication or treatment regimens which establishes the poverty cycle? Does the stress of limited financial resources exacerbate the schizophrenic symptomatology? Does the lack of available or utilized mental health services indirectly contribute to the joblessness situation through nonimplementation of an effective rehabilitation program? Do the conditions of unemployment and poverty persist regardless of the availability or utilization of the service delivery system? Unfortunately these questions, while relevant, cannot be answered by data obtained in this study. The small sample size and a minimal attention within the demographic survey to economic considerations limits data interpretation.

The findings of unemployment from the study and reviewed literature suggest that utilization of services to help clients find employment or appropriately encourage clients to become employed have not, as yet, been initiated; are not available to these clients; or employment services have been rejected by these clients for reasons unknown. Another explanation for the reported unemployment and poverty status of many schizophrenic clients is that referral services and educational programs may not be responsive to client's needs in the areas of vocational and financial rehabilitation or assistance. For example, some studies have indicated that fiscal costs to the schizophrenic patient and their family for psychotherapy and medications encourages drug noncompliance (Moree, 1985). Often clients
won't admit to not being able to pay requested fees or professionals fail to accurately assess client's financial status (Moree, 1985).

In addition, results from a national study conducted with chronically mentally ill clients in community systems, reported that a majority of these clients lacked the necessary skills for functioning within the community (Tessler, Bernstein, Rosen & Goldman, 1982). For example, the most problematic skill areas reported for these clients were transportation, managing money, adhering to prescribed medication regimens, preparing and obtaining meals, verbalizing their needs, and securing appropriate support services (Tessler, et al., 1982). Study findings suggest that these issues of unemployment and economic deprivation must be closely examined in future research studies before effective and efficient family-centered treatment programs can be implemented.

Along with the highlighting of a high level of financial stress among clients and family members, a very surprising finding was that two out of three schizophrenic clients were married and partnered with the same person for more than 20 years. Both married clients were female, ages 52 and 56. These findings are not reflective of the usual age and marital status of chronically mentally ill clients as reported in the literature or agency documents. The mental health agency records showed that only 12% of their chronically mentally ill clientele were involved in marriage relationships, and 61% of the clients fell between the ages 25-44 (La Frontera Center, Inc., Annual Report, 1986). A report conducted on the chronically mentally ill living in Arizona and treated in behavioral health services showed
that only 14% of the surveyed population was married and a median client age of 38 was reported (Adams, et al., 1986). Similarly, one national report indicated that approximately 11% (10.9) of the sample population was married and a median age for clients of 42 was reported (Tessler, et al., 1982). This unusual dispersion of married participants in this study may have been a result of the process by which participant were selected. For example, the focus of this study was the inclusion of at least one family member and a schizophrenic client in a medication information program. Therapists who invited clients to participate may have been more inclined to invite clients with available and supportive family members. In addition, clients with strained family relationships may have been less willing to participate in a group setting involving both participants for fear of being singled out.

Differences between the marital status of the clients in this study as compared to the chronically mentally ill, in general, may have influenced study findings. The couples in this study were married for more than 20 years and the stability within the marriage may have influenced higher adherence rates for each husband and wife team than would be otherwise reported. Perhaps individuals with long-term and more stable relationships had an increased interest in participating in a program with a family focus.

All participants in this study were Caucasian. Although a majority (60%) of the chronically mentally ill clients reported in recent agency records (La Frontera Center, Inc., Annual Report, 1986) and 75% of the chronically mentally ill clients listed in the state
report were Caucasian (Adams, et al., 1986), of the remaining CMI clients represent other ethnic cultures. Ethnicity of clients serviced by the local mental health agency selected in this study is similar in diversity to the state population. The one exception is of an over-representation of Hispanic clients (28%) noted in agency documents as compared to only a 13% Hispanic representation within the state's population (Adams, et al., 1986). Because location of the mental health agency was central to the Hispanic community, it was anticipated that some ethnic diversity would appear within the study sample. The fact that the three schizophrenic clients participating in this study were all Caucasian, poses the following question: Are individuals who need services from other known ethnic or minority groups within the surrounding community receiving appropriate mental health care services? Farr (1984) reported that among the homeless chronically mentally ill in Los Angeles, the largest ethnic proportion were Blacks, followed by Hispanics and then Whites. He explained that these ethnic groups feared institutionalization and/or deportation; therefore, they did not use community mental health services. Although Farr studied homeless clients and all the clients in this study had an intact home or residence, his explanation regarding a diminished utilization of services by a variety of cultural groups seems applicable to findings in this study. The Hispanic clients that were anticipated as prospective subjects from within the agency's catchment population may have been more reticent to seek additional care or to participate in a group educational program out of fear or misunderstanding.
The process of therapist selection for program participation also may have influenced the ethnic distribution of the study's participants. The degree to which program information provided in English would influence or be understood by some prospective clients and family members may have directed therapists' decisions to exclude those individuals from sample selection where English was not well understood or spoken. In addition, a lack of previous personal contact with the program instructor or the investigator may have influenced clients' or family members' decisions about avoiding program attendance.

The trends reported in this study seemed to support the holistic philosophy of care that discussing medications in a group of clients and family members invokes a frequently untapped resource for improved adherence behaviors: peer pressure coupled with family member support. The clients who attended the medication information program with family members did not express how they felt having family members with them. However, clients with family members present were more willing to share concerns and/or ask questions within the group than other participants. The client who attended the program alone did not verbally participate during the program presentation. Thus, the medication-information program may also be viewed in some light of success and alteration in the clients' environment.

All the family members commented that the medication information presentation added to their knowledge about the related illness and medications. In addition, family members reported the program helped to allay some of the fears and concerns that they had. For example,
a husband stated, "It is so nice to know that other family members have come to this medication group and I know that I am not alone". Those family members who came alone emphasized that the program had helped them to understand more about the illness and the need for continued medication adherence by both their sons.

Both mothers reported that they had tried but were unsuccessful in "persuading" their sons to come to the program. A review of these mothers' comments aligned with Brown's "index of expressed emotion (EE)" typology of destructive family communication patterns. Their statements depicted hostile and over-involved interactions between family members with the schizophrenic client. For example, statements such as "he is spoiled, and he knows it. He never wants to take his medications" were reported. Thus, a secondary outcome of the provided medication information program was the professional nurses' awareness and assessment of conflictual family attitudes and practices which seemed to negatively impact on client medication adherence practices.

It was evident that these attitudes and practices would need to be altered before consistent medication adherence behaviors could be anticipated from the clients.

Although the sample size was small, some gender differences in responses were observed. The two female clients reported a high school or lesser level of education. Similarly the two mothers who participated in the program alone had achieved a 9th grade or less level of education. In contrast, the young male client had some formal education beyond high school. One female client and one mother were employed or desired employment whereas both husbands were not employed
and the male client did not indicate any desire to seek employment. During the medication information program both husbands actively contributed to the discussion with many questions. They seemed to play vital and supportive role in the adherence behavior(s) of their wives through their knowledge about medication administration and treatment. In contrast, the two mothers who participated in the program alone asked very few questions. In addition, both mothers did not know what medications their sons were supposed to take or if they were actually taking them.

**Summary of Findings**

In summary, medication adherence is a complex phenomena and treatment strategies must not ignore the multidimensionality of the problem for the chronically mentally ill (Becker & Maiman, 1980). As evidenced by the preliminary findings in this study, nurses can be instrumental in the simultaneous enlistment of clients and family members to initially improve the reported medication adherence behavior(s) of the clients. Nurses can be involved in establishing community-based medication information programs for schizophrenic clients and family members. Community health nurses, who frequently make home visits and have the educational tools available to them, play an important part in the implementation, planning and evaluation of the client's adjustment to community living and adherence behaviors to medications and treatment regimens.

Implementation of a qualitative research methodology for data collection in which the emphasis would not be on the number of subjects
but on the number of actual responses of the subjects may enhance the study results. Therefore, the researcher could determine clients' and family members' own perspective on critical aspects of medication adherence behavior(s) and chronic schizophrenic illness from their personal viewpoints rather than seeking a set of responses from a standardized questionnaire format.

**Implications for Further Research**

Further research must include a much larger sample size to provide a more representative sample of chronically mentally ill clients and family members. With a larger sample, stronger statistical analysis could be computed as a response to both posed research questions. In addition, a stratified random sampling could be conducted to obtain a greater degree of population representativeness across patient background characteristics such as ethnicity, variety of service agencies, duration of illness, age, gender, and economic indices.

The medication information program should be presented on a routine basis in a standardized format so that a valid and reliable program evaluation can be conducted and findings incorporated into further programs. The mental health agency is to be commended with its initial attempts to provide a medication information program designed for simultaneous client and family member participation; however, only through formative and summative evaluation processes can the program be improved to meet both agency and consumer needs for better service delivery.
A longitudinal study with frequent follow-up assessments conducted over a longer time period would be beneficial to ascertain the lasting effects of the provided medication information program. In addition, this type of longitudinal assessment can better evaluate family members' and clients' acceptance of the program and assess family members' long-term influence on the medication adherence behavior(s) of their loved ones than presented in this study. A longitudinal type of program evaluation also is helpful in providing guidelines for the determination of future plans regarding service expansion or reduction by the health provider and agency.

Lastly, to adequately measure medication adherence behavior(s) of schizophrenic clients, the inclusion of more than one method of data collection beyond the self-report technique incorporated in this study would strengthen the validity and reliability of reported results. Personal observation, video-taping, interview schedules, and urine or blood tests are several techniques to objectively measure medication adherence practices and enhance the generalizability of data findings.
APPENDIX A

MEDICATION ADHERENCE ASSESSMENT TOOL

56
INSTRUCTIONS: PLEASE DESCRIBE YOURSELF BY WRITING IN YOUR RESPONSE FOLLOWING THE QUESTIONS.

1. WHAT MEDICATIONS ARE YOU NOW TAKING AT HOME:
   A. PRESCRIPTION (ORDERED BY DOCTOR)
   B. NON-PRESCRIPTION (ORDERED BY DOCTOR)

2. HOW OFTEN ARE YOU TAKING THESE MEDICATIONS?
   A. PRESCRIPTION
   B. NON-PRESCRIPTION

3. HAVE YOU CHANGED THE AMOUNT OR FREQUENCY OF PRESCRIPTION MEDICATIONS YOU ARE NOW TAKING IN THE PAST MONTH?
   A. HAS THE FREQUENCY CHANGED? HOW?
   B. HAS THE AMOUNT CHANGED? HOW?

4. WHEN WAS THE LAST TIME YOU WERE HOSPITALIZED ON A PSYCHIATRIC UNIT?

5. WHEN LAST HOSPITALIZED, WERE YOUR MEDICATIONS CHANGED?
FAMILY QUESTIONNAIRE

NAME: ________________________________ DATE __________________

INSTRUCTIONS: PLEASE DESCRIBE YOURSELF BY WRITING IN YOUR RESPONSE TO THE FOLLOWING QUESTIONS ABOUT YOUR FAMILY MEMBER.

1. WHAT MEDICATIONS ARE THEY NOW TAKING AT HOME?
   A. PRESCRIPTION (ORDERED BY DOCTOR)

   B. NON-PRESCRIPTION (ORDERED BY DOCTOR)

2. HOW OFTEN ARE THEY TAKING THESE MEDICATIONS?
   A. PRESCRIPTION

   B. NON-PRESCRIPTION

3. HAVE THEY CHANGED THE AMOUNT OR FREQUENCY OF PRESCRIPTION MEDICATIONS THEY ARE NOW TAKING THE PAST MONTH?
   A. HAS THE FREQUENCY CHANGED? HOW?

   B. HAS THE AMOUNT CHANGED? HOW?

4. WHEN WAS THE LAST TIME THEY WERE HOSPITALIZED ON A PSYCHIATRIC UNIT?

5. WHEN LAST HOSPITALIZED, WERE THEIR MEDICATIONS CHANGED?
APPENDIX B

SELF-REPORT SCALE PREDICTIVE
OF DRUG COMPLIANCE
CLIENT QUESTIONNAIRE

NAME: _____________________________ TODAY'S DATE _____________

INSTRUCTIONS: PLEASE INDICATE ON THE SCALE BELOW HOW EACH STATEMENT BEST DESCRIBES YOUR RESPONSES TO THE FOLLOWING STATEMENTS ABOUT TAKING MEDICATIONS. CIRCLE THE NUMBER WHICH BEST DESCRIBES YOUR RESPONSE.

<table>
<thead>
<tr>
<th>SCALE</th>
<th>1 NOT AT ALL (0%)</th>
<th>4 USUALLY (50%)</th>
<th>7 ALWAYS (100%)</th>
</tr>
</thead>
</table>

1. FEEL MORE NORMAL
   1 2 3 4 5 6 7

2. THOUGHTS ARE CLEARER
   1 2 3 4 5 6 7

3. FEEL MORE RELAXED
   1 2 3 4 5 6 7

4. GOOD THINGS ABOUT MEDICATION OUTWEIGH THE BAD
   1 2 3 4 5 6 7

5. UP TO DOCTOR WHEN I STOP MEDICATION
   1 2 3 4 5 6 7

6. BY STAYING ON MEDICATION I CAN PREVENT A BREAKDOWN
   1 2 3 4 5 6 7
7. FEEL LIKE A ZOMBIE
   1 2 3 4 5 6 7

8. FEEL TIRED AND SLUGGISH
   1 2 3 4 5 6 7

9. TAKE ONLY WHEN SICK
   1 2 3 4 5 6 7

10. UNNATURAL TO TAKE MEDICATION
    1 2 3 4 5 6 7

11. DO NOT NEED MEDICATION ONCE I FEEL BETTER
    1 2 3 4 5 6 7

12. PRESSURED TO TAKE MEDICATION
    1 2 3 4 5 6 7
INSTRUCTIONS: PLEASE INDICATE ON THE SCALE BELOW HOW EACH STATEMENT BEST DESCRIBES YOUR RESPONSES TO THE FOLLOWING STATEMENTS ABOUT YOUR FAMILY MEMBER'S ATTITUDES TOWARDS TAKING MEDICATIONS. CIRCLE THE NUMBER WHICH BEST DESCRIBES YOUR RESPONSE TO HOW YOUR FAMILY MEMBER MAY OR MAY NOT FEEL ABOUT THEIR MEDICATION.

<table>
<thead>
<tr>
<th>STATEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. FEEL MORE NORMAL</td>
</tr>
<tr>
<td>2. THOUGHTS ARE CLEARER</td>
</tr>
<tr>
<td>3. FEEL MORE RELAXED</td>
</tr>
<tr>
<td>4. GOOD THINGS ABOUT MEDICATION OUTWEIGH THE BAD</td>
</tr>
<tr>
<td>5. UP TO DOCTOR WHEN I STOP MEDICATION</td>
</tr>
<tr>
<td>6. BY STAYING ON MEDICATION I CAN PREVENT A BREAKDOWN</td>
</tr>
</tbody>
</table>
7. FEEL LIKE A ZOMBIE
   1 2 3 4 5 6 7

8. FEEL TIRED AND SLUGGISH
   1 2 3 4 5 6 7

9. TAKE ONLY WHEN SICK
   1 2 3 4 5 6 7

10. UNNATURAL TO TAKE MEDICATION
    1 2 3 4 5 6 7

11. DO NOT NEED MEDICATION ONCE I FEEL BETTER
    1 2 3 4 5 6 7

12. PRESSURED TO TAKE MEDICATION
    1 2 3 4 5 6 7
DEMOGRAPHIC INFORMATION

INSTRUCTIONS: PLEASE DESCRIBE YOURSELF AND YOUR BACKGROUND BY WRITING THE NUMBER OF THE ONE CHOICE TO EACH ITEM WHICH BEST DESCRIBES YOU IN THE SPACE AT THE LEFT. THERE ARE NO ANSWERS WHICH ARE BETTER THAN ANY OTHER ANSWERS; THE BEST ANSWER IS ONE WHICH COMES CLOSEST TO DESCRIBING HOW YOU ARE OR WHERE YOU'VE BEEN OR HOW YOU FEEL ABOUT THINGS.

EXAMPLE

2. YOUR FAVORITE DESSERT IS:

1. ICE CREAM
2. CAKE
3. PIE
4. FRUIT
5. CHEESE

IF YOUR FAVORITE DESSERT IS CAKE, YOU WOULD WRITE "2" IN THE SPACE TO THE LEFT.

PLEASE WORK QUICKLY AND ACCURATELY. DO NOT DWELL ON ANY ITEM, BUT PLEASE ANSWER EVERY ITEM. IF YOU ARE NOT SURE, TRY TO ANSWER TO THE BEST OF YOUR ABILITY.

1. YOUR SEX

1. MALE
2. FEMALE

2. YOUR AGE - WRITE IN

3. YOUR RACE/ETHNIC BACKGROUND:

1. BLACK/NEGRO
2. CHICANO/MEXICAN AMERICAN
3. AMERICAN INDIAN
4. ORIENTAL
5. WHITE/CAUCASIAN
6. OTHER (SPECIFY)

4. NUMBER OF BROTHERS - WRITE IN

5. NUMBER OF SISTERS - WRITE IN

6. WHAT ORDER WERE YOU BORN?

1. ONLY CHILD
2. FIRST BORN
3. MIDDLE CHILD
4. LAST BORN
7. WHAT IS YOUR MARITAL STATUS?
1. SINGLE
2. MARRIED
3. SEPARATED
4. DIVORCED
5. PARTNER DECEASED
6. OTHER (SPECIFY)

8. WITH WHOM DO YOU LIVE NOW?
1. PARENT(S)
2. SPOUSE
3. FRIEND
4. ALONE
5. RELATIVES
6. RELIGIOUS ORDER
7. GROUP/COMMUNE OF SAME SEX
8. GROUP/COMMUNE OF BOTH OR OTHER SEX
9. HALFWAY HOUSE

9. NUMBER OF CHILDREN - WRITE IN

10. WHAT IS YOUR CURRENT SOURCE OF INCOME?
1. EMPLOYMENT
2. UNEMPLOYMENT BENEFITS
3. SOCIAL SECURITY (SSI OR SSD)
4. VETERAN'S BENEFITS
5. GENERAL ASSISTANCE
6. RELATIVES
7. NONE

11. HOW CLOSE DO YOU LIVE TO YOUR FAMILY NOW?
1. LIVE WITH THEM
2. WITHIN 1 MILE
3. BETWEEN 1 - 20 MILES
4. BETWEEN 20 - 100 MILES
5. BETWEEN 100 - 500 MILES
6. OVER 500 MILES
7. LOST CONTACT

12. HIGHEST LEVEL OF SCHOOL COMPLETED:
1. 8TH GRADE OR LESS
2. 11TH GRADE OR LESS
3. 12TH GRADE OR LESS
4. SOME COLLEGE OR TRADE SCHOOL
5. COLLEGE DEGREE
6. GRADUATE WORK
7. GRADUATE DEGREE
8. POST-GRADUATE WORK
13. HOW LONG HAS IT BEEN SINCE YOUR LAST HOSPITALIZATION?
   1. 3 OR MORE YEARS
   2. 1 TO 3 YEARS
   3. 6 MONTHS TO 1 YEAR
   4. 3 TO 6 MONTHS
   5. 1 TO 3 MONTHS
   6. 1 TO 4 WEEKS
   7. LESS THAN ONE WEEK

14. HOW MANY TIMES HAVE YOU BEEN HOSPITALIZED IN THE LAST TWO YEARS?

15. WHAT WAS THE AVERAGE LENGTH OF EACH HOSPITAL STAY DURING THE LAST TWO YEARS?
   1. 1-6 DAYS
   2. 1-2 WEEKS
   3. 2-4 WEEKS
   4. 1-3 MONTHS
   5. 3-6 MONTHS
   6. 6 OR MORE MONTHS
APPENDIX D

HUMAN SUBJECTS COMMITTEE
MEMORANDUM

TO: Judy Ingram, BSN
Graduate Student
College of Nursing

FROM: Ada Sue Hinshaw, PhD, RN
Merle Mishel, PhD, RN
Director of Research
Chairman, Research Committee

DATE: December 18, 1985

RE: Human Subjects Review: The Impact of Family Participation in a Medication Information Program on Schizophrenic Clients' Medication Adherence Behaviors

Your project has been reviewed and approved as exempt from University review by the College of Nursing Ethical Review Subcommittee of the Research Committee and the Director of Research. A consent form with subject signature is not required for projects exempt from full University review. Please use only a disclaimer format for subjects to read before giving their oral consent to the research. The Human Subjects Project Approval Form is filed in the office of the Director of Research if you need access to it.

We wish you a valuable and stimulating experience with your research.

ASH/fp
PROJECT APPROVAL FORM
FOR ETHICAL REVIEW OF ACTIVITIES INVOLVING HUMAN SUBJECTS
IN QUESTIONNAIRES, INTERVIEWS, OBSERVATIONS, VIDEO & AUDIO TAPES, ETC.

1. Judy Ingram
   Principal Investigator
   Department
   The Impact of Family Participation in a Medication Information Program on
   Schizophrenic Clients' Medication Adherence Behaviors
   Title of Project
   N/A

   Name of Funding Agent

2. SUPERVISING OFFICIAL
   I certify that (1) facilities and personnel are available to the investigator for
   assuring the safety and well-being of human subjects involved; (2) I will be re-
   sponsible for continuing surveillance of the proposed program with respect to the
   rights and welfare of human subject; (3) no procedural changes relating to the
   human subjects involved will be allowed without prior review by the University
   Committee; (4) I am satisfied that the procedures to be used for obtaining in-
   formed consent comply with the spirit and intent of DHEW regulations; (5) I
   certify that the investigator is fully competent to accomplish the goals and
   techniques stated in the attached proposal; (6) the signed consent forms will
   be filed in the Departmental file and retained for a period of six years.
   
   Director of Research
   
   Date

3. ADVISING CONSULTANT
   (Signature needed from only consulting physician if project involves medical
   procedures and investigator is not a licensed physician.)

   Consultant
   Date

4. DEPARTMENTAL REVIEW COMMITTEE
   We/I have examined the proposal cited above, and find that the information contain-
   ed therein is complete; that the scientific aspects of the project include appro-
   priate provision for protecting the rights and welfare of the human subjects involved;
   and that the required forms have been filled out properly in accordance with
   the Institutional Assurance filed by the University of Arizona with the U.S. Depart-
   ment of Health, Education and Welfare.

   Exempt
   Minimal risk to human subjects: Human Subjects Committee review optional.
   Possible risk to subjects: Human Subjects Committee review recommended.
   Subjects at risk: Human Subjects Committee review required.
   
   Chairman
   Date

5. HUMAN SUBJECTS COMMITTEE
   The proposal above was approved on this day by the Human Subjects Committee.

   Chairman
   Date
APPENDIX E

CONSENT FORM
INFORMED CONSENT

I understand that by signing below I volunteer to participate in a field study of services provided to families that have a chronically mentally ill family member. My participation includes attendance and involvement in a one hour medication education class, along with filling out questionnaires relevant to the research. These questionnaires will be completed at two points in time: at the start of the education class, the second approximately two months later via mail. I understand I will be sharing confidential information concerning the impact of a chronic mental illness on me and my marital and family relationships. I understand that the use of my name is not mandatory and it will not be used by the investigator in connection with any reporting of the study. All information will be kept confidential.

I am aware that I may withdraw from this study at any time without consequence to services received by me or my family members at La Frontera Center, now or in the future. I understand that the purpose of this research is to further our scientific understanding of the effects of chronic mental illness, and to improve treatment for future clients.

This study has been explained to me and I understand the conditions of my participation.

Signature ___________________________ Date ___________
REFERENCES


