FAMILY AFFECT AND SCHIZOPHRENIC RELAPSE: AN EXPLORATORY STUDY OF FOUR ASSESSMENT PROCEDURES

MALCA B. LEBELL

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FAMILY AFFECT AND SCHIZOPHRENIC RELAPSE: AN EXPLORATORY STUDY OF FOUR ASSESSMENT PROCEDURES

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By

MALCA BAKER LEBELL

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We hereby approve the Clinical Research Project

Family Affect and Schizophrenic Relapse: An Exploratory Study of Four Assessment Procedures

By

MALCA BAKER LEBELL

Candidate for the degree of

Doctor of Philosophy in Clinical Social Work

Doctoral Committee

Herbert M. Rosenfeld — 5/17/83

Chairperson — Date

Herbert M. Rosenfeld, D.S.W.

Ph.D. — 5/23/83

Committee Member — Date

Ruth E. Bro, Ph.D.

Gary J. Paltico, Ph.D. — 5/19/83

Committee Member — Date

Gary J. Paltico, Ph.D.

DEDICATION

This dissertation is dedicated with great love and appreciation to my husband Don and our children, Suzanne, Jeanette, Michael, and David. My involvement in this dissertation over the past two years was made easier by their presence, support, empathy, and humor. My parents, Fanny and Jacob Baker, deserve much of the credit for the direction of my life course, which includes the attainment of this Ph.D.

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ABSTRACT

The human suffering and societal cost of schizophrenia have stimulated interest in identifying environmental factors which may be associated with relapse. Research conducted over the past 25 years found that remitted schizophrenics relapsed at significantly higher rates when their key relative was classified "high expressed emotion" (EE) by the Camberwell Family Interview (CFI). High EE is characterized by affective patterns of excessive criticism and/or emotional overinvolvement. The present study explored four procedures for assessing the familial affective environment of schizophrenics to determine if they were useful in predicting relapse. All four were more efficient and economical than the CFI.

Twenty-three male schizophrenic outpatients at a Veterans Administration facility were studied in a prospective, longitudinal design. Each patient designated at least one relative with whom he had a current meaningful relationship. Thirty relatives were interviewed. Four separate assessment procedures classified the affective environment as negative or neutral: (1) The Patient Rejection Scale, (2) Global Judgments of five affective components, (3) Hostility Outward Scale ratings of a speech sample, and (4) CFI-criteria ratings of the speech sample.

It was hypothesized that patients in a neutral affective environment would have lower relapse rates than patients in a negative affective environment. It was further hypothesized that relapse

rates of patients in a negative affective environment would be reduced when direct contact with that environment was time-limited.

The first hypothesis was supported by the data. Patients living in an environment high in criticism relapsed at a significantly higher rate ($p = .012$). The data did not support the second hypothesis. In summary, this pilot study provided substantial encouragement and preliminary empirical confirmation that a brief, efficient assessment procedure can serve as a clinically feasible predictor of schizophrenic relapse in a multiracial outpatient population.

These assessments can help clinicians identify which patients are more likely to relapse and can contribute to effective treatment planning. Psychoeducational family-oriented treatment programs to prevent relapse were reviewed.

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LIST OF ABBREVIATIONS

AS:	affective style
B&C:	Board and Care
BPRS:	Brief Psychiatric Rating Scale
CD:	communication deviance
CFI:	Camberwell Family Interview
EE:	expressed emotion
EOI:	emotional overinvolvement
EPS:	extrapyramidal symptoms
IM:	intramuscular
mg:	milligrams
MHCRC:	Mental Health Clinical Research Center
NA:	not applicable
NAE:	negative affective environment
NIMH:	National Institute of Mental Health
PSE:	Present State Examination
PRS:	Patient Rejection Scale
SCL-90:	Symptom Distress Checklist
TD:	tardive dyskinesia
UCLA:	University of California at Los Angeles
VAMC:	Veterans Administration Medical Center
WHO:	World Health Organization

CHAPTER I

BACKGROUND AND RATIONALE OF THE STUDY

Introduction

Schizophrenia, which has existed in all times and in all cultures, is one of the world's major unsolved health problems. Despite encouraging developments, it continues to be one of the mental health profession's greatest challenges as viewed from medical, personal, social, and economic perspectives.

Schizophrenia is considered the most severe and disabling of the mental illnesses. It affects all aspects of an individual's functioning and personality. It is characterized by profound disturbances of thought, mood, behavior, and social relationships. There is a high risk of chronic incapacitation after the initial incident and a high rate of recidivism. An estimated 10 percent of schizophrenics commit suicide (President's Commission on Mental Health, 1978).

Worldwide prevalence of schizophrenia is estimated at between seven and fourteen million (Day & Semrad, 1978). The disorder appears to occur in about one percent of the population. Epidemiological studies in the United States show that approximately two million will have a schizophrenic-like illness at some time during their lives (President's Commission on Mental Health, 1978).

Schizophrenic patients occupy over half of all psychiatric hospital beds at any moment in time, and more than 60 percent of dis-

charged schizophrenics are subsequently readmitted to psychiatric hospitals in what is commonly referred to as the "revolving door syndrome". The onset is usually in late adolescence or early adulthood, the primary career-forming years of life. Therefore, it is not surprising that only 20 percent of discharged schizophrenics hold jobs compared to 55 percent of discharged patients with other psychiatric diagnoses (President's Commission on Mental Health, 1978).

The total direct and indirect cost of schizophrenia to the United States is estimated at $11.6 to $19.5 billion annually--close to 2 percent of the gross national product (Gunderson & Mosher, 1975). About one-fifth of this cost is derived from the direct delivery of services and about two-thirds is due to lack of productivity by schizophrenic patients. The widespread prevalence and economic costs are important dimensions in the present climate of budgetary austerity and reduction in funding for social, medical, and mental health programs.

These impressive figures do not even touch on the inestimable but more important costs in human suffering to those with schizophrenia and their families. The social worker has a most important role in responding to the needs of the schizophrenic and his[1] family based on the profession's historical commitment to the most vulnerable segments of the population and those in the greatest need of help (Wasserman, 1982).

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[1]Throughout this study the masculine pronoun is used in reference to the schizophrenic patient whereas in reality schizophrenics are of both sexes.

Statement of the Problem

In spite of the overwhelming needs represented by schizophrenic patients and their families, the general subject of schizophrenia has been neglected for decades by clinicians (Keith, Gunderson, Buchsbaum, & Mosher, 1976). Mental health professionals have underserved this patient group partly because treatment expectations are so low and frustration (for therapist and patient alike) so high. There is more professional disagreement on the nature of schizophrenia than any other psychiatric problem. There is lack of agreement about its diagnosis (Haier, 1980), etiology, treatment, and course, and there are even those who question it as a disease entity (Laing & Esterson, 1964; Szasz, 1961, 1976).

At times, the family has been "blamed for creating and/or perpetuating the problem. Many clinicians perceived that disordered family relationships were a significant factor in the development of schizophrenia (Goldstein & Rodnick, 1975). Fromm-Reichmann's (1948) conceptualization of the "schizophrenogenic mother" became the classical model of a noxious maternal style causing schizophrenia in the offspring. Yet the family received very little professional help in shouldering the burden of caring for its schizophrenic member (Kreisman & Joy, 1974). This is an especially important consideration in view of the key role played by the family in long-term aftercare of the patient.

Since the widespread use of neuroleptic drugs[2] in the mid-1950s and the emphasis on community-based care in the 1960s, the pattern of treatment for schizophrenic patients has shifted dramatically. Schizophrenics are no longer treated in institutions for decades and even lifetimes. In most cases, neuroleptic treatment rapidly reduces a broad range of psychotic symptomatology such as delusional hallucinations, illogical thought processes, disorganization, and agitation (Goldsmith, 1977). Thus, after a very brief inpatient period, the acute psychotic phase is controlled and the patient is discharged from the institutional setting. Patients return to the community, frequently in states of partial remission, to be followed in outpatient care for more extended periods of time. Some live independently; others are in board and care homes or transitional living community placements. However, the vast majority of discharged patients return to live with their families (Carpenter, 1978). This makes the quality of the family environment important to the overall treatment program.

Antipsychotic medication is therapeutically effective in relieving florid symptomatology, reducing the duration of hospitalization and prolonging community tenure--all significant clinical achievements. However, it does not "cure" schizophrenia. Studies document that maintenance medication significantly reduces relapse rates

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[2]The term refers to that class of psychotropic drugs which are used primarily for the treatment of psychotic disorders. This class of drugs is also known as phenothiazines, antipsychotic medication, and major tranquilizers. These terms are used interchangeably in this paper.

(Hogarty, Goldberg, & the Collaborative Study Group, 1973). The findings also demonstrate that neuroleptics are not a perfect prophylactic in that a substantial percentage of drug-maintained patients do relapse over time (Hogarty, Goldberg, Schooler, Ulrich, & the Collaborative Study Group, 1974). Some medication treatment failures have been attributed to poor patient compliance in taking the prescribed, daily, oral doses. Depot phenothiazines (such as fluphenazine decanoate), when given by intramuscular (IM) injections once every two to four weeks, controls for patient noncompliance. However, empirical comparisons of oral and injectable forms of neuroleptics find both forms equally effective (Schooler, Levine, Severe, Brauzer, Di Mascio, Klerman, & Tuason, 1980). Thus drug non-compliance cannot explain the phenomenon of relapse among patients on drug treatment.

The ability to predict and/or identify which patients are particularly susceptible to relapse is an essential first step to its prevention. Prevention of relapse is a high clinical priority. Relapse is expensive in both human and fiscal terms and profoundly impacts on the patient, the family, and society. Repeated readmissions often result in a downhill clinical progression with each schizophrenic episode lowering the patient's social and adaptive capacities. Furthermore, the revolving door phenomenon creates a vicious cycle of negative interaction within the patient's social support system (including the treatment staff). All feel discouraged and frustrated and despair of ever being able to sustain remission. Mutual blaming and alienation abound. The patient frequently blames

his family for "causing" his psychiatric condition and then resents that the family and treatment personnel have "failed" to keep him well. Families often experience their relative's psychosis as a "gigantic tantrum" of aggressive behavior (Day & Semrad, 1978, p. 231). Family members commonly react to unexplained repeated hospitalizations with angry rejections of the patient which contribute to the likelihood of subsequent relapse. The therapist feels helpless and inadequate. Often hopelessness and negative expectations become a self-fulfilling prophecy.

A series of studies conducted at the Institute of Psychiatry in London by Brown and his co-workers (Brown, Birley, & Wing, 1972; Brown, Carstairs, & Topping, 1958; Brown, Monck, Carstairs, & Wing, 1962) and Vaughn and Leff (1976a, 1976b) empirically addresses the problem of relapse. These two British research teams investigated factors in the post-discharge home environment which influenced the remitted schizophrenic patient's community adjustment and chances of relapse. They conceptualized "expressed emotion" as an index of familial affect directed toward the schizophrenic family member and developed the Camberwell Family Interview (CFI) as a way of eliciting and quantifying expressed emotion. The specific affective qualities encompassed in the construct of expressed emotion (or EE) are criticism, hostility, and emotional overinvolvement. (Definitions are given on pages 49-50 of this study.) The expressed emotion construct is central to the present research and the EE literature is reviewed in detail in the next chapter. Research over the past two decades

has consistently demonstrated that a high level of expressed emotion in a key relative is highly correlated with relapse of schizophrenic patients in the nine months after discharge. Another significant finding showed that relapse rates for patients in high EE homes were lowered when one of two protective factors was operative: the patient had less than 35 hours direct contact per week with the relative, or the patient was on regular medication maintenance. The expressed emotion index was found to be the best single predictor of relapse independently of any other demographic or clinical factors, including medication maintenance, previous work impairment, and severity of behavioral disturbance.

Purpose of the Project

The question which stimulated this research was whether assessments of a schizophrenic outpatient's familial environment, by methods other than the Camberwell Family Interview, could predict relapse. The Camberwell Family Interview is the standard instrument for eliciting and quantifying expressed emotion and has demonstrated its relapse-predictive value in England and in a recent replication study in California (Vaughn, Snyder, Freeman, Jones, Falloon, & Liberman, 1982). However, the CFI is too cumbersome and time-consuming a research instrument for utilization in a broad range of clinical settings. Even the abbreviated interview (Vaughn & Leff, 1976a) takes 1 to 2 hours to administer and an equivalent time to score. A lengthy and rigorous training period of several weeks, or even

months, is required to achieve reliability. Cost and staff-effectiveness are important considerations in the present period of increasing demands on constrained resources. As evidence demonstrating the predictive validity of the EE index accumulates, so has the growing search for a briefer, more efficient, and clinically feasible assessment procedure for measuring the patient's familial affective environment. The present pilot investigation is part of that research process.

This study explores four alternative approaches for assessing the patient's affective environment. First is the Kreisman-Blumenthal Patient Rejection Scale (Kreisman, Simmens, & Joy, 1979) (Appendix A). Second is Hogarty's Global Judgments of Expressed Emotion (Appendix B). The third approach is Wynne and Gift's family-oriented modification of Gottschalk's Five-Minute Speech Sample procedure (Gottschalk & Gleser, 1969). The brief speech sample is rated according to two different criteria: the Hostility Outward Scale developed by Gottschalk and his colleagues (Gottschalk, Winget, & Gleser, 1969) and Camberwell Family Interview scoring criteria adapted to the brief speech samples. These four instruments will be explicated in the methodology chapter. The selection of these four approaches was guided by the relevant literature and by personal suggestions of researchers in the field who are in the process of investigating alternative instruments for assessment of the schizophrenic patient's affective environment at various research centers.

Another goal of this pilot study was to determine whether as-

sessments of the patient's affective environment (analogous to the expressed emotion index) could predict relapse in a multiracial schizophrenic outpatient population. The previous studies on EE in England (Brown et al., 1972; Vaughn & Leff, 1976b) and in California (Vaughn et al., 1982) involved all-Anglo samples of hospitalized patients who were followed nine months post-discharge. Furthermore, the field of study, in the present research, was expanded beyond the biological and marital family contexts to include extended kin and significant others in the patient's current social environment.

The principal hypothesis in this study postulated that remitted schizophrenic patients in a neutral affective environment would have lower relapse rates than patients in a negative affective environment. The secondary hypothesis postulated that patients in a negative affective environment would have reduced relapse rates when the direct contact with that environment was less than 35 hours per week. Operationalization of these concepts will be found in the methodology section.

Significance of this Study

The expressed emotion construct has enhanced our understanding of the process by which the current social environment influences mental health. A result of the EE studies is that a vulnerable group can now be identified who are at a particularly high risk for relapse--exacerbation of disabling psychotic symptoms and/or rehospitalization--with concomitant personal disruption, expense, and

suffering. The goal of risk identification is prevention. Flagging specific patients as more susceptible to relapse alerts the clinician to a priority situation requiring therapeutic interventions appropriate to the individual's needs in order to avert an unfavorable outcome. A simplified and more economical method for assessing relapse risk would be particularly useful for clinicians in hospitals, outpatient clinics and private practice. Empirical support that such assessment procedures could predict relapse in a multiracial outpatient population would vastly increase the clinical applicability of these assessments.

Mental health practitioners of all disciplines participate in the treatment of the mentally ill, but the schizophrenic population has historically been one of the social work profession's primary clinical obligations. Furthermore, social work's recognition of the family as an important aspect of the treatment of individual patients predates general psychiatric interest in the family by some 40 years (Mosher & Keith, 1980). A psychosocial perspective has been an important and enduring part of social work's heritage (Hamilton, 1940). Social workers provide direct psychotherapeutic services to the patient and his family in both inpatient and outpatient settings. Casework services in the hospital have long focused on sustaining the patient's family relationships (Baran and Levin, 1949). Traditional social work functions include discharge planning, post-hospital placement, facilitating the attainment of income maintenance benefits, and case management responsibilities which seek to link the

patient up with needed services and generally integrate the complex system of care, services, and treatment (Talbott, 1981).

Family affect studies empirically demonstrate that relapse in schizophrenics is related to influences in the patient's post-discharge social environment and have direct clinical application to social work practice. Research findings on EE are being systematically translated into day-to-day treatment strategies with schizophrenic patients (Anderson, Hogarty, & Reiss, 1980; Berkowitz, Kuipers, Eberlein-Fries, & Leff, 1981; Falloon, Boyd, McGill, Strang, & Moss, 1981; Snyder & Liberman, 1981). This is in contrast to other research on families which has failed to translate research findings into treatment applications (Mosher & Keith, 1980). Pathological environmental influences seldom come to clinicians' attention until they are a fait accompli. One cannot directly manipulate a patient's past psychiatric history or demographic characteristics to increase the probability of his continued functioning in the community (Kirk, 1976).

Identification of schizophrenic patients at risk of relapse has important preventative implications. The EE construct has demonstrated predictive validity with recently discharged Anglo schizophrenics. The National Institute of Mental Health (NIMH) is funding research to study expressed emotion (and similar affective dimensions) in the United States. The World Health Organization (WHO) is testing the EE construct in different cultures (e.g., India and Denmark). The availability of streamlined and economical assessment

procedures for predicting relapse in multiracial outpatient populations would significantly expand the clinical relevance of the EE construct. The goal of the present dissertation is to contribute to that effort. Furthermore, the applicability of the EE construct extends beyond schizophrenia (where most research has been done). High EE has been found to accurately predict relapse in persons with depressive disorders also (Vaughn & Leff, 1976a). Low EE ratings in husbands of obese women have also predicted successful outcome in an obesity study (Havstad, 1979).

CHAPTER II

CONCEPTUALIZATION OF THE PROBLEM

This chapter explicates the theoretical framework guiding the present study by surveying historical trends in conceptualization of schizophrenia. The literature review focuses in detail on the development of the expressed emotion construct and the empirical studies related to it which are central to the present research.

Theoretical Framework

Conceptualization of schizophrenia is a voluminous topic by itself and vast professional controversies persist in spite of notable progress in arriving at a generally acceptable theory. Theorists in schizophrenia have been likened to "the would-be builders of the Tower of Babel; we suffer a confusion of tongues" (Gunderson, 1974, p. 198). One's view of the nature of psychopathology has profound implications for treatment and research in terms of what data are considered relevant and how the data are processed. It is therefore essential to define specifically the theoretical model on which this study is based.

One of the basic assumptions shared by the present investigator is that schizophrenia is not a single circumscribed disorder but is a syndrome or group of diseases (Bellak, 1979; Flinn, May, & West, 1976; Strauss & Carpenter, 1981). Schizophrenia is manifest in individuals

as a group of behaviors and mental processes characterized by massive disruptions of thinking, mood, and sensorimotor functioning (Day & Semrad, 1978). Given the complexity of human behavior, there is tremendous diversity of the clinical manifestations (Flinn et al., 1976; Strauss & Carpenter, 1981). Neither the course of illness nor its prognostic status is rigid and fixed; many factors interact with the schizophrenic individual to facilitate or impede recovery (Strauss & Carpenter, 1981).

In the present study, schizophrenia is conceptualized within the theoretical framework of general systems theory. Such an orientation incorporates the range of psychological, biological, and sociological factors relevant to understanding and treating this enormously complex disorder. Grinker (1981) wrote, "Of all psychiatric syndromes, schizophrenia best of all represents a system whose parts range from the biological (biogenetics, biochemistry) to the sociocultural (family, group, society, value systems)" (p. 187). According to Strauss, Loevsky, Glazer and Leaf (1981), "A concrete systems approach can help to explain and explore these complexities... In fact, such an approach may provide the only structure for beginning to understand the interweaving of the many variables identified as important in schizophrenic disorders" (p. 121).

General systems theory defines a system as "a complex of components in mutual interaction" (Bertalanffy, 1966, p. 708). A systems paradigm provides a hierarchical ordering of natural systems in the universe based on abstract levels of organization (e.g., individual,

family, society). Each system comprises components from the next lower level of organization and is a component or subsystem of higher systems. For instance, the individual is simultaneously the highest level of the organismic hierarchy and the lowest level of the social hierarchy (Sider & Clements, 1982). Each of the components needs to be understood as a system in itself as well as at a transactional level. The interaction between systems is viewed as a dynamic, continuous process across time. The levels of a system have permeable boundaries which permit mutual adaptation, interpenetration and reciprocal influences (Beavers, 1977; Beck, 1967; Lewis, 1977). Such reciprocity relates to a key systems concept of circular causality versus a linear or unidirectional perspective (Block, 1974).

Studies of family systems is an outgrowth of general systems theory (Lewis, Beavers, Gossett, & Phillips, 1976). The central importance of the family in human development has long been recognized. The family is characterized as "the matrix of identity" (Minuchen, 1974, p. 47) and "the cauldron of individual development" (Beavers, 1977, p. xvii). The family's importance comes from its being the universal primary social unit for sharing affection and for nurturing, educating, and enculturating the children (Fleck, 1980). It is not only the first but also the most enduring social context to shape orientation to self and society.

The family-as-a system perspective is relevant to the present study, which is examining the influence of specific familial affects on a family member's established psychopathology. The theoretical

framework of transactional family systems guiding the present investigation is best represented by Wynne's work (1967, 1968, 1981; Wynne, Toohey, & Doane, 1979). Wynne integrates family systems and individual psychodynamic frames of reference without sacrificing either. His formulation of family systems does not neglect individual considerations, including intrapsychic phenomena, personality characteristics, diagnostic evaluation, heredity, developmental history, and level of social functioning (1967). Causality is understood in terms of reciprocal determinants and mutual adaptations viewed within an unfolding developmental context (Wynne et al., 1979). The individual, family, and social environment all have their own developmental sequences (Wynne, 1968). Since schizophrenia tends to be a recurring or chronic disability (characterized by periods of remission and then episodes of clinical exacerbation), a transactional family systems perspective is important for the rational planning of a broad range of psychiatric treatment programs to help schizophrenic patients remain in remission and enhance their quality of life in the community.

Historical Overview of Schizophrenia Theories

The present research is not concerned with etiology but examines specific influences in the remitted schizophrenic's current familial and social environment which increase the risk of relapse. Nevertheless, any understanding of current concepts of schizophrenia must rest on some familiarity with a historical perspective of this

disorder and competing theoretical formulations about its determinants. It is beyond the purpose of this study to offer a detailed account of the extensive and diverse literature on schizophrenia. This section highlights only certain salient themes encompassing intrapsychic, interpersonal, and physiologic theories of schizophrenia from which the preceding theoretical framework can be seen to emerge. The selection of theorists and theories is arbitrary but not capricious. The guiding consideration is relevance to the present study within appropriate time and space limitations.

A. Classification of Schizophrenia

The nosology of a disease, for the most part, reflects etiological concepts and communicates information about the type of treatment needed, prognosis, and likelihood of recurrence (Veith, 1957).

In 1896, Emil Kraepelin first differentiated a pathological entity from other psychoses, calling it "dementia praecox" (Kraepelin, 1919). Kraepelin's description, as the name indicates, emphasized the early onset during adolescence and young adulthood and a persistent deterioration into a dementia-like end state (Spitzer, Andreasen, & Endicott, 1978). He considered dementia praecox an endogenous illness due to organic pathology of the brain or to a metabolic disorder and therefore believed it to be incurable. This pessimistic prognosis discouraged therapeutic attempts.

Eugen Bleuler revitalized and revised some Kraepelinian concepts. He renamed the syndrome "schizophrenia" (Bleuler, 1911, translated 1950). He perceived the illness not as a single disorder,

but as a group of psychoses with a wide range of variability of course, severity and outcome. The name change implied a splitting of various psychic functions and also reflected his view of the syndrome as a dynamic on-going process rather than an inevitable degeneration into dementia. Like Kraepelin, he considered schizophrenia an organic disease (Zilboorg, 1957), but he broadened the range of factors involved in the schizophrenic process to encompass psychogenic factors, social stresses, inter-personal conflicts, and other life experiences (Bleuler, 1950; Freyhan, 1958; Malamud & Overholser, 1958). Bleuler's recognition of the importance of external and psychic influences on outcome opened avenues of therapeutic intervention from medical custodial care to psychological, occupational, and milieu therapies. Particularly relevant to the present study is Bleuler's observation regarding discharge planning: "We must consider the qualities of the patient's relatives; they may as easily ruin the patient as they may continue his education" (1911/1950, p. 475).

B. Classical Psychoanalytic Theories

Sigmund Freud formulated an intrapsychic view of psychopathology. He is credited with being the first author to explain schizophrenia in psychological terms (Arieti, 1974). Freud perceived the psychoses as being on a continuum with and having the same basic etiology, psychological functions, and mechanisms as the psychoneuroses. He personally had limited access to hospitalized schizophrenics and many of his theories are extrapolated from his general psy-

chodynamic formulations regarding personality development. He emphasized the importance of infancy and early childhood experiences on psychosexual maturation in determining the major directions of personality development.

Freud applied his libido theory to the interpretation of schizophrenia. He viewed the schizophrenic's withdrawal from and disinterest in other people as a withdrawal of libidinal cathexis (1914). Freud also postulated that the "ego, in the service of the id, withdraws itself from a part of reality...A loss of reality must be an inherent element in psychosis" (1924, p. 277). He viewed delusions and hallucinations as restitutive phenomena--an attempt to recathect or reestablish contact with the world by modifying reality. Psychosis was conceptualized as a disturbance in the relation between the ego and the outer world or environment as compared to the neurotic conflict between the ego and id.

The importance of environmental and family processes is implicit in these formulations. Indeed, as Bruch (1980) noted, it is "paradoxical that psychoanalysis, with its great emphasis on early development, avoided direct studies of the family" (p. 7). Actually Freud did not recommend psychoanalytic treatment for schizophrenia at all, in the belief that transference to the analyst was impossible since the libido essentially was withdrawn from external objects.

C. Neo-Freudian Psychodynamic Theories

Subsequently, many psychoanalysts did work with schizophrenics, modifying and expanding on Freud's original formulations. Time does

not permit even a sketchy summary of all their noteworthy contributions. The following focus is guided by Gunderson's observation relative to clinical theories of schizophrenia "that the two most widely used concepts since Freud's formulation are those introduced by Klein and Mahler" (1979, p. 391).

Melanie Klein and her followers in the British School of Psychoanalysis are considered forerunners of what has become known as Object Relations Theory. They disagreed with Freud's assumption that drive or pleasure orientation was the overriding powerful motivation in personality development. They postulated that the human organism is primarily object-seeking rather than simply pleasure-seeking (Fairbairn, 1949) and focused on the relationship between the developing child and the maternal object.

Klein's (1946) two major developmental constellations of pathological object relations are the paranoid-schizoid position and the depressive position. According to Klein they originally developed in the oral libidinal phase, during the first year of life, but could be reactivated at various times in a person's life. Klein believed that the fixation points for all psychotic disorders were found in the paranoid-schizoid positions. A vital feature of the paranoid-schizoid position was the mechanism of splitting, whereby the good (gratifying) object was kept separate from bad (frustrating) objects. There was a denial of the existence of inner aggression and of the bad aspects of needed objects in the external world which led to a general impoverishment of reality experience and reality testing.

Klein's followers--principally Rosenfeld, Bion, and Segal--refined and extended Klein's theories and extensively treated schizophrenics employing classic psychoanalytic techniques.

Margaret Mahler formulated the separation-individuation process as an essential determinant of normal or pathological development. According to Mahler, this process occurred within the first 3 years of life and began with normal symbiosis, a lack of differentiation in the infant's mental representations of the self and of the mother as separate objects. Individuation culminated in the child's recognition of himself as a separate individual with a discrete identity (Mahler, Pine, & Bergman, 1975). She posited that the schizophrenic child and the adult who becomes psychotic failed to successfully negotiate this process. She combined an object relations framework with Hartmann's formulations on the ego as an organizer for adaptations. Utilizing Hartmann's concept of adaptation as a "reciprocal relationship between the organism and its environment," (1939/1958, p. 24) Mahler described the mother-child dyad as one in which the infant adapts "in harmony and counterpoint to the mother's ways and style" (Mahler, et al., 1975, p. 5). She emphasized the importance of the more firmly established personality of the mother in molding and shaping the child in the formative years. Mahler included genetic factors (such as constitutional oversensitivity and biological vulnerability in the child) as contributory to psychotic development. She believed that pathogenic results might also be related to maternal qualities of emotional unavailability, overstimulation and over-

protectiveness.

Object relations theory and ego psychology broadened concepts of psychopathology in assigning greater importance to characteristics of the mother-child relationship than classical psychoanalytic theory did. Yet ultimately, individual disturbances were seen as an intrapsychic phenomenon determined by early childhood experiences and treatment continued to focus on the individual.

D. Interpersonal Theories

Adolph Meyer conceptualized schizophrenia within an environmental-interpersonal perspective. He emphasized the role of family and community in the etiology and pathogenesis of schizophrenia. Of particular relevance to the present study is a paper he presented at the National Conference of Charities and Correction in 1911 (reprinted in Lief, 1948, pp. 330-334). Meyer urged social workers to engage the families of psychiatric patients in the therapeutic process. He believed social workers could prevent relapse in the patients by helping the family establish and maintain a health-reinforcing home environment.

Harry Stack Sullivan opened up important new vistas in his formulation of interpersonal factors as essential elements in the development of schizophrenia rather than hereditary or organic causes (1927 and 1931, reprinted in 1962). He highlighted the important role of the adolescent period in the psychodynamics of schizophrenia. The range of persons who influenced the course and outcome of the illness was expanded to include extrafamilial "significant other

people" (1962, p. 249) such as friends and hospital personnel. More than any of his predecessors, Sullivan's (1953) developmental approach to the understanding of human personality stressed an interpersonal dimension.

Frieda Fromm-Reichmann (1948) based her treatment of schizophrenic patients on Freudian and Sullivanian concepts. Her theoretical formulation of the "schizophrenogenic mother" received widespread attention in the psychiatric literature. Schizophrenia as a deficit in mothering and conceptualization of the mother as the main dynamic factor in the genesis of the child's future psychiatric condition was accepted by many psychiatrists (Laing, 1965; Rosen, 1963). Fromm-Reichmann's portrayal of a malevolent maternal creature who was cold, remote, and rejecting made sense to many clinicians in terms of their perception of family dynamics as represented by their patients.

Much clinical and research attention was focused upon the mothers of schizophrenics. Alanen's (1958) research found the mothers intrusive, dominating, overly-protective, or symbiotic; and Tietze's (1949) study confirmed the classical cold, rejecting mother. However, Hotchkiss, Carmen, Ogilbey and Wiessenfeld (1955) found none of these deleterious qualities in the maternal interaction. Cheek (1964) noted differences in characteristic ways of relating in the mothers of male versus female schizophrenics. Mothers of schizophrenics were reported to manifest high anxiety (Sullivan, 1953) and suffer severe personal inadequacies and emotional deficiencies (Searles, 1965). These provocative, judgmental generalizations

regarding the schizophrenic mother persist to the present in spite of contradictory, confusing, and equivocal research findings through the years.

Arieti (1976) examined the validity of the schizophrenogenic "monster mother" characterization. He calculated "that only approximately 25 percent of the mothers of schizophrenics fit the image of the schizophrenogenic mothers" and questioned "what percentage of mothers of nonschizophrenics have been monstrous" (1976, p. 117). He explained the original conceptual error on the basis that "we therapists have believed what our patients have told us" (1976, p. 117) without recognizing the subjective bias and distortions of the patients' perceptions. He also believed there had been lack of psychiatric awareness of the patient's own participation in an interactive, reciprocal process. Good or bad experiences were not simply digested. He wrote:

> The person, even at a young age, is not a tabula rasa, or a sponge which absorbs whatever is given him, without he himself adding an element of individuality and creativity to what he receives and thus contributing to his own transformation.... the individual will never reproduce the experiences of childhood as an historian would; he always transforms and recreates, in favorable or unfavorable ways. Some of the authors who study the effect of the family and of the environment on the future patient do so in a crude way, as if they were describing a rapport of simple linear causality. (1974, p. 88)

The interpersonal theorists emphasized the importance of understanding the individual in a family context. The influence of family interaction on pathological development of the child was expanded to include later developmental stages and life experiences. However,

treatment continued to focus on the intrapsychic dimension and centered strictly on the individual.

E. Family-Oriented Treatment

The American Child Guidance Movement, which started in the early 1920s, began to give clinical consideration to the family. The clinics provided concurrent but separate treatment of the key individuals in the family. Typically, the psychiatrist worked directly with the child in what was considered the primary psychotherapy and another therapist, usually a social worker, saw the parents. This team approach later was adapted to working with adults in psychiatric settings. However, the social worker's historical role with the family and psychosocial focus predated the child guidance movement. The very nature of social work settings forced the profession to early recognition of the impact of the environment on the family and vice versa. Social workers were involved with families in the Charity Organization Societies, orphanages, medical and psychiatric social services and various family-oriented services (Briar, 1971). Mary Richmond (1917) urged social workers to take into account the family-as-a-whole in treatment of the individual in order to sustain good therapeutic results. However, direct therapeutic involvement with the family was considered only adjunctive and of secondary importance by many psychiatric practitioners (including clinical social workers). Despite all the theoretical and clinical recognition of the family's central role in normal and pathological development, four decades elapsed before the family unit gained

primary psychiatric focus (Mosher & Keith, 1980). Bowen (1966) attributed reluctance to treat the family-as-a-whole to psychiatrists' concern about interfering with the transference and contaminating the therapeutic relationships, thereby impeding intrapsychic changes.

F. Sociological Theories

During the early 1900s, the family became a topic of great interest to sociologists, who helped to elucidate some of the institutional characteristics of the family (Fleck, 1980). Sociologists also were becoming familiar with psychoanalytic theory and the integration of both theoretical approaches led to the development of social psychology. An extensive literature on family life ensued, explicating how cultural patterns and values were internalized in the personality system and linking family life to social problems such as crime and delinquency (Spiegel & Bell, 1959). Parsons and Bales (1955) conceptualized the family's relation to psychic processes and personality development in a systems framework. They hypothesized that the individual personality and the family social system were not merely interacting and interdependent but that "they interpenetrate" (p. 357). This formulation anticipated the direction of much of the family research which was to follow.

G. Family Studies of Schizophrenia

Family studies of schizophrenia predated the accumulation of convincing evidence of a genetic factor in the etiology of schizo-

phrenia (Crider, 1979; Lansky, 1979). Major psychopharmacological agents such as the phenothiazines had not yet appeared. Treatment in large psychiatric hospitals consisted largely of custodial care, and schizophrenics languished in institutions for years and even lifetimes (Lansky, 1981). The family therapy movement in the early 1950s stemmed from research efforts to investigate the role of the family in the etiology of schizophrenia. This was an optimistic development. If the research demonstrated that family environmental factors were causative, then the disorder could be reversed by reversing the malignant family processes (Lansky, 1981). Many family theorists and scholars contributed to the development of theories relating family interaction processes and schizophrenia. However, the research groups led by Bateson, Lidz, and Wynne had a major influence on the direction of concept formulation and research (Mishler & Waxler, 1965) and, accordingly, warrant attention.

(1) Bateson Group at Palo Alto

Bateson, Jackson, Haley, and Weakland (1956) integrated systems, communication, and family theories in a creative formulation regarding the nature and etiology of schizophrenia. They went beyond looking at particular qualities of any individual in the family to exploring the interplay of family members as a unit or system. They introduced the concept of the "double-bind"--a specific pattern of family interaction and communication which they suggested might lead to the development of schizophrenia. Double bind consisted of contradictory and mutually exclusive demands, made in an emotionally

intense relationship, in which there was no acceptable response nor escape from the paradox.

Jackson (1967) formulated an interpersonal systems approach of causality in which psychopathology was viewed entirely within an interpersonal systems context and concepts of individual diagnosis and "intrapsychic entities" (p. 140) were rejected. Homeostasis--a key systems concept--was characterized by Jackson and Weakland (1959) as reflecting the family's efforts to maintain the status quo. It frequently was expressed clinically as resistance to change, sabotage of growth-producing therapeutic gain, or manifestation of symptomatology in one member of the family when another member's condition improved. The Bateson group presented an interactional-communication etiology of schizophrenia as an alternative to either intrapsychic processes or genetic explanations.

The double bind theory represented the parent as the "binder" and the child as the "victim." The child's input (constitutional or developmental) in the family interaction which might have contributed to or provoked the parental modes of relating was not addressed. Also neglected was the issue of the child's coping mechanisms. Why did some siblings subjected to this incongruent "crazy-making" style of parental communication find effective ways of dealing with the double bind while the preschizophrenic child remained entrapped? The victim-victimizer representation was a uni-directional view which violates the systems concept of circular causality advanced by Bateson and his colleagues (Dell, 1980). The original authors recognized

some of these conceptual inconsistencies and revised the double bind paradigm (Berger, 1978; Jackson, 1965; Weakland, 1960, 1974, 1976). These reformulations shifted to a more transactional approach rather than an etiological interpretation. They are pertinent to the present study, which is interested in studying aspects of the patient-family interaction which maintain or perpetuate psychopathology and are factors in relapse.

(2) Lidz Group at Yale

Lidz and his co-workers at Yale theorized that the child's personality (and subsequent pathology) was directly affected by the parents' marital relationship: "schizophrenic patients virtually always emerge from homes marked by serious parental strife or eccentricity" (Lidz & Fleck, 1960, p. 323). They identified two family constellations--marital schism and marital skew--as specifically productive of schizophrenic offspring (Lidz, Cornelison, Fleck & Terry, 1957; Lidz, 1973). Schismatic relationships were characterized by chronic disorder and hostility between spouses and by mutual withdrawal. Skewed interaction involved a central, pathological marital partner dominating the emotional life of the family. Pathology was noted in the mother and/or father. Lidz viewed family interaction in terms of interlocking pathologies, and attributed thought disorders in the schizophrenic member to severe disturbances in thought processes of the parents. He considered language an essential technique of human adaptation and functioning. Parental distortions of thinking, perceptions, and communication contributed to a

transmission of irrationality and to the creation of a "strange family milieu filled with inconsistencies, contradictory meanings, and denial of what should be obvious" (Lidz, 1968, p. 180). This formulation is similar in many ways to Bateson et al.'s (1956) theory of the double bind, previously discussed, and to Wynne's concept of communication deviance, which will be explicated in the next section.

Lidz and his colleagues were influenced by psychoanalytic theories of ego development and sociological formulations of family role structure. Their work helped bridge ego psychology concepts with family interaction and communication theories. Lidz, Fleck and Cornelison (1965) stressed the importance of problems in the marital dyad as contributing to the child's distorted identity and pathological development. They suggested that blurring of appropriate age, sex, and generation boundaries between family members played a role in the etiology of schizophrenia. Lidz (1967) noted marked parental deficiencies and pervasive difficulties in carrying out tasks of nurturance, socialization, and enculturation which are considered requisites for adequate personality development in the offspring. Lidz postulated distinct parental psychodynamics, with different patterns of family interactions in families in which a male rather than a female offspring becomes schizophrenic (Lidz et al., 1965).

Lidz described a pattern of parental intrusiveness into the child's life in both the skewed and schismatic families. A parent, usually the mother, interfered with the child's development of autonomy by being overprotective and controlling (Lidz, 1958, 1973). This

pattern of interaction is closely related to Mahler's work on separation-individuation and somewhat overlaps the concept of emotional overinvolvement being evaluated in the present research. It is important to differentiate between what Lidz contends is an interactional pattern directly causal of the schizophrenic patient's illness, and the present investigation of emotional overinvolvement as a possible variable contributing towards relapse in a patient with an established illness. This research does not assume an etiological relationship.

Lidz and the Yale group interviewed and studied families of hospitalized schizophrenics in depth over many years. Their family sample was small and select--middle and upper class structurally intact families with schizophrenic young adult members. The sample bias severely limits generalizing their findings to wider populations. Nevertheless, their contribution to family theory was considerable, and the work of the Lidz group stimulated psychiatric interest in family interaction as a legitimate professional focus for direct observation and therapeutic intervention.

(3) Wynne Group at the National Institute of Mental Health

Wynne and his colleagues at the NIMH systematically studied families of young adult schizophrenics and reconstructed family patterns based on observation of family therapy sessions as well as data from intensive individual psychotherapy with the patient. Concepts of "pseudo-mutuality" and the "rubber fence" (Wynne, Ryckoff, Day, & Hirsch, 1958) are derived from this research. Wynne et al. hypothe-

sized a "quality of intense and enduring pseudo-mutuality" (p. 208) within families with a schizophrenic member. The family, in the absence of genuine complementarity, retreated behind a harmonious facade (the metaphorical rubber fence) of pseudo-mutuality in their role relationships with each other as a way to avoid anxiety-provoking feelings. This created problems in identity formation and differentiation which contribute to the development of schizophrenia. The diffusion of individual boundaries within the family system and the family's ongoing efforts in preventing individuation bears similarities to Bowen's (1966) conceptualization of "the undifferentiated family ego mass" (p. 347), and Searles' (1965) "family-wide, symbiotic ego" (p. 733).

Wynne and Singer studied the relationships between schizophrenic thought disorders and family experiences in a series of systematic investigations of families of young adult schizophrenics (Wynne & Singer, 1963a, 1963b; Singer & Wynne, 1965a, 1965b). A matched comparison sample involved families of nonschizophrenic patients who were sufficiently disturbed psychiatrically to require hospitalization. Communication deviance patterns emerged that were unique to the families of schizophrenics and were not found in the families with other psychopathologies. Wynne and Singer explicitly disclaimed etiological explanations resulting from their studies of parental communicational disturbances (Singer & Wynne, 1965a, 1965b; Wynne & Singer, 1963a, 1963b). They acknowledged that "personality development, both normal and psychopathological, is determined by the con-

stant dynamic interaction of both experiential factors and innate maturational factors" (Wynne & Singer, 1963a, p. 191).

Wynne's later works (1967, 1968, 1981; Wynne, Toohey, & Doane, 1979) emphasized a reciprocal, bidirectional transaction in which the offspring clearly impacted on and shaped the family system as he was impacted on and was shaped by it. Wynne (1981) suggested that the confluence of several factors might increase the vulnerability of the family and the offspring to the development of schizophrenia. Similarly, he conceptualized a transactional, multifactorial process as influencing the course of an established schizophrenia. Wynne's transactional systems-oriented perspective is the theoretical framework guiding the present study.

Wynne and a group of investigators at the University of Rochester are currently involved in prospective longitudinal clinical research of children-at-risk (families with a known risk factor). They also are studying expressed emotion in families of schizophrenic patients in a replication of the English studies (Brown et al., 1972; Vaughn & Leff, 1976b). They are exploring a family-oriented modification of Gottschalk's Five-Minute Speech Sample as an analogue of expressed emotion (Wynne, 1981) in their EE research. This modification procedure is one of the methods for eliciting and assessing expressed emotion being used in the present research.

(4) Summary and Implications of Family Studies

The pioneering studies of the Bateson, Lidz, and Wynne groups shared certain methodological problems. Diagnostic criteria were not

elaborated and frequently differed, making comparisons or replication difficult. They all were ex post facto investigations of aspects of family interaction and communication styles based on data collected after the occurrence of schizophrenia. As retrospective studies, they all made assumptions that current patterns of behavior existed prior to the development of schizophrenia. They formulated theories of parental transmission of irrationality to the offspring through mechanisms of double bindings, skewed and schismatic parental relationships, or communication deviance. These were linked to a process of warping the preschizophrenic child's cognitive development in ways that led to thought disorders characteristic of schizophrenia. They failed to address adequately an alternate interpretation--that the parental communication disturbances resulted from, or were adaptational responses to, the child's manifestation of schizophrenic behavior (Mishler & Waxler, 1968). Aside from elusive cause-or-effect issues, they made a major contribution by shifting psychological focus from an individual intrapsychic approach to a transactional family systems framework which had a profound impact on subsequent research and psychotherapy.

H. Era of Community Treatment

The 1960s were times of rapid change in the mental health field and the community mental health movement ushered in at that time dovetailed with a family orientation. Quick symptomatic remission was obtained from phenothiazines. The risks and iatrogenic effects associated with institutionalization and chronic understimulation of

psychotic patients were recognized. The new emphasis was towards moving patients out of hospitals as soon as possible and into a more natural community environment--frequently home with the family. The focus of treatment shifted from hospital care to community-based programs.

The hope of the community treatment movement was that former mentally ill patients would be rehabilitated and reintegrated into society (Turner & TenHoor, 1978). However, new forms of chronicity emerged: severely disabled patients lived dependent, marginal, and frequently isolated lives in the community, with periodic decompensation requiring brief rehospitalization (Klerman, 1977). The deinstitutionalization movement dramatically affected the families of schizophrenics who continued to serve as the primary caregivers (emotionally, socially, and financially) for the schizophrenic patients in the community.

I. Developments in Family Therapy Movement

Community treatment emphasized the patients' current environment which often involved the family. The family paradigm redefined the locus of psychological problems. It emerged as a reaction to decades of conceptual and therapeutic focus on the intrapsychic process and neglect of the family context (Guerin, 1976). As frequently happens in historical transitions, the pendulum swung from one extreme to an equally extreme position in the opposite direction. Many leaders in the family movement tended to focus exclusively on psychopathogenic family phenomena and to ignore the inner system of the individual,

the processes that go on inside a person (Fogarty, 1976). Also ignored were biological and genetic factors. Psychiatric disorder in an individual was regarded almost exclusively as an expression of family pathology (Ferreira, 1963; Zuk & Rubinstein, 1965). Interest dramatically shifted to interest in the family as the psychiatric patient and the diagnosed individual was labeled "the identified patient" (Bernheim, 1982, p. 635). Meissner's (1964) description exemplifies the family interaction model of the 1960's which persists in certain clinical circles today:

> The fundamental insight of family therapy and the basic premise of family theory is that the family is the basic unit of conceptualization. The patient is thereby only externalizing through his symptoms an illness which is inherent in the family itself. He is a symptomatic organ of a diseased organism. (p. 29)

There developed the concept of the schizophrenic patient as a scapegoat, as the one sacrificed in order to maintain the threatened family system. Some recognition was given to his willing complicity and power in playing the victim role (Zuk & Rubinstein, 1965). The tendency to see illness solely in terms of victimization by family process was critically addressed by Lansky (1979):

> An early supposition was that the family system itself could cause major psychiatric disorder in the absence of illness or prepsychotic personality organization in the patient. The discovery of the exploitation of the difficulties of the designated schizophrenic by other family members gave rise to such a reactive antipathy on the part of some researchers to the notion of patienthood that the evolving field of family therapy has tended to swing to eschewing the notion of patienthood or illness altogether. (p. 192)

The present author believes this almost exclusive emphasis on

interactional variables disregards the complex and complementary interlocking of psychodynamic, biological and interactional factors within a system and has antitherapeutic ramifications. The trend to early discharge places much of the responsibility for maintaining the seriously disturbed patient in the community on the family. It therefore reinforces the importance of collaboratively involving the family in the treatment process and discharge planning. Other authors (Anderson, 1977; Lansky, 1981; McFarlane, 1983) argued that a clinical viewpoint (implicit or explicit) that the family is sick, destructive, or to blame for the patient's problems would likely lead to their withdrawal from the treatment program and alienate the family from the patient.

J. Genetic Factors

Recent research has convincingly demonstrated that constitutional and genetic factors operate in the etiology of schizophrenia (Gottesman, 1968; Gottesman & Shields, 1966; Heston, 1966; Kety, Rosenthal, Wender, & Schulsinger, 1968; Kringlen, 1978). However, the mechanism of transmission (questions as to what is inherited and how the genetic influence occurs) cannot as yet be stated (Cancro, 1979). The incidence of schizophrenia is similar in most countries of the world in spite of tremendous variations in sociocultural characteristics and patterns of intrafamilial relationship (Slater, 1968), and there is no difference in the incidence between women and men (Nicol & Heston, 1979). The lifetime risks for developing schizophrenia in the general population is about 1% (Gottesman, 1978).

Consanguinity research has consistently found a significantly higher prevalence of schizophrenia in the genetic relatives of schizophrenic patients than occurs in the general population (Kringlen, 1978). An increasing incidence correlates with the degree of biological relatedness, and the highest concordance rate is achieved in monozygotic (identical) twins (Gottesman & Shields, 1966) and in the offspring of two schizophrenic parents (Erlenmeyer-Kimling, 1968; Kringlen, 1978). However, since those who are similar genetically also tend to be raised in the same family environment, the nature/nurture controversy is not resolved.

Adoption studies offer a means of separating environmental from genetic variables in the transmission of schizophrenia. Kety et al. (1968) studied the biological and adoptive families of adoptees who grew up to be schizophrenics and found a significantly higher prevalence of schizophrenia and schizophrenia spectrum disorders in the biological family while the adoptive relatives did not have elevated rates of schizophrenia. The concentration of psychopathology among biological relatives versus the adoptive relatives who reared the children strongly supports a genetic hypothesis.

Twin studies show that both genetic and environmental factors are important. Twins as such are not at a higher risk for schizophrenia than single births in the population as a whole. Gottesman's (1968) studies of monozygotic twins showed their concordance rates for schizophrenia at least 30 times the rate of the general population. In addition, the concordance rate increased in relationship to

the severity of the schizophrenic disorder in the afflicted co-twin. He also studied a smaller number of identical twins reared apart from childhood and found essentially the same concordance rate for schizophrenia as when the twins were reared together sharing a family environment (Gottesman & Shields, 1972). Since over half of the identical twins are discordant for schizophrenia despite a 100% genetic overlap, this clearly establishes that nongenetic factors operate in the development of the disorder. Gottesman concluded "the genes resulting in schizophrenia are necessary but they are not very often sufficient for the occurrence of the disorder" (1968, p. 47). He supports a diathesis-stress model for explaining the development of schizophrenia. The consistent findings in adoption and twin studies have helped to disentangle the nature/nurture issue, not in an "either-or" fashion but in recognition of the importance of both genetic and environmental factors.

K. Diathesis-Stress Model

Diathesis refers to a genetic predisposition to illness, in this case the schizophrenic genotype (Gottesman's 1979). Stress means "any and all environmental factors responsible for the manifestation of the predisposition. Implicit in this model is the corollary proposition of benign environments in which the predisposition is not actualized" (Crider, 1979, p. 143). Stressors are actual environmental experiences that precipitate the illness--the schizophrenia phenotype--in a vulnerable individual. They include family dynamics, developmental difficulties, interpersonal relationships, and traumat-

ic life events. Intrapsychic processes are an important environmental consideration because the individual's perception of a stressful situation or event relates to the potential impact of the stressor (Zubin, 1976). Physiological environmental factors, such as obstetrical complications, physical illnesses, accidental injuries, and nutritional factors, are also integrated in this model.

Genetic-environmental interaction is a dynamic formulation in which a hypothetical threshold is conceptualized (Cancro, 1979; Gottesman, 1979). The stronger the constitutional vulnerability, the less severe the stressors (or combination of stressors over time) required to pass the clinical threshold into an overt schizophrenic episode. Conversely, a weak predisposition would need a stronger stress stimulus or more noxious environment before decompensation occurred (Grinker, 1975). The individual who has had at least one prior schizophrenic episode is, by definition, vulnerable.

L. High Risk Studies

The role of vulnerability in schizophrenia has led to studies of high risk populations in an attempt to identify subjects at risk for future psychiatric disorders (Garmezy, 1974). The University of California at Los Angeles (UCLA) Family Project (Goldstein, Judd, Rodnick, Alkire, & Gould, 1968) illustrates such an approach. The authors used parental communication deviances to identify high risk families before the development of severe psychopathology in the child.

Children at risk for schizophrenia have also been selected on

the basis of certain physiological characteristics believed to be antecedents of schizophrenia. One group (Erlenmeyer-Kimling, Cornblatt, & Fleiss, 1979) investigated attentional deficits. They were guided by the concept of the "faulty filter," which hypothesizes that schizophrenic individuals are unable to filter out relevant or excessive stimuli. Other studies have focused on hyperarousal phenomeon (Orzack & Kornetsky, 1971). Venables and Wing (1962) studied arousal in schizophrenic patients by measurement of skin potential level and found a close, consistent relationship between the degree of social withdrawal and level of psychological arousal. They reported:

> Increased arousal affects perceptual activity in chronic schizoprenics in such a way that normal selectivity is impaired. This suggests that the apparently withdrawn patient is in fact more affected by his environment than a normal person. Withdrawal from the environment--both social and material--may thus be a protective mechanism. (p. 118)

The authors suggest that phenothiazines and adjusting the patients' environment are ways of favorably influencing the patients' arousal level.

There are reports of aberrant eye movements in schizophrenics (Nichol & Heston, 1979) which might identify those at risk prior to development of the disorder. These studies all relate to brain functioning, and recent neurobiological research may help explain how and if these factors operate in the development of schizophrenia. Mandell (1976) wrote: "Evidence continues to be accumulated indicating that schizophrenia and other mental disorders may be related to

an excess, a deficit, or some metabolic abnormality in one or another aminergic neurotransmitter system in the brain" (p. 45).

M. Closing Statement on Historical Overview

The preceding historical survey attempts to synthesize diverse and complex conceptualizations of schizophrenia. It selectively presents a comprehensive historical perspective for viewing the development of intrapsychic, interpersonal, and physiological theories of schizophrenia. These theories--"warring factions" (Reiss, 1974, p. 7)--have opposed, supported, replaced, and excluded each other at different points in time. Cancro (1979) likened the study of schizophrenia to an "elephants' graveyard for psychiatric researchers" (p. 54). Bowen (1960) metaphorically relates the study of schizophrenia to the fable of the six blind men. Each man perceives the elephant entirely through the isolated part of the pachyderm he is feeling. They are "quarreling over partial concepts" rather than "pooling their information" to construct a whole picture (p. 347). The transactional systems approach, which is the theoretical framework guiding the present research, is one way of achieving some form of rapprochement among competing theoretical orientations. The systems model integrates the part-truths in psychological, biological and family interaction formulations of schizophrenia; it dynamically explains how each interacts, influences, modifies, and is changed by the other.

Review of Literature on Expressed Emotion

This section of the dissertation describes and critically reviews that body of research related to the expressed emotion construct which is particularly relevant to the present study. The format followed is: (1) the conceptualization of expressed emotion (EE) and the development of an instrument for eliciting and measuring EE; (2) the clinical implications of EE and therapeutic interventions attempting to modify EE; (3) alternative techniques for the assessment of EE and similar emotional attitudes.

1. Conceptualization of EE and Development of the Camberwell Family Interview

Brown, Vaughn, Leff and their colleagues from the Medical Research Council at the Institute of Psychiatry in London empirically addressed the problem of relapse in a series of studies spanning nearly 30 years. These British researchers developed a way of assessing and quantifying the family affective environment and studied its influence on the course of an established schizophrenic illness. Their interest in the family environment arose from studies of relapse of patients discharged from hospitals. They investigated whether there were factors in the post-discharge home environment that affected the patient's community adjustment and chances of readmission.

The preceding historical review illustrates that research regarding the impact of the family on mental illness is not new. The

studies to be reviewed in this section played a part in redirecting focus from etiology and early developmental experiences to the patient's current ongoing life situation. The EE studies attempted to determine which family characteristics and processes were associated with sustained remission and which with relapse. "This shift in focus from etiology to course represents the emergence of an important alternative conceptualization of the family's role in schizophrenia" (Liem, 1980, p. 431).

The series of family studies on EE began with a retrospective study of 229 long-stay, discharged adult male patients of whom 156 were diagnosed schizophrenics (Brown, Carstairs, & Topping, 1958). Brown and his colleagues found that the patients' success or failure in the community was related to the type of living group to which the patient returned on discharge. Specifically, patients living with parents or wives or in large hostels did more poorly than those staying with siblings, distant kin or in lodgings. The findings suggested a link between the patients' home environment and relapse. There was also evidence that prolonged contact with persons in the home environment increased the risk of deterioration in the patient's clinical condition.

In a prospective follow-up study, Brown, Monck, Carstairs, and Wing (1962) attempted to measure specific factors or qualities contributing to the emotional atmosphere of the living group. One hundred and twenty-eight short-stay, male schizophrenic patients were followed up for a period of one year. The patient and key relative

(usually wife or mother) were interviewed prior to discharge, two weeks after the patient returned home, at one year, or when the patient was re-admitted to the hospital if that occurred sooner. In this way predictions could be made about outcome prior to knowledge of the eventual clinical course of the illness. Brown et al. (1962) hypothesized that a patient would deteriorate clinically if he were discharged to a home in which "strongly expressed emotion, hostility, or dominating behavior was shown towards him by a member of the family." However, relapse could be avoided in such a home environment "if the degree of personal contact with the family was small" (pp. 55-56). It was in this study that the term "expressed emotion" first appeared.

Homes were classified "low" or "high emotional involvement" based on the key relative's rating on "expressed emotion" or "hostility" scales. This study showed that deterioration in the patients' clinical condition was much more likely to occur in households showing high levels of emotional involvement: 76% compared to 28% ($p < .001$) -- a highly significant difference. When hospital readmission was used as an alternative criterion of outcome, then 56% from "high" homes were readmitted versus 21% from "low" homes--a statistically significant difference. Even when differences in the clinical condition at discharge and the level of unemployment were considered, the first hypothesis was confirmed.

Patients living in "high emotional involvement" homes did better when there were less than 35 hours per week of face-to-face contact

with the key relative(s).

With this corroboration of several of the principal original findings, Brown and his colleagues subsequently focused on clarifying the concepts developed, refining the techniques of measurement of emotion, and dealing with validity and reliability issues. Brown (Brown & Rutter, 1966; Rutter & Brown, 1966) developed an assessment instrument in a series of interviews with 80 married couples with children. In all cases, one parent had recently attended a psychiatric facility. Brown and Rutter used a different approach for measuring feelings, emotions or attitudes. Their stated principal aim was to "move away from reliance on self-reports about feelings and to record positive and negative feeling expressed in the interview itself" (Brown and Rutter, 1966, p. 246). They designed a semi-structured standardized interview format in which questions were asked of the relative about the patient's behavior, activities, symptoms, and the quality of his interpersonal relationships. Spontaneous expressions of relative's feelings and attitudes toward the patient were elicited in the process of giving factual information about the patient. Ratings of emotional affect were based on more than content; differences in speed, pitch and intensity of speech were also taken into account. Facial expressions and gestures observed during the interview were noted but were less significant. Their scales measured both positive and negative effects and were unipolar so that ambivalent feelings were measured and rated independently. In this approach, inconsistencies did not cancel each other

out (i.e., criticism could coexist with warmth). All the scales of emotions were directed towards a single specified person rather than being a general rating of emotional characteristics.

All the interviews were audio-taped and scored by two interviewers who went through extensive training in the specific criteria for all scales and global measurements. Inter-rater agreement on ratings of emotional states as well as counts of emotional remarks was high in this study, with inter-rater reliability for rating expressed feelings correlating largely in the range of .8 to .85.

The issue of validity was assessed by comparing the across-interview correlation. Ratings from two different interviews (the single interview and the joint interview) were compared and showed a moderately high (r = .68) agreement between ratings. However, this measure of consistency between two interview situations cannot be equated with validity. Kuipers (1979) succinctly criticizes their conclusion. "In fact this exercise does not conform to any traditional definition of validity, and it is more accurately described as a demonstration of equivalent form reliability" (p. 239).

Brown and his associates (Brown, Birley, & Wing, 1972) did a second prospective study ten years later with the goals of replicating and expanding on the 1962 work. This carefully designed and executed study involved 101 patients (male and female) diagnosed as schizophrenic according to the Present State Examination (Wing, Cooper, & Sartorius, 1974). These patients were living with relatives (parents, spouses, or siblings) mostly in a geographic area in

South East London called Camberwell. The researchers used the semi-structured interview schedule[1] previously developed by Brown and his colleagues (Brown & Rutter, 1966; Rutter & Brown, 1966) to measure the family emotional environment.

One or more key relatives[2] were interviewed upon the patient's admission to the hospital, and at nine months after discharge (or at time of relapse if this occurred earlier). The patient and the designated key relative(s) were interviewed together two weeks after the patient was discharged from the hospital. The interview at admission was found most predictive of relapse and was used to obtain an expressed emotion rating. "Expressed emotion" replaced the term "emotional involvement" used in the earlier studies (Brown et al., 1962; Brown & Rutter, 1966). Brown and his associates made two assumptions: (1) the relative's expressed emotion inferred from the interview with the relative was a reasonable indicator of actual family relationships and interaction with the schizophrenic member; (2) the level of expressed emotion on the occasion of the patient's admission to the hospital was representative of an "enduring potential characteristic of the relative's behaviour towards the patient" (Brown et al., 1972, p. 246).

The 1972 study attempted to clarify whether the relative's feelings and emotions were a reaction to the schizophrenic's symp-

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[1] The assessment instrument was subsequently named the Camberwell Family Interview

[2] In cases where more than one relative was interviewed, the higher rating was used.

tomatology or a cause of it. Furthermore, it investigated the direction of effect between sets of variables and relapse by using a design featuring independent assessments of past behavior (work impairment and disturbed behavior), present emotional response of relatives, and future relapse. The authors hypothesized that "a high degree of expressed emotion is an index of characteristics in the relatives which are likely to cause a florid relapse of symptoms, independently of other factors such as length of history, type of symptomatology or severity of previous behaviour disturbance" (p. 242).

The construct of expressed emotion (EE) was more precisely specified in this study than in the previous works. The affective components of EE were critical comments, hostility, emotional overinvolvement, warmth, and dissatisfaction. Each component was clearly operationalized. The raters had been trained for at least 3 months in the specific criteria for all scales and global measurements.

"Critical Comments" were judged on semantic content or vocal aspects of speech. To qualify as critical, the remark had to be either a "clear and unambiguous statement of resentment, disapproval, or dislike" (p. 243) or comments made with sarcastic, disapproving, or angry tone of voice. A frequency count of critical comments made by the relative about the patient during the interview was tallied.

"Hostility" was based on any remarks made which indicated rejection of the patient as a person or generalization of criticism. It

was rated as present or absent on content alone.

"Emotional Overinvolvement" (EOI) was a global rating of the relative's expressions of excessive concern or overprotectiveness vis-à-vis the patient. It referred to the relative's tendency to excessive anxiety, solicitude, or overdramatization. This component of expressed emotion can reflect the kind of relationship often referred to as "symbiotic" (Liberman, Wallace, Vaughn, Snyder, & Rust, 1980, p. 25). The authors noted its rare occurrence in non-parental relationships. EOI was rated both on the basis of feelings expressed during the interview and of behavior reported outside. Scores of 4 or more (on a 5-point scale) allocated relatives to a high EE rating.

"Warmth" was measured by positive comments about the patient made spontaneously during the interview. Expressions of enjoyment, concern, and interest in the patient were relevant to this measurement, which was rated on tone of voice as well as content.

"Dissatisfaction" was closely allied to measurements of hostility and critical comments but were less intense expressions of discontentment.

The warmth and dissatisfaction scales were not used in the overall index of expressed emotion. The authors found warmth to have a curvilinear association with relapse: "Relatives rated as showing little warmth tended to be highly critical, while those rated as showing considerable warmth tended also to be emotionally over-involved" (p. 246). Dissatisfaction as such was not predictive of relapse.

Expressed emotion (EE) as finally defined was derived from the scores of criticism, hostility, and emotional overinvolvement. Relatives were characterized as "high" or "low EE" on the basis of any of the following ratings: 7 or more critical comments, presence of hostility, or marked overinvolvement. The number of critical comments made by the relative about the patient was the single most important determinant of a high EE rating and was most predictive of relapse. It is important to remember that although the index of expressed emotion has a mainly negative connotation, it can also reflect a warm affective environment in which the relative is emotionally overinvolved with the patient. The expression of critical feelings does not negate the presence of warm feelings.

The criteria used to assess relapse were twofold: (1) from a "normal" or "nonschizophrenic" state to a psychotic schizophrenic state as defined by the Present State Examination classification procedure (Wing et al., 1974) or (2) a "marked exacerbation of persistent schizophrenic symptoms" (Brown et al., 1972, p. 245). Relapse defined this way is not necessarily coincident with rehospitalization.

The findings of this study replicated the principal results of research conducted by Brown et al. (1962) a decade earlier. The likelihood of relapse was significantly increased when the discharged patients returned to high expressed emotion environments: 58% relapse rate in high EE homes compared to 16% in low EE homes ($p < .001$) Ratings of the patients' EE toward the relative did not predict

relapse.

The results also confirmed the previous study's findings of a relationship between the amount of contact, expressed emotion, and relapse. Only 29% of patients in high EE homes in which there were less than 35 hours of face-to-face contact per week relapsed as compared to 79% relapse of patients in high EE homes with 35 hours or more contact. This finding suggested that the degree of exposure to relatives was another important variable; reduction in the amount of contact could somewhat protect or mitigate the deleterious effect of an unfavorable emotional environment.

Previous work impairment and disturbed behavior were also predictive of relapse. Brown and his associates explored the possibility of a spurious association between EE and relapse. The authors carefully distinguished data pointing to expressed emotion as a variable independent of these other factors. When previous work impairment and/or severity of disturbed behavior were controlled for, the statistical association between expressed emotion and relapse was not much reduced. However, when expressed emotion was controlled for, the statistical association between previous occupational impairment and/or severity of previous behavioral disturbance and relapse almost disappeared. These findings supported the hypothesis that the relative's expressed emotion contributed to relapse independently of the patient's previous poor work adjustment and/or behavioral disturbance. Brown and associates reported that they could not specify the direction of cause and effect between the relative's

expressed emotion and the patient's behavioral disturbance. The research pointed to EE as either an intervening variable leading to relapse or as a common cause of both relapse and disturbed behavior. The authors suggested a mutually influencing circular effect: "a two-way relationship, each depending on the other" (1972, p. 255).

Brown et al. (1962; 1972) empirically identified benign and deleterious variables in the present emotional environment of schizophrenic outpatients which have considerable impact on the course of the illness and which have profound implications for clinical practice.

A second research group at the University of Psychiatry in London replicated the Brown work (Brown et al., 1972) and ventured one step further. Vaughn and Leff (1976a, 1976b) conducted a prospective study in which many design features were identical to that used by Brown's research: a nine-month follow-up period and the same relapse criteria, assessment and diagnostic techniques, family measurement, assumptions, and hypotheses. Vaughn and Leff (1976a; 1976b) extended Brown's work by testing whether the index of the relative's expressed emotion was specific for schizophrenia or if it also predicted symptomatic relapse with a diagnostically different clinical group. Their sample consisted of 37 schizophrenic patients and 30 depressed patients (male and female adults) admitted to one of three hospitals in South East London.

One important methodological difference was their use of a significantly abbreviated form of the Camberwell Family Interview.

The authors explained the rationale for using a streamlined version of the CFI: the original form sometimes took as long as four or five hours to administer, often required two separate visits for completion, and was an exhausting and time-consuming ordeal for both informant and interviewer. The abbreviated version reduced the interview length to approximately two hours. Their analysis revealed that the critical comments of relatives of schizophrenics had a distribution skewed towards the beginning of the interview. This pattern reflected a low correlation (.24) between the number of critical comments and the length of the interview (Vaughn & Leff, 1976b).

Vaughn and Leff made ratings on all the scales employed in Brown's study and related these scales to relapse. With the schizophrenic sample they found a cutoff point of 6 critical comments gave a better separation in terms of relapse rates than the 7 critical remarks used by Brown et al. (1972) to divide high and low expressed emotion groups. "In view of the arbitrary nature of the original cut-off point, we felt justified in making an adjustment in the level of criticism required for allocation to the high EE subgroup" (Vaughn & Leff 1976a, p. 128).

Vaughn and Leff (1976a) discarded hostility in the compilation of the EE index because they observed that hostility was not found in the absence of high criticism. They used the same criteria as Brown's study for rating marked emotional overinvolvement. Thus relatives were designated high EE on the basis of 6 or more critical comments and/or marked EOI.

Results with the schizophrenic group replicated Brown's findings in showing a significant correlation of the relatives' expressed emotion with relapse in the nine months after discharge. Differential rates of relapse were 48% of patients in high EE homes as compared to only 6% in low EE homes (Fisher's exact $p = .007$).

The depressed patients in the sample were even more vulnerable to the effects of a relative's criticism than were the schizophrenics and tended to relapse at a lower level of criticism. The protective mechanisms of maintenance drug therapy and reduced contact with relatives, which were so important for relapse outcome in schizophrenic patients living in high EE homes, did not relate to relapse patterns in the depressed group. This study established that the family influences predisposing to relapse were not specific to schizophrenia.

Vaughn & Leff (1976a) analyzed the data to determine what other factors besides expressed emotion influenced outcome status (in view of the fact that about half of the schizophrenic patients living in high EE environments did not suffer a relapse). Consistent with the results of Brown et al. (1972), Vaughn and Leff found that the relationship between EE and relapse was independent of the patient's work impairment or the severity of the behavioral disturbance.

Their study also confirmed Brown's findings that the degree of exposure to the relative was an important moderating variable. Relapse rates for patients from high EE homes were 58% for those with 35 hours or more contact per week versus only 29% for those with less

than 35 hours contact (Fisher's exact $p = .006$). Vaughn and Leff found that relapse rates were lowered for patients in high EE homes who were on regular medication maintenance ($p < .05$). In both the Brown (Brown et al., 1972) and the Vaughn studies, neither maintenance therapy nor the amount of face-to-face contact per week had significance for the low EE group. Vaughn and Leff (1976a, 1976b) empirically demonstrated that the Camberwell Family interview could be refined to a briefer format without loss of predictive validity.

Because their study was so similar in design and methodology to Brown's 1972 study, they were able to pool the figures from the two studies. The nine months relapse rate in this pooled sample of 128 schizophrenic patients was almost four times higher for patients living with high EE families: 51% of those from high EE homes relapsed in contrast to only 13% from low EE homes.

Vaughn and Leff conducted further analyses of the pooled sample to determine which other variables contributed to clinical outcome and found a hierarchy of risk of relapse. Those most at risk were patients in high EE homes who had prolonged contact with their relatives and who were not protected by maintenance drugs. They had a very poor outcome, with a 92% relapse rate. The relapse rates dropped considerably if one of the two protective factors was operating. The prognosis was best for patients living in high EE homes who were protected by maintenance therapy and by reduced contact. The relapse rate dropped to 15% for this group of patients, a rate comparable to that of patients from low EE homes.

Two different research teams at the Institute of Psychiatry in London--Brown et al. (1972) and Vaughn and Leff (1976a)--carried out studies which produced strikingly similar results. Each found the index of expressed emotion by a key relative to be the best single predictor of symptomatic relapse in schizophrenic patients within nine months of discharge.

Leff and Vaughn (1981) subsequently addressed the question of whether the relative's EE was predictive of schizophrenic relapse over longer periods of time. They did a two-year follow-up study with 25 of the original sample of schizophrenics who did not relapse within the initial nine-month period. Cumulative relapse rates of patients from high EE homes were 62% compared to 20% relapse in patients from low EE homes ($p = .015$). This finding of a highly significant difference in relapse rates at a two-year follow-up supported the assumption made by both research teams that the attitude shown by the relative towards the patient during the interview reflected "an enduring potential characteristic of the relative's behaviour towards the patient" (Brown et al., 1972, p. 246) and "an enduring relationship over time" (Vaughn & Leff, 1976a, p. 126).

Leff and Vaughn (1981) found two surprising results related to medication status. The prophylactic effect of maintenance drugs for the high EE patient group at nine months was no longer evident at the two-year follow-up. The authors presented a possible explanation for this occurrence: several of the patients discontinued regular drug maintenance sometime after the nine-month point. Another notable

finding related to the low EE patient subgroup. An earlier Vaughn and Leff study (1976a) had indicated that medication did not significantly reduce relapse rates in low EE patients at the nine-month follow-up. This finding had suggested that antipsychotic medication might be unnecessary for low EE patients. However, the two-year follow-up results argued against such a conclusion. Maintenance drug therapy emerged as a substantial prophylactic effect for low EE patients at two years (Leff & Vaughn, 1981).

This series of studies empirically demonstrated a relationship between expressed emotion and relapse. However, all of these studies were conducted in a small geographic corner of southeast England. Factors such as the intensity of familial relationships, degree of intrusiveness, familial tolerance of psychopathology, and normative amounts of face-to-face contact between close relatives may vary considerably in different cultural settings. Therefore, an important issue is whether these findings are equally valid for other cultural and ethnic populations (Goldstein & Doane, 1982). Replication studies testing the cross-cultural validity of the expressed emotion construct are currently in progress in Denmark and India (under WHO auspices) and in the United States (under NIMH funding). To date only one non-British study has published preliminary findings.

A replication study (Vaughn et al., 1982) conducted by the Mental Health Clinical Research Center (MHCRC) for the Study of Schizophrenia recently reported striking confirmation of the British findings. The sample consisted of 54 Caucasian schizophrenic pa-

tients recently hospitalized in the Los Angeles and Camarillo areas. The abbreviated version of the Camberwell Family Interview was used to rate the relative's expressed emotion, and diagnosis was based on the Present State Examination. Within the nine-month follow-up period, 56% of patients with a high EE relative suffered symptomatic relapse in contrast to 17% of patients with low EE relatives ($p < .006$). Patients from high EE families who were on regular medication relapsed at a lower rate than those who did not take medication regularly throughout the nine-month follow-up. But the overall California results for maintenance drug therapy failed to reach statistical significance.

The most striking difference between the English and California subjects was that more than half of the English families were rated low on EE whereas only one third of the California families were so rated. "Thus, while cultural differences may produce differing distributions of high vs. low EE in families containing a schizophrenic member, the pattern of high EE retains its predictive importance cross-culturally" (Vaughn et al., 1982, p. 426).

Liberman (1982) reported that a greater proportion of high EE families of schizophrenics were also found in replication of the English EE studies in Chicago, Rochester, and Pittsburgh. In contrast, almost all of the families in India were rated low on EE. Although cultural factors may influence the proportion of high versus low EE families in any given population, the important finding still to be determined by the international and American studies in prog-

ress is whether high EE ratings predict schizophrenic relapse regardless of culture. The preliminary results of the Camarillo study are promising.

In addition to cultural specificity, the English studies raise the important issue of construct validity (Goldstein & Doane, 1982). Consistent and statistically convincing data have been presented showing that expressed emotion is associated with differential relapse rates. But what exactly is the EE index measuring? An index of expressed emotion is extrapolated from an interview in which the relative (alone with the interviewer) communicates certain feelings and attitudes towards the patient. The Brown and Vaughn-Leff studies make the explicit assumptions that what is elicited and measured by the Camberwell Family Interview reflects what actually goes on in the interaction between the relatives and the patient and that this family emotional climate prevails over time. What evidence supports the assumption that these verbalized attitudes are translated or manifested in direct interaction with the patient?

Two studies measuring specific psychophysiological responses in schizophrenic patients from EE rated homes provide evidence for the concurrent validity of expressed emotion ratings. Tarrier, Vaughn, Lader, and Leff (1979) assessed arousal level in remitted schizophrenics by measurements of spontaneous fluctuations in skin conductance, blood pressure, and heart rate. Measurements were taken 15 minutes before the relative was present and repeated 15 minutes after the relative's entrance. The findings showed that patients from both

high and low EE groups were highly aroused in the absence of the relative and that the patients with high EE relatives showed a significantly greater amount of spontaneous fluctuation in skin conductance ($p < .01$) and a significant increase in diastolic blood pressure ($p < .002$) in the presence of the relative compared to the patients with low EE relatives. Patients with low EE family members habituated (showed a gradual decline in the rate of autonomic arousal) after their relatives were present, while patients with high EE relatives maintained a high level of arousal and did not habituate the entire 30 minutes of the experimental situation. The findings were not related to medication, amount of contact, nature of the relationship, sex, marital status or premorbid personality of the patient.

Since the families of these subjects had been categorized as low or high EE two years before the biological measures were made, this study confirmed the assumption that the expressed emotion index reflected the emotional atmosphere prevailing within the family over long periods of time. Tarrier et al. concluded that the value of the social measure of EE used to classify the patients' families had been reinforced by a biological index of arousal in the patients themselves.

Sturgeon, Kuipers, Berkowitz, Turpin, and Leff (1981) replicated the Tarrier study with a very different schizophrenic population--acutely ill schizophrenic patients. Their findings confirmed the previous study in showing that the skin conductance responses of

patients with high EE families failed to habituate over the entire 30 minutes of the experiment. In contrast, patients from low EE families tended to habituate quite well in the presence of their relative.

These two studies suggested that low EE relatives might facilitate a decline in the patient's arousal level. A low-EE relative's supportive, non-critical, non-intrusive attitude might exert a calming influence on the patient. In contrast, patients in high EE family environments were subject to stressful social interaction which produced a chronic state of high arousal (Sturgeon et al., 1981). It is possible that the patient's prolonged and continuous level of autonomic overarousal may activate florid schizophrenic symptoms and mediate relapse (Dawson, Neuchterlein, & Liberman, 1983). Neuroleptic medication tended to decrease the patient's vulnerability to environmental stimulation and thus reduced the risk of relapse. These studies of physiological measures of arousal help explain the schizophrenics' high sensitivity to their social environment as well as their pattern of social withdrawal as a protective mechanism against excessive social stimulation (Leff, 1976).

An ongoing study involving family therapy for high EE families affords the opportunity for direct in vivo observation of family interaction (Falloon, 1981; Falloon et al., 1981). Preliminary observations indicate that high EE attitudes are correlated with actual expressions of criticism and overinvolvement. Further empirical data will help clarify the issue of expressed emotion's construct validity.

The expressed emotion of the relative towards the patient with whom he or she is living is conceptualized as an "enduring," long-term environmental factor. The same British research teams have also investigated the effect of life events--occasional, short-term stressors--in precipitating the acute onset or relapse of schizophrenic states. Brown and Birley (1968) found that more independent life events[3] were reported by schizophrenics and their relatives in the three weeks immediately preceding onset or relapse than occurred in a "normal" control group.

Leff and Vaughn (1980) linked expressed emotion directly to the life events literature. Their study found that schizophrenic patients living with high EE relatives had a low rate of independent life events 3 weeks prior to a schizophrenic episode compared with those living with low EE relatives (4.8% versus 56.3%; $p = .0007$). One possible interpretation of this finding is that low EE families (characterized as providing a more supportive and accepting environment for the patient) are less stressing, hence additional stressors in the form of life events are required to precipitate symptomatic relapse (Dawson et al., 1983).

In their two-year follow-up study, Leff and Vaughn (1981) related the long-term rate of maintenance medication to expressed emotion and relapse. They speculate, "It is possible that prophylactic medication

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[3]The authors differentiated "independent" life events from those within the patient's control which might have been brought about by the patient's illness or as a consequence of early prodromal manifestations of an impending schizophrenic episode.

protects patients in low EE homes from the impact of independent life events, and that it takes a relatively long time for this effect to become apparent because of the infrequency of such events" (p. 104).

These studies on life events as a triggering effect are all retrospective designs and as such they share a methodological limitation related to the issue of accuracy of recall (Paykel, 1978; Rabkin, 1980). Once an individual has developed a serious mental illness, there is a natural tendency on the part of that individual and the relatives to look at events and incidents preceding the onset in an attempt to make sense of the inexplicable illness.

Furthermore, any real relationship between life events and psychiatric illness might be obscured by the particular vulnerability of the individual (Spring, 1981). In other words the subjective experience of the life event might not be directly related to the severity of the life event. The schizophrenic has been characterized as supersensitive to his environment and to arousal (Wing, 1978). He frequently is handicapped by limited life experiences, a deficient coping repertoire, and inadequate psychosocial skills (Scheflen, 1981). Given these severe deficits, then, life events which are distressing but manageable to more normally functioning persons may well be overwhelming to the schizophrenic.

In summary, the series of studies by Brown, Vaughn, Leff, and their associates provides convincing evidence that patients living in environments characterized as high EE are much more likely to relapse compared to those living in low EE environments. The index of ex-

pressed emotion as elicited by the Camberwell Family Interview consistently predicted relapse within nine months of discharge and, in the most recent study (Leff & Vaughn, 1981), over a two-year period of time. Indeed, the EE index was found to be the best single predictor of relapse. It was more closely related to relapse than any other demographic or clinical factors, including severity of behavioral disturbance, work impairment, and medication maintenance.

These studies have increased our understanding of how the family emotional climate interacts with a patient's psychopathology to influence patterns of relapse. A result of the EE studies is that a vulnerable group can now be identified who are at a particularly high risk for relapse and recurrence of disabling psychotic symptoms. What are the clinical implications of such risk identification? The next section will review a recent body of literature which attempts to translate the expressed emotion research findings into treatment interventions and preventive strategies.

2. Clinical Interventions to Prevent Relapse in Patients from High EE Families

The British studies on expressed emotion have directly stimulated interest in therapeutic programs structured to address this vulnerable patient population and prevent relapse. Brown, Vaughn, Leff and their research colleagues clearly suggest two immediate therapeutic strategies to buffer the effect of EE: medication maintenance and reducing the amount of face-to-face contact with high EE relatives. The efficacy (albeit imperfect prophylaxis) of neuroleptic

drugs has already been discussed.

Various approaches for increasing social distance between the patient and high EE relatives need to be explored on an individualized basis. Sometimes a separate living arrangement is an acceptable (and affordable) alternative. Residential possibilities include independent housing, board and care placement, psychiatric half-way facilities, and single-room-occupancy hotels. Unfortunately, there is a dearth of adequate community resources of these sorts. Even when the patient and high EE relative live in the same accommodation, they can each be encouraged to develop their own interests, spend more separate time in structured activities outside the home, and participate in employment or recreational programs. The more they expand their own social network and become involved with other people, the less time they are apt to spend in direct contact with each other. Day treatment centers and sheltered work settings can be utilized.

Given the nature of enmeshment and mutual dependency characteristic of many schizophrenic relationships, professional encouragement towards decreasing contact and increasing individual autonomy and separation often encounters stiff resistance by all participants. Furthermore, pathological bonding in many of these families is not broken by mere geographic distance (Falloon, Liberman, Lillie, & Vaughn, 1981), and pervasive patterns of interaction continue to exert their influence despite physical separation.

Medication maintenance and reducing the frequency of direct patient-relative contact have value but also limitations. Clinical

interventions also need to deal specifically with the expressed emotion variable as it presents in each family. Evidence supporting the assumption that EE is an enduring feature of the family emotional environment, does not imply that it is unalterable. The studies reviewed in the following section describe treatment programs which attempt to modify expressed emotion by reducing critical and overinvolved attitudes in relatives and by altering the patients' behavior that may provoke and perpetuate these feelings.

Vaughn and Leff (1981) made further analyses of the audiotaped interview material from their earlier research (1976a) and identified four characteristic attitudes or response styles distinguishing relatives who would be classified high EE from those rated low EE. They found a high correlation of EE with the relative's level of intrusiveness, emotional response to the patient's illness, attitude toward the illness, and level of tolerance and expectation. Family profiles emerged in which high EE relatives generally were highly intrusive and repeatedly attempted to establish close contact with the patient or to offer unsolicited (and often critical advice). They tended to respond to the patient's illness with acute distress and/or anger. High EE relatives often doubted the legitimacy of the illness and frequently blamed or held the patient responsible for his condition and for not controlling his symptoms. They were intolerant of symptom behavior, impatient with the patient's low performance, and exerted pressure on the patient to behave "normally." Conversely, the low EE relatives tended to be reasonably nonintrusive and

willing to respect the patient's wish for social distance. Low EE relatives were concerned but not overly anxious in their response to the patient's illness. They accepted that the patient was genuinely ill and were more tolerant of symptom behaviors and long-term social impairment. Vaughn and Leff's (1981) analyses revealed that the family's realistic and sympathetic understanding of the patient's illness was a critical factor in preventing future relapse. This had important practical and theoretical implications for any preventive program. The authors concluded that "for all patients and their families, mental health education would seem to be a basic imperative" (p. 44).

Four studies evaluating treatment interventions with families previously rated as to level of expressed emotion will be briefly reviewed. The first is a program by Berkowitz, Kuipers, Eberlein-Fries, and Leff (1981) from the London Medical Research Council, where the expressed emotion construct was originally developed. Second is a study by Snyder and Liberman (1981), whose research at Camarillo replicating the English EE results has previously been described. The third is a study by Falloon and his associates (Falloon, 1981; Falloon, Boyd, McGill, Strang & Moss, 1981) at the Los Angeles County-University of Southern California Medical Center[4]. The final study, by Anderson, Hogarty and Reiss (1980; 1981), was

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[4]The Snyder-Liberman and Falloon research groups are collaborating participants in the Mental Health Clinical Research Center for the Study of Schizophrenia in Southern California. MHCRC is a consortium of university and hospital programs, partially supported by NIMH, devoted to research on schizophrenia.

conducted at the Western Psychiatric Institute and Clinic at the University of Pittsburgh School of Medicine.

These four programs incorporate findings from the expressed emotion literature as well as earlier studies demonstrating that the therapeutic benefit of psychosocial treatment is often enhanced by concomitant use of neuroleptic medication (Goldstein, Rodnick, Evans, May, & Steinberg, 1978; Hogarty et al. 1974). They all combine drug therapy with some form of psychoeducational family treatment. Although the formats and procedures of the programs differ somewhat, they share a belief in the importance of education for families with a schizophrenic member. They provide the family with up-to-date factual information about schizophrenia: etiology, symptomatology, treatment, and course. In all four programs, factual knowledge is distinguished from opinions; that which is still speculative or unknown is honestly acknowledged. Considerable sensitivity is shown by the staff in all these programs not to overtly or subtly blame the family for having caused the illness. However, the important role the family can play in improving the course of the illness is discussed.

Berkowitz (1981) and her associates randomly assigned high EE relatives to experimental (psychoeducational) or control groups (in which the patient received the usual aftercare). The patient did not participate directly in the groups; only the relatives were involved. The experimental relatives' group functioned not only as a source of information and demystification but also as a support group for

sharing interests, experiences, problems, and feelings. Also it provided role models for more effective and constructive coping behavior in management of the schizophrenic patient.

Preliminary findings of the London study are encouraging. The authors report a higher proportion of patients whose relatives participated in the experimental group were well at the nine-month follow-up compared to patients in the control group. Repeat administration of the Camberwell Family Interview at follow-up revealed that some relatives assigned to the experimental group changed from high to low EE ratings, whereas those in the control group had not.

Snyder and Liberman (1981) designed a dual treatment program at Camarillo with the aim of specifically modifying deleterious attitudes and behavior in high EE relatives. Education-oriented family therapy was provided to a group of patients and family members while the patients were concomitantly enrolled in a social skills training program. The goals of the family therapy were to increase the patients' and relatives' understanding of schizophrenia and to make the family's expectations of the patient more realistic. The family therapists also attempted to reduce criticism, hostility, and emotional overinvolvement of family members. The therapists taught problem-solving and communication skills to all participants. An effort was made to improve medication compliance. Relapse rates at the end of nine months were 21% for patients who had participated in the family therapy compared with 56% for those in the no-family therapy control group. The authors found a decrease in the rela-

tives' posttest EE scores: a 60% drop in critical comments and lower EE ratings in the families which participated in family therapy versus a 16% decrease in relatives who did not receive family therapy.

The authors acknowledge two important design limitations which qualify the significance of their findings. Since patients involved in the family treatment were simultaneously enrolled in intensive skills training, it is impossible to separate the relative contribution of each of these treatment interventions in reducing the family members' levels of expressed emotion. An additional limitation is that the patients and their relatives were not randomly assigned to family therapy or no-therapy control groups. Nevertheless the results of this education-oriented family therapy approach to prevent relapse appears promising.

Falloon and his colleagues at the University of Southern California conducted a controlled clinical trial on the efficacy of psychoeducational family treatment (Falloon, 1981; Falloon et al., 1981). Schizophrenic patients were randomly assigned to either a family therapy program or to individual supportive psychotherapy. Both groups were on medication maintenance and had the services of a rehabilitation counselor. In addition to the educational component, the family treatment program included training for the patients and their families in communication skills, problem-solving techniques, and crisis management.

The Falloon study was designed to compare outcome for the two

treatment approaches at nine months and eventually at a two-year follow-up. This study has not been completed but the most recent report of preliminary findings (Falloon, Boyd, McGill, Razani, Moss, & Gilderman, 1982) is highly encouraging. Results for 36 patients (18 in each treatment group) at the nine-month evaluation point show only one family-treated patient (6%) having a clinical relapse as compared with 8 patients (44%) treated individually ($p = .009$). Falloon et al. (1981) link their study to the literature on life events (Brown & Birley, 1968) and report that families and patients receiving the family treatment coped more effectively with major life events than the comparison group. Furthermore, the family therapists observed that "virtually all families treated over a period of many months are less excitable, less tense, more supportive, and less critical of the patients" (p. 76). Objective assessments are being conducted to determine if these subjective observations are supported by empirical data.

The Anderson-Hogarty research group (Anderson et al., 1980; 1981) at the University of Pittsburgh is conducting a comprehensive aftercare project for schizophrenic patients and their relatives (who have been rated high EE). They are studying the relative effectiveness of several treatment programs. Over the next several years, schizophrenic patients will be randomly assigned to supportive individual psychotherapy, psychoeducational family treatment, social skills training, or a combination of the last two types of psychosocial interventions. The model of family treatment utilizes a

variety of educational and supportive techniques. It is designed to increase understanding about the nature of the illness, improve problem-solving skills, reduce family tension, and de-intensify the family environment in which the patient lives as a way of preventing relapse. The patients do not participate in the initial educational part of the program but are involved in family treatment sessions after the acute phase of the illness is under control. Upon the completion of the psychoeducational phase of treatment, Anderson and her associates offer the participating families the option for intensive family therapy which deals more psychodynamically with conflicts, developmental factors, and unresolved issues of autonomy and differentiation. Preliminary results of this ongoing research show less than 10% relapse rates among patients involved in family therapy, no relapse in the combined family therapy/social skills intervention group, and 34% relapse among the controls treated with supportive individual psychotherapy. Similar to Falloon's study, the Anderson-Hogarty group observed a significant reduction in the subjective distress of relatives involved in family therapy compared to controls.

In summary, the findings of these four ongoing research projects must be considered preliminary; nonetheless, they indicate promising clinical approaches to reduce the likelihood of relapse in a patient population identified as high-risk. They illustrate how research findings derived from the studies on expressed emotion can provide clinicians with clues for targeting therapeutic goals to attenuate

the course of schizophrenia. They also demonstrate that expressed emotion is amenable to intervention--at least over the short term. Given the profoundly negative impact that relapse has on the patient and his family, even short-term influence on recidivism has clinical value. Upon completion, these studies will show whether the findings of decreased relapse rates hold for more extended periods.

The psychoeducational family therapy approaches described emphasize family education about schizophrenia as an ongoing process rather than one limited to a series of didactic presentations. This approach increases the family's empathic understanding of the patient's condition, supports more realistic expectations, and fosters more constructive and effective communication of emotions between family members. It addresses the family's need for knowledge about the illness and provides practical techniques for coping with it in a supportive environment where common experiences, feelings, and problems can be shared (Hatfield, 1979).

These studies are providing useful research evidence regarding the efficacy of various forms and combinations of treatment. They are responsive to the reality that the family bears the preponderant responsibility for many schizophrenics' aftercare. Rather than avoiding the family as a destructive influence on the patient, these educational/supportive treatment programs are attempting to mobilize the family as a resource and a positive social support to the schizophrenic. This approach makes families collaborators and allies in the treatment process.

Consistent with a systems orientation, a goal of these family intervention programs is to encourage a more benign emotional climate while simultaneously focusing on patient-related factors. Maintenance medication can reduce the patient's vulnerability to environmental stimuli and pressures. Furthermore, most of these programs are attempting to enhance the patients' interpersonal effectiveness, coping skills, and social functioning--deficits characteristic of many schizophrenics (Scheflin, 1981)--in order to improve their adaptation in the community.

3. Alternative Techniques for Assessing EE and Similar Emotional Attitudes

The body of literature reviewed previously described the predictive value of the expressed emotion index as elicited by the Camberwell Family Interview (CFI). Shorter and more economical means of assessing EE and similar emotional attitudes could be valuable clinical screening tools. Alternative methods for measuring an expressed emotion equivalent or analog are currently being explored at various research centers, but findings have not yet been published. This section reviews alternative approaches that have been published.

Kreisman, Simmens, and Joy (1979) developed a self-report scale called the Patient Rejection Scale (PRS). It is a self-rating questionnaire with a specific focus which conceptually overlaps the "critical comments" and "hostility" components of the expressed emotion index. (Vaughn and Leff [1976a] found the most important component of EE to be the number of critical comments made by the relative

when talking about the patient.)

The PRS consists of 11 items and has a 3-point range of response--"often," "sometimes," or "never." Kreisman and her associates in New York studied a sample of 133 recently discharged schizophrenic patients. The PRS was administered to a family member, with whom the patient was living, at four and eight months post-discharge. Relapse is operationalized as rehospitalization. The authors report a significant, albeit small, correlation of .20 ($p < .03$) between the PRS score and relapse within an 18 month follow-up period. The test-retest correlations at the four-month and eight-month post-discharge periods showed a moderately high scale reliability of .72. These preliminary findings provide reasonable encouragement that the PRS can be a valuable clinical screening tool for predicting patients at risk for relapse.

The authors acknowledge that using rehospitalization as the sole outcome criterion may have attenuated the correlations. Indeed, many patients with severe exacerbation of schizophrenic symptoms are not rehospitalized, and conversely, rehospitalization might be necessary due to lack of community support rather than to clinical relapse.

Kreisman has subsequently expanded the number of questionnaire items as well as the range of responses. This revised rejection scale is one of the instruments used in the present study (Appendix A). Replication studies testing the revised rejection scale are currently in process to determine whether the initial results are confirmed. Some of these studies will provide correlational data on

the rejection scale and the Camberwell Family Interview.

Doane, West, Goldstein, Rodnick, and Jones (1981) applied the expressed emotion construct to data from the UCLA Family Project (Goldstein et al., 1968). The Family Project, which began in 1965, is a high risk prospective longitudinal design studying 65 non-psychotically disturbed adolescents and their families. Extensive interview procedures and projective tests were conducted with the adolescents and their parents (separately and interactively) at the time of admission to the project. Outcome diagnosis of the index child was assessed five years later.

Jones (1977) developed a measure of parental communication deviance (CD) based on earlier studies by Singer and Wynne (1965b). Admission assessment involving the parents was analyzed to obtain a CD score which was related to outcome data. Findings showed that the CD index alone did not precisely identify cases with schizophrenia spectrum disorders five years later, although the offspring of parents with high CD levels were more likely to develop such disorders. The Doane study addressed the issue of identifying a more accurate indicator of risk than CD.

Doane et al. (1981) broadened the expressed emotion concept beyond its influence on the course of an established illness to investigate its contributory role in the onset of schizophrenia. Doane and her associates developed a measurement of the parental affective tone which they termed "affective style" (AS). The data base consisted of the verbatim transcript derived from a videotaped

transaction of the adolescent and parents involved in a problem-solving task when the adolescent first entered the UCLA Family Project. The transcript was scored according to a coding scheme that captured some of the essential components of the EE construct: criticism, hostility, and overinvolvement. The authors note "that while the codes were conceptually linked to the EE construct, they do not share a point-to-point correspondence with the EE indices" (Doane et al., 1981, p. 680). Furthermore, affective style encompasses phenomena not encompassed in expressed emotion.

Doane found that neither a negative AS profile nor a high CD alone precisely predicted subsequent offspring psychopathology. Although each measurement was highly associated with a greater risk for psychiatric disorder, a significant number of false-positive errors was found. However, the combination of parental AS and CD indices resulted in a remarkably precise prediction of the severity of subsequent psychopathology at a high statistically significant level ($p < .001$).

The authors caution against interpreting an etiological role from these results. Although the parental-characteristics measured by CD and AS were based on data obtained five years prior to the onset of overt schizophrenic symptomatology, one cannot assume that either of these attributes antedates the emergence of emotional disturbance per se in the offspring. All the adolescents originally entered the Family Project because they were experiencing some level of emotional problems. It is not possible to isolate the interre-

lated, mutually-responding, and interacting parts of the family system and determine which phenomenon antedated the other.

Outcome results beyond the five-year follow-up period will be important because schizophrenia is a disorder of late adolescence and early adulthood. The UCLA Family Project sample, therefore, will be continuing in the risk period of onset for some time yet.

A recent doctoral dissertation (Norton, 1982) expanded on the Jones (1977) and Doane (Doane et al., 1981) studies and derived an expressed emotion score from the Family Project data. Norton analyzed audio tapes of the initial parent interview and rated both content and voice tone according to the Camberwell Family Interview criteria. In contrast, Doane scored affective style from a transcript of a parent-child interaction, relying exclusively on content. The developers of the expressed emotion construct emphasized the importance of non-verbal material in the assessment of affect (Brown et al., 1972; Vaughn & Leff, 1976a).

Norton found a high statistical association between parental EE scores and the offspring's mental health status five years later ($p < .0001$). Expressed emotion correctly identified subsequent diagnosis in 85% of the sample. There was not a significant relationship between EE and either affective style (AS) or communication style deviance (CD). In a truncated sample of 37, a composite index of these independent variables--EE, AS, and CD--had a predictive validity of 97%, as did EE and AS as a dual variable. Thus, the EE index was found to be the most accurate predictor of subsequent psycho-

pathology.

The studies by Kreisman et al. (1979), Doane et al. (1981), and Norton (1982) investigated alternative methods for obtaining a measurement of emotional attitudes that are closely related, but not necessarily identical, to the affective dimensions reflected in the expressed emotion construct. Norton actually did derive an index of expressed emotion. She used the definitions and criteria of expressed emotion but scored EE from a data base different from the Camberwell Family Interview. Kreisman and Doane used different instruments to measure emotional attitudes that overlapped the expressed emotion construct but are not identical to EE. Kreisman's rejection scale predicted relapse. Doane and Norton's measurements predicted subsequent schizophrenia spectrum disorders.

Summary

In summary, the theoretical framework and conceptualization of schizophrenia guiding this study have been described. The research literature on expresssed emotion has been explicated and critically reviewed.

The question which stimulated this pilot study was whether assessments of schizophrenics' familial environment by procedures other than the Camberwell Family Interview could predict relapse. The hypotheses being tested are derived from the hypotheses formulated in the expressed emotion studies (Brown et al., 1972; Vaughn & Leff, 1976a).

The present sample population differs substantially from the schizophrenics previously studied. This research assesses the familial affective environment of a multiracial outpatient population. In comparison, the English and Camarillo samples were all Caucasians and consisted of inpatients who were subsequently followed post-discharge. Furthermore, this study uses an expanded concept of "family" which encompasses the schizophrenic's social network of current meaningful relationships.

The four assessment procedures investigated in this study are all experimental instruments in the process of development. With the exception of the Patient Rejection Scale (Kreisman et al., 1979), no published literature is available. The other procedures, Hogarty's Global Judgments of Expressed Emotion (see Appendix B) and the two methods of scoring Gottschalk's Five-Minute Speech Sample, are in the process of being evaluated at various research centers. These completed studies should provide important correlational data on EE scores elicited by the Camberwell Family Interview and scores obtained by the alternative procedures with the same individuals. Sample inclusion criteria and the four assessment procedures used in the present research will be described in the next chapter.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

The present research is considered exploratory in nature. The instruments used to measure the patient's affective environment are experimental and/or modifications of established tests with documented reliability and validity in their original context. Findings related to their present use have not yet been completed although relevant research is in progress in various centers in the United States. Furthermore, this dissertation pilots an investigation of the relationship between the familial affective environment and relapse vis-à-vis an outpatient population. Previous studies have evaluated the family affective dimension of hospitalized schizophrenic patients who were subsequently followed post-discharge (Brown et al., 1962; 1972; Kreisman et al., 1979; Vaughn & Leff, 1976b; Vaughn et al., 1982). The present sample is multiracial and may also be a more chronic schizophrenic population.

The present methodology suggests a quasi-experimental research design. While specific hypotheses have been tested, and variables are known, it needs to be emphasized that the hypotheses are based on research involving a different schizophrenic population and utilizing a different method of measuring the familial affective environment. The goal of this pilot study has been to explore promising leads or alternatives in research (Isaac & Michael, 1980). The intention has been to "probe" rather than "to prove."

Hypotheses

The present study examines the relationship between a schizophrenic outpatient's affective environment, as measured by four alternative methods, and clinical relapse or sustained remission over a nine-month follow-up period. Specifically, this research was designed to test two hypotheses:

1. Remitted schizophrenic patients in a neutral affective environment would have a lower relapse rate than patients in a negative environment characterized by affective patterns of excessive criticism, hostility, or emotional overinvolvement.
2. Relapse rates of remitted schizophrenics in a negative affective environment would be lower for patients having less than 35 hours per week of direct contact with the environment as compared with those having a greater degree of contact.

This research studies the role of the schizophrenic outpatient's current environment in maintaining remission or contributing to relapse; it does not concern the affective environment as an etiological factor in the illness.

Operationalization of Concepts

The characteristic feelings, attitudes, and affective responses to the individual patient by those with whom he had a significant ongoing relationship were operationalized by three instruments:

1. Kreisman and Blumenthal's Rejection Scale, which is an expansion of the Patient Rejection Scale (Kreisman et al., 1979) (Appendix A).

2. Hogarty's Global Judgments of Expressed Emotion (Appendix B), which utilizes the same affective components of the EE construct. In this scale, however, clinical judgments were made on the basis of a non-structured interview with the relative or significant other rather than eliciting the affect by the Camberwell Family Interview Schedule.

3. Wynne and Gift's (Wynne, 1981) family-oriented modification of Gottschalk's Five-Minute Speech Sample procedure (Gottschalk & Gleser, 1969) which was scored in two different ways. First, a typescript of the brief speech sample was rated on the Hostility Outward Scale developed by Gottschalk et al. (1969). Second, an audiotape of the same speech sample was rated according to scoring principles adapted from the Camberwell Family Interview.

The three instruments thus generated four scores for each relative or significant other interviewed. These measurements were assumed to reflect specific attitudes and feelings by the interviewee toward the schizophrenic patient. Each of the four scores was rated separately as to "negative affective environment" versus "neutral affective environment" in procedures explicated in the section titled "Instruments for Measurement of Affect" (p. 96 of this chapter).

Clinical relapse is operationally defined as an exacerbation of psychotic symptoms sufficiently severe to require an increase in

medication dosage and/or hospitalization. This is congruent with the British expressed emotion studies relapse criterion of a "marked exacerbation" of schizophrenic symptoms (Brown et al., 1972, p. 245; Vaughn & Leff, 1976a, p. 128). Other researchers have included a change of management (i.e., hospital admission or an increase in medication dosage) in the definition of schizophrenic relapse (Falloon et al., 1982; Goldstein et al., 1978; Johnson, 1979). In the present study, the clinical judgment of relapse was made by the treating psychiatrist (Dr. Stephen Marder), who assessed the schizophrenic patient at regularly scheduled intervals. Dr. Marder was "blind" to the patients' affective environment scores as well as to the original medication dosage so as not to bias his determination of clinical deterioration. Standarized rating scales of clinical psychopathology[1] and adjustment[2] were administered to patients on a regularly scheduled basis and contributed objective data to the assessor. However, the determination of relapse was essentially a global clinical judgment made by the assessor.

For purposes of this study, the terms "relative" and "family"

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[1]The Brief Psychiatric Rating Scale (Overall & Gorham, 1962), the Symptom Check List-90 (Derogatis, Lipman, Covi, Rickels, & Ulenhuth, 1970), the Global Assessment Scale (Endicott, Spitzer, Fleiss & Cohen, 1976), and the Idiosyncratic Target Symptom Rating Scale.

[2]The Social Adjustment Scale (Schooler, Levine, Severe, Brauzer, DiMascio, Klerman, & Tuason, 1980) assesses the patient's interpersonal relations and adjustment to the community. A modification of the Strauss-Carpenter Outcome Scale (Strauss & Carpenter, 1972, 1974a) measures certain aspects of the patient's community adjustment such as sociability, interpersonal relationships and employment functioning.

refer to biological family, marital relationships, and extended kin as well as significant others who are not related to the patient but who are psychologically meaningful in the patient's current life context. This expanded concept of family is in accord with the growing clinical and research recognition that the relevant nonfamilial social environment can profoundly influence the patient's mental health (Beels, 1978; Bloch, 1974; Greenblatt, Becerra, & Serafetinides, 1982; Liberman, 1982; Mosher & Keith, 1980; Tolsdorf, 1976). It in no way diminishes the biological family as the most powerful, intimate, and constant factor in the individual's psychosocial environment. However, when the schizophrenic patient does not reside with or maintain close contacts with his nuclear or marital family, then the psychologically relevant family assumes more importance.

Brentwood Research Project

This exploratory investigation was developed as a substudy of a research project currently being conducted at the West Los Angeles Veterans Administration Medical Center, Brentwood Division, which is a comprehensive 473-bed psychiatric treatment facility. Stephen Marder, M.D., is Principal Investigator of the project titled "Predicting Optimal Neuroleptic Therapy for Schizophrenic Outpatients."[3] A brief description of this research project (hereafter referred to as the "Brentwood Project") and its rationale follows.

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[3]Supported by a grant (2P50MH3091103) from the National Institute of Mental Health and Veterans Administration Grant 01.

The Brentwood Research Project is attempting to develop methods for determining the optimal dose of neuroleptic drugs in schizophrenic outpatient treatment involving 80 schizophrenic males over a two-year follow-up period. The prophylactic effectiveness of maintenance antipsychotic medication in forestalling relapse among schizophrenic outpatients has been clearly demonstrated (Hogarty, 1977; Lehman, 1975). Selecting the appropriate anti-psychotic drug dosage is of critical importance; too low a dose exposes the patient to the risk of relapse; too high or prolonged a dose risks disabling and unpleasant side effects called extrapyramidal symptoms (EPS). Such symptoms as dystonia, akinesia, akathisia, and pseudoparkinsonism are usually treatable with antiparkinson medication. Nevertheless, they can be so acutely distressing that they often contribute to medication noncompliance and discontinuation of drug therapy with resultant risk of relapse. In contrast to EPS, tardive dyskinesia (TD) is frequently an untreatable and irreversible iatrogenic movement disorder characterized by involuntary movements of the tongue, face, mouth, or lower extremities. TD sometimes develops as a consequence of long-term neuroleptic treatment and is thought to be more prevalent in the presence of higher drug dosage (Simpson, Vargn, Lee and Zoubok, 1978).

Unfortunately, there is very little to guide the psychiatrist in prescribing the optimal dose for prophylactic treatment (Marder, van Kammen, Docherty, Rayner, & Bunney, 1979) when the patient is no longer acutely psychotic, since maintenance medication patients may

be entirely symptom-free. Decision-making about drug dosage is, by necessity, made on a pragmatic trial and error basis with the potential risks and dangers inherent in undertreatment and overtreatment. A goal of the Brentwood Project is to help improve the data base for the decision-making process and to develop methods for reliably determining optimal dosage of neuroleptic drugs for maintenance therapy.

The Brentwood Project plans to have a sample size of 80 schizophrenic outpatients who will be followed in a special research clinic for a two-year period. Since late 1980, the Mental Hygiene Clinic and different ward outpatient programs have been referring potential research candidates at the rate of approximately 20 patients per year. The potential research subjects are screened according to the following inclusion criteria: diagnosis of schizophrenia using Present State Examination (PSE) procedure; suitability for maintenance treatment with fluphenazine decanoate; age range of 18-55 years; absence of organic brain disorder, mental retardation or medical illness which would make maintenance fluphenazine treatment inappropriate; and competency to understand and sign informed consent.

The research candidates are diagnosed according to the Present State Examination criteria developed by Wing, Cooper, and Sartorius (1974), which are similar to Diagnostic and Statistical Manual of Mental Disorders III, (American Psychiatric Association, 1980) and Research Diagnostic Criteria (Spitzer, Endicott, & Robins, 1978). Dr. Stephen Marder, a psychiatrist, and Dr. Gary Faltico, a psycholo-

gist, were trained in the reliable administration of the PSE, which is a clinical guide enabling the examiner to evaluate psychopathological features of a patient. Patients who meet the criteria of schizophrenia at the time of the evaluation or who have met the criteria in a previous episode are deemed acceptable for the study. The study is thus composed of both symptomatic and asymptomatic patients.

After inclusion criteria are met, the patient is given a description of the double-blind research project comparing two doses of fluphenazine decanoate (Prolixin intramuscular injections), and the risks are fully explained. Patients interested in volunteering for the research project sign informed consent forms (Appendices C and D). Then the patients are randomly assigned to either the low dose group (5 milligrams [mg] IM every two weeks) or the conventional dose group (25 mg IM every two weeks).

Various pharmacokinetic, biological, clinical, psychological, and social data are obtained at the patient's initiation into the research project and also are collected systematically during the two-year treatment period to determine if this information can be helpful in planning drug management. The Brentwood Project aims to identify patients who will respond to a low drug dose and attempts to determine retrospectively whether this group could have been identified very early in treatment. Given the potential toxicity of long-term, high-dose treatment with neuroleptics, methods to identify subgroups of patients who may not require maintenance medication or

who remain in remission on low drug dose are very important (Hartmann, Kind, Meyer, Müller, & Steuber, 1980).

The patients' current social/familial environment is an important variable under investigation in the Brentwood Project. Previous research (Vaughn & Leff, 1976a) found that social environment and medication were important interacting variables which influenced relapse rates. The operational definition of relapse in the Brentwood Project is identical to the definition used in the present study (see pages 84-85).

This dissertation is a spin-off from the Brentwood Project. It investigated a subsample of the Brentwood Project subjects for a nine-month follow-up period. The present substudy explored whether family assessments could have predicted patient relapse independently of the medication dose variable.

Study Design of Present Research

Insofar as the present research developed as a substudy of the Brentwood Project, it shares some of the research methodology and design features but differs in other essential respects. The remainder of this chapter describes the present study and discusses significant differences from the parent Brentwood Project.

A. Sample

The sample consisted of that series of consecutive research subjects accepted into the Brentwood Project according to the diagnostic, clinical, and demographic inclusion criteria already expli-

cated (page 88). The patients were randomized on low or high dose Prolixin IM. The research subjects had to meet the following additional requirements for inclusion in the present investigation. The patient had to designate at least one key relative or significant other who could be interviewed for this study (See Appendix E). The relative needed to be willing to participate in the research (see Relative/Friend Informed Consent Agreement, Appendix F). The patient had to continue in the Brentwood Research Project nine months after the interview with the relative or until symptomatic relapse, if that occurred earlier. February 28, 1983, was adopted as the cut-off date for completion of the nine-month follow-up or relapse.

Although the sample was heterogeneous, it tended to be a chronic population by virtue of the individuals being considered reasonable candidates for long-term maintenance neuroleptic treatment per inclusion criteria.

Six patients refused to designate a relative for interviewing or had no current significant relationships. Three patients volunteered the name of a relative, but the relative was unwilling to participate in the research. Six patients designated more than one person as being significant in their current social environment. Consistent with the approach of Brown et al. (1972) and Vaughn and Leff (1976a), all the designated and cooperative relatives were interviewed and the respondent with the higher affective rating was used. In cases where respondents were tied in negative affective ratings on the four separate assessments, the respondent who had the most direct face-to-

face contact with the patient was used.

The present investigation expanded upon both the immediate family and the strict residency requirement of most of the previous research. In the British expressed emotion studies, the key relative interviewed--usually the parent, spouse, or sibling of the index patient--was the person with whom the patient resided upon discharge from the hospital.

The present sample was not limited to patients living in the same household as their relative. This deviation from the traditional EE prerequisite is consistent with the Camarillo replication study (Vaughn et al., 1982; Vaughn, Snyder, Jones, Freeman, & Falloon, submitted for publication, 1983). Furthermore, this sample included patients who were currently involved in nonfamilial--but psychologically meaningful--social relationships.

The subjects selected for this dissertation were a subsample drawn from participants in the Brentwood Project who designated a relative who was willing to be interviewed. The Brentwood sample, at the identical cut-off point in time, thus had an N of 32 while this sample had an N of 23. A total of 30 relatives agreed to be involved in the research.[4] Of the 30 relatives participating in the study, there were 11 mothers, 4 wives, 3 fathers, 3 sisters, 2 brothers, 1 adult son, 1 grandmother, 1 aunt, and 1 sister-in-law. Three

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[4]Originally 31 relatives were interviewed but 1 relative subsequently requested to withdraw from the research. Since the index patient had designated 2 relatives, he is included in the present study.

respondents were not related to the index patient: 1 girlfriend, 1 roommate, and 1 landlady.

Seventeen patients designated only one relative, five patients designated two relatives, and one patient designated three relatives. At the time of the interview with the relative, 12 of the patients were living with the designated relative(s), 2 were living in a separate guest quarter that was part of the relative's home, and 9 were not living with the relative(s). In every case where a participating patient was living with someone, that relative was designated.

The excluded patient group, those in the Brentwood Project who were nonparticipants in this research, was studied and compared to the participant group in terms of demographic, clinical, and outcome variables to determine if there were any differences between the groups.

The small sample size has been recognized as a limitation of the study. Large samples reduce sampling error, permit greater reliability, and increase the power of statistical tests applied to the data. However, in exploratory research, such as this study, samples with N's between 10 and 30 have many practical advantages and can indicate positive directions worth pursuing in future research (Isaac & Michael, 1980).

B. Duration and Timing of the Study

The follow-up period for the present study was nine months versus the two-year follow-up in the Brentwood Project. Brown et al. (1972) and Vaughn and Leff (1976a) both used a nine-month follow-up

study duration in their work on the Camberwell Family Interview and expressed emotion.

The present study differs significantly from previous research assessing the affective environment of the discharged schizophrenic patient in that the other researchers conducted their family interviews while the patient was hospitalized and then followed the patient for a specified post-discharge period. Hospitalization is a dramatic and traumatic event for both patient and family. In studies by Brown et al. (1972) and Vaughn and Leff (1976a, 1976b), the key relative was interviewed shortly after the research patient was hospitalized. Kreisman (Kreisman et al., 1979) interviewed the key relative at four months and eight months following discharge from a psychiatric facility, when the memory of recent decompensation and hospitalization was relatively fresh. In contrast, entry into the Brentwood Project did not involve any dramatic changes in the patient's life style but rather represented a more or less significant point on a continuum of outpatient treatment. The elapsed time from entry into the Brentwood Project and discharge from the latest psychiatric hospitalization was very diverse, ranging from 1 month to over 14 years. More than one-half the sample had been last hospitalized two or more years prior to entering the Brentwood Project. These findings are reported in detail in the next chapter.

The British expressed emotion studies addressed the issue of temporal stability of the emotional environment. Brown et al. (1972) viewed the level of expressed emotion as reflecting an enduring

characteristic of the patient-relative interaction. Vaughn and Leff assumed "that the attitude shown by the relative towards the patient during the interview was representative of an enduring relationship over time" (1976b, p. 158). Furthermore, Leff (1976) reported that expressed emotion seemed more related to longstanding personality traits of the patient than to recent symptomatology, behavioral disturbance, and work impairment manifested by the patient. In accordance with these previous studies, the present research assumes that the affective measurements obtained herein provide some indication of the emotional atmosphere prevailing in the patient-relative relationships over long periods of time.

The interviews with relatives in the present investigation were conducted when the index patient was already an outpatient--in some cases for many years. Furthermore, the patient's entry into the present study did not necessarily coincide with his entry into the Brentwood Project. Patients consented to relatives being interviewed at different stages of involvement in the research study. Some patients initially felt too paranoid to designate that any significant person be interviewed but subsequently felt more trusting and comfortable with the research staff and submitted names. The listed relative was then contacted and an interview scheduled as soon as mutually convenient. Since there was no discrete time after acceptance into the study before the family interview occurred, the nine-month follow-up period in each case began at the time of the family interview, not at the time of entry into the Brentwood Project. The

non-standardized timing of data collection has been recognized as a limitation of the study.

Since most relatives lived great distances from the Veterans Administration facility and many had daytime jobs, it was not always possible for them to come in for the interview. Each relative was given the choice of being interviewed personally in the interviewer's office at the VA or of being interviewed over the telephone. In the case of an elderly, crippled, and deaf woman, the interviewer went to the relative's home since she could neither come to the VA nor hear on the telephone. The interviewer (and author of this study) is bilingual. In two interview situations she was able to conduct parts of the interview in Spanish or clarify questions of Spanish-speaking relatives uncertain of the English meaning.

Information regarding the type of interview was recorded for separate analysis. Of the 30 relatives interviewed, 12 were interviewed in person by the author and 18 were interviewed by her on the telephone.

Methodology

A. Instruments for Measurement of Affect

Affective feelings of hostility, rejection, or emotional overinvolvement expressed by the relative towards the schizophrenic patient were measured by three procedures or instruments. The three procedures were administered by the author during a single interview with the relative which generally required less than one-half hour to

complete. Thus it can be said that all of the assessment procedures were more efficient to administer than the Camberwell Family Interview.

(1) Kreisman and Blumenthal's Rejection Scale (Appendix A) expands the original Patient Rejection Scale developed by Kreisman, Simmens, and Joy (1979). The Patient Rejection Scale is a self-rating questionnaire which conceptually overlaps the "critical comments" and "hostility" components of the expressed emotion index. Some of the items also seem to tap into "emotional overinvolvement."

The procedure for administering the test was for the interviewer to read the questions to the designated family member, who was instructed to tell the interviewer how often he/she felt that way about the patient. The relative's response was checked on the questionnaire. The interviewee was given a card listing the possible responses for easy reference. Consistent with Kreisman et al.'s (1979) report and personal communication with Drs. Kreisman and Blumenthal, the questions were asked after a rapport had been established with the interviewer so as to lessen the relative's defensiveness and encourage open reporting.

The expanded Patient Rejection Scale is a Likert-type attitude scale (Isaac & Michael, 1980) containing 24 items and a 7-point range of response[5] all of which are considered approximately equal in value loading. The subject interviewed responds with varying degrees

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[5]The original rejection scale (Kreisman, Simmens, & Joy, 1979) consists of 11 items and a 3-point range of response.

of intensity on a scale of "always," "almost always," "a lot of the time," "sometimes," "once in a while," "almost never," and "never"--plus an "NA" (not applicable) category. The score values (from 1 to 7) are summed and divided by the number of applicable items, yielding a mean score for each respondent. Some of the items are worded negatively and the score values must be reversed in the calculation so that the higher score reflects a higher rejecting attitude.

Since the PRS is still an experimental instrument, no cut-off score has been established as predictive of relapse.[6] When Vaughn and Leff (1976a) abbreviated the CFI and used it with depressed patients, they let the data on the expressed emotion components (i.e, criticism, hostility, and emotional overinvolvement) indicate what cut-off scores, if any, were most strongly associated with relapse for the given patient population. In accordance with this approach, the present investigator allowed the data on the Patient Rejection Scale to indicate the optimal cut-off score.

(2) Hogarty's Global Judgments of Expressed Emotion Scale (Appendix B) assesses separately the five components of expressed emotion evaluated in the Camberwell Family Interview (i.e., emotional overinvolvement, hostility, criticism, warmth, and positive remarks). Hogarty is currently involved in a World Health Organization-sponsored research project at the University of Pittsburgh School of Medicine, Western Psychiatric Institute in which both the CFI and Global Judgment of Express Emotion scales are being used. Correla-

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[6]Personal communication with Dr. Kreisman, January, 1983.

tion of EE ratings obtained by these two methods must wait for the conclusion of that study. Hogarty[7] emphasizes the experimental nature of his scale at the current stage of exploration. It remains to be determined whether these scaled clinical judgments accurately reflect the components of expressed emotion as developed by Brown, Vaughn and Leff in the CFI.

Hogarty uses a 9-point scale for rating each component and explicitly defines the guidelines on which clinical judgments are to be based. The present interviewer made the global clinical judgments after the interview with the relative was completed, synthesizing all the clinical evidence obtained during the interview process.

The author, who is an experienced mental health practitioner and a Licensed Clinical Social Worker, was the sole interviewer for all the relatives. Prior to each relative's interview, she had not been personally involved in the assessment or care of the patient subjects and therefore had no pre-existing expectations or biases about the relative's attitudes toward the patient.

Nevertheless, it is a limitation of the study that only one clinician made ratings on the global judgments. It confounds the issue of whether observations and judgments were attributable to the relative-interviewee rather than idiosyncrasies of the clinician-interviewer.

The Global Judgments Scale is an experimental instrument for measuring family affect. Cut-off scores have not been established.

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[7]Personal communication, March 19, 1982.

The present investigation followed Hogarty's suggestion[8] to look at the distribution on each of the component scales to find if there were natural groupings or a continuous distribution. Then the data on each component were retrospectively examined in relationship to relapse in a correlational manner to determine whether there were any systematic cut-off points that predicted relapse. This approach is congruent with that taken by Vaughn and Leff (1976a) as reported earlier. The completed Pittsburgh research will provide important data correlating indices of expressed emotion derived from global judgment scores and the traditional Camberwell Family Interview.

(3) Wynne and Gift's Family-Oriented modification of Gottschalk's Five-Minute Speech Sample procedure (Gottschalk & Gleser, 1969) was developed by Wynne and Gift in their research at the University of Rochester (Wynne, 1981). The intent of the Gottschalk-Gleser scale is to identify and quantify feeling states, affects, or emotions. The scales for various affects--hostility, anxiety, hope, etc.--are applied to language elicited in a relatively unstructured and purposely ambiguous interview situation in order to encourage spontaneous verbal responses (Gottschalk & Gleser, 1969; Gottschalk, 1974a). Gottschalk and his associates customarily elicit the speech production from the research subject by asking the speaker to talk about personal or dramatic life experiences or simply to free-associate (Gottschalk, 1974b). Gottschalk and Gleser (1969)

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[8]Personal communication March 19, 1982

wrote, "Our method of assessment is more similar to a projective test than to a self-rating test" (p. 31). In contrast, the family-oriented modification used in the present study (and that of Wynne at Rochester) was specifically aimed at eliciting a spontaneous affect directed towards the schizophrenic patient by the relative. Hence, the relative was requested to speak for five minutes with instructions such as "I would like you to have this opportunity to describe in your own words what kind of person the patient is and how the two of you get along together"[9]. This monologue was audio-recorded with the relative's knowledge and permission.

In the present study, the Five-Minute Speech Sample was scored two different ways. First was the "hostility outward" affective dimension described by Gottschalk. Two forms of hostility outward were differentiated: 1) overt hostility, referring to destructive, injurious, critical thoughts and actions directed to others which emanate from the speaker; 2) covert hostility, referring to destructive, injurious, critical thoughts and actions directed to others and attributed to others (Gottschalk & Gleser, 1969).

Like the Rejection Scale, the Hostility Outward Scale conceptually overlaps the critical comments and hostility scales of the Camberwell Family Interview method of deriving expressed emotion ratings. Whereas the Rejection Scale is a self-report in response to a questionnaire format, the Five-Minute Speech Sample hostility-outward scale is designed to simulate a projective test situation

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[9]Personal communication with Dr. Lyman Wynne, June, 1981.

(Gottschalk, 1974b). It will be of clinical interest to observe any differences in the tendency of the interviewee to give socially acceptable or desirable responses in one versus the other test approach.

Gottschalk and Gleser (1969) presented extensive normative data regarding the ability of a properly-trained rater to infer correctly the affective state of the speaker from the speech sample. They demonstrated the measures to be both reliable and valid. A reliability coefficient of .85 or above was achieved in inter-scorer reliability on the hostility outward scale. Clinical ratings from psychoanalytic interviews and hostility outward scales correlated at the .76 level. Total hostility outward scales (overt and covert) were significantly correlated with the Oken hostility scale ratings (Oken, 1960).

Consistent with the approach employed by Gottschalk, the ratings in this study were made on the basis of typed transcripts of the tape-recorded speech sample. The relatives' Five-Minute Speech Samples, in the present investigation, were scored by staff trained by Dr. Louis Gottschalk.[10] All transcripts were scored independently and blindly by two raters who maintained an inter-rater reliability at the .86 level. Three separate ratings were obtained on the Hostility Outward Scale: overt hostility, covert hostility, and a total score. Different thematic categories were given a weight and the

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[10]The Communication & Measurement Laboratory, Department of Psychiatry & Human Behavior, University of California, Irvine.

number of words spoken in the five minutes were calculated in the scoring procedure. Space does not permit a fuller description of the content analysis method of weighted coding techniques used in obtaining the scores. Readers are referred to Gottschalk, Winget, and Gleser (1969) for more details.

Since this specific use of Gottschalk-Gleser's hostility outward scale is still in the experimental stages, there are no standardized cut-off scores. Following the methodology described for Kreisman-Blumenthal's rejection scale and Hogarty's global judgments, it was left to the outcome data to empirically establish what cut-offs yielded the strongest association with relapse. This is consistent with the approach of the research group at the University of Rochester which is utilizing the Gottschalk-Gleser method of scoring Five-Minute Speech Samples[11].

The Five-Minute Speech Samples were also scored in an adaptation of scoring principles from the Camberwell Family Interview. Audiotapes of the five-minute monologue were used so that non-verbal behavior such as pitch, tone and volume of voice--considered important indicators of the relative's affect towards the patient in the CFI studies--could be incorporated in the present assessments. An index of expressed emotion is based primarily on ratings of criticism and emotional overinvolvement. Although elicited by a method significantly different than the CFI, the index of EE obtained in this

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[11]Personal communications with Drs. Lyman Wynne, Margaret Toohey, and Robert Cole in February, 1983.

scoring method seems most congruent with the EE research done in Britain.

The Five-Minute Speech Sample tapes in the present research were independently scored by two experienced raters--Karen Snyder[12] and Portia Laughlan[13]--who were trained in the administration of the Camberwell Family Interview and in scoring expressed emotion.

Relatives were rated high expressed emotion in the presence of one or more critical comments regarding the index patient. Critical comments were judged on the basis of vocal tone or unambiguous content. Hostility as a frankly rejecting remark or generalization of criticism was included in this rating. An alternate criterion for a high EE rating was a minimum of three expressions of emotional over-involvement by the relative. EOI expressions included extreme over-protectiveness, excessive or over-dramatic concern, and unusual self-sacrificing and devoted behavior. In case of inter-rater disagreement, the higher rating was consistently used in the present study.

These criteria for rating EE from Five-Minute Speech Samples are

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[12]Snyder is project director of the "Family Factors in Schizophrenia Study" of the Camarillo-UCLA Mental Health Clinical Research Center for the Study of Schizophrenia. She was trained by Dr. Christine Vaughn, principal investigator for two of the British EE studies (1976a, 1976b) and collaborated with Vaughn on the Camarillo research project (Vaughn, Snyder, Freeman, Jones, Falloon, & Liberman, 1982). She is presently a CFI trainer.

[13]Laughlan, of UCLA, participated in a two-week training seminar in CFI conducted by Vaughn and Snyder. She continued under the supervision of Snyder and has achieved acceptable reliability levels in scoring EE.

consistent with those used by the Rochester Research group[14]. The Rochester study, when completed, should provide important correlational data on EE measured by the Camberwell Family Interview as well as measured by the Five-Minute Speech Samples (scored in the same two methods described in the present study).

In summary, the scoring of the brief speech sample by adapting Camberwell Family Interview criteria obtained an expressed emotion rating from a data base different from the CFI's. Hogarty's global judgments assess the same components as the EE construct; however, it has not been empirically established that these scaled judgments accurately reflect expressed emotion as developed by Brown, Vaughn, and Leff in the British studies. The rejection scale and the hostility outward scale each rate emotional attitudes that conceptually overlap some of the expressed emotion components but may reflect distinctive aspects of the familial affective environment. None of the measurements quantifying the patients' affective environment were derived from a data base elicited by the Camberwell Family Interview.

An assumption of the present study is that the measurements of family affect reflect patterns of behavior that actually occur in the relative's direct relationship and interaction with the index patient. Prospective longitudinal research in process in various centers is investigating the value of these instruments in predicting relapse probability. However, results are not completed and validity

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[14]Personal communications with Dr. Lyman Wynne and Dr. Margaret Toohey, February 1983.

and reliability have not yet been established. This is noted as a limitation of the present study. A goal of the present study was to explore whether any of these four procedures of assessing family environmental characteristics could predict relapse.

B. Assessment of Patient-Relative Contact

The interviewer initiated the interview with the relative by inquiring about the amount of face-to-face time the relative spent with the patient in a typical week. The relative was encouraged to participate in the process of estimating the time factor by describing the nature and duration of the contacts with the patients. Relatives were asked to specify which activities were shared with the patient (i.e., eating, working, socializing, recreational activities). Several important purposes were served by starting the interview this way. It was a way of establishing rapport with the relative while dealing with neutral, factual, and less threatening material so as to enable him/her to feel comfortable and safe with the interviewer. Then, when the interviewer addressed more emotionally-laden material, the relative tended to be less defensive. It encouraged more honest communication regarding the qualitative aspects of feelings and attitudes towards the patient and facilitated more openness in descriptions of the interpersonal relationship with the patient.

Another aim of this inquiry was to determine, on the basis of the information given, whether the relative and patient shared 35 hours per week of face-to-face contact or less. Brown et al., (1962; 1972) found the amount of contact made a significant difference for

those patients in high EE environments. They distinguished more than 35 hours per week as "the critical amount of time; less contact than this seemed to provide some protection when the patient returned to a high EE home" (1972, p. 250).

This information is relevant to the second hypothesis being tested in the present study: relapse rates of remitted schizophrenics in a negative affective environment will be lower for patients having less than 35 hours per week of direct contact with the environment compared with those having a greater degree of contact.

C. Demographic and Clinical Data

Demographic and clinical data on all the research subjects were obtained in a Screening Schedule and Standard Psychiatric History Schedule completed by the research nurse[15] at the time the individual entered the Brentwood Project. Relevant information regarding chronicity, such as the number and duration of previous hospitalizations, age of onset, time since last hospitalization, and duration of illness were entered onto a Patient Profile Face Sheet (Appendix G) generated on each research subject. The Face Sheet also contained pertinent demographic factors such as age, marital status, race, education, social class, and the current living situation. Data relevant to the interview with the relative were noted on the Face Sheet (i.e., the amount of contact with the patient, whether the

[15]Joanne McKenzie was "blind" to the patients' affective environment scores to reduce risk of bias.

interview was conducted in person or on the telephone, and the nature of the relationship).

Data Analysis

The two hypotheses in this perspective longitudinal pilot study were tested by correlational analyses of the data. The dependent variable was relapse. The independent variables were the four measurements of the familial affective environment and pertinent clinical demographic data. Because of the complexity of the data, a series of correlation analyses between relapse and each independent variable was made. Treatment variables of high or low dosage neuroleptic medication were correlated with both family affect scores and relapse. This approach permitted the investigation of alternative interpretations or plausible rival hypotheses.

CHAPTER IV

FINDINGS

Introduction

The research findings will be systematically presented in this chapter and the data analyzed to test the hypotheses postulated. A probability level of .05 was selected as the criterion of significance for all statistical tests.

Three major types of variables were used in this study: independent variables, intervening variables, and outcome or dependent variables. The independent variables (or predictor variables) were the four asssessments of the patient's affective environment. Patient characteristics at the time of entry in the present study were also considered independent variables (i.e., sociodemographic and psychiatric history features, and baseline psychopathology). The intervening variable was the use of high or low dose neuroleptic medication. Finally, the outcome variable was relapse or non-relapse within nine months of entry in this study.

The material is organized around specific research issues and variables will be presented in the following format. The present sample will be described according to demographic and psychiatric history characteristics. Findings of the four instruments assessing the patient's affective environment will be presented separately. A cut-off score for each assessment will be used to designate the

patient's affective environment as either "neutral" or "negative" and the data related to relapse. Severity of psychopathology at entry in the study will be related to outcome and to the patient's affective environment. Medication dose, the treatment variable, will be related to relapse and to the patient's affective environment. The amount of contact the patient spent with his relative will be analyzed in relation to outcome. Sociodemographic and psychiatric history characteristics of the sample will be related to relapse and to the patient's affective environment. The assembled data and appropriate statistical tests will determine the validity of the hypotheses. Finally, a concordance analysis of the four family assessment instruments will be presented.

The subsequent chapter will integrate, interpret and discuss the relevant results. An attempt will be made to explain any unusual findings or results inconsistent with expectations based on previous research. The implications of the findings of this study for clinical practice will be presented.

Sociodemographic Characteristics of the Sample

Twenty-three male schizophrenic outpatients participated in the present study. Sociodemographic data are displayed in Table 1. The data base was obtained at time of intake into the Brentwood Research Project, of which the present dissertation is a spin-off.

A. Race

The racial-ethnic composition was 13 Blacks (57%), 7 Caucasians

(30%), and 3 "Others"[1] (13%). The racial composition of this sample was markedly different from those researched in the British expressed emotion studies and the California replication (Vaughn et al., 1982). They studied an entirely Caucasian sample whereas the present sample was 70% non-Caucasian.

B. Age

The mean age of sample participants was 37.7 years, with a range of 24 to 53 years. The Caucasian patients tended to be older, with a mean age of 42.7 years. The Black patients had a mean age of 37.2 years, and the Others were the youngest, with a mean age of 28.7 years.

In contrast, a hospital-wide computer printout on November 22, 1982 for the West Los Angeles Veterans Administration Medical Center, (VAMC), Brentwood Division showed the following demographics. There were 600 males with a primary diagnosis of schizophrenia participating in all Brentwood outpatient treatment programs. These included the Mental Hygiene Clinic, Day Hospital, Day Treatment, Neighborhood Health Center in East Los Angeles, and the various ward after-care programs. This sample consisted of 294 Blacks (49%) 253 Caucasians (42%) and 53 Others[2] (9%). The age range of the hospital-wide sample was 20 to 50 years, with a mean age of 34.6. The same trend in age-

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[1]"Others" consists of two Hispanics (one Mexican-American and one Panamanian) and one Filipino. Because of the small number and to safe-guard anonymity, these are grouped together.

[2]Others consisted of 48 Hispanics and 5 Asians.

race distribution as was observed in the sample of the present study was repeated in the hospital-wide sample: the mean age for Caucasian outpatients was 35.6 years; the mean age for Black outpatients was 33.9; and for the Other outpatients the mean age was 33.3. Generally the Brentwood VAMC hospital-wide sample was slightly younger than the sample of the present study. No hospital-wide comparative data were available on other demographic characteristics.

The above data demonstrate that the sample of the present study approximately parallels the hospital-wide sample of schizophrenic outpatients on age and race variables. Any conclusions coming from this research might be generalizable to the Brentwood VAMC population at large although no attempt is made to draw any quantitative comparisons. It should be noted that the Brentwood Research Project sample was not a randomized sample of the larger group but was selected to meet specific inclusion criteria.

C. Marital Status

The marital status of the outpatients in the present study (N=23) was as follows: 14 single (61%), 4 married (17%), and 5 divorced/separated (22%).

D. Education

The educational level of the sample showed a mean of 13.1 years of schooling, with a range of 11 years to 18 years of education. Completion of 12 years schooling (the equivalent of a high school education) was the most frequent level of education achieved.

E. Social Class

Social class was based on the Hollingshead Two-Factor Index of social position, which integrates occupation and education in obtaining a social class score (Hollingshead & Redlich, 1958). The sample was distributed as follows: 35% were 5 (lower position), 48% were 4 (lower middle), 13% were 3 (middle) and 4% (1 patient) were 2 (upper middle). Eighty-three percent of the sample were in the two lowest social position levels. This prevalence of schizophrenics among the lowest socioeconomic classes is in accordance with findings of other research (Hollingshead & Redlich, 1958; Kohn, 1976).

F. Employment

Only 6 out of 23 outpatients (26%) had had paid employment within the year prior to entry in the research study.

G. Living Arrangement[3]

Almost one-half of the patients (11) lived with relatives: 26% (6) with one or more parents, 17% (4) with spouses, 4% (1) with siblings. Twenty-six percent (6) lived alone, 17% (4) were in Board and Care facilities, and 9% (2) shared a living arrangement with non-related persons.

In summary, a majority of this all-male sample were non-Cau-

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[3]The sociodemographic and clinical data obtained at time of intake into the Brentwood Research Project was used as the data base in the present study, with one exception. Living arrangement at the time that contact with the relative was initiated was the one used herein. It may differ from the living arrangement at intake. It was considered important to reflect the patient's current psychosocial living environment.

casian, never married, high school graduates, in the two lowest socio-economic classes, and unemployed during the preceding year. The mean age was 37.7 years. Almost one-half the patients lived with relatives; the other half lived alone, with non-relatives, or in board and care facilities.

Psychiatric History Characteristics of the Sample

This section presents clinical factors obtained in the psychiatric history at time of intake. The data are presented in Table 2. Ongoing clinical psychopathology will be discussed in a later section. The variables described here are considered gross indicators of chronicity: age of onset, number of hospitalizations, duration of hospitalizations, and total time ill (Kirk, 1976). It was not possible to verify independently the accuracy of the pre-entry psychiatric history information given by the patients since medical records covering the entire course of illness were generally unavailable.

A. Age of Onset

Confirming the view that schizophrenia is a disorder of late adolescence and early adulthood, 57% of the sample (N=23) had schizophrenic onset by age 21: 1 at 19 years, 5 at 20 years, and 7 at 21 years. Seven subjects (30%) had onset between 22-27 years of age; the remaining 3 (13%) had onset between 31-35 years of age. The mean age of onset was 23.2 years. This early onset, at the prime of educational and career development, lends credence to the selection-drift explanation of the prevalence of schizophrenics among the

lowest socioeconomic classes. Given the early onset and subsequent disruptions and impairment in functioning, the schizophrenic individual is severely handicapped in climbing the social-class ladder (Liberman, 1982).

B. Number of Hospitalizations

The mean number of hospitalizations in the sample of schizophrenic patients was 5.2, with a range of 1-17. Only one patient had a single hospitalization. Four was the median number of hospitalizations, with one-half the sample having four or fewer hospitalizations.

It was expected that the age of the patient would be strongly associated with the number of hospitalizations, but this was not borne out by the data. When the sample was divided into two groups (an older group, N=11, 38-53 years of age, and a younger group, N=12, 21-35 years of age), the following relationship to number of hospitalizations prevailed. The mean number of hospitalizations for the older group was 5.2. Six of the 11 patients had 4 or fewer hospitalizations; 2 had 5 hospitalizations; and 1 each had 6, 8, and 12 hospitalizations. The mean number of hospitalizations in the younger group was 4.9. Six of the 12 patients had 4 or fewer hospitalizations; 1 had 5; 2 had 6; and 1 each had 7, 8, and 17 hospitalizations.

Age of onset was more closely associated to number of hospitalizations. The sample was divided into two natural groups: an early onset group of 13 patients with initial onset at 21 years or younger

versus a later onset group of 10 patients with initial onset at 22 years or older. The early onset group (N=13) had a median number of hospitalizations of 5, a mean of 6.2 hospitalizations and a range of 1-17 hospitalizations. The later onset group (N=10) had a median and mean of 4.0 hospitalizations and a range of 2-7 hospitalizations. The range of this second group was narrower and the averages were lower.

C. Duration of Hospitalizations

Duration of hospitalizations is the cumulative total of all previous periods of hospitalization reported by the patient. It is subject to the vagaries of the patient as historian. Furthermore, it does not take into account periods of clinical exacerbation without hospitalization. With this caveat in mind, it nevertheless provides a gross time framework of the previous course and duration of the patient's illness.

In the present sample, the mean duration of hospitalizations was 31.0 months; the modal duration was 1-5 months hospitalization; and the median was 10-14 months hospitalization. The range was from 1 month to 171 months hospitalization.

There was a linear association between number of hospitalizations and duration of hospitalizations up to 20 months. Ten patients (43%) with cumulative hospitalization between 1-9 months had a mean of 3.2 hospitalizations; whereas 6 patients (26%) with cumulative hospitalization between 10-19 months had a mean of 7.3 hospitalizations. There was little evidence of association between the duration

of hospitalizations and number of hospitalizations variables for the 7 patients (30%) hospitalized over 20 months. For example:

No. of Patients	Duration of Hospitalization	No. Hospitalization
2	39 months	6
1	50 months	12
1	72 months	3
1	77 months	5
1	121 months	4
1	171 months	8

D. Total Time Ill

Total time ill refers to the time period from first onset to the present. Since all the patients in the sample continued to require regular maintenance neuroleptic medication in order to sustain remission, they still could be assumed to be ill. However, this measurement did not take into account intervals of good functioning and sustained remission (possibly without medication maintenance) that might have occurred some of the time in some cases. Total time ill was therefore used as a gross indicator of duration of illness with the aforementioned limitations recognized.

In the present sample (N=23), total time ill ranged from 5-31 years. The mean total time ill was 14.8, the median time ill was 11-15 years, and the modal time ill was 6-10 years. Frequency distribution showed the following:

Number of Patients	Total time ill
7 (30%)	6-10 years
6 (26%)	11-15 years
3 (13%)	21-25 years
2 (9%)	1-5 years
2 (9%)	26-30 years
2 (9%)	31-35 years
1 (4%)	16-20 years

The total time ill variable seemed quite independent of the number of hospitalizations. For example:

Time Ill	Mean No. of Hospitalizations
1-5 years	$\bar{x}$ 2.5
6-10 years	$\bar{x}$ 6.71
11-15 years	$\bar{x}$ 4.17
16-20 years	$\bar{x}$ 2.0
21-25 years	$\bar{x}$ 4.0
26-30 years	$\bar{x}$ 8.0
31-35 years	$\bar{x}$ 6.5

The relationship of total time ill to duration of hospitalization revealed two main trends. A subgroup of 16 patients who had been ill 17 years or less emerged clustered at the low range of cumulative hospitalization. All but one had been hospitalized less than 20 months: 10 of the 16 patients had 12-19 months hospitalization; and one patient was hospitalized 39 months. The mean duration of hospitalization for this group (N=16) was 10.3 months and the median was 7.0 months. In contrast, 7 patients who were ill more than 17 years (the range was 21-31 years) had 18-171 months cumulative hospitalization. The mean duration of hospitalization for this subgroup (N=7) was 78.3 months and the median duration of hospitalization was 72 months.

E. Lapsed Time Since Last Hospitalization

The amount of elapsed time since the patient had last been hospitalized until he entered the Brentwood Research Project was considered an indication of the patient's ability to sustain remission in outpatient status. The sample (N=23) showed a range of 1-172 months on this variable; the mean lapsed time was 46.2 months; the

median time interval since last discharge was 31-40 months. The modal distribution of 6 patients (26% of sample) had 1-10 months lapsed time since last hospitalization. Of these 6 patients, 3 patients were 1-month post-discharge; 1 patient each was 2-months, 3-months, and 6-months post-discharge.

As discussed earlier, 6 patients out of 23 were gainfully employed all or part of the year prior to their entry into the Brentwood research project. These 6 patients had last been discharged from inpatient status 3-172 months earlier and had a mean lapsed time of 66.7 months post-discharge (compared to the entire sample mean of 46.2 months post-discharge). Only one of the 6 had been recently discharged (3 months prior to intake); the others had lapsed time of 30, 34, 44, 117, and 172 months post-discharge.

To summarize, if one views the psychiatric history characteristics described in this section as an index of chronicity, then the present sample definitely represented a chronic population. The combined sociodemographic and psychiatric history characterics of the present sample were consistent with a chronic schizophrenic outpatient population.

Participants and Non-Participants

The Brentwood Research Project, at the same cutoff point of consecutive patients admitted, had 32 schizophrenic subjects compared to 23 subjects in the present study. This section examines the 9 subjects (28%) in the Brentwood Project who did not participate in

the present study. A comparison of the participant and non-participant samples will identify significant differences which might affect the generalizability of the research findings. Of the 9 non-participants, 6 did not designate a relative to be interviewed, and 3 designated relatives who did not wish to participate in the study.

Demographically the non-participant group was very similar to the participant group. The data are presented in Table 3. Similarities and differences can best be illustrated in the following presentation:

	Non-Participants (N=9)		Participants (N=23)
Race	67%	Black	57%
	33%	Caucasian	30%
	0%	Other	13%
Age	$\bar{x}$=31.8 years		$\bar{x}$=37.7 years
	range=21-42 years		range=24-53 years
Marital Status	59%	single	61%
	22%	married	17%
	19%	divorced/separated	22%
Education	$\bar{x}$=12.8 years		$\bar{x}$=13.1 years
Social Class	$\bar{x}$=4.2		$\bar{x}$=4.1
Employed Past Year	22%		26%
Living Arrangement	33%	spouse	17%
	22%	alone	26%
	22%	board & care	17%
	22%	others	9%
	0%	parent(s)	26%
	0%	other relatives	4%

A higher proportion of the non-participants did not live with relatives compared to the participants (66% versus 52%).

Clinical information obtained from the psychiatric history at

intake (see Table 4) showed the following sets of data:

	Non-Participants	Participants
Age of Onset	$\bar{x}$ = 21.7	$\bar{x}$ = 23.2 years
Number of Hospitalizations	$\bar{x}$ = 6.7	$\bar{x}$ = 5.2
Duration all Hospitalizations	$\bar{x}$ = 21.6 months	$\bar{x}$ = 31.0 months
Total Time Ill	$\bar{x}$ = 10.8 years	$\bar{x}$ = 14.8 years
Lapsed Time Since Last Hospitalization	$\bar{x}$ = 25.3 months	$\bar{x}$ = 46.2 months

The participants and non-participants differed significantly in only one characteristic--lapsed time since last hospitalization. The mean lapsed time since last hospital discharge was 25.3 months for non-participants compared to 46.2 months for participants. The difference of means is significant at the 5% level (30df). In other words, participants in this study had been out of the hospital for a significantly longer time (more than 20 months) than was the case for the non-participants (p = .05). This difference is consistent with findings from the literature which suggest that study participants tend to be "healthier" as a group than non-participants (Speer & Zold, 1971).

In summary, the participant and non-participant samples were compared on a broad range of variables. Since there were significant differences only on the one factor--lapsed time since last hospitalization--the two groups appear to be comparable on major background demographic and psychiatric history variables.

Characteristics of Relatives Interviewed

The 23 participant subjects designated 30 relatives who agreed to participate in the present research. Data on these 30 respondents are presented in Table 5.

The nature of the respondent's relationship with the index subject was as follows:

Relationship	Percentage of Respondents
11 mothers	(37%)
4 wives	(13%)
3 fathers	(10%)
5 siblings	(17%); 3 sisters, 2 brothers
1 adult son	(3%)
1 sister-in-law	(3%)
1 aunt	(3%)
1 grandmother	(3%)
3 non-relatives	(10%); 1 roommate, 1 girlfriend, 1 landlady

An aim of this study was to assess a broader range of significant persons in the patient's current social environment. However, only 10% of the respondents in this study were non-relatives. In fact, 70% were from the nuclear family. This is in accordance with research showing that the schizophrenic individual's social network is heavily dominated by family members (Pattison, DeFrancisco, Frazier, Wood, & Crowder, 1975; Tolsdorf, 1976). The respondents in the present research were related to the index subject over a wider range of familial relationships than in the British expressed emotion studies (Brown et al., 1972; Vaughn & Leff, 1976a). The British research teams interviewed marital and nuclear family members (mostly parents but some siblings were included) with whom the patient was living post-discharge. The California replication study (Vaughn et

al., 1982) included an adult son and the guardian of a patient in its relative's assessments and also lifted the strict residency requirement of the British studies in response to differences in California life styles (Vaughn et al., submitted for publication, 1983). In reality, "key relative" may not be confined to nuclear or marital family members, and the importance of directing research at the wider psychosocial network is increasingly recognized (Parker, 1982).

Of the 30 respondents in this study, 23 were female (77%) and 7 were male (23%). Eighteen respondents (60%) lived together with the index patient. Twelve respondents (40%) did not share a living arrangement with the patient. Nineteen respondents (63%) spent 35 hours or more per week in direct contact with the patient; 11 respondents (37%) spent less than 35 hours weekly with the patient. Generally, those respondents living together with the patient spent at least 35 hours per week with the patient and those living separately spent less than 35 hours per week with the patient. There were three exceptions to this trend. The girlfriend had her own apartment in the same apartment building as the patient. She had many meals with the patient, and they shared social and recreational activities although they did not live together. A brother lived separately, but the patient worked for him and they spent more than 35 hours weekly in work related activities, in addition to social interaction. The landlady shared her home with the patient-boarder. She had a regular job outside the home and was absent most of the day. Although she interacted with him on a regular daily basis, the weekly contact was

less than 35 hours. She was certainly interested in him and his well-being but was not highly invested emotionally in him. She may well have been more significant to the patient than he was to her.

In summary, the respondents interviewed were predominantly female, family members, and living together with the index patient.

Characteristics of the Patient's Affective Environment

The schizophrenic outpatient's affective environment was assessed by an interview with the person(s) designated by the patient as currently significant in his life. In appraising the psychosocial environment as a possible predictor of relapse, the sample of participating patients (originally 23) was reduced to 21 since two patients terminated from this study prior to nine months or relapse[4]. Of the 21 participants who completed this study, 6 relapsed within the nine-month follow-up period (29% of the sample population). Five of the six relapsers required hospitalization in addition to increased medication dosage. One relapser's medication dose was increased but he was not rehospitalized.

Where multiple relatives were designated and interviewed, the respondent with the most negative score on the four scales was

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[4]One patient relapsed after entry in the Brentwood Research Project but prior to the interview with his relative (which was entry in the present study). His hospitalization was lengthy and he was terminated from the Brentwood Project and transferred to a regular ward inpatient treatment program. He is considered a "termination" in the present research but a "relapse" in the Brentwood Project. Another patient moved out of town after several months and was terminated from this study.

selected according to the methodological procedures outlined in the previous chapter. Thus, each of the 21 patient's affective environment is represented by one relative. This section presents the findings of the four rating scales used to assess these 21 patients' affective environment and describes, separately, their association to relapse.

A. Patient Rejection Scale

The Patient Rejection Scale is shown in Appendix A. Data on characteristics of the PRS are summarized in Table 6. The frequency distribution of the mean scores of the 21 relative respondents is illustrated in a bar graph (Table 7). Higher scores reflect more critical or rejecting attitudes on this 7-point scale. After negatively phrased items are reverse-scored, the responses are weighted as shown: always=1, almost always=2, a lot of the time=3, sometimes=4, once in a while=5, almost never=6, never=7. The range of scores was 1.13-4.58. The mean was 2.90, the median 2.88, and the mode 2.35. The frequency distribution of the PRS revealed the following:

Percentage of Relatives	Mean Score Intervals
5%	(1.10-1.59)
14%	(1.60-2.09)
24%	(2.10-2.59)
10%	(2.60-3.09)
19%	(3.10-3.59)
19%	(3.60-4.09)
10%	(4.10-4.59)

When patients who relapsed (hereafter referred to as "relapsers") are indicated on the bar graph (Table 7) in their relative's score

interval, the following can be seen:

Percentage of Relapsers	Relative's Mean Score Interval
17%	1.60-2.09
33%	2.60-3.09
17%	3.10-3.59
33%	3.60-4.09

As previously described (page 98), a determination of the best cut-off score was made by relating the relative's score to patient relapse. This approach is consistent with that used by Vaughn and Leff (1976a) in their replication of Brown's studies (Brown et al., 1962; 1972). A cut-off score of 2.60 on the patient rejection scale was found to optimize on the relapse data. A 2.60 mean score threshold on the PRS correctly predicted outcome for 13 out of 21 individuals. A .62 proportion of correct predictions is better than a chance proportion. However, the association of that cut-off score and relapse failed to achieve statistical significance. Nevertheless, a trend emerged in which 83% of all patients who relapsed had relatives who scored > 2.60 on the PRS compared to 17% of relapsers with relatives scoring < 2.60 on the PRS. In the sample (N=21) 57% of patients had relatives who scored > 2.60 on the PRS; 42% of these patients relapsed. Of the 43% of the sample whose relatives scored < 2.60 on the PRS only 11% relapsed.

The frequency distributions of respondents' mean scores on the patient rejection scale were also analyzed according to the race[5] of the respondent with the following results:

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[5]In the present sample, the race of the respondent coincided with the race of the index patient in all 21 cases.

Total sample	(N=21)	$\bar{x}$ = 2.90
Black respondents	(N=12)	$\bar{x}$ = 2.79
Caucasian respondents	(N=6)	$\bar{x}$ = 2.58
Other respondents	(N=3)	$\bar{x}$ = 3.98

When the proportion of respondents' PRS scores in each of 7 mean score intervals was examined it showed:

Percentage of Relatives			
Black	Caucasian	Other	Mean Score Intervals
8	0	0	#1. (1.10-1.59)
8	33	0	#2. (1.60-2.09)
33	17	0	#3. (2.10-2.59)
17	0	0	#4. (2.60-3.09)
8	50	0	#5. (3.10-3.59)
17	0	67	#6. (3.60-4.09)
8	0	33	#7. (4.10-4.59)

The higher mean scores reflect more rejection and critical attitudes. The three highest mean score intervals represented 33% of the Black respondents, 50% of the Caucasians, and 100% of the Other respondents. The Other relatives were represented exclusively at the more critical end of the scale, the Caucasian respondents split 50-50, and the Black respondents tended to have the lightest representation at the negative score intervals.

The Patient Rejection Scale was also analyzed according to the intensity of the response on each of the 24 questionnaire items. Self-rating attitude scales are subject to considerable biases arising from distortion in the direction of social desirability and avoidance of expressing attitudes traditionally considered unacceptable, such as feelings of hostility or rejection about the patient (Kreisman et al., 1979). The frequency distribution of relatives' responses is presented in Table 8 for the entire sample (N=21), in

Table 9 for the group of non-relapsers (N=15), and in Table 10 for the group of relapsers (N=6). Tables 11 and 12 graphically illustrate the three groupings.

The distribution of the total sample had a positive skew, with almost 35% of all responses falling in the "always" category--which represents the most positive attitude on the scale. However, Table 11 shows that the distribution did not decrease in a straight line with the more negative responses. There was a second (although smaller) peak at the "sometimes" response level, with almost 20% of all responses clustered there. Despite the positive skew, the respondents did express a substantial amount of critical feelings. More than 38% of the respondents replied "sometimes," "once in a while," "almost never," and "never," which are the more critical and negative responses on the scale.

Table 12 graphically contrasts the data presented in Tables 8 and 9 on the response scores of relatives of patients who relapsed and relatives of those who did not relapse. The relatives of non-relapsers and relapsers revealed markedly different frequency distributions. More than 36% of relatives of non-relapsers responded "always" (the most positive response) and then their responses decreased in an almost linear fashion. This differed from the frequency distribution of relapsers, who showed a bi-modal distribution of responses. (Slightly more than 31% of the relatives of relapsers responded "always" and slightly less than 31% of these relatives responded "sometimes".) The twin peaks were of almost identical fre-

quencies (mean percentage of 31.3 versus 30.5 per Tables 9 and 10). Interestingly, the relatives of non-relapsers responded slightly higher than relatives of relapsers at both the positive and negative ends of the scale as can be seen:

Σ "Always" and "Almost Always"		Σ "Almost Never" and "Never"
49.3[6]	Relatives of non-relapsers	39.7[7]
10.5	Relatives of relapsers	5.6

When the relatives' responses on the Patient Rejection Scale were grouped according to "sometimes" versus "all other" responses the following association between the 504[8] responses and relapse were found:

	"All Other"	"Sometimes"	Ratio
Total Sample	81%	19%	4.3:1
Relatives of Relapsers	69%	31%	2.2:1
Relatives of Non-Relapsers	85%	15%	5.7:1

The ratio of "all other" to "sometimes" responses in relatives of non-relapsers was more than double that of the relatives of relapsers.

	Relatives of Non-Relapsers	Relatives of Relapsers	Ratio
"All Other"	75%	25%	3:1
"Sometimes"	55%	45%	1.2:1

The ratio of relatives of non-relapsers to relatives of relapsers in the "all other" response grouping was more than double that of the

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[6]Mean percentages from Table 9.

[7]Mean percentages from Table 10.

[8]The total possible number of response is 504 (21 respondents x 24 items on the PRS).

"sometimes" response group.

The NA (not applicable) responses on the PRS were examined. Table 8 shows a total of 13 NA responses. The landlady responded NA to five items on the scale, items 6, 8, 9, 19, 23. As can be seen in Table 8, these items reflect an intensity to the emotional relationship with the index patient (e.g., I love him very much; I wish he had never been born). The landlady apparently did not experience that close an emotional relationship with the patient and appropriately responded NA. It is important to note that the landlady's PRS score was the most highly critical in the entire sample.

A total of eight relatives responded NA to item 17: "It would be better if he lived someplace else". None of the NA respondents were living with the patient; five index patients were living alone, three were in Board and Care facilities (B&C). Of these eight patients, 63% (five patients) did not relapse and 38% (three patients) did relapse. Of the three relapsers, two patients lived alone and one lived in a B&C. Reliability analysis for internal consistency was performed on the PRS mean scores for all 30 relatives interviewed. A strong reliability coefficient was found (Cronbach's Alpha = .93).

In summary, the findings on the Patient Rejection Scale indicated that a mean score of 2.60 was the optimum cut-off score to differentiate neutral affective environment from negative affective environment. Although that threshold failed to achieve statistical significance in its relationship to relapse, a trend in the expected direction was demonstrated (i.e., 83% of relapsers had relatives who

scored > 2.60 on the PRS versus 17% of relapsers with relatives who scored < 2.60). Frequency distributions of PRS mean scores were analyzed by race. Markedly different frequency patterns emerged. Respondents in the racial-ethnic group referred to as "Other" (2 Hispanics and 1 Filipino) showed a distribution skewed to the negative affective end of the scale. Black respondents tended to be skewed to the positive (least critical) end of the scale. Caucasian respondents distributed 50% in the negative (critical) spectrum of the scale and 50% in the positive spectrum. Analysis of the data related to the intensity of response revealed distinctive patterns of response among relatives of relapsers compared to relatives of non-relapsers.

B. Global Judgments of Expressed Emotion

Hogarty's Global Judgments of Expressed Emotion and the explicit guidelines on which the clinical judgments are based is presented in Appendix B. Each of the 5 components--positive remarks, warmth, emotional overinvolvement, hostility, and criticism--was rated independently on a 9-point scale. It is important to remember that the global judgments are based only on the feelings expressed by the relative towards the index patient. Consistent with the British expressed emotion studies (Brown et al., 1972; Rutter & Brown, 1966), each component scale is uni-polar. Ambivalent feelings do not cancel each other out. For example, the score of the criticism scale is not influenced by the score of the positive remarks scale. The odd numbered ratings are the markers representing 1 = no (amount of the

component being evaluated), 3 = very little, 5 = some, 7 = moderate, 9 = considerable. The even-numbered ratings are intermediate scores between the marker ratings. Table 13 represents the ratings of Global Judgments.

Positive remarks (statements of praise or approval of the patient) and warmth (expressions of warmth towards the patient judged more by affective tone than by content) were closely related. Sixty seven percent of the relatives had either identical ratings or ratings separated by only 1 point. Thirty three percent of the relatives differed by 2 or 3 points on ratings of these two components. One would intuitively expect that higher positive remarks and warmth ratings would be indicative of a supportive environment and might be associated with lower relapse rates. However, this was not found to be the case in the present research. Similarly, the study by Brown et al., (1972) found that warmth expressed by a key relative towards the patient was not directly related to relapse. Instead, Brown noted a curvilinear association and omitted the warmth component in the overall index of expressed emotion. Subsequent studies by Vaughn and Leff (1976a; 1976b) did not include the warmth scale in the index of EE either. Accordingly, the positive remarks and warmth scales will not be used in the global judgments of EE in this study.

Frequency distribution of the emotional overinvolvement (EOI) scale showed the following proportions:

Percent of Sample (N=21)	Relatives' Scores on EOI Scale
29%	1
19%	2
29%	3
5%	4
14%	5
0%	6
5%	7
0%	8
0%	9

Table 13 revealed the following mean scores on the EOI scale:

Population of Relatives	Mean Score on EOI Scale
Entire Sample (N=21)	2.8
Blacks (N=12)	2.4
Caucasians (N= 6)	3.2
Other (N= 3)	3.3

The Black relatives tended to be clustered at the low end of the EOI scale.

The Camberwell Family Interview used the criterion of "marked overinvolvement" to differentiate relatives of high expressed emotion. Hogarty's guidelines for scoring EOI (excessive protectiveness, self-sacrifice, or overdramatization) describe a 5 score as "some" overinvolvement and a 7 score as "moderate" overinvolvement. A score of 8 or more on the global judgments EOI scale would be required to meet the criterion of "marked overinvolvement." Not a single relative in this study rated higher than 7 on the EOI scale. Therefore, no relatives in the present sample were categorized as high EE on the basis of a high EOI score. Only four relatives were rated 5 or more on the EOI scale. All four of these relatives are mothers, which is consistent with findings of the British EE studies that marked EOI is found infrequently and almost exclusively in

parental relationships. (Brown et al., 1972; Vaughn & Leff 1976a).

Hogarty's guidelines for rating hostility and criticism are presented in Appendix B. Hostility is described as the extension of specific criticisms of the patient's behavior or personality into generalizations which indicate the patient's incompetence or ineptitude. The pejorative attitudes reflected in hostility might indicate rejection or frank dislike of the patient as a person. In contrast, criticism is an expression of dislike, disapproval, or resentment about specific behaviors or personality traits. In other words, hostility is an extreme form of criticism and negative generalization. Hostility is not equated with a high score on criticism although it occurs only in the presence of high criticism. In the early British expressed emotion studies (Brown et al., 1962; 1972), hostility was rated as present or absent. The presence of hostility in itself would classify a relative as high EE. Vaughn and Leff (1976a) discarded hostility as an independent component of the EE index since it was not predictive of relapse in itself and already was included in the criticism ratings.

In the present study, Table 13 shows that only 4 out of 21 (19%) relatives scored equally on the hostility and criticism global judgments. No hostility rating was higher than the criticism score. One-third of the sample (7 out of 21 relatives) was judged to have expressed no hostility towards the index patient. A score greater than 1 on the global judgments of hostility is taken to be indicative of the "presence of hostility" in this study. The following assoc-

iation between relatives' hostility ratings and relapse was found:

Relatives' Hostility Scores	Percent of Relative's Sample (N=21)	Percent of Patient Relapses
1	33%	0%
>1	67%	43%

One hundred percent of the relatives of relapsers scored >1 on the hostility scale (indicating the presence of hostility); however, only 43% of the patients whose relatives scored >1 subsequently relapsed. Although this finding did not achieve statistical significance, the trend was in the expected direction.

A frequency distribution of the criticism scale revealed:

Number of Relatives	Percent of Sample (N=21)	Criticism Scores
0	0%	1
3	14%	2
4	19%	3
3	14%	4
5	24%	5
1	5%	6
3	14%	7
1	5%	8
1	5%	9

Fifty-two percent of the relatives scored 5 or more on the criticism scale. Fifty-five percent of the patients whose relatives scored 5 or more on the criticism scale relapsed within nine months. One hundred percent of the relapsers had relatives who scored 5 or more on the criticism scale.

This data suggested that a criticism scale score of 5 or more be used to dichotomize the relatives into high and low EE subgroups (≥ 5 versus < 5 scores respectively). Then the high and low EE relatives were examined in relationship to the patient's nine-month outcome

(i.e., relapse versus non-relapse). A Fisher's exact test (2-tailed) was obtained at $p = .012$ level. Therefore high EE, as defined by a criticism scale score of 5 or more on the global judgment, was related to relapse at a statistically significant level of association.

The mean score on the criticism scale for the sample of 21 relatives was 4.7. However, distinctive patterns were revealed in the different racial-ethnic groups as can be seen:

Race	Number	Mean Score on Criticism Scale	Percent of Group Scoring < 5
Blacks	12	4.50	50%
Caucasians	6	3.67	67%
Others	3	7.67	0%

Consistent with the findings on the Patient Rejection Scale, the Others scored higher than Blacks or Caucasians.

In summary, the five components of EE used in the Hogarty Global Judgments Scale were individually related to patient relapse during a nine-month follow-up period. The one component that related to relapse at a statistically significant level was a criticism score of 5 or more: Fisher's exact test (2-tailed) $p = .012$. The present study found no direct relationship between relapse and the warmth and positive remarks scales (a result which is similar to Brown's 1972 findings). No relative in the present sample met the criteria of "marked" emotional overinvolvement. Hostility related to relapse in the expected direction but not at a statistically significant level. The best separation for allocating relatives to a negative affective environment or high EE subgroup was a score of 5 or more on the criticism scale.

C. Hostility Outward Scale

The relatives' scores on the Gottschalk-Gleser Hostility Outward Scale are presented in Table 14. Inspection of Table 14 reveals that the total hostility outward score is not the average of overt and covert hostility scores. Total hostility outward is derived from a formula combining the hostility overt and covert scores and incorporating the total word count (in the five-minute speech sample) as well as a correction factor.[9] An inter-rater reliability of .86 was maintained by the raters at the University of California, Irvine who scored the five-minute speech sample transcripts in the present study.

Relatives' hostility outward scores related to relapse outcome of the index patients as follows:

	Relatives' Overt Hostility Mean Scores	Relatives' Covert Hostility Mean Scores	Relatives' Total Hostility Mean Scores
Relapsed Patients	1.77	1.38	2.28
Non-Relapsed Patients	1.71	1.14	2.05
Difference	.06	.24	.23

Although the differences in mean scores for relatives of relapsers versus relatives of non-relapsers were not statistically significant, the former group of relatives consistently scored higher than the latter group.

When the respondents' hostility outward mean scores were

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[9]Detailed instruction for calculating scores of the hostility outward scales are given in Chapter VII of Gottschalk, Winget, and Gleser (1969).

analyzed by race the following patterns emerged:

Race	Hostility Outward Overt	Covert	Mean Scores Total
Black (N=12)	1.66	1.19	2.05
Caucasian (N=6)	1.67	1.04	1.99
Other (N=3)	2.09	1.62	2.62

The findings show that the relatives in the racial-ethnic group called "Other" consistently scored highest on all three hostility outward scales. Black and Caucasian relatives' mean scores on the overt hostility scale were almost identical (1.66 versus 1.67 respectively) and were very close on the total hostility scale (2.05 versus 1.99 respectively). A wider range of difference between the Black and Caucasian relatives' mean scores is evident on the hostility covert scale (1.19 versus 1.04 respectively).

The three hostility outward scales were examined to determine whether any cut-off scores predicted subsequent patient relapse. No threshold differentiating negative affective environment from neutral affective environment was found to predict relapse at a statistically significant level of probability. The cut-off which optimally discriminated negative and neutral affective environments was a mean score of 2.30 on the total hostility outward scale. A 2-way table indicates that 50% of patients relapsed whose relatives scored >2.30 on the total hostility outward scale compared to only 15% relapsers when relatives scored <2.30. The proportion of relative scoring >2.30 versus <2.30 on the total hostility scale is 38% and 62% respectively. Given a 2.30 score threshold on the total hostility scale, outcome is successfully predicted in 15 out of 21 cases. The

proportion of correct placements is .71, which is better than chance. However, the total hostility outward scale did not relate significantly to outcome.

In summary, the relatives' scores on the Gottschalk-Gleser Hostility Outward Scales were not statistically related to subsequent patient relapse. However, a cut-off score of 2.30 on the total hostility scale provided a meaningful (albeit not statistially significant) differentiation of negative affective environment and neutral affective environment. Although a majority (62%) of relatives scored <2.30 on the total hostility scale, only 15% of index patients in that subset relapsed compared to a 50% relapse rate of patients whose relatives scored >2.30 (38% of the sample). This trend is in the expected direction. Distinctive patterns were found when the mean scores of respondents were analyzed by racial groups.

D. Camberwell Family Interview Adaptation

Audiotapes of the five-minute speech samples were rated in an adaptation of scoring criteria from the CFI-elicited index of expressed emotion. The brief speech sample was scored on the basis of number of criticisms and emotional overinvolvement. In the present study, high EE was defined as one or more criticisms and a score of 3 or more on EOI.[10]

The two CFI-trained raters who independently scored the speech samples of the 30 relatives interviewed in the present study achieved

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[10]These criteria are consistent with ongoing research at UCLA and the University of Rochester.

a strong inter-rater reliability. Cohen's Kappa (chance-corrected statistic agreement) was .81 on the criticism ratings and .91 on the EOI ratings.

Table 15 presents the CFI ratings for the present sample (N=21). Six relatives were rated high EE and 15 were rated low EE. Of those classified high EE, five met the criteria on the basis of criticism only, and one on the basis of both criticism and EOI.

Only 29% of the relatives in the present study were rated high EE compared to 45% high EE ratings in the British studies (Vaughn & Leff, 1976a) and 67% high EE ratings in the Camarillo study (Vaughn et al., 1982). Since the British and the Camarillo samples consisted entirely of Caucasian populations, it seemed especially relevant to analyze the data by racial-ethnic subgroups. The data revealed the following:

Race	Number of Relatives Rated high EE	Percent of Racial Subgroup
Black (N=12)	2	17%
Caucasian (N=6)	2	33%
Other (N=3)	2	67%

This striking finding indicates an underrepresentation of Blacks in the high EE classification and an overrepresentation of the Other ethnic-racial group in the high EE category.

The relatives' expressed emotion classification related to the patients' nine-month relapse status as follows: 50% of patients with high EE relatives relapsed; 20% of patients with low EE relatives relapsed. High EE correctly predicted outcome 15 out of 21 times. The proportion of correct placements was .71, which exceeds chance.

Although the finding did not achieve statistical significance, the data suggested a trend in the expected direction.

Table 16 compares 9-month relapse data from the present research with findings of the British EE studies (Vaughn & Leff, 1976a) and the Camarillo study (Vaughn et al., 1982; Vaughn et al., submitted for publication, 1983). Table 16 reveals similar percent relapse rates for patients in high EE environments: 51% in the British research, 56% in the Camarillo study, 50% in the present study. Relapse rates for patients in the low EE environments were also not markedly different: 13%, 17%, and 20%, respectively. The most notable difference was found in the proportion of the respective populations classified high and low EE. The present sample, which is predominantly non-Caucasian had a much larger proportion of low EE families than either of the other samples, which are all Caucasian: 55% of the British sample (N=128) was low EE, 33% of the Camarillo sample (N=54) was low EE, and 71% of the present sample (N=21) was low EE. Findings relating expressed emotion to relapse achieved levels of significance in the British study ($p<.001$) and the Camarillo study ($p<.006$); however, findings of the present pilot investigation failed to attain statistical significance.

In summary, the findings of the CFI-adapted ratings of five-minute speech samples showed 50% of patients with relatives allocated to the high EE subgroup relapsed within nine months in contrast to 20% of patients with relatives in the low EE subgroup. This finding did not achieve statistical significance; however, the trend was in

the expected direction. The proportion of relatives classified high EE was markedly different in the three racial subgroups of this sample and markedly different in this study compared to both the British and the Camarillo studies.

E. Recapitulation of Four Affective Environment Scales

The patient's affective environment was analyzed in relation to patient relapse status within nine months of entry into this study. The Camberwell Family Interview adaptation for scoring expressed emotion classified relatives high or low EE by predetermined criteria. The other three scales--Patient Rejection Scale, Global Judgments, and Hostility Outward Scale--had no established thresholds for discriminating negative versus neutral affective environment subgroups. A retrospective analysis was made of the association between the patient's relapse status and each of these scales (or their component parts). A cut-off was determined which provided the best predictive indicator of relapse for that specific scale.

A score of 5 or more on the criticism scale of global judgments of expressed emotion was found to relate to relapse at a statistically significant level: Fisher's exact test (2-tailed) $p=.012$. A mean score of more than 2.60 on the PRS, a score of more than 2.30 on the total hostility outward scale, and a rating of high EE on the CFI-adapted ratings of the brief speech samples all related to relapse in the expected direction. That is to say, high scores on these scales correlated with higher rates of relapse. However, none of these trends attained statistical significance.

When a global judgments criticism score of 5 or more was used to define a negative affective environment, the findings demonstrated that a negative affective environment predicted subsequent relapse at a highly significant level.

However, before any conclusions can be drawn, it is necessary to examine the data to see if the association between relapse and the patient's affective environment can be explained by other variables--such as the type of interview, the severity of the patient's psychopathology at time of entry in the study, and drug dosage. Demographic and clinical variables need to be reexamined to determine their influence on the association between affective environment and relapse. The amount of contact the patient has with his social environment also needs to be evaluated. The next section will examine these potentially confounding and/or intervening variables.

Type of Interview as a Variable

Thirteen of the relatives were interviewed on the telephone and eight were interviewed in person. The respondents' scores on the most meaningful affective scales related to the type of interview conducted as follows:

Measurement of Relatives' Affect	Telephone	Person
1. Patient Rejection Scale (Mean Scores)	2.97	2.77
2. Global Judgments Criticism Scale ⩾ 5=High Criticism	54% High Criticism	50% High Criticism
3. Total Hostility Outward Scale (Mean Scores)	2.01	2.29
4. CFI-Adapted Ratings of EE	31% High EE	25% High EE

None of these differences were significant. Of the six patients who relapsed, the relatives of three were interviewed on the telephone; the other three were interviewed in person.

In summary, the type of interview showed no significant effect on the responses obtained. Telephone and in-person interviews were equally effective in eliciting sensitive material.

Severity of Psychopathology as a Variable

The widespread use of neuroleptic drugs and emphasis on community psychiatry have resulted in schizophrenic patients being discharged earlier (Blumenthal, Kreisman, & O'Connor, 1982), and frequently in only partial remission. Increasingly, outpatients manifest severe, persistent, and florid psychiatric symptoms. Logically, patients who are sicker at the time of entry in a study can be considered more apt to relapse. The present research evaluated the degree of sickness or severity of psychopathology in two ways: 1) the Brief Psychiatric Rating Scale (BPRS) (Overall & Gorham, 1962) and 2) the Symptom Distress Checklist (SCL-90) (Derogatis et al.,

1970).[11]

The BPRS assessments in this study were made at specified time intervals by Dr. Marder[12] (research psychiatrist and Principal Investigator of the Brentwood Research Project). The SCL-90 is a self-report clinical rating scale of 90 symptoms which the patient completed at specified time intervals with administration and monitoring performed by Mrs. McKenzie[13] (research nurse). BPRS represents the psychiatrist's clinical assessments of the individual's psychopathology, based on a direct interview with the patient. SCL-90 represents the patient's subjective experience of symptomatic distress. The BPRS and SCL-90 scores at Baseline II were used for patients whose entry dates into the present study coincided with their entry into the Brentwood project. In cases of different entry dates, then the BPRS and SCL-90 assessments completed immediately prior to the interview with the relative were considered as baseline ratings.

Table 17 displays BPRS baseline ratings for the subgroups of patients who relapsed within nine months and those who did not relapse. Comparison of the BPRS baseline scores, presented as mean scores for each subgroup, revealed no statistically significant dif-

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[11]The reader is referred to the cited references for detailed descriptions of these instruments.

[12]Dr. Marder was "blind" regarding the patients' affective environment scores and medication dose so as not to bias his clinical assessments.

[13]Mrs. McKenzie was "blind" regarding the patients' affective environment ratings and dosage to reduce bias.

ferences. In fact, inspection of the various BPRS factors showed high scores (indicative of more severe psychopathology) for non-relapsers on the psychoticism, depression, and retardation scales as well as higher total BPRS scores. Only on the paranoia scale did the relapsers score slightly higher.

Table 18 presents SCL-90 baseline ratings for the subgroups of relapsers and non-relapsers. As with the BPRS scores, comparison of the two groups found no statistically significant differences. The relapsers scored slightly higher on more of the SCL-90 cluster scales and global indices (i.e., obsessive-compulsive, interpersonal sensitivity, depression, paranoid ideations, psychoticism, general symptomatic index and positive symptom total scales).

The BPRS and SCL-90 baseline ratings were also related to the patient's affective environment, categorized as either negative or neutral on the basis of ratings of the four assessment instruments: 1) Patient Rejection Scale mean score >2.60; 2) global judgments criticism scale score ⩾5; 3) total hostility outward scale score >2.30; 4) high EE ratings on the CFI-criteria ratings of speech samples. The only correlation at a statistically significant level was found between BPRS paranoia factor and high EE on the CFI rating (p= .05). The SCL-90 Patient Symptom Distress Index related strongly to high EE but narrowly failed to achieve significance (p= .07). The 6 patients rated high EE had a mean score of 3.3 on the BPRS paranoia factor and a SCL-90 Positive Symptom Distress Index mean score of 1.3. In comparison, the 15 low EE patients had a mean score of 5.2

on the former and 1.9 on the latter. Since higher ratings on both the BPRS and SCL scales indicate greater degree of psychopathology, the findings revealed that high EE patients related negatively to these two measurements of psychopathology.

In summary, no significant clinical differences in levels of psychopathology at baseline were found between patients who sustained remission and patients who relapsed in the nine-month follow-up period. Furthermore, patients categorized in negative or neutral environments could not be discriminated in overall measurements of severity of psychopathology at baseline.

Medication Dosage as a Variable

The present research was a substudy of the Brentwood Project investigating two-year outcome of schizophrenic outpatients treated on a conventional dose (25 mg) of fluphenazine decanoate and a low dose (5 mg) of the same drug. Drug compliance was guaranteed through the use of injectable neuroleptics at both doses. It was a double-blind study, with patients randomly assigned to the dosage groups hereafter referred to as "high" (25 mg) or "low dose" (5 mg) groups. The present study did not include all the research subjects involved in the Brentwood project.[14] By the random process, the dosage was assigned to the present sample (N=21) as follows: 33% (7 patients) high dose and 67% (14 patients) low dose. In the nine-month outcome

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[14]The sample differences are explained on pages 90-93 of the methodology chapter.

period, 29% of the sample (6 out of 21 patients) relapsed. This parallels other research findings that approximately 33% of patients on neuroleptic medication relapse (Hartmann et al., 1980).

In the present study, the relationship of patients in the two dosage groups to outcome was as follows:

	Non-Relapsers (N=15)	Relapsers (N=6)
Low Dose (N=14)	8	6
High Dose (N=7)	7	0

The results showed 0% relapse in the high dose subgroup compared to 43% relapse in the low dose group. This finding failed to achieve the desired statistical significance level of .05 by a narrow margin: Fisher's exact test (2-tailed) p=.06. However, the trend in the direction of higher relapse rates for patients on low dose was very pronounced.

The marked difference in relapse rates for high and low dose subgroups found in this research was not reflected in preliminary results of the Brentwood Project. The Brentwood Project found nine-month relapse rates of 25% for patients on high dose and 32% for patients on low dose. This disparate finding for patients treated on high dose in the two investigations will be discussed in the next chapter.

The next logical step was to examine medication dose in relation to the global judgments criticism scale. A criticism score of 5 or more related to relapse at a statistically significant level: Fisher's exact test (2-tailed) p=.012. Based on this significant

finding, a neutral affective environment was defined as a criticism scale score of less than 5, and a negative affective environment was a criticism scale score of 5 or more. The data relating drug dosage to the patient's affective environment (defined by critism scale ratings) were as follows:

	Neutral Affective Environment (Criticism Score < 5) (N=10)	Negative Affective Environment (Criticism Score ⩾ 5) (N=11)
Low Dose (N=14)	5	9
High Dose (N=7)	5	2

The findings revealed that 82% of patients in a negative affective environment were on low dose medication compared to 50% of patients in a neutral affective environment. Of the 14 low dose patients, 64% were in a negative affective environment and only 36% were in a neutral affective environment. Although low drug dosage was more strongly associated with negative affective environment than with neutral affective environment, this association did not achieve a level of statistical significance.

Review of Table 13, presenting criticism scale scores in relation to relapse, revealed five patients with relatives scoring 5 or more on the criticism scale who did not relapse. When these five non-relapsers (in a negative affective environment) were reexamined in terms of medication dose, 60% (three out of five) were found to be on low dose medication. Therefore, drug dosage could not explain the difference in outcome status.

A stepwise discriminant analysis, using relapse as the criterion

and the criticism scale and medication as independent variables, was conducted on the computer. This technique allows for statistically controlling each variable while they are combined to test for additive or cumulative effects. Multivariate statistics revealed that the criticism scale's association with relapse could not be attributed to any interaction of factors related to medication dose. Even when dose was taken into account, criticism remained a significant predictor of relapse. Conversely, the association of medication dose with relapse was near significance level only when its interaction with the criticism scale scores was considered.

In summary, medication dose had a very strong (albeit non-significant relationship) to both relapse and high global judgments criticism ratings. Multivariate analysis revealed that high criticism remained a significant predictor of relapse when medication dose was statistically controlled. Conversely, the strong association of medication dose to relapse was diminished when high criticism was statistically controlled.

Contact as a Variable

In this study, the amount of face-to-face contact the patient spent with the relative interviewed was dichotomized high or low contact on the basis of 35 hours or more direct contact per week and less than 35 hours contact per week respectively. The British EE studies found that relapse rates for patients in high EE homes were significantly reduced when patients spent less than 35 hours per week

with their relatives (Brown et al., 1972; Vaughn & Leff 1976a). The Camarillo study found that relapse rates for patients in high EE homes were reduced from 77% to 46% when there was less than 35 hour per week contact; however, the Camarillo finding failed to reach statistical significance.

In the present study, the degree of contact was related to relapse for each of the four procedures assessing the patient's affective environment. Table 19 presents this data. In each approach, only the subscale and/or cutoff score most strongly associated with relapse was used to define "negative affective environment" (NAE).

Inspection of Table 19 shows that 12 patients were in a negative affective environment by virtue of their relative attaining a mean score higher than 2.60 on the Patient Rejection Scale. Forty-two percent (5 out of 12) of these patients relapsed. The data showed that 43% (3 out of 7) patients in high contact with their NAE relapsed; 40% (2 out of 5) patients in low contact with their NAE relapsed. Thus, low contact barely reduced the relapse rate.

A score by the relative of 5 or more on the global judgment criticism scale classified the patient's affective environment negative. Eleven patients were in NAE based on criticism scale scores; 55% (6 out of 11) of these patients relapsed. The findings revealed that 43% (3 out of 7) patients in high contact with their NAE relapsed; 75% (3 out of 4) patients in low contact with their NAE relapsed. This paradoxical finding is opposite to the expected

influence of contact on outcome.

Eight patients were assigned to a negative affective environment on the basis of their relative having a total hostility outward scale score larger than 2.30. One-half of these eight patients subsequently relapsed. The data indicated that 50% (2 out of 4) patients in high contact with their NAE relapsed; 50% (2 out of 4) patients in low contact with their NAE relapsed.

Six patients' relatives were classified high EE on the CFI-criteria ratings of speech samples. High EE relatives were considered equivalent to negative affective environment in this study. One-half of these six patients relapsed. All three of the relapsed patients were in low contact with their high EE relatives. The data showed that 0% (0 out of 2) patients in high contact with their NAE relapsed; 75% (3 out of 4) patients in low contact with their NAE relapsed. Higher relapse rates for high EE patients in low contact with their relatives is a paradoxical finding in view of previous research.

The results of this study indicated that negative affective environment as determined by high criticism ratings (global judgments) and by high EE ratings (CFI-criteria ratings of speech samples) associated with contact in the opposite direction to that expected.

The correlations between contact and other variables were examined in an attempt to understand this phenomenon. The only variable that contact related to at a significant level was the SCL-90, Posi-

tive Symptom Total Index (Pearson r = .04). The data presented in Table 18 was examined according to the degree of contact patients had with their relatives. Patients in low contact had a mean baseline score on the Positive Symptom Total Index of 47.3 compared to 29.0 for high contact patients. It should be recalled that higher scores on the SCL-90 indicates greater psychopathology. Thus, patients in less contact with their relatives were found to experience significantly greater symptomatic distress.

In summary, the amount of contact the patient had with his relative did not significantly relate to outcome. However, contact was found to influence outcome in a direction opposite to that expected based on previous evidence. Possible explanations for this paradoxical finding will be discussed in the next chapter.

Demographic and Psychiatric History Variables Related to Relapse

None of the sociodemographic characteristics presented in Table 1 related to relapse. One psychiatric history factor--lapsed time since the patient was last hospitalized prior to entry in the Brentwood Project--related significantly to relapse ($p < .04$). The data showed that 67% of the relapsers (4 out of 6) had been discharged from inpatient status three months or less prior to entry in the study; 33% of the relapsers (2 out of 6) had last been discharged almost three years prior to entry. Table 2 indicated that the mean lapsed time since the relapsers had been out of the hospital was in excess of one year (12.7 months) compared to almost five years (59.3

months) for the non-relapsers. In other words, the relapsers did not sustain remission for as long a duration as the non-relapsers. The result is consistent with previous findings (Hogarty & Ulrich, 1977) which showed that the risk of relapse declines substantially over time for drug-treated patients.

The two independent variables which significantly predicted relapse--lapsed time since last hospitalization and a global criticism scale rating of 5 or more--were put into multiple discriminant analysis. An important characteristic of this multi-factor approach is that it permits the testing of several variables simultaneously (Isaac & Michael, 1980). Separately, each variable related significantly to relapse (i.e., lapsed time $p < .04$; high criticism rating $p < .005$). The analysis revealed that when the interaction between the two factors was taken into account, the lapsed time variable dropped from significance. However, the criticism variable remained significant at the .05 level. Therefore, the criticism scale can be said to be independent of the time lapse factor and remains the strongest predictor variable.

Then the demographic and psychiatric history factors which had not significantly related to relapse were put into a discriminant analysis with the global criticism scale to explore possible interactions. The patient's age at time of entry in the research project and the total years the patient had been ill since first onset of schizophrenia did relate significantly to the global criticism variable. The ten patients whose relatives scored low on the global

criticism scale (<5 score) had a mean age of 42.0 years and a mean time since initial onset of 19.0 years. In contrast, the 11 patients whose relatives scored high on the criticism scale (≥5 score) had a mean age of 34.3 years and a mean time since initial onset of 10.7 years. Student t Test procedures revealed $t = 2.19$ ($df = 19$; $p < .05$) on the age variable; and $t = 2.38$ ($df = 19$; $p < .03$) on the years ill since onset variable. In other words, this finding revealed that relatives' high criticism scores were significantly associated with younger patients who had been ill for fewer years. However, this relationship does not explain the criticism scale's association with relapse. Possible interpretation of this finding will be discussed in the next chapter.

The patient's living arrangement seemed to be a demographic variable closely related to degree of contact. Although it did not relate to relapse at a statistically significant level, it was examined in the hope it might illumine the paradoxical finding on contact reported previously. Generally, patients classified high contact (≥ 35 hours per week) lived with their relatives (the two relevant exceptions are described on page 123). Table 1 shows that in the present sample (N=21) 29% (6 patients) lived alone, 19% (4 patients) lived with spouses, 29% (6 patients) lived with parents, 14% (3 patients) were in B&C facilities, 5% (1 patient) lived with a sibling, and 5% (1 patient) lived in a household with a landlady. Living arrangements related to relapse as follows: 50% of patients living alone relapsed (3 out of 6), 25% living with spouses relapsed

(1 out of 4), 17% living in parental household relapsed (1 out of 6), and 33% of those living in B&C facilities relapsed (1 out of 3). If the patients were classified according to whether or not they were living with a relative the findings showed:

	Patients Not Living with Relatives		Patients Living with Relatives	
	N=10		N=11	
	Number	(percent)	Number	(percent)
Relapsed	4	(40%)	2	(18%)

This finding did not achieve statistical significance, but the trend indicated a lower relapse rate for patients living with relatives compared to patients not living with relatives.

In summary, lapsed time since last hospitalization significantly related to relapse. The patient's age and total years the patient had been ill significantly related to the global criticism scale ratings. However, no demographic or psychiatric history variable added to the value of the global criticism scale for predicting relapse.

Tests of the Hypotheses

The question which stimulated this research was whether assessments of schizophrenic outpatient's affective environment, by procedures other than the Camberwell Family Interview schedule, could predict relapse. Specifically, the principal hypothesis postulated that remitted schizophrenic patients in a neutral affective environment would have lower relapse rates than patients in a negative affective environment. As operationalized in this study, the pa-

tient's affective environment was categorized negative or neutral on the basis of ratings on each of four different assessment procedures.

Hypothesis 1 was supported by the data. The global judgment criticism scale score of 5 or greater related to relapse at a statistically significant level: Fisher's exact test (2-tailed) $p = .012$. The results showed that the other three assessment procedures--the Patient Rejection Scale, the total hostility outward scale, and high expressed emotion ratings on the CFI-criteria ratings of the five-minute speech samples--all related to relapse in the expected direction. They all related to outcome in excess of a chance occurrence, albeit not at a level of statistical significance.

Hypothesis 2 postulated that patients in a negative affective environment would have reduced relapse rates when the direct contact with that environment was less than 35 hours per week. The data did not support this hypothesis. In fact, the results of this study indicated that negative affective environment, as determined by two of the assessments--high criticism on the global judgments scale and high EE on the CFI-criteria ratings--associated with contact in the opposite direction to that expected on the basis of previous research. Possible explanations of this paradoxical finding will be discussed in the next chapter.

Perhaps the most notable finding of this pilot study is that it empirically demonstrated that a briefer, more efficient, and clinically feasible assessment procedure could predict relapse in an outpatient population. In contrast, the published literature on

expressed emotion (Brown et al., 1972; Vaughn & Leff 1976a; Vaughn et al., 1982) and the Patient Rejection Scale (Kreisman et al., 1979) predicted relapse nine months post-discharge in a currently hospitalized schizophrenic population. Furthermore, the capacity to predict relapse on the basis of assessments of family affective environment was confirmed in the present study with a multi-cultural population, consisting predominantly of a non-Caucasian racial-ethnic sample. In contrast, the previous EE studies involved an all-Caucasian population. This finding has important theoretical and practical implications for clinicians in a wide range of treatment facilities and practice.

Concordance Among Four Assessments

This section focuses on the concordance among the four assessments of family affective environment. The question being addressed is whether four measurements of the affective domain (obtained by different procedures and assessed by separate criteria) reflect distinctive or overlapping concepts of familial environment. It is beyond the scope of the present study to evaluate the validity and/or reliability of the instruments used. Future research involving a large sample is needed to perform that investigation. Furthermore, the present study cannot come to any conclusion regarding the relationship between any of these four experimental procedures and the index of expressed emotion obtained by the Camberwell Family Interview. Studies in process at various research centers are making CFI assessments of EE concurrently with one or more of the instru-

ments used in this study. Their results will empirically address the issue of how EE relates to these experimental instruments. The present pilot study can provide valuable preliminary data on how the four instruments relate to each other.

The research interviews in this investigation were conducted with the significant relatives designated by the schizophrenic outpatient. The author was the sole interviewer in all the cases. It is important to note that all 30 respondents interacted with the same interviewer; all four assessments were based on a single interview occasion. Thus, interviewer and test situation variances were controlled for in the present study.

All four methods of assessment are inferential. The affective environment is inferred from the interview with the relative; no direct observation of the relative-patient interaction was evaluated. Each individual interview with the designated relative involved unstructured, structured, and semistructured components. The five-minute speech sample was unstructured. It allowed the respondents broad freedom to describe their feelings and relationship with the index patient in their own way. The brief speech samples were rated independently by Gottschalk's Hostility Outward Scale criteria and by CFI-adapted criteria. The Kreisman-Blumenthal Patient Rejection Scale is a stuctured self-report attitude scale. Hogarty's Global Judgments are semistructured. The clinical judgments were made according to specified guidelines and were based on the entire interview situation. Clinical impressions were gleaned from the brief

speech sample and PRS components. In addition, the interviewer was able to interact freely with the interviewee in making relevant probes and in-depth exploration of pertinent material.

Correlation coefficients were calculated for the 30 relatives interviewed on all 12 possible assessment measures. These included the Hostility Outward Scale (overt, covert, and total scores); the Global Judgments of Expressed Emotion (positive remarks, warmth, emotional overinvolvement, hostility, and criticism components); the mean score on the Patient Rejection Scale; and the CFI-criteria ratings of expressed emotion (criticism, emotional overinvolvement, and an index of expressed emotion). A varimax rotated factor pattern based on a principal components analysis revealed two principal factors. The first factor consisted of all the criticism-hostility-rejection indices in all the scales plus the reversed scoring of the positive remarks and warmth scales.[15] The second factor consisted of emotional overinvolvement on the global judgments and the CFI-criterion ratings of expressed emotion.

In other words, a factor analysis based on N=30 and 12 variables identified two principal dimensions: a criticism-hostility-rejection factor (hereafter referred to as a "criticism index factor") and an emotional overinvolvement factor. The various measures comprising the criticism index factor significantly correlated with

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[15]For purposes of this analysis, the ratings of the global judgments two positive scales were reversed so that a high score would reflect a negative attitude (i.e., least positive remarks, least warmth). This reversal made the directionality from positive to negative attitudes consistent for all the scales.

each other (average correlation coefficient of .5). The emotional overinvolvement measures significantly related with each other (at the .49 level). However, with one exception, the criticism index factors did not relate to the EOI factors. The covert hostility measure did relate negatively but significantly to the CFI-derived emotional overinvolvement rating. That is to say that the more covert hostility the less emotional overinvolvement.

Furthermore, analysis of the data presented in Table 19, which differentiated negative and neutral affective environments based on the optimal threshold for each assessment procedure, revealed a very high consensual agreement. In fact, the four scales formed an acceptable Guttman Scale, one of the most rigorous tests of unidimensionality between sets of items (Isaac & Michael, 1980). The coefficient of reproducibility was .9 and the coefficient of scaleability was .6. The Guttman Scale indicated that the four family affective assessments were measuring the same attribute.

In summary, the matrix of correlations among the criticism index factors demonstrated concurrent validity of the four experimental instruments used in the present study. The strong concordance among the criticism index factors, combined with high consensual agreement on the Guttman Scale, confirmed that the four distinct assessments of familial affective environment reflected a similar affective quality in the relative.

CHAPTER V

DISCUSSION OF THE FINDINGS AND IMPLICATIONS FOR CLINICAL PRACTICE

Overview

This longitudinal pilot study used four experimental procedures to assess schizophrenic outpatients' familial affective environment and investigated whether any could have predicted relapse during a 9-month follow-up period.

The data presented in the preceding chapter suggested that patients in a neutral affective environment were less likely to relapse during the nine-month follow-up than were patients in a negative affective environment. In fact, the assessment by the global judgments criticism scale related to relapse at a high level of statistical significance (Fisher's exact test, 2-tailed, p=.012). Other findings were unexpected and/or inconsistent with evidence of previous research. An effort will be made in this chapter to integrate the numerous findings revealed in the presentation of quantitative data, and to explicate paradoxical or surprising results. Plausible rival hypotheses will be explored. Limitations of the study will be discussed.

Background

Before proceeding, an important research issue needs to be addressed. Schizophrenia was conceptualized in this study as a

multifactorial syndrome which could best be viewed within a systems paradigm of complex components in mutual interaction. Similarly, relapse needs to be perceived as a multicausal phenomenon. The present study attempted to systematically investigate the relationship of many complex, interrelated variables to relapse. However, it should be noted that numerous factors were not assessed or identified in this study which might also relate to outcome (possibly more potently than those actually measured). Some of these will be considered when alternative interpretations of findings and plausible rival hypotheses are considered in the discussion of the findings.

Furthermore, it is recognized that psychosocial variables cannot be held constant in laboratory-like conditions. To the extent that was appropriate and practicable, multi-factorial analyses were conducted which permitted the testing of several hypotheses simultaneously, studying the interaction among multiple factors and statistically controlling for variables. Pertinent to this research issue is the distinction made by Campbell and Stanley (1963) that hypotheses are technically never "confirmed"; rather, they escape being "disconfirmed" (p. 35) in quasi-experimental designs (such as the present study).

It should be noted that statistically significant relationships do not automatically indicate causal relations (Isaac & Michael, 1980). Correlational research is a statistical procedure which can indicate how to make predictions of one variable to another when the correlations between the two are known. Correlations describe a

mutual interaction; they do not explain the causal direction of the interaction (i.e., which is an antecedent or a consequence of the other). In other words, it needs to be emphasized that the present findings do not constitute evidence for the causal influence of the patient's affective environment on the outcome of schizophrenia. That issue is currently being addressed by the four studies reviewed earlier[1] (Anderson et al., 1980; Berkowitz et al., 1981; Falloon et al., 1981; Snyder & Liberman, 1981) evaluating psychoeducational treatment approaches with families previously rated high expressed emotion. Furthermore, it is important to point out that factors which influence the course and outcome of schizophrenia (or any illness) are not necessarily the same factors as those that predispose the patient to schizophrenia or initiate the illness.

Discussion of the Findings

Single Factors Related to Relapse

A comparison was made between those patients who relapsed and those who did not relapse in terms of demographic factors, pre-entry psychiatric history, and baseline psychopathology. Pre-entry clinical history characteristics (presented in Table 2) can be considered indices of chronicity (Kirk, 1976). Unfortunately, it was not possible to independently verify this information in the present study. Baseline psychopathology (assessed by the Brief Psychiatric Rating Scale and the Symptom Distress Checklist) were measurements of the

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[1]See pages 68-74 of this study.

severity of illness when the patient entered this study.

Analyses of the data revealed that no demographic or baseline psychopathology variable significantly related to relapse. Only one pre-entry psychiatric history variable--lapsed time since last hospitalization--related to relapse at a statistically significant level ($p<.04$). The longer the lapsed time since the last hospital discharge, the less likely the patients were to relapse. This finding is in accordance with previous studies which found that the risk of relapse declined substantially over time for drug-treated patients (Hogarty & Ulrich, 1977).

Medication dose was the only other assessed variable that came close to statistical significance in relation with relapse.[2] Twenty-nine percent of the present sample relapsed. This closely parallels other research findings that approximately 33% of neuroleptic-treated patients relapse (Hartmann et al., 1980). The data found that no patients on high dose relapsed in contrast to a 43% relapse rate for patients on low dose. Since the present double-blind investigation studied low dose versus high dose medication, these results cannot be compared with the medication findings from the expressed emotion studies, which involved patients on regular maintenance medication versus those not on regular drug treatment (Brown et al., 1972; Vaughn & Leff 1976a; Vaughn et al., 1982).

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[2]Fisher's exact test (2-tailed) $p = .06$.

Interactional Factors Related to Relapse

When the two independent variables which significantly predicted relapse (global judgments criticism ratings of 5 or more and lapsed time since last hospitalization) were put into multiple discriminant analysis to account for the interaction between the two, the following was revealed. The "lapsed time" variable no longer was significantly associated with relapse, whereas the criticism variable remained significant at the .05 level. This finding indicated that the lapsed time since last hospitalization was associated with relapse only because of its association with the relative's level of criticism. Conversely, the relative's criticism rating's relationship to relapse was independent of the "lapsed time" variable. On the basis of this analysis, it can be stated that no other independent variable measured--demographic, pre-entry psychiatric history, and baseline psychopathology--added to the value of high global judgments criticism ratings for predicting relapse. This parallels the findings in the British and Camarillo studies on the predictive validity of expressed emotion.

Interpretation of the Findings

A more detailed interpretation of the statistically significant association between outcome and the "criticism" ratings and the "lapsed time" variables is warranted in view of the incredible complexity of the phenomena under investigation. Strauss and Carpenter conclude that "outcome is not a single process but is comprised of

several semi-independent processes best conceptualized as open-linked systems" (1974b, p. 37). Each psychiatric hospitalization constitutes a traumatic emotion-laden experience for both patient and relative. The patient's impaired social competence and psychotic behavior (withdrawn or agitated and bizarre) leading to hospitalization frequently creates serious repercussions with the family. The need for hospitalization and the patient's behavior prior to admission often elicit antagonism in members of the patient's familial-social environment. Especially pertinent is Lansky's observation, "The patient requires hospitalization to contain chaos that cannot be contained by the personality system or the family system" (1981, p. 15). Lansky identifies the family's sensitivity to blame and to demands as important clinical issues that need to be addressed by the therapist. Thus it is understandable that the family might feel and express more negative affect shortly following such a painful experience as their relative's hospitalization. It is equally understandable that the critical affective environment might contribute to the patient's stress and vulnerability.

It should be recalled that the expressed emotion studies tapped this affective response in the relative immediately after the patient was discharged. The present investigation tapped this response in relatives of relapsers almost three years post-discharge. It bears reemphasizing that the relative's highly critical attitude towards the patient did not "cause" the patient's relapse, nor did the patient's hospitalization "cause" the relative's critical attitude.

The interpretation being advanced is that the statistical associations revealed in the findings reflect a vicious cycle of noxious interaction between the two independent variables (relative's high criticism and lapsed time since discharge) with the dependent outcome variable (relapse).

Possible interactions between demographic and psychiatric history factors (which were not significantly related to relapse) with the global judgments criticism ratings were statistically explored. Analyses found that relative's high critical ratings significantly related with younger patients and with those who had been ill for fewer years. In other words, the highly critical relatives had not coped with their schizophrenic patients for as long a time as was the case with the less critical relatives. It is reasonable to speculate that the relatives of younger patients, who had not been sick as long, had not yet developed constructive adaptations for dealing with this kind of severely impaired individual.

The present study can be compared to preliminary outcome results of the Brentwood Project. A comparison of data revealed a striking similarity and a more striking difference. Both studies had identical relapse rates of 29% at nine months. However, the Brentwood Project had a 25% relapse rate for high dose patients in contrast to 0% relapse rate for high dose patients in the present study.

Several possible explanations of this observed difference will be offered. The simplest explanation is that it might be an artifact of the very small sample in the present study (i.e., 6 out of 21

patients relapsed).

Another interpretation might be found in the single significant difference that distinguished the participants from the non-participants. The participants in the present study had a significantly longer lapsed time since last hospitalization compared to the non-participant sample who were included in the Brentwood Project (please see page 121). The differential of approximately 20 months since last discharge date was statistically significant (p=.05, 30df). Previous research (Hogarty & Ulrich, 1977) has demonstrated that the risk of relapse declines substantially over time for drug-treated patients. Furthermore, this pattern holds for extended periods of time beyond two years. The paticipant sample in the present study had "survived" longer in the community and had been able to sustain remission longer than the non-participants. The non-participants can be viewed as more vulnerable to relapse. This distinction might account for their higher relapse on high dose neuroleptics.

Another plausible interpretation relates to a methodological limitation of this study. The present design accounted for medication dose as the treatment variable but did not control for multiple treatment influences on outcome. In reality, some patients might have been involved in several other treatment programs (i.e., individual, group, and family psychotherapy; vocational rehabilitation; social skills training; etc). Thus, multiple treatments in addition to (or in lieu of) medication dose might actually account for differences in relapse rates.

It is also possible non-treatment variables that were not assessed in the present study could mediate the relationship between medication and relapse. For example, life events might be a mediating variable. It is known that one patient in the present study relapsed and was rehospitalized three months after the accidental death of his primary relative. On the one hand, this personal loss certainly constituted a major traumatic life event that could have contributed to decompensation and relapse. On the other hand, nine months before his tragic loss, this patient's medication dose was increased secondary to severe exacerbation of psychotic symptoms. Thus it can be seen that this patient initially relapsed in the Brentwood Project nine months prior to his relative's death. This individual's particular vulnerability would need to be considered as an additive variable to the life event interpretation of relapse. Furthermore, the patient's affective environment was rated negative according to three of the family assessments (including the global judgments criticism rating). The author's purpose in presenting this detailed discussion of plausible rival hypotheses is to illustrate with case material the numerous variables that potentially can be considered and the complex interrelatedness among these multiple factors.

The most surprising finding in the present study was that low contact[3] (in conjunction with the global judgments high criticism

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[3]Operationalized as less than 35 hours per week of direct contact between the patient and his relative.

ratings and the CFI-criteria ratings of high EE) was associated with higher relapse rates. This was opposite to the hypothesized mediating influence of contact on outcome, based on previous research (Brown et al., 1972; Vaughn & Leff 1976a; Vaughn et al., 1982). Contact essentially did not influence relapse rates in the other two assessments of negative affective environment.

This paradoxical finding can possibly be explained by the very small sample in the present study. A more likely interpretation seems related to cultural differences. The British EE studies involved an English Caucasian sample. The Camarillo study (which involved a Southern Californian Caucasian sample) replicated the British findings in almost every respect despite cross-cultural differences in the populations under study. The most striking finding of the Camarillo-study was the significantly different proportion of low EE families found in Southern California compared to England: 33% versus 52% respectively (chi square value=6.58, $p<.02$) (Vaughn et al., submitted for publication, 1983, p. 17). The English studies found that either regular medication or low contact reduced relapse rates in high EE patients (and when both occurred, the effect was additive). In contrast, the California study found that relapse rates for high EE patients remained high unless both factors (regular medication and low contact) were in effect. These differences in findings were attributed to "cultural differences" between the two Caucasian populations (Vaughn et al., 1982, p. 426).

It is important to note that the sample in the present investi-

gation was multiracial. With an N of 21, 57% (12 patients) were Black, 29% (6 patients) were Caucasian, and 14% were Other (2 Hispanics and 1 Filipino). Thus 71% of the sample in the present study is non-Caucasian.

Neither individual nor family behavior can be understood in isolation from cultural context. It is beyond the scope of this study to evaluate the different cultural-racial-ethnic contexts of the participants in the sample. However, particularly relevant ethnic background factors will be enumerated: normative family roles and patterns of interaction, value and belief systems, perceptions and tolerance of psychopathology. Family expectations of autonomous functioning and the degree that individuation is encouraged and tolerated vary considerably in different cultural settings. Cultural factors influence family response styles in terms of expressiveness of feelings, tolerance of anger and the ability to articulate angry feelings. "Optimal social distance" and "optimal social contact" need to be viewed within the specific cultural context.

The data provided clues that helped elucidate the paradoxical findings. Contact related negatively at a significant level (Pearson's r=.04) with the Positive Symptom Total Index on the Symptom Distress Check List. This finding indicated that patients in less contact with their relatives experienced greater symptomatic distress. One can speculate on the basis of this evidence that the patients derived some type of support from close contact with the relative which reduced their subjective experience of symptomatic

distress. Furthermore, this supportive factor was operative independently of whether the patient's affective environment was neutral or negative.

Although the patient's living arrangement did not significantly relate to relapse, the data revealed a trend: 40% of those patients not living with relatives relapsed compared to only 18% of those patients who were living with relatives. Similar to the preceding finding, one can speculate that the patients seemed to receive some sort of emotional support from their affective environment whether it were benign or noxious.

These interpretations do not negate the major findings of this study that patients in neutral affective environments had significantly lower relapse rates than patients in negative environments. They simply address the influence of contact on outcome. There is ample evidence that schizophrenic individuals' social networks are restricted and heavily dominated by family members (Pattison et al., 1975; Toldorf, 1876). Unfortunately, for many schizophrenics, the alternative to reduced contact with family is not increased contact with a non-familial social network. The alternative frequently is no contact with anyone. The modern life for many schizophrenics in the community is characterized by Klerman (1977) as one of social isolation, personal loneliness, and anomie.

When the family assessment scales were analyzed on the basis of race, distinctive patterns were found. The racial-ethnic respondents called "Other" consistently were overrepresented at the most critical

end of each scale. Two of the three patients in this subgroup lived in high contact with their highly critical relatives; two of the three were on low dose medication. Yet none relapsed. It is meaningless to generalize from such a small number. But one can conjecture about what seemed to be going on with this subgroup. A possible interpretation might be found in their ethnic background. Highly emotive and critical expressiveness might be par for the course for their family's response styles. In other words, such critical attitudes might not have the sting (or noxious connotation) in their cultural contexts. It should be emphasized that these interpretations are highly speculative and tentative; no conclusions can be inferred. Future research will need to address some of the complex cultural-ethnic issues raised. In fact, Dr. Marvin Karno[4] of UCLA is currently conducting a study attempting to replicate the expressed emotion findings with Spanish-speaking Mexican-American families of schizophrenics.

The data in the present study showed that the Black respondents tended to be overrepresented at the least critical end of the Patient Rejection Scale and low EE on the CFI-criteria ratings. A parallel finding was reported by Hogarty[5] based on research currently in

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[4]Dr. Karno presented some preliminary findings from this ongoing research at "The Second International Expressed Emotion Conference" held at UCLA, May 4, 1982. This conference was sponsored by the Mental Health Clinical Research Center for the Study of Schizophrenia; it was chaired by Christine Vaughn, Ph.D.

[5]Hogarty presented preliminary findings from his current investigation May 4, 1982 at "The Second International Expressed Emotion Conference".

progress. That investigation is attempting to replicate the EE findings with a multiracial population in Pittsburgh. Preliminary data showed that Blacks were overrepresented in low EE families. Hogarty will attempt to evaluate the extent to which this finding might be an artifiact of the race of the interviewer. Future research utilizing Black interviewers will help to determine whether the race of the interviewer is a factor in the response elicited from Black respondents. This issue of a non-Black interviewer might possibly account for some of the findings in the present study.

Another plausible interpretation of these race-related findings might be associated with distinctive family structures and patterns of relating. The family assessments might be measuring an especially supportive, non-critical family structure and style of interaction in Black families in the present sample. Future research with a large sample would be needed to investigate the important cultural-ethnic issues suggested by unexpected findings in the present pilot study.

The important point of this discussion is that the ethnic background of the participants and the prevailing family culture must be considered in evaluating factors such as family affective environment, contact, and emotional overinvolvement.

Both types of interviews (in-person and by telephone) were equally effective in eliciting sensitive material from the respondents. The telephone interview as a valuable alternative should be kept in mind where geographic mobility makes in-person interviews impractical or when the respondent refuses an in-person interview.

The author-interviewer found it relatively easy to engage the families in the interview process. It should be recalled that the interviewer had no previous clinical contact with either the index patient or the relative. In order to encourage non-defensive communication, the early part of the interview was used to obtain more factual information while establishing rapport and the basis for a trusting relationship between respondent and interviewer. The author observed that many respondents initially were guarded and vaguely apprehensive. This apprehension seemed different than the normal anxiety related to a new experience. One relative expressed his relief at the termination of the interview and openly shared that his initial expectation was that he would be "blamed" and "made to feel guilty" for his relative's illness and repeated relapses (as one psychiatrist had explicitly done several years earlier). Many respondents commented afterwards that they felt "better" for having had an opportunity to talk honestly about their own feelings to a non-judgmental party. Almost all respondents asked questions and wanted more factual information about schizophrenia.

The Brentwood Research Project of which this investigation was a substudy selected schizophrenic patients from the West Los Angeles VAMC, Brentwood Division who met specific inclusion criteria. The present study's sample consisted of those patients who designated a relative who agreed to participate in this substudy. The participant and non-participant samples did not significantly differ on any demographic and psychiatric history variables with one exception--

lapsed time since last hospital discharge. When the present sample was compared on age and race variables to 600 male schizophrenics currently participating in all outpatient treatment programs at the Brentwood Division, no significant differences were found. The present sample appears to be representative of a chronic outpatient male population. The non-random sample selection does not preclude generalization to similar populations.

Correlation coefficients revealed significant concordance among the criticism-hostility-rejection factors assessed separately by the four different instruments. Analyses of the data which differentiated negative and neutral affective environments for each assessment approach indicated a very high consensual agreement. These findings demonstrated the concurrent validity of the four assessment procedures. This study did not attempt to address the issue of construct validity (i.e., whether the attitudes conveyed to the interviewer were reflective of how the relative actually related to the patient in their interpersonal interactions).

All four family assessment methods related to relapse at a level better than chance. The global judgments criticism ratings predicted relapse at a statistically significant level. In view of the small sample, the results are good enough to show promising potential for all four approaches. It is recommended that they are worth pursuing with a larger sample. The alternative assessments offer different relative advantages. For example, the Patient Rejection Scale is an efficient instrument to administer and score. It requires very brief

time and needs no special clinical experience or training. The five-minute speech sample has the advantage of an unstructured format which encourages the respondent to free-associate. It may not be as subject to respondent's screening for socially-acceptable responses. The global judgments criticism ratings predicted relapse at a highly significant level with an outpatient, multiracial sample. It calls for clinical judgments within specific guidelines (Appendix B). Certainly, extended training and experience are required to make valid clinical judgments. However, trained clinicians need only familiarize themselves with the construct of expressed emotion and the specific guidelines upon which to base the clinical judgments.

The reader is reminded that the present research is designated a pilot study to lay scientific ground work for future studies investigating alternative methods of assessing the patient's affective environment which might predict relapse. The procedures or instruments of assessment used in this study are experimental. The present exploration permits a preliminary testing of the hypotheses. A pilot study can lead to more precise hypotheses in future research by indicating which hypotheses to retain, which to drop, and whether new hypotheses need to be developed (Isaac & Michael, 1980). Isaac and Michael point out that samples with N's between 10 and 30 have practical advantages in exploratory research such as the present study, which is investigating promising leads for family assessment. Nevertheless, the small sample size (N=21) is acknowledged as a limitation of this study. Caution must be exercised in interpreting the results

as provisional conclusions. Future research involving a larger sample is needed to reveal whether a consistent pattern emerges and whether these findings are replicated.

In conclusion, the findings supported the principal hypothesis that remitted schizophrenic patients in a neutral affective environment would have lower relapse rates than patients in a negative affective environment. The patient's affective environment was classified negative or neutral on the basis of ratings on four different experimental assessments. The global judgments criticism scale score of 5 or greater related to relapse at a statistically significant level. The remaining three assessments related to outcome in excess of a chance occurrence but not at a level of significance. Multivariate analyses revealed that no other independent variable measured added to the predictive value of high global judgments criticism ratings. In view of the small sample, the results must be interpreted with caution and it would be premature to suggest that the predictive validity of any assessment of family affective environment has been demonstrated.

The assessments of negative affective environment used in the present study appear to be risk-indices analogous to the high EE index. This pilot investigation, with a multiracial sample of outpatient schizophrenics, confirmed previous findings which indicated that the patient's affective environment was an important factor in whether he sustained remission or got caught up in the revolving door of recidivism. This study has provided preliminary empirical evi-

dence to support the search for briefer, more efficient assessments of family affective environment. Clinically feasible assessment procedures can help guide the mental health practitioner in identifying which schizophrenic patients are more likely to relapse. Appropriate therapeutic interventions to address the problem and possibly prevent relapse can then be initiated. Given the enormous cost of relapse in both human and fiscal terms, the development of such an assessment instrument is a valuable clinical contribution.

The present study has taken a promising step in that direction. Furthermore, the results of this study may give impetus to further research with a larger sample to replicate these findings. The findings suggest that longstanding clinical assumptions (i.e., that social distance between the schizophrenic and his family is conducive to community tenure) need to be reevaluated in a systematic investigation which takes into account the specific cultural context.

Implication for Clinical Practice

The results of this study have important implications for the treatment of schizophrenia. Historically, the problem of schizophrenics has been one of social work's primary clinical obligations. These findings reaffirm the value of social work's traditional commitment to the psychosocial orientation. The findings do not suggest a new approach but rather an emphasis which appears to have been neglected or incompletely appreciated in recent decades. This research supports the the need for clinicians to be pluralistic in

their conceptual bases and their therapeutic interventions. The authors of No Single Thread (Lewis et al., 1976) describe this emphasis as follows:

> The need for the clinician to be flexible--to have a capacity to move from individual to marital to family levels (and for some, to social network, community and culture) according to the potential for helpfulness at each level, in each clinical situation, poses considerable challenge for the clinician. First, it involves familiarity with multiple conceptual levels of human behavior--a task of considerable cognitive dimensions. It involves the acquisition of therapeutic expertise at several levels of intervention or, failing that, the capacity for thoughtful referral to others with different expertise. Of major consequence, however, is that this type of flexibility means giving up a rigidly held, or evangelical, attitude that one's approach to intervention is the best or only approach. Whether the clinician's primary base is psychoanalysis, family therapy, transactional analysis or whatever, the application of a constricted set of methodologies to every clinical situation suggests that the therapist's needs, rather than those of the patient, couple, or family, are being served. (pp. 218-219)

A consequence of the deinstitutionalization movement has been the emergence of the schizophrenic's family as the primary social unit responsible for the aftercare of the discharged patient. This trend has heightened the clinical importance of considering the patient in his family context (whether or not he is actually residing with his family). The clinician's ability to prevent relapse for many schizophrenic outpatients will not be greatly improved unless professional attention is paid to the influence of post-discharge environmental factors.

The present pilot investigation provided preliminary confirmation (with an outpatient, multiracial sample) of the findings of the

expressed emotion studies. The patient's affective environment significantly influenced the course of illness. This study explored methods for assessing the affective dimension of the patient's social environment by methods other than the Camberwell Family Interview schedule. All four of the assessment procedures investigated showed sufficient promise in terms of identifying a population more vulnerable to relapse to warrant further evaluation and replication with larger samples.

Clinicians need only to familiarize themselves with the expressed emotion construct and analogous risk-indices (i.e. negative affective environment) in order to adapt these assessment approaches as a clinical screening device in their agency or private practice. Identification of patients at risk of relapse can lead to implementation of therapeutic interventions in time to prevent relapse. Experienced, competent clinicians can immediately utilize Hogarty's Global Judgments of Expressed Emotion once they are familiar with the expressed emotion construct and the specific guidelines upon which the judgments are based. The Kreisman-Blumenthal Patient Rejection Scale does not require professional training to administer or score. The individual administering the PRS questionnaire must be able to establish rapport with the respondent and provide a non-threatening, non-judgmental interview atmosphere. The five-minute speech samples do need to be scored by specially trained raters according to CFI-criteria ratings and/or the Gottschalk-Gleser Hostility Outward Scale criteria. Qualified raters are available throughout the United

States, but a fee would most likely be involved. The present author-interviewer found the PRS and the five-minute speech samples a valuable "interview package" for eliciting affective responses from the relative upon which to base the global judgments. In this era of fiscal stringency and accountability, being able to document and empirically substantiate clinical impressions is increasingly important. It is another reason for combining the global judgments with one or more of the other assessment approaches.

It is beyond the scope of this study to detail the clinical methods that can be initiated in working directly with the schizophrenic individual and/or his psychosocial system. The reader is directed to the previously cited clinical research describing psychoeducational interventions[6] which have demonstrated preliminary success in lowering the incidence of relapse.

Clinicians who see the goal of therapy as separation of the patient from the family need to reevaluate these goals in view of recent evidence (Bernheim, 1982; Blumenthal et al., 1982). The expressed emotion studies found that reducing the degree of contact with high EE relatives reduced the incidence of relapse, but that the degree of contact with low EE relatives did not influence relapse rates. Results of the present study suggested that contact even with a negative affective environment might be a "lesser evil" than social isolation (which frequently fosters withdrawal and clinical regression in schizophrenics). This study also indicated that the clini-

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[6]See pages 68-74 of this study.

cian needs to consider the cultural context of complex phenomena such as emancipation from the family, before taking a particular therapeutic stance. Issues of separation and amount of contact need to be differentiated from clinical interventions that attempt to encourage and enhance the individual schizophrenic's capacity to function independently.

This author believes it is imperative for clinicians, regardless of their particular discipline or treatment orientation, to become more knowledgeable about the literature related to expressed emotion and analogous indices of risk which have been reviewed in this dissertation. She concurs with the recommendation (Norton, 1982) that this substantial body of research should be included in the curriculum of schools of social work and in continuing education programs.

The studies cited and the present investigation have highlighted how the patient's affective environment can influence the course of schizophrenic illness. It is possible that the emotional climate in the family also influences outcome in non-schizophrenic populations. Preliminary evidence with depressed patients (Vaughn & Leff, 1976a) and obese women (Havstad, 1979) indicate promising results. This author recommends that future research attempt to replicate these findings with different diagnostic multiracial populations.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Summary

The human suffering and societal expense of schizophrenia are enormous and are greatly intensified by the chronic nature of the disorder and its high recidivism. The tendency of schizophrenics to experience successive psychotic episodes (even when protected by neuroleptic medication) has stimulated interest in identifying environmental factors which might be associated with relapse.

This present study is part of an extensive research effort attempting to determine which patients are at high risk of relapse. Such identification could alert the clinician to the need for initiating therapeutic interventions to prevent an unfavorable outcome. A body of research conducted over the past 25 years in England, and replicated recently in California, demonstrates that remitted schizophrenics relapsed at significantly higher rates when their key relative was classified "high expressed emotion." High EE is characterized by affective patterns of excessive criticism and/or emotional overinvolvement. The Camberwell Family Interview was developed as the method for eliciting and measuring EE levels. However, the CFI is too cumbersome and time-consuming an assessment instrument for utilization in a broad range of clinical settings.

This pilot study explored four procedures for assessing the familial affective environment of schizophrenic outpatients in an effort to determine the utility of these procedures in predicting relapse. All four assessments were more efficient and economical to administer than the CFI. The familial affective environment was classified as negative (analogous to high EE) or neutral on the basis of each assessment procedure. The procedures were 1) the Patient Rejection Scale; 2) Global Judgments of Expressed Emotion, consisting of clinical assessments of five affective components; 3) Hostility Outward Scale ratings of a brief speech sample; and 4) CFI-criteria ratings of the same speech sample.

The sample population consisted of 23 male schizophrenic outpatients who were participants in a double-blind neuroleptic medication study at a Veterans Administration facility in West Los Angeles. Each patient designated at least one relative or significant other with whom he had a current meaningful relationship. Thirty relatives were interviewed and the four assessments made. The interview took approximately 30 minutes to complete. In this prospective longitudinal design, the four assessments of each relative were independently correlated to the index patient's relapse status (operationalized as clinical exacerbation). The follow-up period was nine months.

It was hypothesized that patients in a neutral affective environment would have lower relapse rates than patients in a negative affective environment. It was further hypothesized that relapse rates of patients in a negative affective environment would be re-

duced when direct contact with that environment was limited (i.e., less than 35 hours per week).

The first hypothesis was supported by the data. Patients living in a negative environment, as measured by a score of 5 or greater on the criticism subscale of the Global Judgments, relapsed at a significantly higher rate (Fisher's exact test $p = .012$). The other three assessments related to relapse in the expected direction although not at a statistically significant level. No patient demographic characteristic, initial level of psychopathology, nor medication dosage variable significantly related to relapse. Only one psychiatric history factor--"lapsed time since last hospitalization"--significantly related to relapse ($p < .04$). Multiple discriminant analysis (controlling for the "criticism" and "lapsed time" variables) showed that the criticism rating was independent of the other variable. In fact, no other variable measured added to the value of the criticism ratings for predicting relapse.

Correlation coefficients revealed strong concordance and high consensual agreement among the four assessments of affective environment. The findings confirmed that the separate assessments were measuring a similar affective quality in the relative.

The data did not support the second hypothesis. The degree of patient-relative contact did not significantly relate to relapse. In fact, on two assessment procedures, patients in high contact with a negative affective environment tended to relapse less frequently than patients in low contact with their negative environment. Based on

previous research (Brown et al., 1972; Vaughn & Leff, 1976a; Vaughn et al., 1982), this result was unexpected. This finding appeared to be associated with the different racial-ethnic composition of the present sample compared to the populations previously studied. A majority of this sample was non-Caucasian; the English and California expressed emotion studies involved all Caucasian samples. This unexpected finding raises important clinical issues and reemphasizes that neither individual nor family behavior can be understood in isolation from the cultural context.

Conclusions

The present pilot investigation provided substantial, preliminary confirmation that efficient assessment procedures can identify schizophrenics at risk of relapse in a multiracial outpatient population. A causal explanation should not be ascribed to these findings. Correlations between familial affective environment and subsequent patient relapse described a mutual interaction. Correlations did not explain the causal direction of the interaction. This author conceptualized schizophrenia as a multifactorial syndrome best understood from a circular, systemic perspective. Thus the familial affective environment and the patient could be viewed as reciprocally influencing the other.

The favorable, positive findings of this study should encourage further investigation of these clinically useful assessment procedures. It is recommended that future research and replication

involve larger multiracial samples of both male and female schizophrenics. It is also suggested that outcome criteria be broadened. Psychotic exacerbation and readmission are essential outcome variables. Empirical exploration of how the familial affective environment relates to the patient's "quality of life" would add an important clinical dimension.

Problems of successive relapse are not confined to schizophrenics. Relapse is a traumatic and disruptive phenomenon affecting many diagnostic populations (i.e., depressives, alcoholics, anorectics). The expressed emotion index and analogous assessments of familial affective environment need to be investigated in relation to outcome in other mental disorders. Such research could help guide clinicians in identifying which psychiatric patients are more likely to relapse and could contribute to effective treatment planning.

The findings of the present research have important implications for clinical practice. This study highlights the importance of clinicians working with the patient in the context of his family and his cultural background. This principle of considering the person in his psychosocial situation is central to clinical social work.

Psychiatric theory has long attributed culpability to the family of schizophrenics for the patient's baffling disorder. Blaming the family--even if such blame is unexpressed--is explicitly countertherapeutic (Anderson, 1977; Lansky, 1981; McFarlane, 1983). The current trend toward deinstitutionalization has reinstated the family as the primary long-term caretakers. The present study suggests that en-

listing the family in the therapeutic process is essential to the dual goals of reducing relapse and enhancing the patient's social functioning.

The present study viewed various psychoeducational therapies which have demonstrated encouraging preliminary results. Clinical efforts to mobilize the family and increase their interpersonal effectiveness need not interfere with any other treatment modality or theoretical framework. Indeed, the very complexity of schizophrenia demands that multiple treatment approaches be utilized.

In the process of interviewing the relatives, this author gained a more comprehensive (and empathic) understanding of how families experienced a schizophrenic member. Without exception, families were utterly perplexed by the recurring catastrophe of repeated psychotic episodes. They plaintively articulated a similar theme: "We're doing the best we know how, but are we doing the right thing?" Mental health professionals can no longer afford to ignore the family's justifiable plea for help in dealing with their awesome responsibilities.

The present study has taken a promising step in adding to our understanding of schizophrenia. Yet much remains to be explained. Wynne eloquently described this ongoing process:

> Each research effort into this area can at present be but a foray, a stumbling and uncertain venture. After each attempt, we return to the problem of schizophrenia with, at best, only a bit more understanding, enabling us to start out again, hopefully, with somewhat greater sureness of foot. (1967, p. 177)

REFERENCES

Alanen, Y. O. The mothers of schizophrenic patients. Acta Psychiatrica Scandinaviaca, 1958, 33 (Suppl. 124), 1-361.

American Psychiatric Association. DSM III: Diagnostic and statistical manual of mental disorders. 3rd ed. Washington, D.C.: American Psychiatric Association 1980.

Anderson, C. M. Family intervention with severely disturbed inpatients. Archives of General Psychiatry, 1977, 34, 697-702.

Anderson, C. M., Hogarty, G. E., & Reiss, D. J. Family treatment of adult schizophrenic patients: A psycho-educational approach. Schizophrenia Bulletin, 1980, 6, 490-505.

Anderson, C., Hogarty, G., & Reiss, D. J. The psychoeducational family treatment of schizophrenia. In M. Goldstein (Ed.), New developments in interventions with families of schizophrenics. New Directions for Mental Health Services #12, Dec. 1981, 79-94.

Arieti, S. Interpretation of schizophrenia. (2nd rev. ed). New York: Basic Books, 1974.

Arieti, S. Psychotherapy of schizophrenia. In L. J. West & D. E. Flinn (Eds.), Treatment of schizophrenia: Progress and prospects. New York: Grune & Stratton, 1976.

Baran, A., & Levin, L. Social service as a factor in sustaining family relationships of hospitalized neuropsychiatric patients. Unpublished master's thesis, University of Southern California, 1949.

Bateson, G., Jackson, D. D., Haley, J., & Weakland, J. H. Toward a theory of schizophrenia. Behavioral Science, 1956, 1, 251-264.

Beavers, W. R. Psychotherapy and growth: A family systems perspective. New York: Brunner/Mazel, 1977.

Beck, S. J. Schizophrenia: Interadaptation of person, family and culture. In J. Romano (Ed.), The origins of schizophrenia. Amsterdam: Excerpta Medica Foundation, 1967.

Beels, C. C. Social networks, the family, and the psychiatric patient. Schizophrenia Bulletin, 1978, 4, 512-521.

Bellak, L. (Ed.). Disorders of the schizophrenic syndrome. New York: Basic Books, 1979.

Berger, M. M. Introduction. In M. M. Berger (Ed.), Beyond the double bind. New York: Brunner/Mazel, 1978.

Berkowitz, R., Kuipers, L., Eberlein-Fries, R., & Leff, J. Lowering expressed emotion in relatives of schizophrenics. In M. Goldstein (Ed.), New developments in interventions with families of schizophrenics. New Directions for Mental Health Services, #12, Dec. 1981, 27-48.

Bernheim, K. F. Supportive family counseling. Schizophrenia Bulletin, 1982, 8, 634-640.

Bertalanffy, L. von. General system theory and psychiatry. In S. Arieti (Ed.), American handbook of psychiatry (Vol. 3). New York: Basic Books, 1966.

Bleuler, E. Dementia Praecox or the group of schizophrenias. (Originally in German, 1911). Translated by J. Zinkin. New York: International Universities Press, 1950.

Bloch, D. A. The family of the psychiatric patient. In S. Arieti (Ed.), American handbook of psychiatry (Vol 1, 2nd Edition). New York: Basic Books, 1974.

Blumenthal, R., Kreisman, D., and O'Connor, P. A. Return to the family and its consequence for rehospitalization among recently discharged mental patients. Psychological Medicine, 1982, 12, 141-147.

Bowen, M. A family concept of schizophrenia. In D. D. Jackson (Ed.), The etiology of schizophrenia, New York: Basic Books, 1960.

Bowen, M. The use of family theory in clinical practice. Comprehensive Psychiatry, 1966, 7, 345-374.

Briar, S. Social casework and social group work: Historical and social science foundations. In Encyclopedia of social work (Vol. 2, 16 Issue). New York: NASW, 1971, 1237-1245.

Brown, G. W. & Birley, J. L. T. Crises and life changes and the onset of schizophrenia. The Journal of Health and Social Behavior, 1968, 9, 203-214.

Brown, G. W., Birley, J. L. T., & Wing, J. K. Influence of early family life on the course of schizophrenic disorders: A replication. British Journal of Psychiatry, 1972, 121, 241-258.

Brown, G. W., Carstairs, G. M., & Topping, G. Post-hospital adjustment of chronic mental patients. Lancet, 1958, 2, 685-689.

Brown, G. W., Monck, E. M., Carstairs, G. M., & Wing, J. K. Influence of family life on the course of schizophrenic illness. British Journal of Preventative Social Medicine, 1962, 16, 55-68.

Brown, G. W., Rutter, M. The measurement of family activities and relationships: A methodological study. Human Relations, 1966, 19, 241-263.

Bruch, H. Psychotherapy in schizophrenia: Historical considerations. In J. S. Strauss, M. Bowers, T. W. Downey, S. Fleck, S. Jackson, & I. Levine (Eds.), The psychotherapy of schizophrenia. New York: Plenum Medical Book Co., 1980.

Campbell, D. T., & Stanley, J. C. Experimental and quasi-experimental designs for research. Chicago: Rand McNally & Co., 1963.

Cancro, R. The clinical relevance of genetic studies in schizophrenia. Psychiatric Annals, 1979, 9, 52-57.

Carpenter, W. T., Jr., Bartko, J. J., Strauss, J. S., & Hawk, A. B. Signs and symptoms as predictors of outcome: A report from the International Pilot Study of Schizophrenia. American Journal of Psychiatry, 1978, 135, 940-945.

Cheek, F. E. The "Schizophrenogenic Mother" in word and deed. Family Process, 1964, 3, 155-177.

Crider, A. Schizophrenia: A biopsychological perspective. Hillsdale, New Jersey: Lawrence Erlbaum Assoc., 1979.

Dawson, M. E., Neuchterlain, K. H., & Liberman, R. P. Relapse in schizophrenic disorders: Possible contributing factors and implications for behavioral therapy. In M. Rosenbaum, & C. Franks (Eds.), Perspectives on behavior therapy in the eighties. New York: Springer, 1983.

Day, M., & Semrad, E. V. Schizophrenic reactions. In A. M. Nicholi, Jr. (Ed.), The Harvard guide to modern psychiatry. Cambridge, Mass.: Harvard University Press, 1978.

Dell, P.F.: Researching the family theories of schizophrenia: An exercise in epistemological confusion. Family Process, 1980, 19, 321-335.

Derogatis, L. R., Lipman, R.S., Covi, L., Rickels, K., & Uhlenhuth, E. H. Dimensions of outpatient neurotic pathology: Comparison of a clinical versus an empirical assessment. Journal of Consulting and Clinical Psychology, 1970, 34, 164-171.

Doane, J. A., West, K. L., Goldstein, M. J., Rodnick, E. H., & Jones, J. E. Parental communication deviance and affective style: Predictors of subsequent schizophrenia spectrum disorders in vulnerable adolescents. Archives of General Psychiatry, 1981, 38, 679-685.

Erlenmeyer-Kimling, L. Studies on the offspring of two schizophrenic parents. In D. Rosenthal & S. S. Kety (Eds.), The transmission of schizophrenia. Oxford: Pergamon Press, 1968.

Erlenmeyer-Kimling, L., Cornblatt, B., & Fleiss, J. High-Risk research in schizophrenia. Psychiatric Annals, 1979, 9, 38-51.

Fairbairn, W. R. D. Steps in the development of an object-relations theory of the personality. The British Journal of Medical Psychology, 1949, 22, 26-31.

Falloon, I. R. H. Communication and problem-solving skills training with relapsing schizophrenics and their families. In M. R. Lansky (Ed.), Family therapy and major psychopathology. New York: Grune & Stratton, 1981.

Falloon, I. R. H., Boyd, J. L., McGill, C. W., Razani, J., Moss, H. B., & Gilderman, A. M. Family management in the presentation of exacerbations of schizophrenia: A controlled study. The New England Journal of Medicine, 1982, 306, 1437-1440.

Falloon, I. R. H., Boyd, J. L., McGill, C. W., Strang, J. S., & Moss, H. B. Family management training in the community care of schizophrenia. In M. Goldstein (Ed.), New developments in interventions with families of schizophrenics. New Directions for Mental Health Services #12, Dec. 1981, 61-77.

Falloon, I. R. H., Liberman, R. P., Lillie, F. J., & Vaughn, C. E. Family therapy of schizophrenics with high risk of relapse. Family Process, 1981, 20, 211-221.

Falloon, I. R. H., Marshall, G. N., Boyd, J. L., Razani, J., & Wood-Siviero, C. Relapse in schizophrenia: A review of the concept and its definitions. Psychological Medicine, in press.

Ferreira, A. Family myth and homeostasis. Archives of General Psychiatry, 1963, 9, 457-463.

Fleck, S. The family and psychiatry. In H. I. Kaplan, A. M. Freedman, & B. J. Sadock (Eds.), Comprehensive textbook of psychiatry III (Vol. 1, 3rd Edition). Baltimore: Williams & Wilkins, 1980.

Flinn, D. E., May, P. R. A., & West, L. J. Integrating the treatment approaches to the schizophrenic syndrome. In L. J. West & D. E. Flinn, (Eds.), Treatment of schizophrenia: Progress and prospects. New York: Grune & Stratton, 1976.

Fogarty, T. F. System concepts and the dimensions of self. In P. J. Guerin, Jr. (Ed.), Family therapy: Theory and practice. New York: Gardner Press, 1976.

Freud, S. On narcissism: An introduction. Standard Edition, Vol. 14, 73-102. London: Hogarth Press, 1957. (Originally published, 1914).

Freud, S. The loss of reality in neurosis and psychosis. Collected papers, Vol. 2, 277-282. London: Hogarth Press, 1949. (Originally published, 1924).

Freyhan, F. A. Eugen Bleuler and present-day psychiatry. The American Journal of Psychiatry, 1958, 114, 769-779.

Fromm-Reichmann, F. Notes on the development of treatment of schizophrenics by psychoanalytic psychotherapy. Psychiatry, 1948, 11, 263-273.

Garmezy, N. Children at risk: The search for antecedents of schizophrenia. Part 1: Conceptual models and research methods. Schizophrenia Bulletin, 1974, 1 (8), 14-92.

Goldsmith, W. Psychiatric drugs for the non-medical mental health worker. Springfield, Illinois: Charles C. Thomas, 1977.

Goldstein, M. J. & Doane, J. A. Family factors in the onset, course, and treatment of schizophrenic spectrum disorders: An update on current research. The Journal of Nervous and Mental Disease, 1982, 170, 692-700.

Goldstein, M. J., Judd, L. L., Rodnick, E. H., Alkire, A., & Gould, E. A method for studying social influences and coping patterns within families of disturbed adolescents. The Journal of Nervous and Mental Diseases, 1968, 147, 233-251.

Goldstein, M. J., Rodnick, E. H., Evans, J. R., May, P. R. A., & Steinberg, M. R. Drug and family therapy in the aftercare of acute schizophrenics. Archives of General Psychiatry, 1978, 35, 1169-1177.

Goldstein, M. J., & Rodnick, E. H. The family's contribution to the etiology of schizophrenia: Current status. Schizophrenia Bulletin, 1975, 1, (14), 48-63.

Gottesman, I. I. Severity/Concordance and diagnostic refinement in the Maudsley-Bethlem, schizophrenic twin study. In D. Rosenthal & S. S. Kety (Eds.), The transmission of schizophrenia. Oxford: Pergamon Press, 1968.

Gottesman, I. I. Schizophrenia and genetics: Where are we? Are you sure? In L. C. Wynne, R. L. Cromwell, & S. Matthysse (Eds.), The nature of schizophrenia: New approaches to research and treatment. New York: John Wiley & Sons, 1978.

Gottesman, I. I. Schizophrenia and genetics: Toward understanding uncertainty. Psychiatric Annals, 1979, 9, 26-37.

Gottesman, I. I., & Shields, J. Schizophrenia in twins: Sixteen years' consecutive admissions to a psychiatric clinic. British Journal of Psychiatry, 1966, 112, 809-818.

Gottesman, I. I., & Shields, J. Schizophrenia and genetics: A twin study vantage point. New York: Academic Press, 1972.

Gottschalk, L. A. The application of a method of content analysis to psychotherapy research. American Journal of Psychotherapy, 1974, 28, 488-499. (a)

Gottschalk, L. A. Quantification and psychological indicators of emotions: The content analysis of speech and other objective measures of psychologic states. International Journal Psychiatry in Medicine, 1974, 5, (4), 587-610. (b)

Gottschalk, L. A., & Gleser, G. C. The measurement of psychological states through the content analyis of verbal behavior. Berkeley, Los Angeles: University of California Press, 1969.

Gottschalk, L. A., Winget, C. N., & Gleser, G. C. Manual of instructions for using the Gottschalk-Gleser content analysis scales: Anxiety, hostility, and social alienation-personal disorganization. Berkeley, Los Angeles: University of California Press, 1969.

Greenblatt, M., Becerra, R. M., & Serafetinides, E. A. Social networks and mental health: An overview. The American Journal of Psychiatry, 1982, 139, 977-984.

Grinker, R. R., Sr. Perspectives in biology and psychiatry. In G. Usdin (Ed.), Schizophrenia: Biological and psychological perspectives. New York: Brunner/Mazel, 1975.

Grinker, R. R., Sr. Planning for a schizophrenia research program: A prototype. Schizophrenia Bulletin, 1981, 7, 181-193.

Guerin, P. J., Jr. Family therapy: The first twenty-five years. In P. J. Guerin, Jr. (Ed.), Family therapy: Theory and practice. New York: Gardner Press, 1976.

Gunderson, J. G. The influence of theoretical model of schizophrenia on treatment practice. The Journal of American Psychoanalytic Association, 1974, 22, 182-99.

Gunderson, J. G. Individual psychotherapy. In L. Bellak (Ed.) Disorders of the schizophrenic syndrome. New York: Basic Books, 1979.

Gunderson, J. G., & Mosher, L. R. The cost of schizophrenia. American Journal of Psychiatry, 1975, 132, 901-906.

Haier, R. J. The diagnosis of schizophrenia: A review of recent developments. Schizophrenia Bulletin, 1980, 6, 417-428.

Hamilton, G. Theory and practice of social case work. New York: Columbia University Press, 1940.

Hartmann, H. Ego Psychology and the problem of adaptation. (Originally in German, 1939). Translated by D. Rapaport. New York: International Universities Press, 1958.

Hartmann, W., Kind, J., Meyer, J. E., Muller, P., & Steuber, H. Neuroleptic drugs and the prevention of relapse in schizophrenia: A workshop report. Schizophrenia Bulletin, 1980, 6, 536-543.

Hatfield, A. B. The family as partner in the treatment of mental illness. Hospital & Community Psychiatry, 1979, 30, 338-340.

Havstad, L. F. Weight loss and weight loss maintenance as aspects of family emotional processes. Unpublished doctoral dissertation, University of Southern California, 1979.

Heston, L. L. Psychiatric disorders in foster home reared children of schizophrenic mothers. British Journal of Psychiatry, 1966, 112, 819-825.

Hogarty, G. E. Treatment and the course of schizophrenia. Schizophrenia Bulletin, 1977, 3, 587-599.

Hogarty, G. E., Goldberg, S. C., & the Collaborative Study Group. Drug and sociotherapy in the aftercare of schizophrenic patients: One year relapse rates. Archives of General Psychiatry, 1973, 28, 54-64.

Hogarty, G. E., Goldberg, S. C., Schooler, N. R., Ulrich, R. F., & the Collaborative Study Group. Drug and sociotherapy in the aftercare of schizophrenic patients: II Two-year relapse rates. Archives of General Psychiatry, 1974, 31, 603-608.

Hogarty, G. E. & Ulrich, R. F. Temporal effects of drug and placebo in delaying relapse in schizophrenic outpatients. Archives of General Psychiatry, 1977, 34, 297-301.

Hollingshead, A. B., & Redlich, F. C. Social class and mental illness: A community study. New York: John Wiley & Sons, 1958.

Hotchkiss, G. D., Carmen, L., Ogilby, A., & Wiessenfeld, S. Mothers of young male single schizophrenic patients as visitors in a mental hospital. The Journal of Nervous and Mental Disease, 1955, 121, 452-462.

Isaac, S., & Michael, W. B. Handbook in research and evaluation (13th printing). San Diego, California: Edits Publishers, 1980.

Jackson, D. D. The study of the family. Family Process, 1965, 4, 1-20.

Jackson, D. D. The individual and the larger contexts. Family Process, 1967, 6, 139-147.

Jackson, D. D., & Weakland, J. H. Schizophrenic symptoms and family interaction. Archives of General Psychiatry, 1959, 1, 618-621.

Johnson, D. A. W. Further observations of the duration of depot neuroleptic maintenance therapy in schizophrenia. British Journal of Psychiatry, 1979, 135, 524-530.

Jones, J. E. Patterns of transactional style deviance in the TAT's of parents of schizophrenics. Family Process, 1977, 16, 327-337.

Keith, S. J., Gunderson, J. G., Reifman, A., Buchsbaum, S., & Mosher, L. R. Special report: Schizophrenia 1976. Schizophrenia Bulletin, 1976, 2, 510-565.

Kety, S. S., Rosenthal, D., Wender, P. H., & Schulsinger, F. The types and prevalence of mental illness in the biological and adoptive families of adopted schizophrenics. In D. Rosenthal & S. S. Kety, (Eds.), The transmission of schizophrenia. Oxford: Pergamon Press, 1968.

Kirk, S. A. Effectiveness of community services for discharged mental hospital patients. American Journal of Orthopsychiatry, 1976, 46, 646-659.

Klein, M. Notes on some schizoid mechanisms. The International Journal of Psycho-Analysis, 1946, 27, 99-110.

Klerman, G. L. Better but not well: Social and ethical issues in the deinstitutionalization of the mentally ill. Schizophrenia Bulletin, 1977, 3, 617-631.

Kohn, M. L. The interaction of social class and other factors in the etiology of schizophrenia. The American Journal of Psychiatry, 1976, 133, 177-180.

Kraepelin, E. Dementia praecox and paraphrenia. (Originally in German, 1919). Translated by R. M. Barclay. Edited by G. M. Robertson. Huntington, New York: Robert E. Krieger Publishing, 1971.

Kreisman, D. E., & Joy, V. D. Family response to the mental illness of a relative: A review of the literature. Schizophrenia Bulletin, 1974, 1 (10), 34-57.

Kreisman, D. E., Simmons, S. J., & Joy, V. D. Rejecting the patient: Preliminary validation of a self-report scale. Schizophrenia Bulletin, 1979, 5, 220-222.

Kringlen, E. Adult offspring of two psychotic parents, with special reference to schizophrenia. In L. C. Wynne, R. L. Cromwell, & S. Matthysse (Eds.), The nature of schizophrenia: New approaches to research and treatment. New York: John Wiley & Sons, 1978.

Kuipers, L. Expressed emotion: A review. British Journal of Social and Clinical Psychology, 1979, 18, 237-243.

Laing, R. D. Mystification, confusion and conflict. In I. Boszormenyi-Nagy & J. L. Framo (Eds.) Intensive family therapy: Theoretical and practical aspects. New York: Harper & Row, 1965.

Laing, R. D., & Esterson, A. Sanity, madness and the family. New York: Basic Books, 1964.

Lansky, M. R. Research in family therapy. In E. A. Serafetinides (Ed.), Methods of biobehavioral research. New York: Grune & Stratton, 1979.

Lansky, M. R. Introduction: Major psychopathology and family therapy. In M. R. Lansky (Ed.), Family therapy and major psychopathology. New York: Grune & Stratton, 1981.

Leff, J. P. Schizophrenia and sensitivity to the family environment. Schizophrenia Bulletin, 1976, 2, 566-574.

Leff, J. P., & Vaughn, C. E. The interaction of life events and relatives' expressed emotion in schizophrenia and depressive neurosis. British Journal of Psychiatry, 1980, 136, 146-153.

Leff, J., & Vaughn, C. The role of maintenance therapy and relatives' expressed emotion in relapse of schizophrenia: A two-year follow-up. British Journal of Psychiatry, 1981, 139, 102-104.

Lehman, H. E. Psychopharmacological treatment of schizophrenia. Schizophrenia Bulletin, 1975, 1 (13), 27-45.

Lewis, J. M. A teacher of psychotherapy looks at family systems issues. Chapter in W. R. Beavers' Psychotherapy and growth: A family systems perspective. New York: Brunner/Mazel, 1977, 159-183.

Lewis, J. M., Beavers, W. R., Gossett, J. T., & Phillips, V. A. No single thread: Psychological health in family systems. New York: Brunner/Mazel, 1976.

Liberman, R. P. Social factors in the etiology of the schizophrenic disorders. In L. Grinspoon (Ed.), Psychiatry: the American Psychiatric Association annual review-1982. Washington, D.C.: American Psychiatric Press, 1982.

Liberman, R. P., Wallace, C. J., Vaughn, C. E., Snyder, K. S., & Rust, C. Social and family factors in the course of schizophrenia. Toward an interpersonal problem-solving therapy for schizophrenics and their families. In J. S. Strauss, M. Bowers, T. W. Downey, S. Fleck, S. Jackson, & I. Levine (Eds.), The psychotherapy of schizophrenia. New York: Plenum Medical Book Co., 1980.

Lidz, T. Schizophrenia and the family. Psychiatry, 1958, 21, 21-27.

Lidz, T. The family, personality development, and schizophrenia. In J. Romano (Ed.), The origins of schizophrenia. Amsterdam: Excerpta Medica Foundation, 1967.

Lidz, T. The family, language, and the transmission of schizophrenia. In D. Rosenthal & S. S. Kety (Eds.), The transmission of schizophrenia. Oxford: Pergamon Press, 1968.

Lidz, T. The origin and treatment of schizophrenic disorders. New York: Basic Books, 1973.

Lidz, T., Cornelison, A. R., Fleck, S., & Terry, D. The intrafamilial environment of schizophrenic patients: II. Marital schism and marital skew. American Journal of Psychiatry, 1957, 114, 241-248.

Lidz, T., & Fleck, S. Schizophrenia, human integration, and the role of the family. In D. D. Jackson (Ed.), The etiology of schizophrenia. New York: Basic Books, 1960.

Lidz, T., Fleck, S., & Cornelison, A. R. Schizophrenia and the family. New York: International Universities Press, 1965.

Lief, A. The commonsense psychiatry of Dr. Adolf Meyer. Fifty-two selected papers. New York: McGraw-Hill, 1948.

Liem, J. H. Family studies of schizophrenia: An update and commentary. Schizophrenia Bulletin, 1980, 6, 429-455.

Mahler, M.S., Pine, F., & Bergman, A. The psychological birth of the human infant. New York: Basic Books, 1975.

Malamud, W., & Overholzer, W. Multidisciplinary research in schizophrenia. The American Journal of Psychiatry, 1958, 114, 865-872.

Mandell, A. J. Adaptive macromolecular regulation of neurotransmission in brain: Possible significance for schizophrenia. In L. J. West & D. E. Flinn (Eds.), Treatment of schizophrenia: Progress and prospects. New York: Grune & Stratton, 1976.

Marder, S. R., van Kammen, D. P., Docherty, J. P., Rayner, J., & Bunney, W. E. Predicting drug-free improvement in schizophrenic psychosis. Archives of General Psychiatry, 1979, 36, 1080-1085.

McFarlane, W. R. Introduction. In W. R. McFarlane (Ed.) Family therapy in schizophrenia. New York: Guilford Press, 1983.

Meissner, W. W. Thinking about the family -- Psychiatric aspects. Family Process, 1964, 3, 1-40.

Minuchin, S. Families and family therapy. Cambridge, Massachussets: Howard University Press, 1974.

Mishler, E. G., & Waxler, N. E. Family interaction processes and schizophrenia: A review of current theories. The Merrill-Palmer Quarterly of Behavior and Development, 1965, 11 (4), 269-315. Reprinted in The International Journal of Psychiatry, 1966, 2, 375-413.

Mishler, E. G., & Waxler, N. E. Family interaction and schizophrenia: Alternative frameworks of interpretation. In D. Rosenthal & S. S. Kety (Eds.), The transmission of schizophrenia. Oxford: Pergamon Press, 1968.

Mosher, L. R., & Keith, S. J. Psychosocial treatment: Individual, group, family, and community support approaches. Schizophrenia Bulletin, 1980, 6, 10-41.

Nicol, S. E., & Heston, L. L. The future of genetic research in schizophrenia. Psychiatric Annals, 1979, 9, 14-25.

Norton, J. P. Expressed emotion , affective style, voice tone and communication deviance as predictors of offspring schizophrenia spectrum disorders. Unpublished doctoral dissertation, University of California, Los Angeles, 1982.

Oken, D. An experimental study of suppressed anger and blood pressure. Archives of General Psychiatry, 1960, 2, 441-456.

Orzack, M. H. & Kornetsky, C. Environmental and familial predictors of attention behavior in chronic schizophrenics. Journal of Psychiatric Research, 1971, 9, 21-29.

Overall, J. E., & Gorham, D. R. The Brief Psychiatric Rating Scale. Psychological Reports, 1962, 10, 799-812.

Parker, G. Re-Searching the schizophrenogenic mother. The Journal of Nervous and Mental Disease, 1982, 170, 452-462.

Parsons, T., & Bales, R. F. Family socialization and interaction process. Glencoe, Illinois: The Free Press, 1955.

Pattison, E. M., DeFrancisco, D., Wood, P., Frazier, H., & Crowder, J. A psychosocial kinship model for family therapy. The American Journal of Psychiatry, 1975, 132, 1246-1251.

Paykell, E. S. Contribution of life events to causation of psychiatric illness. Psychological Medicine, 1978, 8, 245-253.

President's Commission on Mental Health, 1978. Report to the president. Washington, D. C.: U.S. Government Printing Office, 1978.

Rabkin, J. G. Stressful life events and schizophrenia: A review of the research literature. Psychological Bulletin, 1980, 87, 408-425.

Reiss, D. Competing hypotheses and warring factions: Applying knowledge of schizophrenia. Schizophrenia Bulletin, 1974, 1 (8), 7-11.

Richmond, M. E. Social diagnosis. New York: The Free Press, 1965. (Originally published 1917).

Rosen, J. N. The concept of early maternal environment in direct psychoanalysis. Doylestown, Pa: The Doylestown Foundation, 1963.

Rutter, M., & Brown, G.W. The reliability and validity of measures of family life and relationships in families containing a psychiatric patient. Social Psychiatry, 1966, 1, 38-53.

Scheflen, A. E. Levels of schizophrenia. New York: Brunner/Mazel, 1981.

Schooler, N. R., Levine, J., Severe, J. B., Brauzer, B., Di Mascio, A., Klerman, G. L., & Tuason, V. B. Prevention of relapse in schizophrenia: An evaluation of fluphenazine decanoate. Archives of General Psychiatry, 1980, 37, 16-24.

Searles, H. Collected papers on schizophrenia and related subjects. New York: International Universities Press, 1965.

Sider, R. C., & Clements, C. Family or individual therapy: The ethics of modality choice. The American Journal of Psychiatry, 1982, 139, 1455-1459.

Simpson, G. M., Vargn, E., Lee, S. M., & Zoubok, B. Tardive dyskinesia and psychotropic drug history. Psychopharmacology, 1978, 58, 117-124.

Singer, M. T., & Wynne, L. C. Thought disorder and family relations of schizophrenics: III. Methodology using projective techniques. Archives of General Psychiatry, 1965, 12, 187-200. (a)

Singer, M. T., & Wynne, L. C. Thought disorder and family relations of schizophrenics: IV. Results and implications. Archives of General Psychiatry, 1965, 12, 201-202. (b)

Slater, E. A review of earlier evidence on genetic factors in schizophrenia. In D. Rosenthal & S. S. Kety (Eds.), The transmission of schizophrenia. Oxford: Pergamon Press, 1968.

Snyder, K. S., & Liberman, R. P. Family assessment and intervention with schizophrenics at risk for relapse. In M. Goldstein (Ed.), New developments in interventions with families of schizophrenics. New Directions for Mental Health Services #12, Dec. 1981, 49-60.

Speer, D. C. & Zold, A. An example of self-selected bias in follow-up research. Journal of Clinical Psychology, 1971, 27, 64-68.

Spiegel, J. P., & Bell, N. W. The family of the psychiatric patient. In S. Arieti (Ed.), American handbook of psychiatry (Vol. 1). New York: Basic Books, 1959.

Spitzer, R. L., Andreasen, N. C., & Endicott, J. Schizophrenia and other psychotic disorders in DSM-III. Schizophrenia Bulletin, 1978, 4, 489-494.

Spitzer, R. L., Endicott, J., & Robins, E. The research diagnostic criteria: Rationale and reliability. Archives of General Psychiatry, 1978, 35, 773-782.

Spring, B. Stress and schizophrenia: Some definitional issues. Schizophrenia Bulletin, 1981, 7, 24-33.

Strauss, J. S., & Carpenter, W. T., Jr. The prediction of outcome in schizophrenia: I. Characteristics of outcome. Archives of General Psychiatry, 1972, 27, 739-746.

Strauss, J. S., & Carpenter, W. T., Jr. Characteristic symptoms and outcome in schizophrenia. Archives of General Psychiatry, 1974, 30, 429-434. (a)

Strauss, J. S., & Carpenter, W. T., Jr. The prediction of outcome in schizophrenia: II. Relationship between predictors and outcome variables. A report from the WHO International Pilot Study of Schizophrenia. Archives of General Psychiatry, 1974, 31, 37-42. (b)

Strauss, J. S., & Carpenter, W. T., Jr. Schizophrenia. New York: Plenum Medical Book Co., 1981.

Strauss, J. S., Loevsky, L., Glazer, W., & Leaf, P. Organizing the complexities of schizophrenia. The Journal of Nervous and Mental Disease, 1981, 169, 120-126.

Sturgeon, D., Kuipers, L., Berkowitz, R., Turpin, G., & Leff, J. Psychophysiological responses of schizophrenic patients to high and low expressed emotion relatives. British Journal of Psychiatry, 1981, 138, 40-45.

Sullivan, H. S. The interpersonal theory of psychiatry, H. S. Perry & M. L. Gawl (Eds.). New York: Norton, 1953.

Sullivan, H. S. Schizophrenia as a human process, H. S. Perry (Ed.). New York: Norton, 1962.

Szasz, T. S. The myth of mental illness. New York: Hoeber-Harper Books, 1961.

Szasz, T. S. Schizophrenia: The sacred symbol of psychiatry. British Journal of Psychiatry, 1976, 129, 308-316.

Talbot, J. A. The chronic mentally ill. In S. Arieti & H. K. H. Brodie (Eds.), American Handbook of psychiatry (Vol. 7) (2nd ed.). New York: Basic Books, 1981.

Tarrier, N., Vaughn, C., Lader, M. H., & Leff, J. P. Bodily reactions to people and events in schizophrenics. Archives of General Psychiatry, 1979, 36, 311-315.

Tietze, T. A study of mothers of schizophrenic patients. Psychiatry, 1949, 12, 55-65.

Tolsdorf, C. C. Social networks, support, and coping: An exploratory study. Family Process, 1976, 15, 407-417.

Turner, J. C., & TenHoor, W. J. The NIMH community support program: Pilot approach to a needed social reform. Schizophrenia Bulletin, 1978, 4, 319-344.

Vaughn, C. E., & Leff, J. P. The influence of family and social factors on the course of psychiatric illness. A comparison of schizophrenic and depressed neurotic patients. British Journal of Psychiatry, 1976, 129, 125-137. (a)

Vaughn, C. E., & Leff, J. P. The measurement of expressed emotion in the families of psychiatric patients. British Journal of Social and Clinical Psychology, 1976, 15, 157-165. (b)

Vaughn, C. E., & Leff, J. P. Patterns of emotional response in relatives of schizophrenic patients. Schizophrenia Bulletin, 1981, 7, 43-44.

Vaughn, C. E., Snyder, K. S., Freeman, W., Jones, S., Falloon, I. R. H., & Liberman, R. P. Family factors in schizophrenic relapse: A replication. Schizophrenia Bulletin, 1982, 8, 425-426.

Vaughn, C. E., Snyder, K. S., Jones, S., Freeman, W. B., & Falloon, I. R. H. Family factors in schizophrenic relapse: A California replication of the British research on expressed emotion. Submitted for publication, Mental Health Clinical Research Center for the Study of Schizophrenia, Brentwood VA Medical Center, 11301 Wilshire Blvd., Los Angeles, California 90073, 1983.

Veith, I. Psychiatric nosology: From Hippocrates to Kraepelin. The American Journal of Psychiatry, 1957, 114, 385-391.

Venables, P. H., & Wing, J. K. Level of arousal and the subclassification of schizophrenia. Archives of General Psychiatry, 1962, 7, 114-119.

Wasserman, H. Reflections on clinical social work. Smith College Studies in Social Work, 1982, 52, 169-187.

Weakland, J. H. The "Double-Bind" hypothesis of schizophrenia and three-party interaction. In D. D. Jackson (Ed.), The etiology of schizophrenia. New York: Basic Books, 1960.

Weakland, J. H. "The Double-Bind Theory" by self-reflexive hindsight. Family Process, 1974, 13, 269-277.

Weakland, J. H. Communication theory and clinical change. In P. J. Guerin, Jr. (Ed.), Family therapy: Theory and practice. New York: Gardner Press, 1976.

Wing, J. K. The social context of schizophrenia. American Journal of Psychiatry. 1978, 135, 1333-1339.

Wing, J. K., Cooper, J. E., & Sartorius, N. Description and classification of psychiatric symptoms: An instruction manual for the PSE and CATEGO systems. London: Cambridge University Press, 1974.

Wynne, L. C. Family transactions and schizophrenia: II. Conceptual considerations for a research strategy. In J. Romano (Ed.), The origins of schizophrenia. Amsterdam: Excerpta Medica Foundation, 1967.

Wynne, L. C. Methodological and conceptual issues in the study of schizophrenics and their families. Journal of Psychiatric Research, 1968, 6, 185-199.

Wynne, L. C. Current concepts about schizophrenics and family relationships. The Journal of Nervous and Mental Disease, 1981, 169, 82-89.

Wynne, L. C., Ryckoff, I. M., Day, J., & Hirsch, S. I. Pseudo-mutuality in the family relations of schizophrenics. Psychiatry, 1958, 21, 205-220.

Wynne, L. C., & Singer, M.T. Thought disorder and family relations of schizophrenics: I. A research strategy. Archives of General Psychiatry, 1963, 9, 191-198. (a)

Wynne, L. C., & Singer, M. T. Thought disorder and family relations of schizophrenics: II. A classification of forms of thinking. Archives of General Psychiatry, 1963, 9, 199-206. (b)

Wynne, L. C., Toohey, M. L., & Doane, J. Family studies: In L. Bellak (Ed.), Disorders of the schizophrenic syndrome. New York: Basic Books, 1979.

Zilboorg, G. Eugen Bleuler and present-day psychiatry. The American Journal of Psychiatry, 1957, 114, 289-298.

Zubin, J. The role of vulnerability in the etiology of schizophrenic episodes. In L. J. West & D. E. Flinn (Eds.), Treatment of schizophrenia: Progress and prospects. New York: Grune & Stratton, 1976.

Zuk, G. H., & Rubinstein, D. A review of concepts in the study and treatment of families of schizophrenics. In I. Boszormenyi-Nagy & J. L. Framo (Eds.), Intensive family therapy: Theoretical and practical aspects. New York: Harper & Row, 1965.

TABLES

Table 1

Sociodemographic Characteristics of the Sample

(N=23)

Patient	A Race*	B Age	C Marital** Status	D Years of Education	E Social Class	F Paid Employment	G Living Arrangements
1	C	53	S	12	4	No	Alone
2	O	35	M	12	4	Yes	Spouse
3	B	41	M	11	5	Yes	Spouse
4	B	35	M	14	4	Yes	Spouse
5	C	49	S	17	3	No	Parent(s)
6	B	33	D	14	4	Yes	Alone
7	B	48	M	15	4	Yes	Spouse
8	B	45	S	12	4	No	B&C
9	B	28	S	13	4	Yes	Alone
10	C	47	D	13	4	No	B&C
11	C	51	S	12	4	No	Relative
12	B	45	D	12	5	No	B&C
13	C	38	S	18	2	No	Parent
14	C	35	S	14	3	No	B&C
15	O	24	S	11	5	No	Parent
16	O	27	D	12	5	No	Alone
17	B	32	S	12	4	No	Parent
18	B	39	S	13	3	No	Other
19	C	26	S	12	5	No	Other
20	B	31	D	14	4	No	Alone
21	B	46	S	14	5	No	Parent
22	B	35	S	14	5	No	Alone
23	B	25	S	11	5	No	Parent

* C = Caucasian, B = Black, O = Other.

** S = Single, M = Married, D = Divorced/Separated.

Table 2

Psychiatric History Characteristics of the Sample

(N=23)

Patient	A Age of Onset	B Number of Hospitalizations	C Duration of Hospitalizations (Months)	D Total Time Ill (Years)	E Lapsed Time Since Last Hospitalized (Months)
1	21	8	171	31	15
2	24	2	2	11	30
3	35	6	8	6	44
4	21	1	3	14	172
5	32	2	1	17	117
6	20	6	6	13	34
7	21	4	39	27	117
8	21	4	121	24	71
9	22	5	12	7	3
10	21	12	50	27	1
11	20	5	18	31	74
12	25	3	72	21	86
13	27	4	4	12	1
14	20	4	15	15	18
15	20	2	5	5	6
16	21	6	13	6	33
17	23	2	5	10	93
18	31	4	7	8	51
19	19	17	19	7	11
20	23	7	19	8	1
21	25	5	77	22	48
22	21	8	39	14	2
23	20	3	6.5	5	35
Means	23.17 yrs.	5.22	30.98 mos.	14.83 yrs.	46.22 mos.

Table 3

Sociodemographic Characteristics of Non-Participants

(N=9)

Patient	A Race*	B Age	C Marital** Status	D Years of Education	E Social Class	F Paid Employment	G Living Arrangements
1	C	28	S	12	4	No	Other
2	C	37	S	11	4	No	Alone
3	B	31	D	13	3	No	B&C
4	B	32	M	12	4	Yes	Spouse
5	B	21	S	11	5	No	Alone
6	B	29	M	12	4	Yes	Spouse
7	C	33	S	12	5	No	Other
8	B	42	M	13	5	No	Spouse
9	B	33	S	13	5	No	B&C

* C = Caucasian, B = Black.
** S = Single, M = Married, D = Divorced/Separated.

Table 4

Psychiatric History Characteristics of the Non-Participants

(N=9)

Patient	A Age of Onset	B Number of Hospitalizations	C Duration of Hospitalizations (Months)	D Total Time Ill (Years)	E Lapsed Time Since Last Hospitalized (Months)
1	20	4	10	9	16
2	30	6	19	6	19
3	18	10	32	14	9
4	27	3	13	6	26
5	21	1	3	0.83	1
6	21	5	12	8	29
7	18	6	42	15	100
8	19	17	41	24	2
9	21	8	22	14	26
Means	21.67 yrs.	6.67	21.56 mos.	10.76 yrs.	25.33 mos.

Table 5

Characteristics of Relatives Interviewed

(N=30)

Patient	Nature of Relationship	Living Together With Patient	Direct Weekly Contact <35 hrs.	⩾35 hrs.	Type* Interview
1	father	No	x		T
1	girlfriend	No		x	P
2	wife	Yes		x	T
3	wife	Yes		x	P
4	wife	Yes		x	P
5	mother	Yes		x	P
5	grandmother	Yes		x	P
6	mother	No	x		P
6	sister	No	x		P
7	wife	Yes		x	T
8	mother	No	x		T
9	brother	No		x	P
10	son	No	x		P
11	brother	Yes		x	P
11	sister-in-law	Yes	x	x	T
12	mother	No	x		T
13	father	Yes		x	T
13	mother	Yes		x	T
14	mother	No	x		P
15	father	Yes		x	T
15	mother	Yes		x	T
15	sister	Yes		x	T
16	mother	No	x		P
17	mother	Yes		x	T
18	landlady	Yes	x		T
19	roommate	Yes		x	T
20	sister	No	x		T
21	mother	Yes		x	T
22	aunt	No	x		T
23	mother	Yes		x	T

* T = Telephone, P = in person.

Table 6

Patient Rejection Scale: Relatives' Scores

Relative	PRS Mean Score	Nature of Relationship	Race* of Respondent	Patient** Relapse
1	2.13	Father	C	
2	3.96	Wife	O	
3	2.67	Wife	B	X
4	1.13	Wife	B	
5	1.79	Mother	C	
6	2.39	Mother	B	
7	2.17	Wife	B	
8	2.35	Mother	B	
9	3.61	Brother	B	X
10	3.13	Son	C	X
11	1.67	Sister-in-law	C	
12	3.54	Father	C	
13	3.22	Mother	C	
14	3.75	Mother	O	
15	4.22	Mother	O	
16	3.42	Mother	B	
17	4.58	Landlady	B	
18	3.78	Sister	B	X
19	2.58	Mother	B	
20	1.92	Aunt	B	X
21	2.88	Mother	B	X

* Race: C = Caucasian, B = Black, O = Other

** Patient relapse indicated by X.

Table 7

Patient Rejection Scale Scores:
Relapsers and Non-Relapsers
(N = 21)

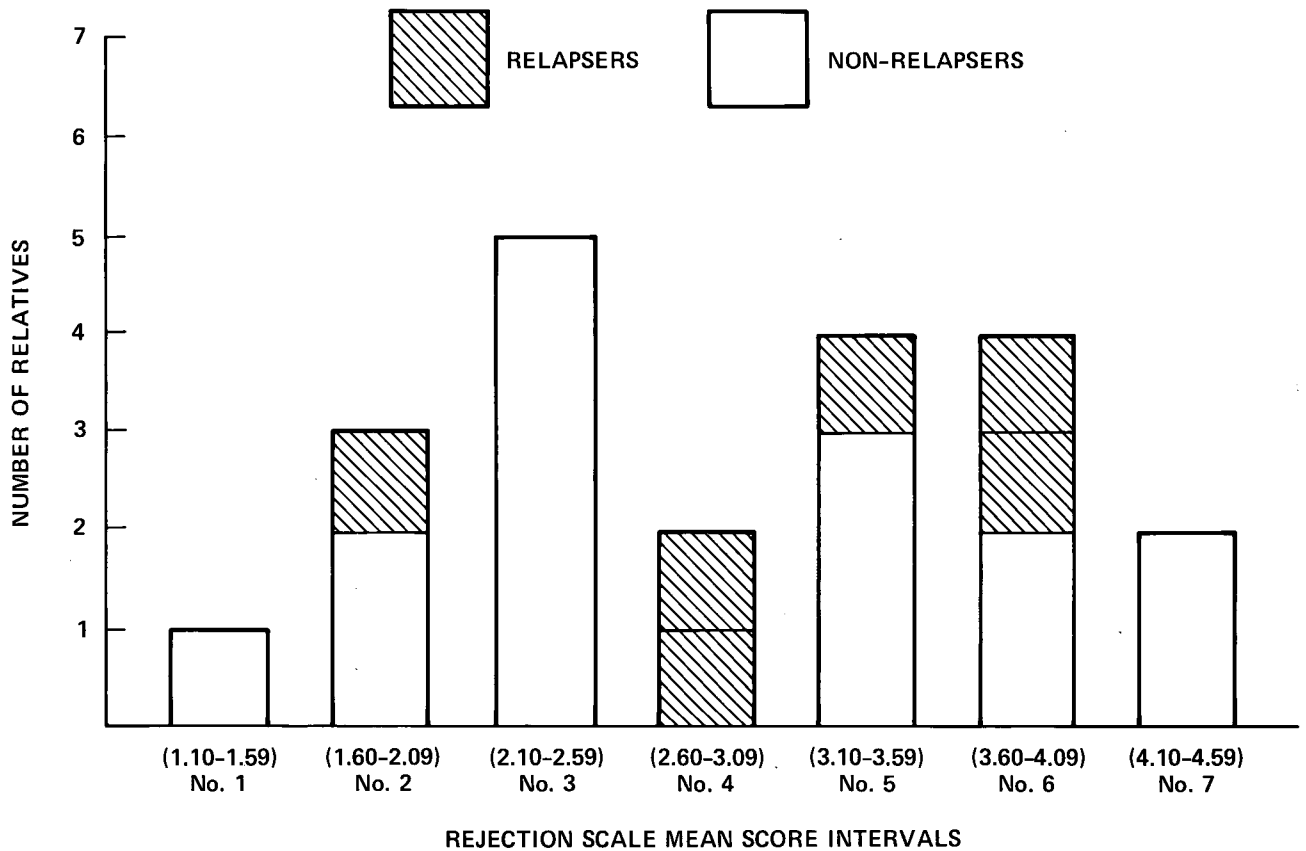

Table 8

Patient Rejection Scale

Frequency Distribution: Relative's Responses

Total Sample (N=21)

Item		Response Distributions Number (Percent) 1 Always	2 Almost Always	3 A lot of the time	4 Sometime	5 Once in a While	6 Almost Never	7 Never	NA
1.	I enjoy being with him.	8(38)	4(19)	2(10)	7(33)				
2.	It gets easier to understand him as time goes on.	2(10)	5(24)	2(10)	3(14)	5(24)	3(14)	1(5)	
*3.	He could get better if he would only try.	3(14)	1(5)	4(19)	6(29)	2(10)	2(10)	3(14)	
4.	He is an important part of my life.	14(67)	2(10)	2(10)	2(10)			1(5)	
*5.	I am very disappointed in him.	4(19)	1(5)	2(10)	8(38)	4(19)	1(5)	1(5)	
6.	I love him very much.	17(81)	2(10)		1(5)				1(5)
*7.	I don't expect much from him.	5(24)	2(10)	5(24)	4(19)	4(19)	1(5)		
8.	I'm very proud of him.	6(29)	2(10)	6(29)	3(14)	3(14)			1(5)
*9.	I'm tired of having to organize my life around him.	8(38)	2(10)	2(10)	5(24)	2(10)	1(5)		1(5)
*10.	He is driving me crazy.	8(38)	1(5)	6(29)	4(19)	1(5)	1(5)		
11.	It makes me happy to do things for him.	9(43)	3(14)	4(19)	2(10)	2(10)		1(5)	
*12.	I have to treat hiim like a little kid.	4(19)	3(14)	4(19)	5(24)	4(19)		1(5)	
13.	I can help him get better.	1(5)	4(19)	5(24)	8(38)			3(14)	
*14.	He is not grateful for what we do for him.	7(33)	2(10)	3(14)	5(24)	2(10)	1(5)	1(5)	
*15.	I get more irritated with him as time goes on.	6(29)	3(14)	5(24)	2(10)	4(19)	1(5)		
16.	He is pretty easy to get along with.	3(14)	7(33)	2(10)	5(24)	4(19)			
*17.	It would be better if he lived someplace else.	8(38)			3(14)	1(5)	1(5)		8(38)
*18.	It's hard to tell what he's going to do next.	1(5)	3(14)	4(19)	7(33)	1(5)	3(14)	2(10)	
*19.	He acts as if he doesn't care about me.	7(33)	4(19)	3(14)	4(19)	1(5)	1(5)		1(5)
20.	I can count on him for help.	5(24)	4(19)	1(5)	4(19)	2(10)	4(19)	1(5)	
*21.	If he leaves me alone, I leave him alone.	6(29)	1(5)	1(5)	2(10)	3(14)	2(10)	6(29)	
*22.	I don't care what happens to him anymore.	20(95)	1(5)						
*23.	I wish he had never been born.	19(90)			1(5)				1(5)
24.	He makes me happy.	4(19)	2(10)	4(19)	7(33)	2(10)	1(5)	1(5)	
	Total Percentage Means	34.8	11.8	13.5	19.5	9.5	4.7	4.5	2.6
	Total Number	175	59	67	98	47	23	22	13

* Scoring reversed on these items so that "always" represents least critical or rejecting attitude and "never" represents the most critical or rejecting attitude.

Table 9

Patient Rejection Scale

Frequency Distribution: Responses of Relatives of Non-Relapsed Patients

(N=15)

Item		Response Distributions Number (Percent) 1 Always	2 Almost Always	3 A lot of the time	4 Sometime	5 Once in a While	6 Almost Never	7 Never	NA
1.	I enjoy being with him.	7(47)	4(27)		4(27)				
2.	It gets easier to understand him as time goes on.	1(7)	5(33)	1(7)	2(13)	4(27)	1(7)	1(7)	
*3.	He could get better if he would only try.	3(20)	1(7)	2(13)	4(27)	1(7)	2(13)	2(13)	
4.	He is an important part of my life.	10(67)	1(7)	2(13)	1(7)			1(7)	
*5.	I am very disappointed in him.	3(20)	1(7)	1(7)	7(47)	1(7)	1(7)	1(7)	
6.	I love him very much.	11(73)	2(13)		1(7)				1(7)
*7.	I don't expect much from him.	3(20)	2(13)	5(33)	2(13)	2(13)	1(7)		
8.	I'm very proud of him.	6(40)	2(13)	3(20)		3(20)			1(7)
*9.	I'm tired of having to organize my life around him.	7(47)		2(13)	2(13)	2(13)	1(7)		1(7)
*10.	He is driving me crazy.	6(40)	1(7)	4(27)	2(13)	1(7)	1(7)		
11.	It makes me happy to do things for him.	7(47)		4(27)	2(13)	1(7)		1(7)	
*12.	I have to treat him like a little kid.	3(20)	2(13)	3(20)	3(20)	3(20)		1(7)	
13.	I can help him get better.	1(7)	4(27)	4(27)	3(20)			3(20)	
*14.	He is not grateful for what we do for him.	6(40)	1(7)	1(7)	5(33)		1(7)	1(7)	
*15.	I get more irritated with him as time goes on.	5(33)	2(13)	3(20)	1(7)	1(7)			
16.	He is pretty easy to get along with.	1(7)	6(40)	2(13)	2(13)	4(27)			
*17.	It would be better if he lived someplace else.	6(40)			2(13)	1(7)	1(7)		5(33)
*18.	It's hard to tell what he's going to do next.	1(7)	3(20)	4(27)	3(20)	1(7)	2(13)	1(7)	
*19.	He acts as if he doesn't care about me.	5(33)	3(20)	3(20)	2(13)		1(7)		1(7)
20.	I can count on him for help.	3(20)	3(20)	1(7)	3(20)	2(13)	3(20)		
*21.	If he leaves me alone, I leave him alone.	4(27)	1(7)	1(7)		2(13)	2(13)	5(33)	
*22.	I don't care what happens to him anymore.	14(93)	1(7)						
*23.	I wish he had never been born.	13(87)			1(7)				1(7)
24.	He makes me happy.	4(27)	2(13)	3(20)	2(13)	2(13)	1(7)	1(7)	
	Total Percentage Means	36.2	13.1	13.7	15.0	9.2	5.4	5.1	2.8
	Total Number	130	47	49	54	33	19	18	10

* Scoring reversed on these items so that "always" represents least critical or rejecting attitude and "never" represents the most critical or rejecting attitude.

Table 10

Patient Rejection Scale

Frequency Distribution: Responses of Relatives of Relapsed Patients

Total Sample (N=6)

Item		Response Distributions Number (Percent) 1 Always	2 Almost Always	3 A lot of the time	4 Sometime	5 Once in a While	6 Almost Never	7 Never	NA
1.	I enjoy being with him.	1(17)		2(33)	3(50)				
2.	It gets easier to understand him as time goes on.	1(17)		1(17)	1(17)	1(17)	2(33)		
*3.	He could get better if he would only try.			2(33)	2(33)	1(17)		1(17)	
4.	He is an important part of my life.	4(67)	1(17)		1(17)				
*5.	I am very disappointed in him.	1(17)		1(17)	1(17)	3(50)			
6.	I love him very much.	6(100)							
*7.	I don't expect much from him.	2(33)			2(33)	2(33)			
8.	I'm very proud of him.			3(50)	3(50)				
*9.	I'm tired of having to organize my life around him.	1(17)	2(33)		3(50)				
*10.	He is driving me crazy.	2(33)		2(33)	2(33)				
11.	It makes me happy to do things for him.	2(33)	3(50)			1(17)			
*12.	I have to treat him like a little kid.	1(17)	1(17)	1(17)	2(33)	1(17)			
13.	I can help him get better.			1(17)	5(83)				
*14.	He is not grateful for what we do for him.	1(17)	1(17)	2(33)		2(33)			
*15.	I get more irritated with him as time goes on.	1(17)	1(17)	2(33)	1(17)	1(17)			
16.	He is pretty easy to get along with.	2(33)	1(17)		3(50)				
*17.	It would be better if he lived someplace else.	2(33)			1(17)				3(50)
*18.	It's hard to tell what he's going to do next.				4(67)		1(17)	1(17)	
*19.	He acts as if he doesn't care about me.	2(33)	1(17)		2(33)	1(17)			
20.	I can count on him for help.	2(33)	1(17)		1(17)		1(17)	1(17)	
*21.	If he leaves me alone, I leave him alone.	2(33)			2(33)	1(17)		1(17)	
*22.	I don't care what happens to him anymore.	6(100)							
*23.	I wish he had never been born.	6(100)							
24.	He makes me happy.			1(17)	5(83)				
	Total Percentage Means	31.3	8.4	12.5	30.5	9.8	2.8	2.8	2.1
	Total Number	45	12	18	44	14	4	4	3

* Scoring reversed on these items so that "always" represents least critical or rejecting attitude and "never" represents the most critical or rejecting attitude.

Table 11

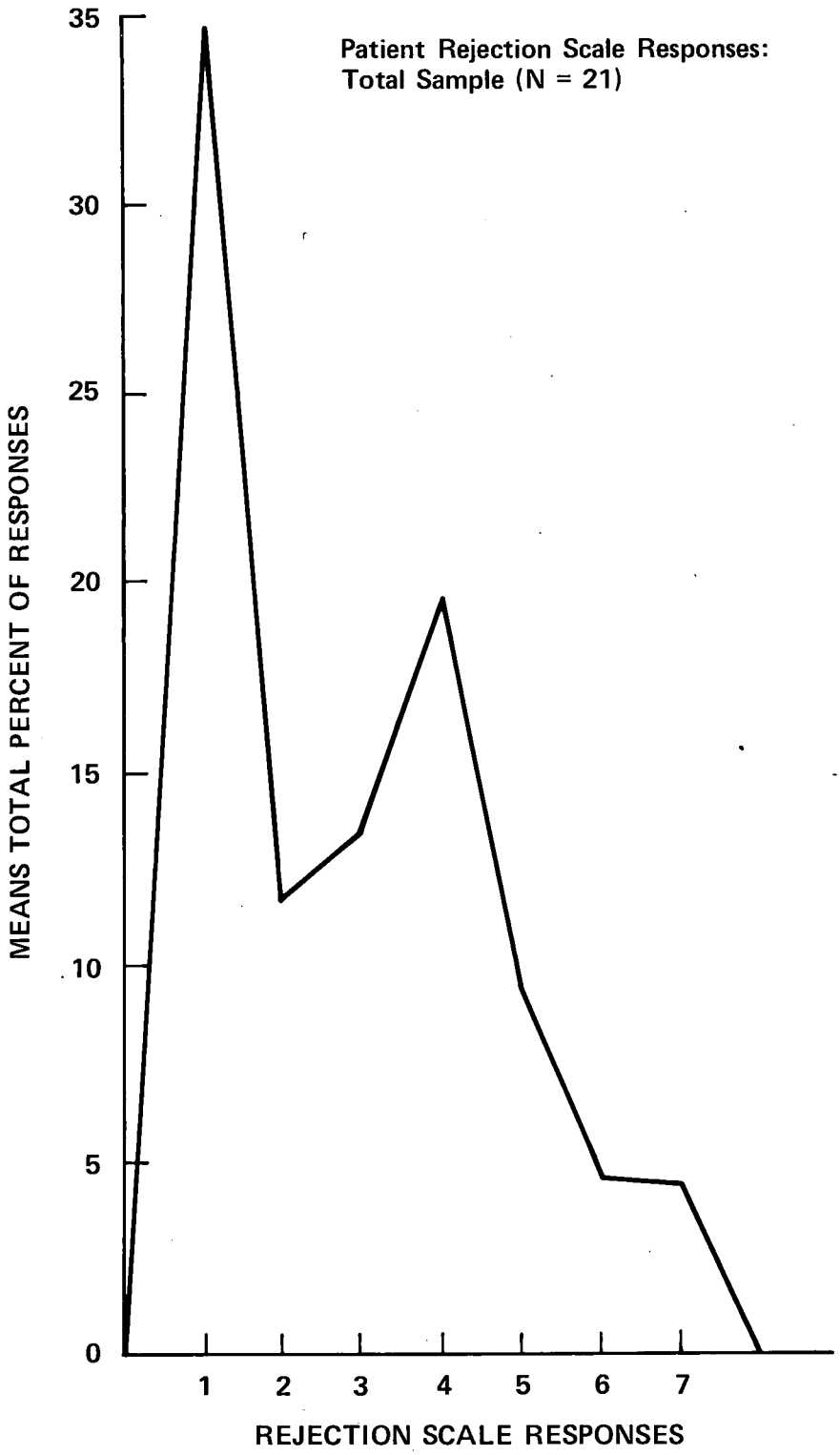
Patient Rejection Scale Responses:
Total Sample (N = 21)
MEANS TOTAL PERCENT OF RESPONSES
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
REJECTION SCALE RESPONSES

Table 12

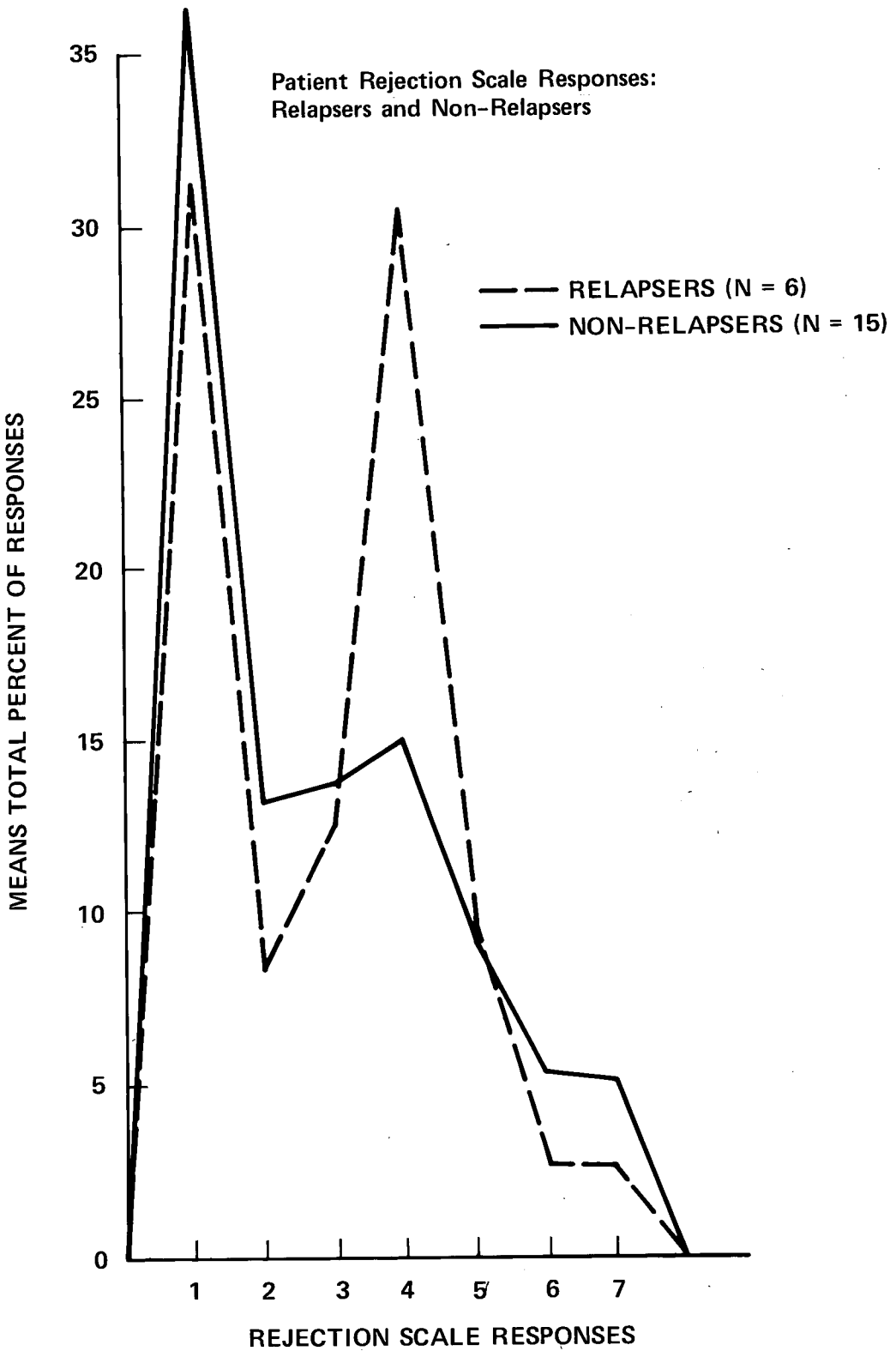
Patient Rejection Scale Responses:
Relapsers and Non-Relapsers
RELAPSERS (N = 6)
NON-RELAPSERS (N = 15)
MEANS TOTAL PERCENT OF RESPONSES
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
REJECTION SCALE RESPONSES

Table 13

Global Judgments of Expressed Emotion: Relatives' Scores

Relative	Components of Expressed Emotion					Nature of Relationship	Race* of Respondent	Patient** Relapse
	Positive Remarks	Emotional Warmth	Overinvolvement	Hostility	Criticism			
1	7	8	3	1	2	Father	C	
2	2	2	1	9	9	Wife	O	
3	2	2	1	7	7	Wife	B	X
4	9	8	1	1	3	Wife	B	
5	9	8	3	1	3	Mother	C	
6	5	7	5	1	4	Mother	B	
7	8	8	2	1	3	Wife	B	
8	5	7	2	2	2	Mother	B	
9	6	7	3	4	5	Brother	B	X
10	2	5	2	4	5	Son	C	X
11	9	8	1	1	2	Sister-in-law	C	
12	7	8	3	4	6	Father	C	
13	5	8	7	4	4	Mother	C	
14	3	5	5	5	7	Mother	O	
15	3	3	4	5	7	Mother	O	
16	5	6	3	2	4	Mother	B	
17	4	3	1	1	3	Landlady	B	
18	3	5	1	7	8	Sister	B	X
19	5	7	5	4	5	Mother	B	
20	6	7	3	2	5	Aunt	B	X
21	7	8	2	2	5	Mother	B	X
Means	5.3	6.2	2.8	3.2	4.7			

* Race: C = Caucasian, B = Black, O = Other

** Patient relapse indicated by X.

Table 14

Hostility Outward Scale: Relatives' Scores

Relative	Total Word Count	Hostility Outward Overt	Covert	Total	Nature of Relationship	Race* of Respondent	Patient** Relapse
1	659	.99	1.32	1.63	Father	C	
2	252	1.94	1.73	2.56	Wife	O	
3	401	2.21	1.06	2.42	Wife	B	X
4	210	2.01	1.09	2.24	Wife	B	
5	681	2.08	.81	2.22	Mother	C	
6	476	2.31	1.17	2.57	Mother	B	
7	121	.64	.64	.64	Wife	B	
8	628	2.02	1.09	2.27	Mother	B	
9	799	.97	2.17	2.36	Brother	B	X
10	934	2.26	1.11	2.50	Son	C	X
11	414	1.81	1.15	2.11	Sister-in-law	C	
12	817	1.58	1.58	2.23	Father	C	X
13	650	1.27	.28	1.27	Mother	C	
14	587	2.12	1.52	2.59	Mother	O	
15	294	2.22	1.60	2.70	Mother	O	
16	497	1.14	.95	1.45	Mother	B	
17	610	1.96	.50	2.00	Landlady	B	
18	870	2.31	1.81	2.93	Sister	B	X
19	541	1.52	1.69	2.25	Mother	B	
20	1085	1.73	1.16	2.07	Aunt	B	X
21	285	1.11	.94	1.39	Mother	B	X
Mean Score		1.72	1.21	2.11			

* Race: C = Caucasian, B = Black, O = Other

** Patient relapse indicated by X.

Table 15

Camberwell Family Interview Criteria Ratings:

Relatives' Scores

Relative	Criticism	Emotional Overinvolvement	Expressed* Emotion	Nature of Relationship	Race** Respondent	Patient*** Relapse
1	0	0	Low	Father	C	
2	3	0	High	Wife	O	
3	0	0	Low	Wife	B	X
4	0	0	Low	Wife	B	
5	0	1	Low	Mother	C	
6	0	0	Low	Mother	B	
7	0	1	Low	Wife	B	
8	0	0	Low	Mother	B	
9	0	0	Low	Brother	B	X
10	1	0	High	Son	C	X
11	0	0	Low	Sister-in-law	C	
12	0	0	Low	Father	C	
13	1	3	High	Mother	C	
14	3	0	High	Mother	O	
15	0	0	Low	Mother	O	
16	0	0	Low	Mother	B	
17	0	0	Low	Landlady	B	
18	1	0	High	Sister	B	X
19	0	1	Low	Mother	B	
20	2	1	High	Aunt	B	X
21	0	0	Low	Mother	B	X

* Expressed Emotion is rated High with 1 or more criticisms and/or a score of 3 or more on emotional overinvolvement.

** Race: C = Caucasian, B = Black, O = Other

*** Patient relapse indicated by X.

Table 16

Relationship of Relatives' Expressed Emotion to Relapse:

Comparison of Three Studies

Study	Percent of Sample		Percent Relapse in 9 Months		Level of Significance
	High EE	Low EE	High EE	Low EE	
London Vaughn & Leff* N=128	45	55	51	13	$p < .001$
UCLA-Camarillo MHCRC** N=54	67	33	56	17	$p < .006$
VAMC Brentwood Lebell*** N=21	29	71	50	20	N.S.

* Vaughn and Leff (1976a) pooled sample with schizophrenics from Brown, Birley, and Wing (1972).

** Vaughn, Snyder, Freeman, Jones, Falloon, and Liberman (1982); Vaughn, Snyder, Jones, Freeman, and Falloon, Submitted for Publication (1983).

*** Present Research, a substudy of research project conducted at West Los Angeles Veterans Administration Medical Center, Brentwood Division titled "Predicting Optimal Neuroleptic Therapy for Schizophrenic Outpatients", Stephen Marder, M.D., Principal Investigator.

Table 17

BPRS Baseline Ratings

Scales	Relapsers (N=6) Mean Scores	Non-Relapsers (N=15) Mean Scores
BPRS Factors		
Psychoticism	6.8	7.2
Depression	4.8	6.3
Paranoia	5.0	4.5
Retardation	5.8	6.1
Total BPRS Scores	30.3	32.8

Table 18

SCL-90 Baseline Ratings

Scales	Relapsers (N=6) Mean Scores	Non-Relapsers (N=15) Mean Scores
SCL-90 Clusters	0.7	0.8
Somatization	0.7	0.9
Obsessive-Compulsive	1.1	0.9
Interpersonal Sensitivity	1.0	0.9
Depression	1.1	0.9
Anxiety	0.6	0.8
Anger-Hostility	0.3	0.4
Phobic Anxiety	0.5	0.6
Paranoid Ideations	1.4	0.9
Psychoticism	1.3	0.8
SCL-90 Global Indices		
General Symptomatic Index	0.9	0.8
Positive Symptom Distress Index	1.7	1.7
Positive Symptom Total Index	42.8	34.5

Table 19

Four Assessments of Patients' Affective Environment
in Relation to Contact and Relapse

Patient	Assessments of Negative Affective Environment				Degree of Contact		Outcome
	Patient Rejection Scale: Mean Score > 2.60	Global Judgments Criticism Scale: Score ⩾ 5	Total Hostility Outward Scale: Score > 2.30	CFI-Criteria Ratings Speech Samples: High EE	Low < 35 Hrs. Per Week	High ⩾ 35 Hrs. Per Week	Relapse 9-month Follow-up
1					X		
2	X	X	X	X		X	
3	X	X	X			X	X
4						X	
5						X	
6			X		X		
7						X	
8					X		
9	X	X	X			X	X
10	X	X	X	X	X		X
11						X	
12	X	X				X	
13	X			X	X		
14	X	X	X	X		X	
15	X	X	X		X		
16	X					X	
17	X				X		
18	X	X	X	X	X		X
19		X				X	
20		X		X	X		X
21	X	X				X	X
Total	12	11	8	6	9	12	6

APPENDICES

APPENDIX A

PATIENT REJECTION SCALE

PATIENT NAME _____

I.D. # _____

DATE _____

INFORMANT'S NAME _____

Developed by Dolores E. Kreisman Ph.D. and Richard L. Blumenthal Ph.D

Supported by New York State Health Research Council Grant 344

REJECTION

It is sometimes difficult to live with people who are mentally sick and families often have mixed feelings about the patient who lives with them. I'm going to read you some statements other families have made and I'd like you to tell me if you have been feeling that way about (X). Here is a card that you can use to tell me how often you feel that way.

READ RESPONSES UNTIL RESPONDENT UNDERSTANDS TASK.

ITEM

1. I enjoy being with (X).
   Do you feel this way...

   1. Always
   2. Almost always
   3. A lot of the time
   4. Sometimes
   5. Once in a while
   6. Almost never
   7. Never
   8. NA

ITEM

2. It gets easier to understand (X) as time goes on.
   Do you feel this way...

   1. Always
   2. Almost always
   3. A lot of the time
   4. Sometimes
   5. Once in a while
   6. Almost never
   7. Never
   8. NA

ITEM

* 3. (X) could get better if (X) would only try.
Do you feel this way...

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

4. (X) is an important part of my life.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

* 5. I am very disappointed in (X).
(How often do you feel that you are...)

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

---

*Indicates Reverse-Scoring Items

ITEM

6. I love (X) very much.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

* 7. I don't expect much from (X).
(How often do you feel that you...)

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

8. I'm very proud of (X).

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

---

*Indicates Reverse-Scoring Items

ITEM

* 9. I'm tired of having to organize my life around (X).

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

*10. (X) is driving me crazy.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

11. It makes me happy to do things for (X).

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

---

*Indicates Reverse-Scoring Items

ITEM

*12. I have to treat (X) like a little kid.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

13. I can help (X) get better.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

*14. (X) is not grateful for what we do for (X).
(How often do you feel that (X) is...)

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

---

*Indicates Reverse-Scoring Items

ITEM

*15. I get more irritated with (X) as time goes on.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

16. (X) is pretty easy to get along with.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

*17. It would be better if (X) lived someplace else.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

---

*Indicates Reverse-Scoring Items

ITEM

*18. It's hard to tell what (X's) going to do next.
(How often do you feel that...)

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

*19. (X) acts as if (X) doesn't care about me.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

20. I can count on (X) for help.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

---

*Indicates Reverse-Scoring Items

ITEM

*21. If (X) leaves me alone, I leave (X) alone.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

*22. I don't care what happens to (X) anymore.
(How often do you feel that you...)

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

ITEM

*23. I wish (X) had never been born.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

---

*Indicates Reverse-Scoring Items

ITEM

24. (X) makes me happy.

1. Always
2. Almost always
3. A lot of the time
4. Sometimes
5. Once in a while
6. Almost never
7. Never
8. NA

APPENDIX B

WPIC GLOBAL JUDGMENTS OF EXPRESSED EMOTION II

Enclosed are a series of scaled global judgments intended for the use of clinicians and other professionals who have not been formally trained in the method of interviewing and rating Expressed Emotion, developed by Brown, Rutter, Vaughn and Leff.

An attempt is made to quantify various components of the household member's "expressed emotion" toward the patient by capitalizing on the relationship between clinician, patient and family and/or the opportunity for extended observation of intrafamilial relationships.

No claim is made that these scaled judgments accurately reflect the components of expressed emotion as developed by the authors of the method. Nor is it known at the moment, whether these ratings relate to measures derived by individuals specifically trained in the Camberwell Family Interview and Expressed Emotion rating, or whether they predict course and outcome. As such, it is an experimental scale which attempts to reflect some of the more important aspects of expressed emotion.

The rating is made of a specific household member who has had a significant, ongoing relationship with the patient. The period of time is generally recent, usually in the past three months.

Gerard E. Hogarty, M.S.W.
Associate Professor of Psychiatry
Western Psychiatric Institute & Clinic
University of Pittsburgh
School of Medicine

POSITIVE REMARKS: (Key = Content and Feeling)

From your knowledge of the recent relationship and communication between relative and patient: How would you describe the level of positive remarks about the patient expressed by this household member?

(1) NO POSITIVE REMARKS: There is no evidence that the relative expresses praise, approval, or appreciation of any aspect of the patient's behavior or personality.

(2)

(3) VERY LITTLE: It is unclear whether praise, approval or appreciation of the patient's behavior or personality can be attributed to the relative due to ambiguous descriptions of the relationship and/or the uncertainty of your own observations.

(4)

(5) SOME POSITIVE REMARKS: Positive remarks indicating praise, approval, or appreciation of the patient's behavior or personality are expressed by the relative from time to time, but are usually made without intense positive feeling.

(6)

(7) MODERATE POSITIVE REMARKS: Frequent positive remarks indicating praise, approval, or appreciation of the patient's behavior are intermittently or selectively expressed by the relative and are often accompanied by clear positive feeling. The relative might spontaneously offer positive remarks. However, neither positive remarks nor corresponding affect are consistently frequent, intense or pervasive, i.e., extended to many areas.

(8)

(9) CONSIDERABLE POSITIVE REMARKS: Numerous positive remarks indicating praise, approval or appreciation are consistently expressed by the relative and are almost always accompanied by positive feeling. The relative often spontaneously offers positive remarks. Positive remarks are directed to many aspects of patient's behavior or personality.

WARMTH: (Key - Affect)

From your knowledge of the recent relationship and communication between relative and patient: How would you describe the degree of warmth for the patient expressed by this household member?

(1) NO WARMTH: Relatives' affect is flat, cold and unenthusiastic when describing or relating to patient; relative fails to express concern and personal regard spontaneously even when given opportunity.

(2)

(3) VERY LITTLE WARMTH: Relative's affect is most often, but not entirely flat, cold and unenthusiastic when describing or relating to patient; there are some instances when indications of warmth might be present, but these are generally ambiguous or uncertain.

(4)

(5) SOME WARMTH: Some indication of interest, concern or understanding of patient by reason of the content of relative's remarks or manner of relating, but relative's corresponding affect is generally neutral, subdued or "clinical" in tone.

(6)

(7) MODERATE WARMTH: Relative's affect and manner of relating clearly indicate interest, concern, empathy and understanding of patient; might spontaneously express personal regard.

(8)

(9) CONSIDERABLE WARMTH: Relative's affect and manner of relating not only clearly indicate interest, concern, empathy and understanding of patient, but is enthusiastic and interested in patient's activities and/or achievements; clearly enjoys patient's company; will spontaneously express personal regard.

EMOTIONAL OVER-INVOLVEMENT: (Key = Attitude, Affect and Behavior)

From your knowledge of the recent relationship and communication between relative and patient: How would you describe the level of emotional over-involvement in the patient's life demonstrated by this household member?

(1) NO OVER-INVOLVEMENT: Concern for patient's well-being is appropriate (normal) OR absent; no clear evidence from current or past behavior that the relative dramatizes reports of patient's behavior or is otherwise interfering, controlling, self-sacrificing or protective.

(2)

(3) VERY LITTLE OVER-INVOLVEMENT: Relative might feel like monitoring patient's behavior more closely or might feel somewhat helpless, but clearly does not inappropriately interfere or behave in a controlling, self-sacrificing or protective manner; and/or might show minor instances of over-indulgent, protective or self-sacrificing behavior but relative is generally supportive of patient's autonomy and independence.

(4)

(5) SOME OVER-INVOLVEMENT: Relative feels a need to be protective or controlling, but generally does not inappropriately interfere or behave in a controlling, self-sacrificing or protective manner; and/or clear evidence of emotional display or tearfulness (dramatization) in response to patient's illness; and/or minor instances of verbal intrusiveness; and/or fails to act or speak when patient's behavior is inappropriate; and/or makes statements which indicate incorrect empathy or inappropriate reassurance or denial, but relative is generally supportive of patient's autonomy and independence.

(6)

(7) MODERATE OVER-INVOLVEMENT: Relative strongly feels a need to be protecting or controlling and provides examples of actually behaving in a protective, "devoted", self-sacrificing and inappropriate manner; and/or clearly excuses or denies patient's inappropriate behavior; and/or provides clear evidence of exaggerated emotional response (dramatization) regarding patient's symptoms or well-being. Some evidence that relative does not recognize patient's need for autonomy and independence.

(8)

(9) CONSIDERABLE OVER-INVOLVEMENT: Relative both feels a strong need to protect, interfere or control patient's behavior and acts in a protective self-sacrificing and inappropriate manner; little evidence that relative recognizes patient's own identity and need for autonomous (self-directed) behavior; and/or is extremely self-sacrificing, histrionic and exaggerated concern for patient's well-being.

HOSTILITY: (Key - Content)

From your knowledge of the recent relationship and comunication between relative and patient: How would you describe the degree of hostility expressed toward the patient by this household member?

(1) NO HOSTILITY: There is (1) no evidence of criticism or (2) criticism is limited to specific behavior(s) without extension to generalizations which imply that the patient is incompetent or inept; no evidence of pejorative comments or negative attitudes which indicate rejection or frank dislike of the patient as a person.

(2)

(3) VERY LITTLE HOSTILITY: A slight, but ambiguous tendency to extend specific criticisms of behavior or personality into generalizations which indicate incompetence or ineptitude; and/or borderline remarks or attitudes which indicate rejection or frank dislike of the patient as a person.

(4)

(5) SOME HOSTILITY: Clear evidence of extending very few criticisms or factual reports of patient dysfunctioning into generalizations which indicate incompetence or ineptitude; and/or very few remarks or negative attitudes which indicate rejection or frank dislike of the patient as a person, e.g., "he is worthless".

(6)

(7) MODERATE HOSTILITY: Multiple instances of extending criticism or factual reports of dysfunctioning into generalization which indicate incompetence or ineptitude, OR multiple pejorative remarks or negative attitudes which indicate rejection or frank dislike of the patient as a person.

(8)

(9) CONSIDERABLE HOSTILITY: Multiple instances of extending criticisms or factual reports of dysfunctioning into generalizations which indicate incompetence or ineptitude AND multiple pejorative comments and negative attitudes which indicate rejection or frank dislike of the patient as a person.

CRITICISM: (Key = Content and Feeling)

From your knowledge of the recent relationship and comunication between relative and patient: How would you describe the level of criticism of the patient expressed by this household member?

(1) NO CRITICISM:	There is no evidence that the relative expresses dislike, disapproval or resentment of any aspect of the patient's behavior or personality.
(2)	
(3) VERY LITTLE CRITICISM:	It is unclear whether critical intent (dislike, disapproval of the patient's behavior or personality, or resentment) can be attributed to the relative due to ambiguous descriptions of the relationship and/or the uncertainty of your own observations.
(4)	
(5) SOME CRITICISM:	Critical remarks indicating dislike, disapproval or resentment are expressed by the relative from time to time, but are usually made without intense negative feeling.
(6)	
(7) MODERATE CRITICISM:	Frequent critical remarks indicating dislike, disapproval or resentment are intermittently or selectively expressed by the relative and are often accompanied by clear negative feeling. The relative might spontaneously criticize without provocation. However, neither critical comments nor corresponding affect are consistently frequent, intense, or pervasive, i.e., extending to many areas.
(8)	
(9) CONSIDERABLE CRITICISM:	Numerous critical remarks indicating dislike, disapproval or resentment are consistently expressed by the relative and are almost always, accompanied by clear negative feeling. The relative often spontaneously criticizes without provocation, and criticism is directed to many aspects of patient's behavior or personality.

APPENDIX C

PART I-AGREEMENT TO PARTICIPATE IN RESEARCH BY OR UNDER THE DIRECTION OF THE VETERANS ADMINISTRATION | DATE

1. I, _____ (Type or print subject's name), voluntarily consent to participate as a subject in the investigation entitled Predicting Optimal Neuroleptic Therapy for Schizophrenic Outpatients (Title of study)

2. I have signed one or more information sheets with this title to show that I have read the description including the purpose and nature of the investigation, the procedures to be used, the risks, inconveniences, side effects and benefits to be expected, as well as other courses of action open to me and my right to withdraw from the investigation at any time. Each of these items has been explained to me by the investigator in the presence of a witness. The investigator has answered my questions concerning the investigation and I believe I understand what is intended.

3. I understand that no guarantees or assurances have been given me since the results and risks of an investigation are not always known beforehand. I have been told that this investigation has been carefully planned, that the plan has been reviewed by knowledgeable people, and that every reasonable precaution will be taken to protect my well-being.

4. In the event I sustain physical injury as a result of participation in this investigation, if I am eligible for medical care as a veteran, all necessary and appropriate care will be provided. If I am not eligible for medical care as a veteran, humanitarian emergency care will nevertheless be provided.

5. I realize I have not released this institution from liability for negligence. Compensation may or may not be payable, in the event of physical injury arising from such research, under applicable federal laws.

6. I understand that all information obtained about me during the course of this study will be made available only to doctors who are taking care of me and to qualified investigators and their assistants where their access to this information is appropriate and authorized. They will be bound by the same requirements to maintain my privacy and anonymity as apply to all medical personnel within the Veterans Administration.

7. I further understand that, where required by law, the appropriate federal officer or agency will have free access to information obtained in this study should it become necessary. Generally, I may expect the same respect for my privacy and anonymity from these agencies as is afforded by the Veterans Administration and its employees. The provisions of the Privacy Act apply to all agencies.

8. In the event that research in which I participate involves certain new drugs, information concerning my response to the drug(s) will be supplied to the sponsoring pharmaceutical house(s) that made the drug(s) available. This information will be given to them in such a way that I cannot be identified.

I _____
NAME OF VOLUNTEER

HAVE READ THIS CONSENT FORM. ALL MY QUESTIONS HAVE BEEN ANSWERED, AND I FREELY AND VOLUNTARILY CHOOSE TO PARTICIPATE. I UNDERSTAND THAT MY RIGHTS AND PRIVACY WILL BE MAINTAINED. I AGREE TO PARTICIPATE AS A VOLUNTEER IN THIS PROGRAM.

9. Nevertheless, I wish to limit my participation in the investigation as follows:

VA FACILITY	SUBJECT'S SIGNATURE
WITNESS'S NAME AND ADDRESS (Print or type)	WITNESS'S SIGNATURE
INVESTIGATOR'S NAME (Print or type)	INVESTIGATOR'S SIGNATURE

☐ Signed information sheets attached. ☐ Signed information sheets available at:

SUBJECT'S IDENTIFICATION (I.D. plate or give name - last, first, middle) | SUBJECT'S I.D. NO. | WARD

AGREEMENT TO PARTICIPATE IN RESEARCH BY OR UNDER THE DIRECTION OF THE VETERANS ADMINISTRATION

VA FORM SEP 1979 10-1086 SUPERSEDES VA FORM 10-1086 JUN 1975, WHICH WILL NOT BE USED.

APPENDIX D

HUMAN STUDIES CONSENT FORM

RESPONSIBLE INVESTIGATOR: Stephen R. Marder, M.D.

TITLE OF PROTOCOL: Predicting Optimal Neuroleptic Therapy for Schizophrenic Outpatients

I have been asked to participate in the research study entitled "Predicting Optimal Neuroleptic Therapy for Schizophrenic Outpatients." I understand that the overall goal of the study will be to assist physicians in finding the best dose of drug for patients who have illnesses such as mine. I understand that I will be treated with either the usual dose or a much lower dose of drug called fluphenazine decanoate. I understand that during much of the time of the study, I will be unaware of the dose of drug I am being treated with.

I understand that while I am part of the study, I will be asked to participate in some or all of the following tests: (1) blood drawing; (2) special interviews by research staff members; and (3) special forms which I will be asked to fill out.

I understand that:

a) The possible risks of this procedure include:

(1) I may be treated with a dose of fluphenazine decanoate which is lower than the dose usually given to patients and that this dose may not be enough to control my symptoms. I understand, however, that should this dose be inadequate, I will be changed to a dose which a doctor thinks would be better for me. I also understand that I may be taken off all drugs for a period of 2-4 weeks and that this may lead to my symptoms becoming worse. I understand that a physician will decide if this is a serious problem and, if it is, I will once again be treated with drugs.

(2) Fluphenazine decanoate has some side effects, such as muscular stiffness, feeling slowed up, inner restlessness and shakiness. I also understand that fluphenazine and drugs like it can cause disorders of movement which, at time, are untreatable. I understand, however, that the risks are no more than I would have with any other medicine currently used for my illness.

(3) I understand that blood drawing may be somewhat uncomfortable and that, in very rare cases, it can lead to infection. This is, however, very rare and should be no problem in this study.

Alternative treatments include being referred for routine treatment in the Mental Hygiene Clinic. Since a physician has already concluded that drug treatment will help me, it is likely that I would be treated with other fluphenazine or a similar medication.

a) The possible benefits of this study to me are:

(1) I may be assigned to a low dose of drug and do just as well. This lower dose may lead to fewer side effects and discomforts.

(2) I will be followed very closely for side effects of drugs and may have the effects treated sooner, should they occur.

(3) If this study leads to physicians becoming more aware of how to decide what dose of drug to give patients, it may lead to both improved and safer treatment of schizophrenia.

c) Any questions I have concerning my participation in this study will be answered by Stephen R. Marder, M.D.; Theodore Van Putten, M.D.; Gary Faltico, Ph.D.

d) I may withdraw from the study at any time without prejudice.

e) The results of this study may be published, but my name or identity will not be revealed and my records will remain confidential unless disclosure of my identity is required by law.

f) My consent is given voluntarily without being coerced or forced.

g) In the event of physical injury resulting from the study, medical care and treatment will be available at this institution.

For eligible veterans, compensation (damages) may be payable under 38USC 351 or, in some circumstanmces, under the Federal Tort Claims Act. For clarification of these laws contact the District Counsel (213) 824-7379.

For non-eligible veterans and non-veterans, compensation would be limited to situations where negligence occurred and would be controlled by the provisions of the Federal Tort Claims Act.

h) If I have complaints about the study I may express them to Dr. Marder (478-3711, extension 4191).

i) I have received a copy of this consent form for my file.

I have read the above and understand it and hereby consent to the procedure(s) set forth.

DATE	PATIENT OR RESPONSIBLE PARTY
AUDITOR/WITNESS	PATIENT'S SOCIAL SECURITY NO.
INVESTIGATOR/PHYSICIAN REPRESENTATIVE	

APPENDIX E

Form Approved
OMB No. 76-R0138

REQUEST FOR AND CONSENT TO RELEASE OF INFORMATION FROM CLAIMANT'S RECORDS

NOTE: The execution of this form does not authorize the release of information other than that specifically described below. The information requested on this form is solicited under Title 38, United States Code, and will authorize release of the information you specify. The information may also be disclosed outside the VA as permitted by law or as stated in the "Notices of Systems of VA Records" published in the Federal Register in accordance with the Privacy Act of 1974. Disclosure is voluntary. However, if the information is not furnished, we may not be able to comply with your request.

TO	Veterans Administration	NAME OF VETERAN (Type or print)	
		VA FILE NO. (Include prefix)	SOCIAL SECURITY NO.

NAME AND ADDRESS OF ORGANIZATION, AGENCY, OR INDIVIDUAL TO WHOM INFORMATION IS TO BE RELEASED

VETERAN'S REQUEST

I hereby request and authorize the Veterans Administration to release the following information, from the records identified above to the organization, agency, or individual named hereon:

INFORMATION REQUESTED (Number each item requested and give the dates or approximate dates—period from and to—covered by each.)

I, _____, GIVE DR. MARDER, M.D., J. MCKENZIE, R.N., M. LEBELL, M.S.W., AND DR. G. FALTICO, PSYCHOLOGIST, PERMISSION TO OBTAIN INFORMATION ABOUT ME FROM _____

_____

REGARDING MY CONDITION AND GENERAL BEHAVIOR. I REALIZE THAT THIS INFORMATION WILL BE KEPT CONFIDENTIAL AND IN MY RECORDS.

PURPOSES FOR WHICH THE INFORMATION IS TO BE USED

NOTE: Additional items of information desired may be listed on the reverse hereof.

DATE	SIGNATURE AND ADDRESS OF CLAIMANT, OR FIDUCIARY, IF CLAIMANT IS INCOMPETENT

VA FORM DEC 1975 **60-3288** EXISTING STOCKS OF VA FORM 07-3288, FEB 1974, WILL BE USED.

APPENDIX F

RELATIVE/FRIEND INFORMED CONSENT AGREEMENT

I _____ hereby agree and consent to participate
participant
as a research subject in a research study entitled "Predicting Optimal Neuroleptic Therapy for Schizophrenic Outpatients". I understand that the purpose of the study is to assist physcians in finding the best dose of drug for patients who have illness such as that of

_____, my _____.
patient relationship
I understand that this study may benefit my relative/friend and other veterans by providing the Investigators with information that may lead to new, more effective outpatient treatment and counseling.

I understand that my relative/friend has specifically given the research study staff written permission to obtain information from me regarding his condition and our relationship.

I understand that as a participant in this research I will be asked to participate in one or more interviews which will take approximately 1/2 hour to finish. I understand that part of the interview will be audio tape recorded. In the interview I will be asked a number of questions about my relationship with my relative/friend. I understand that the interview may cause me some personal discomfort because of the sensitive nature of the questions, and that an understanding interviewer will attempt to make me feel at ease. I understand that I have the right to refuse to answer any particular questions or to withdraw from the study at any time without prejudice, and the services which my relative/friend may require will not be denied him as a result of my refusal.

I understand that all Information gained from me as a result of my participation will remain confidential, and my identity will not be revealed unless required by law. I understand that this study may be published and my anonymity and confidentiality will be protected.

I understand that if I have any questions, concerns, or comments about the study and my participation in it, I may address them to Dr. Stephen Marder, Principal Investigator, Brentwood VAMC, phone 478-3711, ext. 4191 or 2203.

_____ _____
Date Participant

_____
Principal Investigator

APPENDIX G

PATIENT PROFILE FACE SHEET

Patient's Name_____Treatment Unit_____

Patient I.D. Number_____Date of Entry to Study_____

A. DEMOGRAPHIC DATA:

Age_____, Marital Status_____, Highest Grade Completed_____

Race/Ethnicity: Caucasian__, Black__, Latino__, Oriental,__ Other__.

Social Class of Patient (Hollingshead-Redlich) _____

Current Living Situation:

Living Alone _____, With Other Relative (Specify)_____

With Spouse _____, Board and Care Facility _____

With Parents _____, Other (Specify) _____

B. CLINICAL DATA:

Age of Onset of Present Illness _____

Discharge Date of Last Hospitalization _____

Number of Previous Hospitalizations _____

Duration of Previous Hospitalizations _____

Total Time Ill _____

Employed Within Last Year _____

C. RESPONDENT DATA:

Number of Respondents _____

Relationship to Patient	Date of Interview	In Person	Via Phone	Contact ⩾35 Hrs. Weekly	Contact <35 Hrs. Weekly
Mother					
Father					
Wife					
Sibling					
Child (Adult)					
Relative (Specify)					
Friend					
Other (Specify)					

MALCA BAKER LEBELL PH. D. 1983