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LA THÈSE A ÉTÉ
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Ego Function Patterns Among
Families of Schizophrenic and
Neurotic Patients

By Augustin  Meier

Dissertation presented to the School of
Graduate Studies of the University of
Ottawa as partial fulfillment of the
requirements for the Doctor of Philosophy
degree in Psychology

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CURRICULUM STUDIORUM

Augustine Meier, born at Salvador, Saskatchewan, obtained the Bachelor of Arts degree from the University of Ottawa in 1958. Four years later he registered for the B. Ed. program at the University of Ottawa and obtained the B. Ed. degree in 1963. In 1970, he obtained the Master of Education degree with a concentration in Guidance and Counselling. In the same year he registered for the Masters of Arts degree in psychology at the University of Ottawa and obtained the M.A. degree in psychology in 1973. The title of his thesis was, Frankl's "Will to Meaning" as Measured by Purpose in Life Test in Relation to Age and Sex Differences.

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INTRODUCTION

The purpose of the present study is to investigate ego functioning patterns among the family members of schizophrenic and neurotic patients. It intends to explore the relationship of ego functioning patterns of families to the psychiatric status and sex of the patient and to family membership. The project is conceptualized within a psychodynamic theoretical framework and designed as a correlational (quasi-experimental) study. It hypothesizes that parental ego deficits are related to the onset of schizophrenia in their offspring.

The syndrome, schizophrenia, was known long before it was labelled as such. Kraepelin, the eminent nosologist, was the first to classify systematically intramural psychiatric disorders and coined the term "dementia praecox" to describe a class of patients characterized by early onset of illness, a downward course and eventual dementia. It is this syndrome that E. Bleuler later renamed "schizophrenia".

The earliest theories conceptualized schizophrenia as a somatogenic disorder. Freud's psychoanalytic theory, however, revolutionized thinking regarding psychopathology, and eventually his concepts were borrowed to interpret schizophrenia, although he himself had limited experience with schizophrenics. His views were transmitted by Jung, and later by E. Bleuler, both of whom worked in a clinic in Zurich. The two clinicians, applying psychoanalytic concepts, interpreted phenomena associated with schizophrenia as withdrawal behavior, flat affect, hallucinations and thought disorders.

Today there are numerous theories of schizophrenia. However, all theories can be classified into one of two major theoretical orientations; that is, the somatogenic or the psychogenic orientation. Three basic approaches constitute the psychogenic orientation; namely, the psychodynamic, behavioral and phenomenological approaches; whereas the biophysical theories comprise the somatogenic approach. The psychogenic theories subscribe to social, cultural, and/or familial factors.

The psychodynamic approach is the forerunner of all psychogenic theories. It postulates that a weakened ego is at the origin of schizophrenia. Among the contemporary psychodynamic theorists are L. Bellak and T. Lidz.

Bellak, an American psychiatrist, psychoanalyst and psychologist, states explicitly that schizophrenia is related to a weakened ego, or to a breakdown of ego functioning. According to Bellak, the ego develops within the matrix of object relationships. The nature of this relationship has important consequences for the development of the neonate's ego. He postulates a relationship between the level of ego functioning and the severity of psychopathology. Bellak has in recent years empirically studied ego functioning among schizophrenics, neurotics and normals, but not among their parents.

Lidz, also an American psychiatrist and theorist, investigated the personalities of parents of schizophrenics and observed that the "field" - that is, the family environment from which schizophrenics come - is more seriously disturbed than the "field" from which neurotics and normals come. He observed greater disturbances in the husband-wife and parent-child relationships and in the communications of the families of schizophrenics.

L

Based on family studies and clinical experience, Lidz theorizes that schizophrenia, which represents a failure of the ego to project the personality into the future, is related to the perturbed home environment brought on by the parents' personal and interpersonal incompetencies.

During the past three or four decades numerous family studies inspired by psychodynamic theory have been carried out. The early family studies of schizophrenia focused on the parent-patient, husband-wife and patient-sibling relationships with the purpose of shedding light on the etiology of schizophrenia and on its bias in selecting one sibling over the other. The more recent family studies have been concerned with communication patterns between schizophrenia patients and their parents with the hope that such data would clarify the genesis of schizophrenic thought disorder and the disordered styles of communication so often observed in schizophrenics. A neglected area in family studies has been the investigation of parental competencies (ego functions) and incompetencies dealing with inner and outer reality and in relating to their offsprings. This study is designed to assess ego functioning capacities among families of schizophrenics by comparing their level of functioning to that of families of neurotics. The major hypothesis of this study is that deficient ego functioning in the parents of schizophrenics is related to their offspring's psychopathology. More specifically, it is hypothesized that the mother's ego deficiencies are related to the onset of their offspring's schizophrenia.

The first part of the project presents a review of the literature. This comprises a discussion of the ego concept within a psychoanalytic context, a presentation of Bellak's and Lidz's theories of schizophrenia, a

review of the family studies of schizophrenia, and a statement of the general research hypothesis. The second part presents the research design which includes a discussion of the sample, the research tools, the techniques of statistical analysis, and the null hypotheses. The results of the study are presented in the third part. The last section discusses the results with reference to previous research findings and psychodynamic theory.

CHAPTER I

REVIEW OF LITERATURE

The purpose of this project is to investigate ego functioning among families of schizophrenic patients. This implies an understanding of the concept of the ego and its functions, a familiarity with the findings from family studies of schizophrenia, and an appreciation of the psychological theories associating ego deficits with the etiology of schizophrenia. The goal of this chapter is to present the theoretical concepts and empirical findings relevant to this research project. The chapter is divided into six sections. The first section presents Freud's Topographical and Structural Models of the psychic apparatus and the second section discusses the conceptions of the id and superego. A discussion of these issues is included for two reasons: first, to provide a broad basis for the understanding of the ego and of the psychodynamic approach in the study of schizophrenia, and, secondly, to situate the ego within the more general framework of the Structural Model of the psychic apparatus. The third section, which forms a major part of the chapter, treats the ego concept within the context of psychoanalytic tradition. Both Bellak's theory of schizophrenia which emphasizes a multi-factor etiology having as a common denominator ego disturbances, and Lidz's sociocultural theory of schizophrenia based on findings from family studies are presented in the fourth section. The fifth section presents and discusses the results from

the family studies of schizophrenia. The chapter ends with a summary and a statement of the basic research hypotheses.

A. The Topographical and Structural Theories

The first psychological theory, which was formulated by Freud to explain psychic phenomena, as hysteria and obsessional neuroses and which dominated his thinking until 1923, has come to be called the Topographical Theory although he did not name it as such himself (Arlow and Brenner, 1914; Bellak et al., 1973; Gill, 1963; Meissner et al., 1976). Freud introduced and discussed the Topographical Theory in chapter seven of his book, The Interpretation of Dreams (1900), and elaborated on it in two later papers, "The Unconscious" (1915c) and "A Metaphysical Supplement to the Theory of Dreams" (1915d). The term "topography", as Bellak and associates (1973) point out, "refers to a region of the mind that Freud talked about in terms of spatial ordering (sensory and motor ends of the mental apparatus)" (p. 7). Freud cautioned against taking the term literally since it involved processes of excitation and modes of discharge.

The Topographical Theory represents the psychical (mental apparatus) as divided into three dynamic systems, namely, the conscious, preconscious, and the unconscious. The three systems are classified as such in accordance with their relationship to consciousness, their mode of operation (primary versus secondary) and the condition of their energy (free versus bound) (Freud, 1938a; Gill, 1963). The system conscious (Cs.) encompasses what is in awareness at any given point in time. It is the "surface of the mental apparatus" (Freud, 1923a, p. 19). The system preconscious (Pcs.), on the other hand, includes mental events, processes,

and contents that are easily made conscious (Freud, 1923a, p. 15). Lastly, the system unconscious (Ucs.) embraces mental events that usually cannot be made conscious or that can be made conscious only with great difficulty (Freud, 1923a, p. 15).

- Bellak and associates (1973), summarizing Arlow and Brenner (1964), state that the topographical theory "is most accurately characterized as a group of related ideas and hypotheses rather than as a completed theory" (p. 8). They add that the topographical hypotheses were based on clinical observations which led Freud to formulate that neurotic symptoms resulted from unconscious desires for pleasurable experiences that are not acceptable to the person from a moral or a maturational standpoint. Freud observed that when the incompatible ideas or wishes were discovered, and brought to consciousness, the client's symptom would often disappear. The neuroses, therefore, using the Topographical Model, were understood in terms of a conflict between conscious and unconscious forces. Freud (1894, 1896a, 1896b, 1911a, 1912a) applied this model to explain not only neuroses but also psychoses. Freud also found the working of the unconscious in the formation of dreams, in the humour of jokes, and in slips of the tongue.

Two major difficulties led Freud eventually to abandon the Topographical Theory and replace it with the Structural Theory (Bellak et al., 1973, p. 8; Meissner et al., 1976, p. 524). The first problem concerned that of ego defenses which were initially conceived as part of the preconscious. Freud (1933), however, realized that not only the repressed ideas but also the repressing forces were unconscious (p. 71-72).

The second difficulty concerned guilt feelings. Freud observed that his patients frequently exhibited an unconscious need for punishment or an unconscious sense of guilt. According to the Topographical Theory, however, "the moral agency making this demand was allied with the anti-instinctual forces available to consciousness in the preconscious level of the mind" (Meissner et al., 1976, p. 524). These new factors, that the repressing forces and sense of guilt were unconscious, led Freud (1923a) ultimately to abandon his topographical theory because he realized that the theory was inadequate and insufficient to differentiate mental events on the basis of their relationship to consciousness.

In his paper, "The Ego and The Id", Freud (1923a) introduced what has come to be called the Structural Theory. Forerunners to this theory can be found in "The Project for a Scientific Psychology" (1895), "The Interpretation of Dreams (1900)", "Repression" (1915b), and the "Unconscious" (1915c).

The Structural Theory divides the psychic apparatus into three provinces: the id, ego, and superego. The three mental structures were defined by the same criteria as the topographic systems had been; that is, by their mode of functioning (primary versus secondary process), and by the conditions of energy (free versus bound energy).

The id, ego and the superego did not replace precisely the Cs., Pcs., and Ucs. systems of the Topographical Theory. Part of the Ucs. system became the id, while the Pcs. and part of the Ucs. became the ego (Gill, 1963).

In place of the conscious-unconscious antithesis offered in the Topographical Theory, Freud (1923a) in the Structural Theory proposed that "between the coherent ego and the repressed which is split off from it"

(p. 17). On the basis of intrasystemic conflicts, Freud (1924a, 1924b) attempted to explain such psychopathologies as neuroses and psychoses.

Of primary importance to this project is the system "ego". However, before treating it, the "id" and the "superego" will be briefly described. In describing these two agencies, reference will be made to such concepts as the "primary" and "secondary" process, "unbound" and "bound" energy, the "pleasure" and "reality principles", concepts indispensable to an understanding of the origin, evolution and functions of the ego.

B. The Id and Superego Concepts

1. The Id Concept

The "id" was discussed by Freud in three major papers on the mental apparatus (1923a, 1933, 1938a) and reviewed by Hall (1954), Schur (1966) and Bellak and associates (1973). This review, which is based on the above sources, will discuss the id in terms of its origin and development, functions, mode of operation, and condition of energy used. This information will provide a framework for the discussion concerning the origin, evolution and function of the ego.

a) Definition of the Id

The id concept, borrowed from Groddeck (1928) who used it to designate that which was ego alien, was introduced to replace what in large part was formerly called the "system unconscious". In introducing the concept, Freud (1923a) stated:

I propose to take it into account by calling the entity which stands out from the system Pcpt. and begins by being Pcs. the 'ego', and by following Groddeck in calling the other part of the mind, into which this entity extends and which behaves as though it were Ucs., the 'id' (p. 23).

Freud (1933) described the id as being "the dark inaccessible part of the personality...a chaos, a cauldron full of excitations...It is filled with energy reaching from the instincts" (p. 73). According to Freud, the instincts are the chief components of the id and the chief source of psychic energy. Instincts are "physical representations of the stimuli originating from within the organism and reaching the mind" (Freud, 1915, p. 121); they impart direction to psychological processes (Hall, 1954, p. 57).

Two groups of instincts, the life instincts and the death instincts, were recognized by Freud (1920, 1923a). Among the life instincts, collectively called the libidinal instincts, the sexual instinct held primary importance, whereas the aggressive instinct held the primary role among the death instincts, collectively called the non-libidinal instincts. According to Freud (1915a), every instinct, whether libidinal or non-libidinal, can be characterized by its source, pressure, aim and object (p. 122).

b) Origin of the Id

Unlike the ego and superego which are acquired through the processes of maturation and experiencing, the id is believed to be inherited. The id is believed to contain "everything that is inherited, that is present at birth, that is laid down in the constitution--above all, therefore, the instincts which originate from the somatic organization..." (Freud, 1938a, p. 145).

Although the id is primarily inherited, it is not only inherited since additions are made to it through the mechanism of repression. Mental material that becomes repressed to the extent that it is very difficult to bring it to the level of consciousness, forms part of the id, and

contributes to the original reservoir of psychic energy which seeks to be discharged.

Theoretically, Freud (1933, p. 74) conceived the id as being inherited, immutable, and indestructible. Pragmatically, however, he visualized the instinctual drives as developing from the oral to the genital stages (Freud, 1905a, 1915a). These developments implicate the maturational process and experiencing, and are counter arguments to the immutability of the id (Schur, 1966, p. 61-62).

c) Functions of the Id

The primary function of the id is to provide for satisfaction of the individual organism's innate needs (Freud, 1938, p. 148). That is, the id provides for the immediate discharge of quantities of energy or tension that are released in the organism by internal or external stimulation. The id, therefore, exerts pressure on the ego to mediate the gratification of these needs which are "rooted in instinctual drives and their vicissitudes" (Hartmann, Kris and Loewenstein, 1946, p. 31).

In addition to satisfying instinctual needs, the id also plays a role in all mental functioning and in adaptation (Schur, 1966, p. 48-49). Freud (1923a) always conceived of thought, action, ideation, the secondary process, censorship and defense as being influenced to a great extent either by the necessity to provide instinctual gratification or by the need to inhibit drive discharge. The id, therefore, mediates in the adaptive functions of the ego strength the pressure of instinctual drives.

d) Mode of Operation

In carrying out its function, the id is governed by the "pleasure principle" (Freud, 1900, 1920). In this respect the id differs from the

ego which is governed by the "reality principle" and the superego which is governed by the "ideal". The aim of the pleasure principle, which fulfills the primordial principle of life, is to rid the person of tension, or if this is impossible, to reduce tension to a low level and to keep it as constant as possible (Hall, 1954, p. 22). Tension is experienced as pain or discomfort, and relief from tension is experienced as pleasure. The pleasure principle is a special case of the universal tendency found in all living matter to maintain constancy in the face of internal and external disturbances (Hall, 1954, p. 22-23).

The id, in carrying out its functions, obeys special laws called the "primary process" which differ from the "secondary process" utilized by the ego (Freud, 1900, p. 602-603). The two processes differ from each other in terms of their genesis, laws of thought, and the manner in which they use psychic energy. The secondary process follows the laws of logic whereas in the primary process, there is an absence of logical laws, of negation, of the ideas of time and space, and of value judgments (Freud, 1933, p. 73-75). Lastly, the primary process is thought to be chronologically older than the secondary process. The former arises at a much earlier phase in the development of the mental apparatus whereas the latter unfolds during the course of life and gradually begins to inhibit and overlay the primary process (Freud, 1900, p. 604).

e) Condition of Energy Utilized

The two processes differ as to the condition of the energy used. The primary process is conceived as operating with free, mobile, uninhibited, and non-neutralized energy. Its energy is fluid, easily displaceable and condensable and ready for immediate discharge (Freud, 1900, p. 599; 1920,

p. 62). The secondary process uses energy that is inhibited and bound showing varying degrees of neutralization (Freud, 1920, p. 62; Schur, 1966, p. 101-102). The energy is at the disposal of the ego, which in discharging the energy, is guided by the reality principle (Hartmann, 1959, p. 327).

The primary process attempts to discharge tension by establishing "perceptual identity" with the experience of satisfaction, whereas the secondary process discharges tension by establishing a "thought identity" with that experience (Freud, 1900, p. 600-604). The id, through the primary process, considers a mental image to be identical with the perception itself; that is, it equates the memory of food with having food. Freud called the mental image of a tension reducing object a wish-fulfillment.

Schilder (1930) summarized most of the mechanisms of the primary process as follows:

- (1) Distinction between internal and external reality is absent.
- (2) Experiences are timeless.
- (3) Displacements, condensations, and symbolizations take place.
- (4) The law of contradiction is suspended.
- (5) The cathexes are mobile and affect-quantities can be transferred completely from one idea to another (p. 578).

Before terminating the discussion of the id concept, some of the difficulties with this concept will be presented.

f) Difficulties with The Id Concept

By introducing the Structural Theory, Freud resolved two conceptual difficulties, namely, interpreting guilt feelings and ego resistances. However, the model brought with it other difficulties (Bellak et al., 1973; Meissner et al., 1976). Two major problems with the id concept have been noted. The first concerns the amount of structure involved in the functioning of the id. Some of the id's functions, such as wishing (wish-fulfillment) implies some structure since wish-fulfillment is related to perception which implies the presence of memory traces, and, therefore, of structure. But Freud conceived the id as being without structure. Some suggest that the ambiguity may be resolved by reducing the id to simple energetic forces with minimum structure (Schur, 1966, p. 38-39). Hartmann attempted to resolve the problem by placing the id and the ego on a continuum and conceptualizing both as originating from an undifferentiated matrix.

A second problem concerns the manner in which to define the id. The question is whether to define the id in terms of its functions or in terms of the primary process. In a panel attended by Arlow, Beres, Karush, Marcovitz, Moore and others (Marcovitz, 1963), it was agreed that the id should be defined in terms of the use of the primary process. Beres (1962) pointed out that the primary process cannot be equated with unconscious mental activity nor the secondary process with consciousness. He illustrated his view by saying that an unconscious fantasy may press for immediate discharge (primary process characteristic) but still be an

organized-mental representation (secondary process characteristic). Gill (1963) contends, as well, that the id is not totally without structure, and that the ego does not operate exclusively according to the secondary principle. He conceives the id and ego as being on a continuum.

This concludes the presentation of the id concept. In the following section, the superego, which is thought of as one of the regulating forces confronting the id, will be discussed. The interdependence between the id and ego will be discussed when the ego concept is treated.

2. The Superego Concept

To account for the unconscious sense of guilt and the negative therapeutic reaction observed in his clients, Freud (1923a) introduced the superego concept as the third agency of the tripartite model of the psychic apparatus. He observed in his clients such phenomena as self-observation, self-criticism and censoring as early as 1896 (Freud, 1896a). In the succeeding twenty-seven years, a network of mental behaviors (functions) conceptually distinct from those of the id and the ego were elaborated and subsequently subsumed under the superego concept. Today, the two major functions - the ego-ideal and conscience - are thought to define the superego (Meissner et al., 1976).

The presentation of the superego concept will deal with the following issues: definition, precursors, functions, subsystems, origin and development, regulatory and controlling mechanisms, superego characteristics, and current investigations concerning the construct.

a) Definition of the Superego Concept

In the paper, "The Ego and The Id", (Freud, 1923a) two aspects of the critical agency (superego) were integrated: the positive aspects of

striving towards ideals, and the negative aspect characterized by prohibitions. In later papers, the superego was conceptualized as an inner agent that replaced parental authority and subsequently dominated the ego (Freud, 1933, p. 58-64), and as the psychic agency that included the internalization of conscious parental attitudes and the influence of society (Freud, 1938a). The latter paper contains Freud's most explicit statement concerning the origin and description of the superego. In this paper he stated that:

The long period of childhood, during which the growing human being lives in dependence of his parents, leaves behind it as a precipitate the formulation in his ego a special agency in which this parental influence is prolonged. It has received the name of super-ego. Insofar as this superego is differentiated from the ego or is opposed to it, it constitutes a third power which the ego must take into account (p. 146).

The superego concept was elaborated by post-Freudian psychoanalysts (Beres, 1966; Loewenstein, 1966). Loewenstein, who is representative of this group, defines the superego as:

that organization within the mental apparatus which becomes a systematic third independent variable in the intrapsychic conflicts, and which exercises control over drives and some essential tendencies and functions of the ego, e.g., individual self-interest and even self-preservation (p. 302).

b) Precursors of the Superego Concept

Forerunners to the superego concept can be seen in many of Freud's earlier writings. In 1896, Freud pointed to the active participation of warded-off self-reproaches and self-punitive tendencies in the symptoms of

his clients. These tendencies were described as being unconscious motivators of behavior. The censor concept in Freud's theory of dreams may be regarded as a precursor of the superego. The censor, primarily a prohibiting agency, is the representative of the civilized society and opposes the expression of certain wishes even under the conditions of sleep (Freud, 1900; 1933, p. 28). In two later papers on obsessional neuroses, Freud explicitly recognized that self-reproaches were unconscious (1907), and that guilt feelings played an important role in the patient's symptomatology; however, the motives of the guilt feelings remained unconscious (1909).

Freud (1914b) explicitly dealt with the mechanism and genesis of moral functioning in his paper, "On Narcissism". In this paper, he spoke of a part of the ego, "a differentiating grade in the ego", whose function it was to observe and criticize, approve, disapprove or punish the ego. This "grade" in the ego was called the ego-ideal whose source was found in the narcissism of the child. Under the influence of admonitions from others, the child represses his egoistic wishes and in their place erects an internal ideal that becomes the transformed basis for loving himself (Bellak et al., 1973, p. 32).

In a later paper, Freud (1916), made a link between the "sense of guilt" and the "need for punishment". He formulated that the person suffering from a sense of guilt commits misdeeds in such a way so as to get caught and punished for them in order that his guilt might be mitigated (Bellak, et al., 1973, p. 32).

In his paper "On Mourning and Melancholia", Freud (1917) speaks again of "one part of the ego" that "judges it critically". He refers to this

agency which is split off from the rest of the ego as the conscience. Freud thereby distinguished between the ego-ideal and the self-critical agency, the conscience. Later Freud (1921) dropped this distinction and referred to the self-critical agency as the ego-ideal and held it responsible for the sense of guilt and self-reproaches typical in melancholia. In his paper, "The Ego and The Id", Freud (1923a) placed both the ego-ideal and the conscience under the concept of the superego, and demonstrated that the operations of the superego were mainly unconscious.

c) Functions of the Superego

In "The Ego and The Id", Freud (1923a) attributed the following functions to the superego: (1) self-judgment; (2) prohibitions and injunctions; (3) sense of guilt, and (4) social feelings. Freud's list of superego functions was elaborated by Brenner (1955) to include the following: (1) critical self-observation; (2) the approval or disapproval of actions and wishes on the grounds of moral considerations; (3) the demand for reparation or repentance of wrongdoing ("an eye for an eye"); (4) self-punishment, and (5) self-praise or self-love as a reward for virtuous or desirable thoughts and actions (Bellak et al., 1973; p. 36-37).

Brenner lists two self-rewarding functions of the superego - self-praise (self-esteem) and self-love - but does not distinguish between the two functions. White (1963) proposes that self-esteem and self-love be considered conceptually as partly independent "because a person may experience the one and be deficient in the other". According to White, self-esteem is rooted in a person's sense of competence; whereas self-love is rooted in narcissistic libido (libido is directed toward the self rather

than toward the object).

d) The Superego's Subsystems

Today the superego is conceptualized as comprising two subsystems - the ego-ideal and the superego proper or conscience (Meissner et al., 1976). The two subsystems, which are seen as being at least qualitatively different aspects of moral functioning, are distinguished on the basis of the instincts involved and on their functions.

From the point of view of the instincts involved, the ego-ideal is seen as "an image of the loved objects in the ego" (Nunberg, 1932); as deriving from feelings of narcissistic omnipotence and as representing the positive identifications with parent images (Piers and Singer, 1953); and as based on "identifications with parental figures seen in a glorified light" (Reich, 1954). The superego (conscience), on the other hand, is conceived as being "an image of the hated and feared objects" (Nunberg, 1932); and as representing the "identifications resulting from the breakdown of the Oedipus complex" (Reich, 1954). The ego is described as submitting to the ego-ideal out of love, but to the superego (conscience) out of punishment (Nunberg, 1932). According to Reich (1954), the "ego-ideal expresses what one desires to be, the superego, what one ought to be".

Hall (1954) summarizes the differences between the two systems on the basis of the instincts involved, as follows:

The ego-ideal corresponds to the child's conceptions of what his parents consider to be morally good. The parents convey their standards of virtue to the child by rewarding him for conduct which is in line with these standards...conscience...corresponds to the child's conceptions of what his parents feel is morally bad, and these are established through experiences with punishment (p. 31).

Other theorists distinguish between the ego-ideal and conscience on the basis of observed functional differences (Lamp1 de Groot, 1962; Novey, 1955; Sandler et al., 1963). Lamp1 de Groot (1962), for example, states that "the ego-ideal is originally and essentially a need-satisfying agency, whereas the superego (conscience) is originally and essentially a restricting and prohibiting agency". Novey (1955) attributes different roles to the ego-ideal and conscience in character formation, and Sandler and associates (1963) caution that placing the ego-ideal and conscience under the same heading would lead to theoretical and clinical imprecision.

Bellak and associates (1973) summarized the theoretical position regarding the subsystems of the superego by underlying the areas of agreement, which are:

(1) From the developmental standpoint, the origins of the ego-ideal are assumed to be in the preoedipal and narcissistic stages of infancy, whereas the superego is regarded as arising out of the resolution of the oedipus complex.

(2) In terms of instinctual drives, the ego-ideal is viewed as drawing more on libidinal impulses and consequently the emphasis in the use of the concept lies in the self-rewarding function. The superego is viewed as related more to the aggressive drives and the turning inward of these drives against the self, and emphasis tends to be placed on the self-punitive functions of the superego.

(3) The ego-ideal contents are always ego syntonic, while the superego attitudes, identifications, and contents may or may not be ego syntonic (p. 39).

e) The Formation of the Superego

The superego which is formed with the resolution of the Oedipus complex, originates through the mechanisms of sublimation and repression of the instinctual needs (sexual) and through the mechanism of identification, especially with the father who is seen as the preferred parent (Freud, 1923a). The Oedipus complex is accompanied by moral anxiety which is reflected as castration complex on part of the male child and as penis envy on part of the female child.

To state that the superego originates with the resolution of the Oedipus complex does not imply that internalization of inhibitions was absent. Rather, moral development takes on a new quality with the resolution of the Oedipus complex. Loewenstein (1966) describes the change this way:

We must understand that the development of ideals or feelings of guilt and shame, and of self-punitive reactions is a gradual process. There is an enormous difference between children in the phallic phase and in the seventh year of life. The instinctual drives manifest themselves differently in the beginning of latency. The instinctual attitudes toward the parents have changed profoundly. The moral prohibitions have become much more independent of external pressure... In the latency period the incestuous and competitive strivings of the Oedipal conflicts are to a great extent being replaced by aim-inhibited relations with parents (p. 301).

Hartmann and Loewenstein (1962) state that with the formation of the superego a number of childhood conflicts between ego and environment, between ego and drives, and within the ego, are resolved in somewhat different ways. For example, a child learns from then on to separate moral conflicts more clearly from other conflicts, as dangers.

Several authors (Hartmann and Loewenstein, 1962; Loewenstein, 1966) refer to the internalization of inhibitions, - that is, moral development - prior to the superego's formation as its antecedents or precursors. They propose that early manifestations of moral development be thought of as the genetic or developmental antecedents of the system superego. They pointed out the need for a clear distinction between the preconditions and early genetic determinants of the superego and the formed system superego.

Melanie Klein (1932) and Spitz (1958) have investigated early moral development. Spitz, based on his studies of infants, hypothesized three successive "premordia" of the superego. The first stage involves the inhibition of the child's motor or physical behavior; the second stage involves identification with the love object; and the third stage involves identification with the aggressor. Spitz sees in these "premordia" the precursors to a mature "superego".

The development of the superego implies the internalization not only of parental behaviors, values and beliefs (Freud, 1923), but also the internalization of the parents' superego (Freud, 1930; Loewenstein, 1966, p. 312). The enrichment and development of the superego continue in latency, in adolescence, and to a lesser extent, in adulthood (Freud, 1923a, p. 37).

The superego, however, is more than the internalization of real or imagined regulatory interactions with the environment when these interactions involve an evaluative aspect; the superego has at its disposal energy from instinctual forces that were involved in the oedipal conflicts (Loewenstein, 1966, p. 303). The energy derived through the process of identification is used by the superego to carry out its functions involving the bestowal of criticism or praise on the ego (Freud, 1923a). The superego, like the ego, uses "bound" energy as distinguished from the "unbound energy" used by the id. Unlike the id and the ego, which operate according to the pleasure and reality principles, respectively, the superego operates for the ideal and the perfect.

In concluding the discussion on the formation of the superego, a comment should be made regarding the development of the ego-ideal. Genetically, the ego-ideal is not as directly traceable to oedipal

conflicts, but is connected with the ontogenesis of narcissism and with the idealization of the parents (Jacobson, 1964).

Structurally speaking, the superego is thought of as a "differentiating grade" (Freud, 1914; 1923a, p. 35) within the ego. The superego, therefore, is derived from the ego, and consequently presupposes some ego development prior to its development. The superego, as well, is endowed with aggressive forces which are directed against the ego. Lastly, the superego is "an inner organization consistently centered around conscious and unconscious moral demands of the individual, his family, and society" (Loewenstein, 1916, p. 303).

f) The Superego's Regulatory and Controlling Mechanisms

The ego and superego are the two regulatory and controlling systems of the id. However, only the ego has direct regulatory influences on the id, whereas the superego indirectly influences the id through the ego and its functions. The superego primarily serves the purpose of controlling and regulating those impulses - sexual aggression, for example - whose uncontrolled expression would endanger the stability of the society.

The superego, which represents the internalized parental ideals and prohibitions, represents a regulatory agent for the ego similar to that of the parents, and thus it has available similar means to reward or punish the person, that is, the ego. The rewards and punishments can be either physical or psychological in nature. The principal punishments levied by the superego on the ego comprise feelings of guilt or shame which, in turn, may be reflected in a need to be punished, or in depression, masochism or suicide. The principal psychological reward given the ego is a feeling of self-esteem (Hall, 1954, p. 31-35).

g) Superego Characteristics

By way of summary, several of the superego's characteristics will be pointed out. First, most of the superego's activities are unconscious both descriptively and dynamically (Loewenstein, 1966, p. 300). Secondly, a superego function cannot, typically, be observed directly. Rather, it manifests itself only through an ego function; that is, the operation of a superego function is assumed to account for the behaviour of the ego (Beres, 1966). Lastly, a strong superego is to be distinguished from a severe superego (Hartmann and Loewenstein, 1966). A strong superego implies the internalization of moral injunctions that effectively regulate behaviour, whereas a severe superego is characterized by incessant self-reproaches that do not effectively regulate behaviour.

h) Current Investigations

Two aspects of the superego currently investigated include the difference between the superego and ego-ideal and the contribution of the drives and object attachments formed in the pre-oedipal period to the formation of the superego (Meissner et al., 1976, p. 539). The pregenital, especially anal, precursors of the superego are thought to provide the strict, very rigid and aggressive qualities of the superego.

This concludes the presentation of the superego concept. The relationship between the superego and ego will be discussed indirectly in the following section which will focus on the functions of the ego.

C: The Ego Concept

The ego concept, like that of the id and superego, evolved through various phases within psychoanalysis. In fact, Rapaport (1958), to the date of his writing, traced four phases in its evolution, three of which

occurred during the lifetime of Freud.

During the first phase, which was prepsychoanalytic and ended in 1897, the "ego" denoted an integral part of the mental apparatuses in Freud's physiological psychology ("Project", 1895). In this paper, Freud outlined three psychological approaches - topographical, economic and dynamic - in the study of psychic phenomena.

In the years following the "Project" until 1923, which demarcates the second phase in the evolution of the ego concept, Freud's interest in the ego concept waned, partly because the concept was unpopular among depth psychologists (psychoanalysts) and partly because his interests were directed towards the investigation of the unconscious and the instincts, particularly the sexual instincts. However, there were several advances in the study of the ego which are reflected in the introduction of such concepts as the "ego instincts" and "system Preconscious (Pcs.)", both of which subsumed some of the repressive forces subsequently ascribed to the ego. The "system Pcs." is considered to be the progenitor of the ego concept. The years between 1897 and 1923 correspond to the development of the Topographical Theory and its eventual decline.

Freud's interest in the "ego" was rekindled in the early 1920's and reached its apex in 1923 with the publication of "The Ego and The Id", which marked both the initiation of Freud's Structural Model and the beginning of the third phase in the evolution of the "ego concept". The paper also inaugurated the beginning of the development of Freud's ego psychology which extended to 1937.

The ego concept continued to evolve through the writings of Hartmann (1939), Erikson (1937) and others, who elaborated and extended Freud's

original concepts. Hartmann's book, Ego Psychology and The Problem of Adaption (1939), is taken as the beginning of the fourth phase which extended to the time of Rapaport's paper (Bellak et al., 1973; Hartmann, 1956; Meissner et al., 1976; Rapaport, 1958).

The ego concept, which is a complex term, will be presented under the following headings: definition, origin, evolution, functions and its strength and weaknesses.

The relationship between ego deficits and psychopathology will be discussed in the section on the psychodynamic theories of schizophrenia.

1. Definition of the Ego

In Freudian theory, the ego concept generally denoted a "particular part of the mind" (mental system characterized by special attributes and functions (Strachey, 1961)). In his "Project" (1895), Freud defined the ego as:

...the totality of the (system of impermeable neurones) cathexis, at the given time, in which a permanent component is distinguished from a changing one (p. 323).

The ego, in this paper represented an organization with a constant cathexis rather than with a changing one. Physiologically, the ego is a group of neurones; psychologically, it is characterized as a group of ideas (Hartmann, 1956, p. 277). In Freud's view, certain ideas could be admitted to consciousness while others were excluded through the mechanisms of defense. The ego was characterized as a "mental system" whose primary function was defense. Other functions attributed to the ego included perception, memory, thinking, attention, reality testing and judgment

(Bellak et al., 1973, p. 9; Rapaport, 1958). In brief, the ego was conceptualized as a "defensive ego" (Hartmann, 1956, p. 277).

Between the publication of Freud's "Project" (1895) and "The Ego and The Id" (1923a), the ego concept was ambiguous, since it not only denoted a "particular part of the mind", but also the "self" and one's person in contradistinction to other persons. It was not always easy to distinguish between the two meanings (Hartmann, 1956, p. 279).

A revised definition of the ego was presented in "The Ego and The Id" (Freud, 1923a), where the ego denoted a "particular part of the mind" and was described in terms of its functions. Freud stated it as follows:

We have formed the idea that in each individual there is a coherent organization of mental processes; and we call this his ego. It is to this ego that consciousness is attached; the ego controls the approaches to mobility...it is the mental agency which supervises all its own constituent processes...(p. 17) ...the ego seeks to present the influence of the external world to bear upon the id and its tendencies, and endeavour to substitute the reality principle for the pleasure principle which reigns unrestrictedly in the id. For the ego, perceptions play the part which in the id falls to instinct. The ego represents what may be called reason and common sense, in contrast to the id which contains the passions (p. 25).

Freud presented a more elaborate description of the ego in a later paper (1938, p. 145-146); however, the substance of the two papers is similar. In summary, the ego denotes a "coherent organization of mental processes" organized around the system Pcpt. Cs. and operates in virtue of the reality principle. The ego has as its function the control of the primary instinctual drives, the supervision of all its own constituent processes, and the control of the apparatus of perception and motility. More will be said later about the functions of the ego. Let it suffice to

say that the definition of the ego as presented by Freud in his two major papers (1923a, 1938), is still accepted by contemporary psychoanalysts (Blanck and Blanck, 1979; Meissner et al., 1976, p. 528). The ego, in brief, is conceptualized as a "coherent organization of mental processes" characterized by specific functions.

Defining the ego in terms of its functions presents problems. Klein (1970) states that there is little in theory that clarifies either what is to be included or what the hierarchy among the functions should be. Bellak and associates (1973), in response to this criticism, state that "the various functions are abstractions, which do not qualify as categories in a strict sense because they do not refer to events that occupy a specifically circumscribed space" (p. 63). They add that naming these constructs as "functions" does not imply that one mental operation underlies each function. Lastly, they state that ego function constructs may refer to mental contents, processes, and outcomes.

2. The Origin of the Ego

By defining the ego as a "coherent organization of mental processes" whose primary function is to mediate between the instincts and the outside world, one concedes that the newborn infant has no ego, or at best, the most rudimentary of egos. The infant, indeed, possesses a wide array of capacities and sensory and motor functions, but these are not coherently organized; thus one must say that the ego is, at best, rudimentary (Meissner et al., 1976, p. 529). This poses the question as to the origin or genesis of the ego. This is the topic to be presently discussed.

In his paper, "The Ego and The Id" (1923a) Freud states that the ego is formed from the id; that is, the ego is a modification or special

development of the id. According to Freud, the ego:

...starts out...from the system Pcpt., which is its nucleus, and begins by embracing the Pcs., which is adjacent to the mnemic residues (p. 23).

In his Outline (1938), Freud describes this modification more precisely when he writes:

"From what was originally a cortical layer, equipped with the organs for receiving stimuli and with arrangements for acting as a protective shield against stimuli, a special organization has arisen which henceforth acts as an intermediary between the id and the external world (p. 145).

Freud postulates two factors as contributing to the modification of the id and the subsequent origin of the ego, namely, the pressures from the external world and the influence of the child's body.

Freud (1923a) describes the influence of the external world on the genesis of the ego as follows:

It is easy to see that the ego is that part of the id which has been modified by the direct influence of the external world through the medium of the Pcpt.Cs; in a sense it is an extension of the surface-differentiation. Moreover, the ego seeks to bring the influence of the external world to bear upon the id and its tendencies, and endeavours to substitute the reality principle for the pleasure principle which reigns unrealistically in the id. For the ego, perception plays the part which in the id falls to instinct (p. 25).

Regarding the influence of the bodily sensations on the genesis of the ego, Freud (1923a) states:

A person's own body, and above all its surface, is a place from which both external and internal perceptions may spring. It is seen like any other object, but to the touch it yields two kinds of sensations, one of which may be equivalent to an internal perception... pain, too, seems to play a part in the process, and the way in which we gain new knowledge of our organs during painful illnesses is perhaps a model of the way by which in general we arrive at the idea of our body...The ego is first and foremost a bodily ego (p. 25-26).

In summary, Freud states that the ego differentiates from the id because of the pressures of the external world and the influence of bodily sensations. The ego is thought to evolve in conflict situations.

Freud's thinking on the origin of the ego gradually evolved to the point that in his paper, "Analysis Terminable and Interminable", (1937), he postulated "innate distinguishing characteristics of the ego" (p. 240) and implied that the ego, in one form or another, exists from the beginning of birth. In this paper, Freud commented:

This would seem to indicate that each ego is endowed from the first with individual dispositions and trends, though it is true that we cannot specify their nature or what determines them...But we shall not overlook the fact that the id and ego are originally one; nor does it imply any mystical overevaluation of heredity if we think it credible that, even before the ego has come into existence, the lines of development, trends and reactions which it will later exhibit are already laid down (p. 240).

The implication is that the ego, like the id, has innate roots of its own which are reflected in its unique disposition and trends. Moreover, it is implied that the id and the ego are initially one and originate from a common source. Freud's theory that "the ego has innate roots of its own" and that "the id and ego are originally one" was expanded and modified by

Hartmann and his collaborators. It is disputed whether Freud influenced Hartmann, or vice versa. Benjamin (1966) believes Hartmann, who was Freud's favourite student, influenced Freud. Hartmann's conceptualizations, however, strongly influenced the thinking of Jacobson (1964), Mahler (1974), and Spitz (1959). Hartmann's impact on these theorists will be discussed in a later section.

Hartmann suggests that the ego does not originate from the id but that both ego and id arise by differentiation from a common undifferentiated matrix. Specifically, Hartmann (1939) states that "there is no ego before differentiation of ego and id, but there is not id either, since both are products of differentiation" (p. 102). Hartmann, therefore, assumes an undifferentiated phase from which both the ego and the id arise.

During the undifferentiated phase, there is a maturation of apparatuses, somatic and mental, that later will be taken over by the ego to serve functions such as motility, perception, memory and intelligence. Maturation of these (inborn) apparatuses proceeds without the establishment of the total organization called the ego. These functions will become fully integrated after the formation of the ego (Hartmann, 1939, 1964; Hartmann et al., 1946, p. 19). Hartmann (1939) "considers as inborn ego apparatuses those apparatuses which, after...differentiation, are unequivocally in the service of the ego" (p. 103).

Hartmann (1939) calls the ego functions that arise from the inborn ego apparatuses, the "primary autonomous ego functions" since their development is independent of drives and conflicts. These functions develop in what Hartmann (1939) calls a "conflict-free ego sphere" (p. 9) and are

present at birth. The primary autonomous ego functions, such as perception, motility and intelligence, are assumed to have been existing and functioning before conflict ever occurred. The apparatuses underlying these functions antedate conflict and are assumed to become the core of ego development (Rapaport, 1951, p. 362). These inborn ego apparatuses are considered to constitute one of the roots of the ego (Hartmann, 1939, p. 101).

In keeping with Freud's theory, Hartmann (1939) states that the ego (functions) develops not only from inborn apparatuses but also from conflict situations, especially conflicts that arise between instincts and reality. Ego functions emerge in order to mediate between the two opposing forces or drives. The development of the ego that occurs in such situations brought about not by innate factors, but through experience, and can be referred to as defensive functions.

In the course of time, some of the ego's defensive functions become independent from their instinctual origins; that is, they no longer serve the original purpose, but continue to function nevertheless. Hartmann (1939, 1951, 1959) refers to such functions as the "secondary autonomous functions of the ego." Once again he states that apparatuses underlying secondary autonomy are not innate but arise from experiences (Hartmann, 1939).

In summary, both the ego and the id arise, through differentiation, from an undifferentiated matrix of animal instincts. Innate apparatuses which mature in a conflict-free ego sphere become organized to form the ego. In addition to its innate roots, the ego, in part, also develops

out of conflict situations, especially conflicts brought about by pressures of the external world on the instinctual needs.

This concludes the discussion on the origin of the ego. In the following section a related topic, the evolution of the ego, will be treated.

3. The Evolution of the Ego

Although Freud (1923a) discussed the origin of the ego and two of its determining factors - the demands of the instinctual drives and the influences of outer reality - he did not treat the evolution of the ego as extensively and comprehensively as he did the id (psychosexual development). This task was undertaken by such theorists as Hartmann (1939, 1965), Jacobson (1914), Mahler (1968, 1974, 1975) and Spitz (1959, 1965). Of interest to these writers were issues such as the determining factors in the evolution of the ego and the ontogenetic stages in the course of its evolution. These two topics will be reviewed under their respective headings in this section of the chapter.

a) Determinants of the Ego

Various determining factors affecting the evolution of the ego have been hypothesized. These factors can be classified according to one of three general categories: the maturation of the ego apparatuses, the psychic mechanism of internalization, and the role of the maternal object or its substitute in ego development.

1) Maturation of Ego Apparatuses

The assumption that "maturation" plays a role in ego development has been advanced by several theorists: Hall (1954) stated that the ego is

forced to develop under the impact of maturation (p. 97); Symonds (1951) wrote that the ego is the product of learning, experience, and development (p. 18-19); and Ausubel and associates (1975) alluded both to an "endogenous (or internal) variable" which includes, above other traits, the level of motor and cognitive capacity and physiological factors, and to a "perceptual variable" which includes maturation of the perceptual and cognitive processes (p. 248-249). It was Hartmann (1950), however, who spelled out the relationship between maturation and ego development by implicating the ego autonomous apparatuses.

One can speak of autonomous factors in the ego, stated Hartmann (1939), in the same way as one considers the instinctual drives autonomous agents of development in the id (p. 119). These autonomous factors, called ego apparatuses, include the perceptual apparatuses, motility apparatuses, and so forth. The ego autonomous apparatuses undergo change and growth as a result of experience (learning) and maturation (Hartmann, 1950, p. 120). They are later used by the ego when it achieves an organizing ability. The quality and level of maturation of the autonomous apparatuses, therefore, influence the development of the ego. Hartmann (1950) stated that the "role of these apparatus for the ego is not limited to their function as tools which the ego at a given time finds at its disposal" (p. 121), but the differences in the timing and in the intensity of their growth enter into the picture of the ego development as well. Thus the timing of the appearance of grasping, of walking, of the motor aspect of speech play a role in the development of the ego as well as in the development of self-experience, which in turn affects ego development. In brief, the evolution of the ego is affected by the maturation of the autonomous ego

apparatuses.

2) The Mechanisms of Introjection and Identification

Another factor affecting the ontogenesis and the structuralization of the ego is the psychic mechanism of internalization (Meissner et al., 1976; p. 530-532). Internalization is a broad term and includes the mechanisms of incorporation, introjection, and identification. Of particular importance in the ontogenetic development of the ego are the psychic mechanisms of introjection and identification. The role that the two mechanisms play in the development of the ego will be considered separately.

Introjection was originally discussed by Freud (1917) as a "power of narcissistic identification in which the lost object is introjected and thus retained as a part of the internal structure of the psyche" (Meissner et al., 1976, p. 531). By this mechanism, the attributes of a person who was once the center of the gratifying relationship are "internalized and re-established as part of the organization of the self". Freud referred to this internalized product as a "precipitate of abandoned object cathexis" (Meissner et al., 1976, p. 531). In brief, introjection implies the abandonment of a gratifying relationship and the intrapsychic preservation of the lost object by the process of internalization.

Through the mechanism of introjection, the child, during the early weeks, months and years of life, builds up an internal world comprising self-images and object-images, or as Mahler and associates (1975) say, "self-representations" and "object-representations". The objects that satisfy the child's primitive demands are internalized as good objects (e.g., good mother); similarly, bad, pleasure-frustrating objects elicit

infantile rage which is both projected onto the object and internalized in the form of bad introjects (e.g., bad mother).

These earliest good and bad introjections have a rudimentary, primitive, and disorganizing form since they are related to the more primitive levels of oral-libidinal and aggressive drives. The introjects, at the primitive level, remain separate and continue to undergo the vicissitudes of introjection and projection. However, in the course of development, the alternate cathexis of good objects and exclusion of bad introjects is modified in the direction of forming composite introjects. Thus the child gradually achieves a more ambivalent and differentiated object-representation and a more composite and differentiated self-representation. Unlike the earlier introjections, which were derived from primitive oral-sadistic instinctual drives, the later more organized introjects derive from less primitive instinctual needs. In brief "the early introjects are gradually fused into more organized, more composite, and more highly differentiated introjects" (Meissner et al., 1976, p. 531).

Introjection and its correlative, projection, serve important functions in the development of object relations (Meissner et al., 1976, p. 531). The two processes aid the establishment of self-object differentiation, and the gradual modification and integration of relations in terms of the unique contributions of internal drive derivatives and the actual quality of the primary object figures themselves. Introjects also play a role in the development of defensive functions. This role, in part, is that of "binding and mastering" thereby modifying the impact of instinctual drives on the emerging ego apparatus (p. 531).

The introject, in summary, can be regarded as a "quasiautonomous

source of intrapsychic influence and activity" that can substitute for the lost love-object and modify the self by the acquisition of the characteristics of the internalized object. However, because of its tendency to regression and susceptibility to drive influence, introjects must be considered as "more structuralizing than structured, more feeble, less stable and more transient than the less instinctually derived, secondary process organization of identificatory systems"(p. 532).

The second psychic mechanism that has a major influence on the development of the ego as well as on the development of psychic structure in general is the process of identification. Identification "refers to modifying the subjective self or behaviour, or both, in order to increase one's resemblance to an object taken as a model" (Schafer, 1968, p. 16).

Although Freud (1910) often used identification and introjection interchangeably, the two processes differ in several respects. Whereas introjection operates as a function of instinctual forces, identification functions relatively autonomously from drive derivatives. Moreover, introjection is directly involved in the transformation and binding of energy; identification is specifically the mechanism for the function of structures of secondary autonomy (Meissner et al., 1976, p. 532).

The importance of the mechanism of identification both in the development of the ego and the ego-ideal and in the resolution of the Oedipus complex has been discussed in great detail by Freud (1923a). Identifications help the ego to expand and broaden; they aid in the integration of personality, serve as incentives for continuous learning, and help in the determination of the sex-roles in the child.

The mechanisms of introjection and identification play complimentary roles in the formation of structures, in the development of the psychic apparatus, and in the adaptive process (Meissner et al., 1976, p. 532). These involvements will be briefly presented.

Both introjection and identification are engaged in the formation of structures. Introjections are structural modifications within the self, whereas identifications are directly and specifically structural modifications of the ego. The introjective nuclei (as good mother, bad mother) that constitute the core of the superego intrinsically modify structure, but they do not directly affect the structure of the ego. Identifications, however, are integrated into the core of personality.

The processes of introjection and identification also play roles in the development of the psychic apparatus, but their functions are quite distinct. Introjection is involved in the working through of instinctual viscissitudes; identification is specifically taken up in the development of ego structures and functions. Thus, in the process of development, which is a continuous interaction of introjection and identification with intrinsic maturational factors, introjection is seen as interacting more with instinctual factors and identification more with ego factors. Although both psychic mechanisms are subject to the laws of epigenesis, they differ in their patterns of primacy with introjection exercising its developmental influence predominantly earlier in the course of development, and identification assuming increasing importance in the later phases of development.

Lastly, both introjection and identification serve adaptive processes by increasing the organism's capacity for adaptation. Both mechanisms, which are autoplasmic in nature, increase the organism's capacity for

internal regulation and are involved in the modification and modulation of instinctual drives, thereby allowing an increasing tolerance and capacity for object relations. However, the capacity for mature object relations is dependent on the degree of ego development which in turn takes place through identification. Man's human adaptation, particularly to his social and cultural development, takes place specifically through the mechanism of identification. In summary, it can be said that "introjection serves the purpose of adaptation through instinctually derived self-modifications"; whereas, "identification can reach out to non-instinctual and conflict-free aspects of human, social and cultural environment and internalize selectively whatever serves the ego's adaptive needs" (p. 532).

This concludes the presentation of the role of the psychic mechanisms in the evolution of the ego. The third and last factor in the evolution of the ego to be discussed is the role of the maternal object.

3) Role of the Maternal Object in Ego Development

Psychoanalytic theory has from its beginnings maintained the importance of object relations in the development (structuralization) of the ego as attested by the psychoanalytic concepts of introjection, identification and Oedipus complex. However, it was not until concepts such as "the undifferentiated matrix", "the average expectable environment", "autonomous ego apparatus" (Hartmann, 1939), "organ mode", "social mode", and "mutuality" (Erikson, 1950) were introduced that psychoanalysis, a theory centered on endogenous explanatory concepts (drives, etc.), was provided with tools to account for processes which have a perceptibly exogenous (stimulus) character, such as the impact of human relations on ego development, or more generally, all the adaptations made

by man (Rapaport, 1956, p. 597):

In addition to the theoretical contributions just cited, the studies by Spitz (1965), Mahler (1975) and Jacobson (1964) were required in order to ascertain the influence of the maternal object on ego development. On the basis of their findings, the authors formulated hypotheses as to the qualities of the maternal-object that facilitate ego development, and conjectured how these qualities influenced its development. A discussion of these maternal qualities and how they influence ego development comprises the topic of this part of the paper.

Maternal qualities thought to be important for ego development include capacity for empathy (Jacobson, 1964; Mahler, 1974; Spitz, 1965), flexibility, and a capacity for regression in the service of the ego (Spitz, 1965). Spitz states that regressive behaviour is widely observed in pregnant women. He conjectures that such preparation for the dyadic relationship equips the prospective mother for participation with the neonate in the affective interchanges which are important for his ongoing development (Blanck et al., 1974, p. 42). Other necessary maternal qualities are adequate level of personality development (Spitz, 1965), emotional availability (Mahler, 1974), and emotional rapport, which can be described as a kind of social symbiosis (Mahler, 1968).

The mother is thought to play an essential role in the development of the ego. Spitz (1965) states that it is essential to life that the neonate's innate equipment be "quicken" (p. 95) through the interchange with the mother. He observed that the absence of such stimulation results in death of the child or depression. Mahler (1974) refers to the role of the mother within the mother-child dyad, as that of a "catalyst". She says

that "it is by way of mothering that a young infant is gradually brought out of an inborn tendency toward vegetative-splanchnic regression and into increased sensory awareness of and contact with the environment" (p. 93). The mother also plays a role in the maintenance of the neonate's homeostasis by helping to reduce tension. Mahler (1968) states that when in the early months of the infant's life there occurs "organic distress", a forerunner to anxiety proper, the mothering partner is called upon to contribute toward the maintenance of the infant's homeostasis (p. 13). Without this help the neonate would become overwhelmed by stimuli and his neurological patterning process would be thrown out of kilter.

The ego is fostered in its development not only by the satisfaction of its needs, but also by tolerable degrees of frustration of its needs. Spitz (1965) states that an important function of the maternal object is to regulate the frustrations of the critical periods - not to remove frustration, but when necessary to impose it, because optimal frustration is structure (ego) building. Symonds (1951, p. 39) says that the ego grows out of separation and frustration, and Mahler and associates (1975) state that the mother's emotional willingness "to let go of the toddler - to give him, as the mother bird does, a gentle push, an encouragement toward independence...may be a sine qua non" (p. 79) for normal ego development. This gentle push, however, is exercised when the child is ready for it, and for Mahler and associates this means not before the completion of the symbiotic phase and the first two-subphases of separation-individuation. Jacobson (1964) also emphasizes the importance of tolerable degrees of frustration and prohibition in the establishment of stable and enduring libidinal cathexis of the self and objects and in the formation ego and


superego structures.

The precise role of the maternal object in the development (structuralization) of the ego has been explained in detail by Jacobson (1964), Mahler (1968, 1974, 1975) and Spitz (1965). Mahler's viewpoint, perhaps the most representative of this group, will be elaborated in the discussion of the "stages of ego development".

This brings to a conclusion the discussion of the determinants of the structuralization of the ego: the maturation of ego apparatus, the psychic mechanisms of internalization and the influence of the maternal object. In the section which follows, the developmental stages of the ego will be presented.

b) The Stages of Ego Development

Freud did not postulate developmental stages of the ego in the same manner that he postulated stages of psychosexual development. This task was undertaken by his followers, especially by Erikson (1950, 1959) and Mahler (1968, 1974, 1975). However, the stages presented by these and other theorists, such as Ausubel (1952, 1958; 1970), Symonds (1951) and Spitz (1959) are not so much stages of ego development as stages of object relations, which is one of the ego functions.

It can be stated that Jane Loevinger (1976), a non-psychodynamic theorist, attempted to delineate stages of ego development in the same way that Piaget (1952) outlined stages of cognitive development and Kohlberg (1963) hypothesized stages of moral development. Neither her approach nor her ego stages, however, have as yet been integrated into psychoanalytic theory; hence they will not form part of this review. 

A discussion of the stages of ego development necessarily includes a discussion of the beginning or birth of the ego. The birth of the ego, or as Mahler (1974) says, "the psychological birth of the individual", does not coincide with the biological birth of the human infant (p. 89). Theorists have pointed to various behaviours as signaling the beginning of the ego.

Before presenting the stages of ego development, therefore, some of the indicators of its beginnings will be discussed. They will be followed by a brief overview of proposed stages of ego development, and will conclude with a presentation of Erikson's and Mahler's ontogenetic stages of the ego.

1) Indicators of Ego Birth

According to Hoffer (1949) the birth of the ego is signaled by voluntary thumb-sucking. This action is interpreted as an intentional attempt to use one part of the body to relieve tension arising in another. Kris (1951) underscored the importance of the child's ability to anticipate feeding at about three months as an indicator of the ego's beginning.

For Anna Freud (1952), the ability to wait, at about six months, signals the birth of the ego. This behavior reflects the beginning of a curtailing attitude towards the id drives, and the beginning of what will later be called the reality principle. The reality principle also introduces in the personality the first break between id and ego, which, thenceforth, serve different aims and is governed, in its functioning, by different principles.

Spitz (1959) assumes that the smiling response which appears around the age of three months establishes the beginning of the ego. The specific smiling response predicates that the infant is responding to the mother in

a manner different from that in which he responds to other human beings. It also heralds the beginnings of structural perception and reality testing.

Mahler (1968) states that one can speak of the beginning of an ego only when the infant is able to wait for and confidently expect satisfaction. This behavior is rendered possible by the fact that there seems to be memory traces of the pleasure of gratification connected with the memory of the perceptual gestalt of the mother's ministrations (p. 12). Lastly, Meissner and associates (1976) believe that "the ego begins with the child's ability to perceive his body as distinct from the external world" (p. 529).

In summary, the ego is thought to begin between the third and sixth months and is reflected in behaviors as voluntary thumb-sucking, anticipation of feeding, ability to wait, smiling response and the ability to differentiate one's body from the external environment. These behaviors assume the organization of autonomous ego apparatuses (Hartmann, 1939) such as perception, motility, and the regulation of drives.

The following section will present a brief historical overview of the major attempts to identify stages in the development of the ego.

2) Overview of Proposed Ontogenetic Ego Stages

The phases postulated in the evolution of the ego, generally speaking, parallel the psychosexual phases proposed by Freud. The one exception to this general observation is Erikson's ego stages which span the entire life cycle.

Contemporary accepted phases of ego development have their origin in the attempts made in the 1950s to treat the ego systematically in terms of

its definition and developmental stages. However, it should be mentioned that many years earlier, Ferenczi (1916) attempted to specify phases in the development of the sense of reality and related these to phases of libidinal development. Similarly, Abraham (1916) in his papers on the ontogenetic phases of the libido, included ego functions found at each of these phases.

Included among the 1950s theorists who attempted to identify phases in the development of the ego are Ausubel (1952), Erikson (1950), Symonds (1951), and Spitz (1959). With the exception of Erikson, all will be briefly treated.

Ausubel (1952, 1958) postulates five stages in the development of the ego with the central theme being the concept of satellization. The first is referred to as a preverbal stage and extends from birth to two or four months. During the preverbal stage, the child develops a self-concept. This is followed by the "omnipotent stage" extending from four months to about two and one-half years. During this stage, the child experiences the power of "crying" and of words in controlling others, especially his parents. However, by the age of two years, the child becomes aware that others have needs, preferences and ideas over which he feels helpless. This ushers in the third stage - satillization - which extends to approximately the fourth year. The child surrenders some of its autonomy, allows itself to be toilet trained and internalizes parental values. The parents subsequently become the center of its life. Around the age of four to five years, when the child leaves home to attend kindergarten or school, he enters the fourth stage - desatillization - which sees him forming new relationships with teachers and peers and becoming, gradually, emancipated

from his parents. This process continues until about the age of eleven or twelve years when the child enters into the phase of "ego integration". By the late teens or early twenties, under normal circumstances, the ego is assumed to have reached full maturity.

Symonds' (1951) stages of ego development are similar to those of Ausubel. The first phase is referred to as the "stage of omnipotence (birth to one year), while the second is called the stage of "real ego omnipotence" (two to four years). This is followed by a phase characterized by mature thinking and interest in interpersonal relationships. The two last stages are the latency period and adolescence.

Spitz (1959) did not speak of ego stages as such, but spoke of steps of ego organization. He postulates three organizers of the psyche which integrate maturational and psychological development factors. The first organizer is the "smiling response" which appears around the third month and is assumed to establish the beginning of the ego. It heralds the beginning of structural perception and of reality testing. The second organizer is "eight-month anxiety" (stranger anxiety) which indicates that the infant recognizes his mother. This organizer is thought to coincide with the development of five major ego functions; namely, perception, judgment, voluntary motor activity, curtailment of drives (in conjunction with reality principle) and a synthetic function (Dècarie, 1965). The third organizer comprises the attainment of the "no" both in gesture and in word, as well as the use of speech in a symbolic sense which goes beyond the global need-gratifying words. The ego, at this stage, has attained the capacity for abstraction and reversibility.

This concludes the brief overview of efforts to define ego stages. Erikson's ego stages will be presented next.

3) Erikson's Stages of Psychosocial Development

Erikson (1950) postulates a theory of ego development which translates into eight epigenetic ego stages (chapters 2 and 7). These stages, which are also called psychosocial stages, parallel Freud's psychosexual stages and go beyond them to include all of the life cycle.

Psychosocial development, according to Erikson, is governed by two principles; namely, the principles of epigenesis and mutuality. By the "principle of epigenesis", Erikson (1959) means that there is a "ground plan based on inner laws of development that create a succession of potentialities for significant interaction with the environment" (p. 52). The eight epigenetic stages comprising the life cycle represent a kind of "timetable" for the ego. The primary condition for entrance into an ensuing stage is "the maturational code which determines when the locus of instinctual investment will be shifted from one stage to the next" (Langer, 1969, p. 34).

Psychosocial development is also governed by the principle of mutuality which refers to the reciprocal interactive relationship between the individual and his environment; e.g., mother, parents, and peers. Development, according to Erikson, is to be interpreted as an interaction.

Erikson also hypothesizes that each ego stage is characterized by a psychosocial crisis or a life task. The characteristically successful or unsuccessful performance of these tasks has important implications for future development.

Each of the ego stages is characterized by a specific psychosocial modality which is a function of the organ mode - that is, of the characteristic nature of the instinctual modality or investment (e.g., taking in, biting, holding).

The eight epigenetic stages, together with their psychosocial crises, radius of significant relations, psychosocial modalities and optimal outcome are presented in Table 1. As can be seen from the table, the psychosocial crises of the oral-sensory stage is that of trust versus mistrust with basic trust and optimism as the optimal outcome. The emphasis in this stage of development is "placed on the modalities getting, and getting what is given, thus laying the necessary ego ground work for getting to be a giver" (Meissner et al., 1976, p. 529). The remaining seven ego stages contain the same information.

Erikson's contribution in defining stages of ego development is the ingenious manner in which he has related specific phases of ego development to specific phases of libidinal development. In this way he has furthered the development of ego psychology. With these comments, the presentation of Erikson is completed, and the discussion will now turn to Mahler's stages of ego development.


4) Mahler's Phases of Ego Development

Unlike Erikson whose interest focused on the entire life cycle, Mahler's interest centered on the first three years of life. Mahler (1968, 1974) was particularly interested in studying the "psychological birth of the individual" which she hypothesized was achieved through the "process of separation-individuation" and is usually accomplished by the age of three years.


Table 1
Erikson's Stages of Psychosocial Development*

Stage and Age (age approximate)	Psychosocial Crises	Radius of Signi- ficant Relations	Psychosocial Modalities	Optimal Outcome
I Oral-Sensory (1st year of life)	Trust vs. Mistrust	Maternal Person	To get/to give in return	Basic trust and optimism
II Muscular-Anal (2nd year)	Autonomy vs. Shame, Doubt	Parental Persons	To hold (on) To let (go)	Sense of control over oneself and the environment
III Locomotor- genital (3rd through 5th year)	Initiatives vs. Guilt	Basic Family	To make (going after)/To "make like" (playing)	Goal-directedness and purpose
IV Latency (6th year to start of puberty)	Industry vs. Inferiority	Neighborhood; School	To make things (competing)/To make things together	Competence
V Puberty and adolescence	Identity vs. Role Confusion	Peer groups and out-groups; Models of leadership	To be oneself (or not to be) To share being oneself	Reintegration of past with present and future goals, fidelity
VI Early adulthood	Intimacy vs. Isolation	Partners in friend- ships, sex, competi- tion, cooperation	To lose and find oneself in another	Commitment, sharing, close- ness, love
VII Young and middle adulthood	Generativity vs. Self- absorption	Divided labor and shared household	To make be To take care of	Production and care
VIII Later adult- hood	Integrity vs. Despair	"Mankind" "My kind"	To be, through having been; To face not being	Perspective, satisfaction with one's past life, wisdom

*E. Erikson, Childhood and Society, New York, W.W. Norton, 1950, and
E. Erikson, Identity: Youth and Crisis, New York, W.W. Norton, 1968



Mahler (1968, 1974) hypothesized three developmental phases; namely normal autism, normal symbioses and separation-individuation. These phases of development, which complement Freud's oral, anal and phallic phases, are based on observations from comprehensive studies of the relationships between normal and psychotic children with their mothers (Mahler et al., 1975).



Several assumptions underlie Mahler's theorizing. She assumes that the infant who is to develop normally arrives at birth with "adequate inborn apparatuses of primary autonomy and encounters an average expectable environment, the major part of which is his particular mother" (Blanck and Blanck, 1974, p. 53). She further assumes that as the child develops there is a shift in libidinal (drive) investment moving from the self to the symbiotic object and finally to object choices. These shifts of libidinal cathexis, she believes, have a pattern effect on ego development and object relationship (Mahler, 1968, p. 210). In other words, she assumes that libidinal shifts and the development of the ego and object relationship occur concomitantly.

In presenting Mahler's phases of development, the characteristics of each phase, together with the task awaiting the child, will be described. The role of the maternal object as a "catalyst" in the evolution of the ego (object relations) will be discussed as well.

a) Phase of Normal Autism

In the normal autistic phase, which extends from birth to about two months, the infant is assumed to be in a state of "primitive hallucinatory disorientation in which need satisfaction belongs to his own omnipotent autistic orbit" (Mahler, 1968, p. 7). The neonate's waking life centers

around his continuous attempts to achieve homeostasis.

Initially the neonate, who is objectless, cannot differentiate between the effects of his mother's ministrations in reducing tension from his own efforts such as urinating, coughing, and so on. However, the infant in due time learns to differentiate between a "pleasurable" and "good" quality and a "painful" and "bad" quality of experience (the beginnings of the mechanism of introjection). This is followed, at about the second month of life, by a dim awareness of a need-satisfying object. This heralds the beginning of the symbiotic phase and the birth of the ego.

The normal neonate is born with reflex equipment such as sucking, rooting, grasping and clinging. He brings with him into the outside world, the equipment of primary autonomy; however, these functions are minimally differentiated and easily interchanged.

The task of the autistic phase is the "achievement of homeostatic equilibrium of the organism within the new extramural environment (Mahler et al., 1975, p. 43). This is brought about by mechanisms that are predominantly somatopsychic and physiological in nature. The mother, through her ministrations in reducing tensions, aids homeostasis. However, by way of mothering, she also gradually brings him out of an inborn tendency toward vegetative, splanchnic (visceral) regression and into increased sensory awareness of and contact with the environment. This implies the progressive displacement of libido from the inside of the body (particularly from the abdominal organs) toward its periphery (Mahler et al., 1975, p. 42).

The autistic phase ends and symbiosis begins when the child becomes dimly aware of the need-satisfying object. By the time the child leaves

the autistic phase he has laid down some memory traces of the "pleasurable-good" and "painful-bad" qualities of the object, he has formed rudimentary introjects, and his autonomous ego apparatuses show signs of differentiation.

b) Phase of Normal Symbiosis

The phase of normal symbiosis extends from the second month to about the fourth month of life and is thought to begin when the infant becomes dimly aware of the need-satisfying object (Mahler et al., 1975, p. 34). This dim awareness occurs within the matrix of the oral gratification-frustration sequence of the normal nursing situation. The two to four month old child seems to perceive, at least temporarily and in a gestalt kind of perception, that small part of the external reality represented by the mother's breast, face and hands - the gestalt of her ministrations as such (Mahler, 1968, p. 34-35). When the child is able to await and expect satisfaction, one can speak of the beginning of the ego and of a symbiotic object as well.

The infant, at the beginning of this phase, "behaves and functions as though he and his mother were an omnipotent system, a dual unity within one common boundary" (Mahler et al., 1975, p. 44). The symbiosis represents a state of fusion with the mother; a state of undifferentiation in which the "I" is not yet differentiated from the "not-I", and in which the inside and outside are only gradually coming to be sensed as different (Mahler et al., 1975, p. 45). This hallucinatory or delusional, somatopsychic omnipotent fusion with the representations of the mother is the essential characteristic and achievement of symbiosis.

The mother, by the emotional rapport of her nursing care, promotes a physiological and sociobiological dependency of the child on her. It is within this matrix of dependency that the structural differentiation takes place which leads both to the functioning of the ego and to the individual's organization for adaptation. It is within this matrix that differentiation between id and ego functions and between drives (libidinal and aggressive) begin to take place. The infant also acquires object-representations and self-representations, the first being a body-ego and a body image.

It is necessary, during this phase of development, that the mother sensitively attune herself to the needs of the child. As was pointed out earlier, this is facilitated by qualities such as empathy, and adaptive regression in the service of the ego. Mismatching of mother and child can lead to childhood psychoses (Mahler, 1968, 1974).

The principal psychological achievement of this phase is the child's cathexis of his mother. This represents a shift of libidinal energy from himself to a need-gratifying and symbiotic object.

Before termination of the discussion of this phase, ~~one of~~ Mahler's hypotheses as to the etiology of child psychosis will be mentioned. She states that for normal growth it is necessary for the child to engage in a symbiotic relationship. She postulates two situations which might prevent the child from engaging in such a relationship. In the first situation, the mother and child are emotionally mismatched. In the second, the child, because of defective innate autonomous apparatuses, is not able to become engaged in a symbiotic relationship. Blanck and associate (1974) think that because of the latter possibility, there is no longer a need for the concept of the schizophrenogenic mother to account for the etiology of

schizophrenia.

c) The Phase of Separation-Individuation

The separation-individuation phase extends from the fourth or fifth month to about the thirty-sixth month of life. It is characterized by "a steady increase in the awareness of the separateness of the self and the other which coincides with the origins of the self, of true object relationship and of awareness of reality in the outside world" (Mahler et al., 1975, p. 48). This phase of development is facilitated, on the one hand, by the autonomous development of the ego, and on the other, by the operation of the mechanisms of identification. By successfully passing through this phase - a growing away process - a child achieves individuality and object constancy.

The separation-individuation phase is divided into four subphases, namely, differentiation, practising, rapprochement and separation-individuation proper. Each subphase will be presented briefly (Mahler et al., 1975, p. 52-120).

The first subphase, differentiation, begins around the fourth or fifth month at the height of the symbiotic relationship which is signalled by the child's "smiling response". The child, safely anchored within the symbiotic orbit of the mother's caring activities, expands beyond it through the "hatching process" which is described as the maturation of the perceptual-conscious system. Accompanying the "hatching process", there is a marked change in the child's behavior in that it becomes more outward and goal directed. At about the sixth or seventh month, the child begins to take his first tentative steps in breaking away from the passive lap-babyhood of the symbiotic phase. This is observed in the following

sequence of behaviors: a tactile and visual exploration of his mother's face and of the clad and unclad parts of her body; "pulling away" behavior, while on her lap, in order to view her more accurately; sliding-off his mother's lap only to crawl back immediately, or remain there and play close to her feet; the visual patterning of "checking back to mother", at seven months, which is interpreted as the most important sign of beginning somatopsychic differentiation - that is, of cognitive and emotional development; and lastly, at eight months, the experience of "eight-month anxiety" or "stranger anxiety".

This period of differentiation is followed by the practising period which Mahler and associates (1975) divide into the early practising period (from the eighth to the tenth month), characterized by "quadrupedal" locomotion (as crawling) and the practising period proper (extending from the tenth to the eighteenth month), characterized by free "upright" locomotion. During this period "the child experiences rapid bodily differentiation from the mother and establishes a specific bond with her that permits the growth and functioning of autonomous ego apparatuses in close proximity and dependence on the mother" (Meissner et al., 1976, p. 530).

The early practising period sees the child's interest in the mother spilling over onto inanimate objects; however, the mother always remains the child's most important object. The child also takes a more active role in determining closeness and distance to the mother. In the practising subphase proper, during which there is a spurt in autonomous function, especially in cognition, and locomotion, the child begins a "love affair

with the world". This leads to great strides in human individuation and ultimately to identity formation. In the bipedal position, the child experiences new perceptions, pleasures and frustrations.

The chief characteristic of the practising subphase is the shift in libidinal cathexis from the child's own self and his mother to include his own autonomous functions, his own body, as well as the objects and objectives of his expanding world. The elation that the child experiences during this phase is related not only to the exercise of the ego apparatuses, but also to his experience of escape from fusion with and engulfment by mother. Even though the child appears, at times, to be disinterested in his mother, he needs her emotional support and responsiveness and her cooing during this phase. It is important that the mother be able to provide a secure "home base" to which the child can return for "emotional refueling".

The third subphase - rapprochement - spans an eighteen-month period beginning around the eighteenth month and terminating at about the thirty-sixth month. Mahler and associates (1975) divide this subphase into three periods; namely, beginning rapprochement (15 to 17/18 months), the rapprochement crises (17/18 to 24 months) and individual patterning of rapprochement (24 to 36 months).

The main characteristic of this subphase is the "child's active approach" behavior; that is, his increased need for the mother to share with him every new acquisition of skill and experience. This active approach behavior, referred to as rapprochement and observed during "beginning rapprochement", appears to be brought on by the child's

heightened awareness of his growing separation from his mother and by the fear of losing his love object. This occurs at the time marked by growth in his cognitive faculties, increased differentiation of his emotional life, and greater use of abilities to be physically separate. The relative lack of concern of the mother's whereabouts of the previous subphase is replaced by active approach behavior.

During the early stages of rapprochement, the toddler wishes to be reunited with the love object and yet fears being re-engulfed by it. This is indicated by two characteristic behavioral patterns. The first is the "shadowing" of mother reflected in the child's incessant watching of and following every move of the mother, and the second is "darting-away" behavior with the expectation of being chased and swept into her arms. In these behaviors are seen both the child's warding-off pattern directed against impingement upon his recently achieved autonomy, and the fear of losing his love object (referred to as ambivalence, a forerunner to ambivalence).

The frustrations experienced in not being able to enlist his mother all of his activities leads to the rapprochement crises. The failure to re-establish the symbiotic duality prompts the child to gradually and painfully to give up his delusion - often by way of dramatic fights. In place of the rapprochement struggle, the toddler eventually finds an optimal distance from mother, the distance at which he can function the best. In this the child is aided by the development of language, the internalization process, especially identification, and by progress in the ability to express wishes and fantasies through symbolic play.

During this subphase, a period of great vulnerability, it is important for the mother to be present emotionally for it is her love of the toddler and her acceptance of his ambivalence that enable him to cathect her self-representations with neutralized energy. Moreover, the mother's emotional availability is essential for the optimal development of the child's autonomous functions and it facilitates the rich unfolding of the child's thought processes, reality testing and coping behavior. However, the mother also encourages normal individuation by blending her emotional availability with her emotional willingness to let go of the toddler, and when appropriate, to give him, so to speak, a gentle push.

Mahler and associates, in order to pinpoint the two tasks awaiting the child, refer to the fourth and last subphase as the "Consolidation of Individuality and The Beginnings of Emotional Object Constancy". The two tasks will be presented separately.

The first task of this subphase is the attainment of a certain degree of object constancy which takes place during the third year of life. The term "constancy of object" refers to the "maintenance of the representation of the absent love object" and implies, as well, "the unifying of the 'good' and 'bad' object into one whole representation" (Mahler et al., 1975, p. 110). This fosters the fusion of the aggressive and libidinal drives and tempers the hatred for the object when aggression is intense.

The establishment of affective object constancy "depends upon the gradual internalization of a constant, positively cathected inner image of the mother" (Mahler et al., 1975, p. 109). This is a slow and complex, multi-determined process involving all aspects of psychic development. The authors mention the following as essential prior determinants: the

establishment of trust and confidence through the regularly occurring relief of need tensions; the cognitive acquisition of the symbolic inner representation of the unique love object; factors such as innate drive endowment and maturation, reality testing, neutralization of drive energy, tolerance for frustration and for anxiety, etc.

The attainment of affective object constancy permits the child to substitute for the mother, during her physical absence, a reliable internal image that remains relatively stable irrespective of the state of instinctual need or of inner discomfort. This allows the child to function separately despite moderate degrees of tension and discomfort.

The second major task of this subphase is the achievement of individuality. This is facilitated by ego differentiation and by the establishment of mental representations of the self as distinctly separate from representations of objects. This eventually leads to self-identity.

The authors point to several factors that might disrupt or threaten affective object constancy and separate individual functioning. Threats are seen as coming from the pressure of drive maturation, less than optimal empathic response of the mother, accidents, sicknesses, separations, surgical interventions, and so on.

This concludes the presentation of Mahler's stages of ego (object relations) development, as well as the section on the evolution of the ego. In this section determinants of ego development were discussed and several attempts to define its developmental stages were presented.

The following section will treat the functions of the ego with emphasis on those outlined by Bellak and associates.

4. The Functions of the Ego

In the previous sections it was pointed out that the ego is defined in terms of its functions, and that it is within the context of object relations, more specifically, within the context of the symbiotic relationships, that the functions of the child's ego begin to emerge. The emergence and evolution of the ego functions are due partly to developmental factors and partly to relational factors.

The functions of the ego will be the focus of the present discussion which limits itself to three main issues; namely, the concept of "function", attempts made to list the ego functions, and the major characteristics of ego functions.


a) The Concept of "Function"

Three interrelated terms emerge in any discussion regarding ego functions: structure, apparatus, and function. Freud distinguished between structures and function. Structures were represented by the three mental agencies (id, ego and superego) and their activities were referred to as functions. Rapaport (1953) extended the concept of structure to include well-established ego functions, such as thought processes, that have become structuralized. Hartmann (1939a), on the other hand, introduced the concept of ego apparatus. The three terms - structure, apparatus and function - however, are not synonymous.

The concept "structure" refers to an enduring organization or pattern and to relatively fixed substantives (Weisman, 1965, p. 45). Structures are characterized by a resistance to change and by an hierarchical ordering of newer structures on older ones (Rapaport, 1950, 1957). In this sense, Rapaport conceived of well-established (ego) functions as structures since

they were resistive to change. According to Rapaport only some of the ego's functions became patterned and thus were conceived of as structures.

Hartmann (1939a) introduced the concept, "ego apparatus" to represent inborn mental systems such as memory, motility and perception which sooner or later come to be specifically used by the ego. The concept of "apparatus" aided Hartmann to distinguish the innate from the acquired roots of the ego which he called the primary autonomous and secondary autonomous ego functions, respectively. Moreover, by using the concept "apparatus", Hartmann was able to demonstrate the dependence of ego functioning on the nature, quality and characteristics of physiological organ systems. This dependence of ego functions on specific physical organs is especially noticeable in a child's early years of life where damage to the physical structures results in a typical and deviant ego organization (Nagera, 1968, p. 228). The two systems, that is, the mental apparatuses and the physiological processes, can be differentiated in terms of their effects. The effects of the former can be conceptualized as ideas, visual images, memories, and so on, while the effects of the latter reach awareness as pleasure-pain sensations and cannot be readily translated into terms of mental functioning. In summary, the concept of apparatus is a generic term referring to the primary autonomous, and to the secondary autonomous ego functions, both conceived as being stable and enduring mental organizations resistive to change. Hartmann and Rapaport, it appears, used the concepts "apparatus" and "structure" synonymously (Nagera, 1968).



Traditionally, the concept "function" referred to mental activities of a structure or organization. It has already been mentioned that when Freud defined the three major structural division of the mind (id, ego and superego) by their functions, he implied a distinction between an agency (structure) and its functions. Moreover, he implied that functions are dependent upon and regulated by their structure (Gill, 1963). Gill, however, states that this is not always the case. He distinguishes between functions regulated by structures and functions not so regulated (ad hoc psychic functions). Gill states that when ad hoc functioning has become habitual and regular, a structure with a fixed organization may be assumed to have been formed so that "neither the structure nor the function it regulates undergoes any change" (p. 113). As examples of ad hoc functioning he cites the primary process mechanisms of displacement, condensation and substitution. Sandler and Joffe (1965) distinguish structures from functions in terms of patterns of organization. Thus, schemata, agencies, apparatuses and mechanisms characterize structures, while activities and processes characterize functions. From another point of view, there is not a one-to-one relationship between structure and function. Modell (1968) states that the same structure can underlie different functions at different times, and that a change in a function does not necessitate a change in structure (p. 60-61).

In summary, (ego) functions are distinguished from structures in terms of stability, rate of change, and patterns of organization. To quote Bellak and associates (1973), ego functions can be described as:

theoretical constructs derived from observation of behavior and from patients' accounts of their experiences. They have a developmental history, depending partly upon the maturation of anatomical-physiological structures and processes early on, but less so as maturation development, and personality differentiation proceed (p. 61-62).

Some of the ego's functions - as reality testing, defense, and thinking - can be considered as mental structures because they are enduring and resistive to change.

In the following section, attempts made to list the ego functions will be reviewed. Special attention will be given to the list established by Bellak and associates since their functions form an integral part of the present study.

b) Attempts to List Ego Functions

Bellak and associates (1973) extensively reviewed the psychoanalytic literature concerning ego functions and concluded their presentation by offering a list of twelve ego functions (p. 51-284). Following the approach of Bellak and co-workers, the first part of this section will present a brief overview of attempts made to list ego functions, and the second part will pay attention to the twelve ego functions selected by the above investigators for their project.

It is commonly accepted that Anna Freud (1936) was the first to offer an exhaustive statement as to the functions of the ego (Hartmann, 1939a, p. 12). She listed as essential ego functions the testing of inner and outer reality, building up of memory, the synthetic function, and the ego's control of motility.

Freud (Sigmund) did not present a formal list of ego functions; however, he did present some of the ego's characteristics in New

Introductory Lectures (1933) and Outline of Psychoanalysis (1938a). Summarizing these two papers, Hartmann (1950) identifies the following list of ego functions: organizes and controls motility; organizes and controls perception; protective barrier (against excessive external and internal stimuli); tests reality; action (in contradistinction to motor discharge); thinking (which is trial action with small quantities of psychic energy); delay of discharge or detour activities; and synthetic function (coordinating or integrating tendency) and judgment (p. 114-115). A somewhat longer but comparable list was suggested by Bellak and associates (1973, p. 51-52).

Hartmann and colleagues (1946) referred to thinking, perception and action as the three main functions of the ego and added that these functions are frequently put into the service either of the id or of the superego (p. 12). Four years later, Hartmann (1950) offered an extended list of ego functions including: organization and control of motility and perception; barrier against external and internal stimuli; tests reality; carries out action; thinking; delay of discharge (inhibiting action); and synthetic (coordinating, integrating) function (p. 113-117).

Another list of ego functions was presented by Symonds (1951) who stated that the ego was recognized as possessing four distinct functions; namely, reality testing, a synthetic function, a repressing and inhibitory function, and the building of memories (p. 25). Elsewhere he spoke of the ego's comprising three distinct elements: perceiving, thinking, and acting (p. 7).

In his discussion of childhood schizophrenia, Beres (1956) included seven ego functions, illustrating them through case material. The ego,

functions are: (1) relation to reality; (2) regulation and control of instinctual drives; (3) object relationships; (4) thought processes; (5) defense functions of the ego; (6) autonomous functions of the ego; (7) synthetic function of the ego (p. 171).

In their systematic presentation of structural theory in psychoanalysis, Arlow and Brenner (1964), enumerated twelve functions of the ego. They include the following: consciousness; sense perception; perception and expression of affect; thought; control of motor action; memory; language; defense mechanisms and defensive activity in general; control, regulation, and bonding of instinctual energy; integration and harmonization; reality testing; and inhibition or suspension of the operation of any of these functions and regression to a punitive level of functioning (p. 39).

Of primary interest to this study are the twelve ego functions identified by Bellak and associates (1973). The enumeration of the twelve functions represents an evolution in Bellak's thinking concerning ego functions. In his discussion of the multiple-factor psychosomatic theory of schizophrenia, Bellak (1949a) included the following functions: reality testing; mediating the drives, reason and internalized rules of society, and the external environment; frustration tolerance; and the ability to engage in detour behavior for the long-range achievement of pleasure. Six years later, Bellak (1955) defined the ego by the following functions: (it) organizes and controls motility and perception; serves as a protective barrier against excessive external and internal stimuli, performing the function of self-exclusion; tests reality, engages in trial action, and sends out danger signals; is responsible for detour behavior in gratification; and includes character, defenses, and the integrating

aspects of the ego under organizing and self-regulating functions.

In their investigation of ego function differences among schizophrenics, neurotics and normals, Bellak and co-workers (1978) included twelve ego functions which are an extension of Beres (1956) and Bellak's (1958a) earlier listings. The ego functions included are: (1) reality testing; (2) judgment; (3) sense of reality; (4) regulation and control of drives; (5) object relations; (6) thought processes; (7) adaptive regression in service of the ego (ARISE); (8) defensive functions; (9) stimulus barrier; (10) autonomous functions; (11) synthetic functions; and (12) mastery-competence (p. 71-79).

The ego functions listed by authors thus far reviewed are summarized and presented in Table 2. The table suggests that such functions as reality testing, delay of discharge, thinking, synthetic function and protective barrier were considered as functions of the ego from the beginning. The ego function, object relations, was a later addition. Bellak and associates (1973) added two new functions, namely, ARISE and mastery-competence.

It is obvious, that it is not sufficient to list only the functions of the ego; they must be defined as well. In providing definitions for the twelve ego functions, Bellak and associates (1973) extensively reviewed the Freudian psychoanalytic literature (p. 80-265). They assessed the contributions of Freud as well as those of major theorists during and since the time of Freud. The authors summarized their findings by defining each of the ego functions in terms of its component factors. The twelve ego functions and their component factors are presented in Table 3. The

Table 2
Lists of Ego Functions by Seven Psychoanalytic Theorists

A. FREUD 1936	S. FREUD 1938a	HARTMANN 1946	BELLAK 1949a	HARTMANN 1950	SYMONDS 1951	BELLAK 1955	BERES 1956 BELLAK 1958	ARLOW 1964	BELLAK 1973
Reality Testing	Reality Testing	Perception	Reality Testing	Reality Testing	Reality Testing	Reality Testing	Relation to Reality	Reality Testing	Reality Testing
	Judgment	Perception	Perception	Perception				Sense Perception	Judgment
Control of Motility	Delay of Discharge							Consciousness	Sense of Reality
			Mediating drives, reaction, introjects and external environment	Organization and control of motility	Repression and inhibitors of drives	Detour behavior	Regulation and control	Control and Regulation	Regulation and control of drives
								Perception and expression of affect	Object relations
			Detour behavior					Thought	Thought Processes
Memory	Thinking	Thinking	Thinking	Thinking	Memory	Organize & control motility & perception	Thought processes	Thought	Thought Processes
							Memory	Inhibition or suspension of operation	ARISE
								Defensive mechanism	Defensive functioning
				Inhibitory function	Defensive function	Defensive functioning			

Table 2 (continued)
Lists of Ego Functions by Seven Psychoanalytic Theorists

A. FREUD 1936	S. FREUD 1938a	HARTMANN 1946	BELLAK 1949a	HARTMANN 1950	SYMONDS 1951	BELLAK 1955	BERES 1956 BELLAK 1958	ARLOW 1964	BELLAK 1973
	Protective barrier		Frustration tolerance	Stimulus barrier	Stimulus barrier	Stimulus barrier	Autonomous functioning	Language	Stimulus barrier
	Motility	Action		Autonomous functioning	Autonomous functioning	Autonomous functioning	Autonomous functioning	Memory	Autonomous functioning
Synthetic function	Synthetic function			Organizing function	Synthetic function	Synthetic function	Synthetic function	Integra- tion and harmoniza- tion	Synthetic functioning
	Action			Carries out action				Control of motor action	Mastery- Competence

Table 3
 Bellak's List of Twelve Ego Functions
 and Their Component Parts
 (Bellak et al., 1973, p. 76-79)

Ego Functions	Component Factors
1. Reality testing	A. Distinction between inner and outer stimuli B. Accuracy of perception and interpretation of external events including orientation to time and place. C. Accuracy of perception and interpretation of internal events. Includes reflective awareness or extent to which person is aware of accuracy or distortions of inner reality.
2. Judgment	A. Anticipation of probable consequences of intended behavior (e.g., anticipating dangers, legal culpabilities, social censure, disapproval or inappropriateness, and physical harm. B. Extent to which manifest behavior reflects the awareness of its probable consequences, and the extent to which behavior expressing maladaptive judgment is repeated. C. Appropriateness of behavior, or extent to which person is able to attune himself emotionally to relevant aspects of external reality.
3. Sense of reality of the world and of the self	A. Extent of derealization and related altered state of consciousness. The extent to which external events are experienced as real and as embedded in a familiar context. B. Extent of depersonalization and related altered states of consciousness. The extent to which the body (or parts of it) and its functioning and one's behavior are experienced as familiar and unobtrusive and as belonging to (or emanating from) subject. C. The degree to which subject has developed individuality, uniqueness, a sense of self, a stable body image, and self-esteem. D. The degree to which subject's self-representations are distinguished from object representations; that is, the extent to which other people are distinguished as independent entities and the extent to which subject correctly ascribes which qualities

Table 3 (continued)
 Bellak's List of Twelve Ego Functions
 and Their Component Parts
 (Bellak et al., 1973, p. 76-79)

Ego Functions	Component Factors
4. Regulation and control of drives, affects, and impulses	<p>are self-representative and which belong to others. Stated in another way, the extent to which ego boundaries between the self and the outside world are clearly demarcated.</p> <p>A. The directness of impulse express, ranging from primitive and psychopathic acting out, through the activity of the impulse-ridden character, through neurotic acting out, to relatively indirect forms of behavioral expression. Maladaptiveness would be a function of the extent to which awareness of drive, affect, and impulse are experienced and expressed disruptively.</p> <p>B. The effectiveness of delay and control mechanisms (including both under- and over-control); the degree of frustration tolerance and the extent to which drive derivatives are channeled through ideation, affective expression, and manifest behavior.</p>
5. Object relations	<p>A. The degree and kind of relatedness to others (taking account of narcissism, symbiosis, separation-individuation, withdrawal trends, egocentricity, narcissistic object choice or extent of mutuality, reciprocity, empathy; ease of communication); degree of closeness or distance and the degree of flexibility and choice in maintaining object relations.</p> <p>B. Primitivity-maturity of object relations, including the extent to which present relationships are adaptively or maladaptively influenced by, or patterned upon, older ones.</p> <p>C. The extent to which the person perceives and responds to others as independent entities rather than as extensions of himself.</p> <p>D. The extent to which he can maintain object constancy, that is, can sustain both the physical absence of the object and the presence of frustration or anxiety related</p>

Table 3 (continued)
 Bellak's List of Twelve Ego Functions
 and Their Component Parts
 (Bellak et al., 1973, p. 76-79)

Ego Functions	Component Factors
6. Thought processes	<p>to the object; degree and kind of internalization (the way subject perceives and responds to people who are not physically present).</p> <p>A. Degree of adaptiveness in memory, concentration, and attention.</p> <p>B. The ability to conceptualize. The extent to which abstract and concrete modes of thinking are appropriate to the situation.</p> <p>C. The extent to which language and communication reflect primary or secondary process thinking.</p>
7. Adaptive regression in the service of the ego (ARISE)	<p>A. First phase of an oscillating process; degree of relaxation of perceptual and conceptual acuity with corresponding increase in ego awareness of previously preconscious and unconscious contents and the extent to which these "regressions" disrupt adaptation or are uncontrolled.</p> <p>B. Extent of controlled use of primary process thinking in the induction of new configurations. Extent of increase in adaptive potential as a result of creative integrations produced by ultimately controlled and secondary process use of regressions.</p>
8. Defensive functioning	<p>A. Extent to which defense mechanisms, character defenses, and other defensive functioning have maladaptively affected ideation, behavior, and the adaptive level of other ego functions.</p> <p>B. Extent to which defenses have succeeded or failed: for example, degree of emergence of anxiety, depression, and/or other dysphoric affects.</p>
9. Stimulus barrier	<p>A. Threshold for, sensitivity to, or registration of, external and internal stimuli impinging upon various sensory modalities (corresponds to "receptive function").</p>

Table 3 (continued)
 Bellak's List of Twelve Ego Functions
 and Their Component Parts
 (Bellak et al., 1973, p. 76-79)

Ego Functions	Component Factors
10. Autonomous functioning	<p>B. Degree of adaptation, organization, and integration of responses to various levels of sensory stimulation; the effectiveness of "coping mechanisms" in relation to degree of sensory stimulation, whether observed in motor behavior, affective response, or cognition.</p> <p>A. Degree of freedom from impairment of apparatuses of primary autonomy (attention, concentration, memory, learning, perception, motor function, intention).</p> <p>B. Degree of freedom from impairment of secondary autonomy (disturbances in habit patterns, learned complex skills, work routines, hobbies, and interests).</p>
11. Synthetic-integrative functioning	<p>A. Degree of reconciliation or integration of discrepant or potentially incongruent (contradictory) attitudes, values, affects, behavior, and self-representations (e.g., role conflicts).</p> <p>B. Degree of active relating together (i.e., integrating) of both intrapsychic and behavioral events. These events may or may not be conflict-ridden and are not necessarily limited to behavior.</p>
12. Mastery-competence	<p>A. Competence, or how well the person actually performs in relation to his existing capacity to interact with and actively master and affect his environment.</p> <p>B. The subjective role, or subject's feeling of competence with respect to actively mastering and affecting his environment: subject's expectations of success on actual performance (how he feels about how he does and what he can do). Sense of competence is scored at face value: for example, higher than actual competence if there is an exaggerated sense of competence.</p>

Table 3(continued)
Bellak's List of Twelve Ego Functions
and Their Component Parts
(Bellak et al., 1973, p. 76-79)

Ego Functions

Component Factors

C. The degree of discrepancy between component A and component B: that is, between actual competence and sense of competence. It may be negative (-: actual competence exceeds sense of competence); it may be equal (=: actual competence and sense of competence are congruent); it may be positive (+: sense of competence exceeds actual competence, as in a grandiose, exaggerated sense of competence compared with performance).

descriptions are self-explanatory. However, the following should be noted. Each of the component factors represents one aspect of the specific ego function. For example, one of the component factors of reality testing is the capacity to distinguish between inner and outer stimuli; a second component factor is the ability accurately to perceive and interpret external events including orientation to time and place; a third component factor is the capability to accurately perceive and interpret internal events. A person's level of functioning on a specified ego function is assessed by the extent to which he performs at the adaptive end or at the maladaptive end on a continuum ranging from maladaptive to adaptive functioning. What has been said for reality testing, can be said for each of the remaining ego functions.

As a concluding comment on the topic of listing ego functions, it should be stated that there is no definitive list as to which functions are to be included under the ego. Bellak and associates state that this "is a matter of agreement among workers in the field on the basis of historical precedent, congruence of concepts and psychoanalytic observations, and a need to define criteria that are necessary and sufficient to characterize recognized, major dimensions of ego functioning" (p. 71).

This concludes the presentation on lists of ego functions. In the following section, some of the major characteristics of ego functions will be discussed.

c) Major Characteristics of Ego Functions

The principal characteristics of ego functions were theoretically defined during the 1940's and 1950's and elaborated during the two

succeeding decades. The following statements summarize the main characteristics of ego functions (Bellak et al., 1973, p. 62-72, 267-273).

(1) Ego function deficits are discrete rather than global

Hartmann (1950) stated that ego function deficits are discrete or independent rather than global. The same point was made by Berés (1956) and Arlow and Brenner (1964). However, the discreteness (independence) of ego functions is thought to be affected by several conditions.

Witkin and associates (1962) point to the level of personality differentiation as one condition affecting the independence of ego functions. They state that the less differentiated the personality, the greater the tendency for a number of ego functions to show maladaptive features at the same time. A second condition is the degree of psychopathology. Where psychopathology is serious, greater disturbances are observed in related ego functions (Bellak and Murvich, 1969). Even at that, in psychotics, where a number of ego functions tend to be disturbed, deficits are uneven to varying degrees (Wallerstein, 1967). In conclusion, it can be said that "the degree of discreteness of ego functioning depends in part on the extent of psychological development, on the level of psychopathology, and on the individual's unique characteristics (Bellak et al., 1973, p. 269).

(2) Ego functions can vary in the extent to which they are subject to regression and instinctualization (Hartmann, 1955).

Secondary autonomous ego functions are thought to be protected against regression and instinctualization. It has been observed that in the same individual different ego functions may show different degrees of secondary autonomy (Hartmann, 1964, p. XI). Moreover, the level of ego functioning

varies more in some people than in others (Bellak et al., 1973, p. 68). Thus, variation of ego functioning is related to the degree to which they are subjected to ~~instinctualization~~ and regression.

- (3) Ego functions need different degrees of neutralization for optimal functioning in different activities (Hartmann, 1955).

The term neutralization refers to the process whereby the ego transforms some of the id's sexual and aggressive energy into a state suitable for its (ego) own use. The energy, which feeds the ego functions, is said to be de-sexualized and de-aggressivized, or simply neutralized (Hartmann, 1952, p. 170-171). Hartmann (1964) states that the successful activities of the ego vary in terms of the amount of neutralization required (p. xiii). Some ego functions require maximum neutralization, others less than maximum, in order to work successfully.

- (4) Ego functions can cooperate or interfere with each other's functioning in the process of adaptation (Hartmann, 1939a).

The ego functions are generally recognized to be interrelated and interdependent. One manifestation of this is the manner in which the ego functions either cooperate or interfere with each other's function in the process of adaptation. As examples of how ego functions cooperate, Rapaport (1951) states that secondary-process thinking involves synthetic functioning, while inadequate impulse control is frequently a factor in poor judgment, and Hurvich (1970) points out that reality testing depends at least on the ego functions of attention, perception, memory, secondary-process thinking, delay of discharge, judgment and reflective awareness. Ego functions may also interfere with each other's functioning. In cases

of severe regression, interference takes the form of secondary failure of one function because of the regression of the other. For example, a patient unable to distinguish between himself and others, is not able to maintain object relationships (Freeman et al., 1966, p. 94); also, when attention is interfered with, perception is affected (Rosenfeld, 1952) and when thinking is defective, speech is influenced (Sandler and Joffe, 1965). When there is an absence of severe regression, ego functions can also be thought to interfere with each other's functioning. This is illustrated in the interference of defensive processes with other areas of ego functioning as, for example, when repression decreases memory, when denial obstructs reality testing, and when isolation decreases synthesis (Bellak et al., 1973, p. 269). In the words of Bellak and associates, "all the major ego functions are multidimensional and complex, rather than unitary and simple" (p. 271).

- (5) The various ego functions have a rank order of biological purposiveness, and the particular order in a given person has much to do with his ego strength (Hartmann, 1939, p. 92-93).

Hartmann (1964) states that both in a general way and in studying concrete situations in mental life, one can speak of a hierarchy of functions and a layer of motivation (p. xiii). He adds that the ego itself, for its own purpose, puts some of its highly differentiated functions temporarily out of function.

- (6) The level of ego functioning characteristic of a given individual is remarkably stable (Bellak et al., 1973, p. 68).

The stability of ego functions is related to the degree that they are protected against regression and instinctualization. Weiner (1966) states that in most people, particularly in adults, ego functions are remarkably equally stable when certain perceptual-cognitive styles are used as criteria despite quite dire need states. Inhibitions and deviations in functioning are known to occur only when specific ego functions are drawn into conflict.

Empirical support for some of the statements made regarding the characteristics of ego functions comes from several studies reviewed by Bellak and colleagues (1973, p. 68-71).

In a report by Joseph (1965) who investigated the temporary lowering of ego function levels in eight patients during psychoanalysis, he included illustrations of disturbances in body image, perception, reality testing, time sense, distance judgment, and depersonalization. In some cases, a number of ego functions were seen to be disturbed, but in others only one function. Moreover, the ego's capacity to deal with all conflictual situations appeared to be positively related to the autonomous ego functions, and even when the focus is on disturbance in one ego function, others are involved to some degree (p. 92-95). According to Joseph, regression of the ego functions in question appeared to be related to an anxiety-provoking situation, most frequently when a libidinal or aggressive wish had been stimulated. The data from Joseph's study support statements one, two and five (above) regarding ego characteristics.

Wallerstein (1967) reviewed the psychoanalytic literature for cases of non-psychiatric patients who developed psychotic reactions during treatment and within the transference relationships. He found six cases of

transference psychoses. All were transitory, most lasting a day or two, a few persisting for several weeks or months. The type and severity of regression during analyses was found to be related to the severity of early traumatic experiences, the person's age, and the degree of ego weakness at the time of the occurrence. These data support statement six, above, concerning the characteristics of ego functions.

Freeman and associates (1966) studied ego regression and variability of ego functions of manifestly psychotic individuals. They observed that in cognitive disorders, perception, attention, and thinking, may regress to different levels, that there may be substantial day-to-day differences in the degree of regression, and that the disorder can be manifested in different forms. These observations support statements one and two, above, regarding the characteristics of the ego.

This concludes the discussion of the concept of "ego function", the number of ego functions and their characteristics. In the following and last section concerning the ego, the issue to be discussed will be ego strength and ego weakness.

5. Ego Strength and Ego Weakness

Bellak and associates (1973) state that ego strength and ego weakness must be considered in relationship to internal stresses, adaptation, and regression. Historically speaking, the first considerations on ego strength and ego weakness remained at the level of inner stresses; whereas later considerations, especially beginning with Hartmann (1939a), emphasized, as well, external reality, particularly within context of the adaptive process. A discussion of ego strength also implicates the ego functions since ego strength and weakness are conceptualized in terms of

functional deficits. Two issues will be treated in this section; namely, the criteria of, and the factors contributing to, ego strength and ego weakness.

a) Criteria of Ego Strength and Ego Weakness

Two ego functions have been singled out as correlating highly with ego strength; namely, synthetic function and autonomous function. Nunberg (1938) stressed the level of synthetic functioning as central for ego strength and weakness. In speaking of the synthetic function, Nunberg (1931) stated that:

In the id there are accumulated various trends which, when directed towards objects in the outside world, lead to a union between these and the subject, thereby bringing into existence a new living being. These libidinal trends are ascribed by us to Eros, in the Freudian sense of the term. Our daily experience teaches us that in the ego also, there resides a force that similarly binds and unites... (p. 120).

Nunberg called this "force" the synthetic function which is said to reduce tension, settle conflicts, reconcile contradictions and mediate them. As correlates of ego weakness, Nunberg (1938) suggested oversensitivity to pain, high readiness to experience anxiety, proneness to develop guilt feelings, and the presence of neurotic or psychotic symptoms.

Unlike Nunberg, who viewed ego strength and weakness in relation to inner conflicts, Fenichel (1938) considered ego strength and weakness in relation to the id, the superego, and the external world. For Fenichel, an ego is said to be strong if it is able to make correct judgments about reality and execute its intentions even when there are external obstacles.

Hartmann (1950) emphasized the autonomous functions as being highly correlated with ego strength. In his formulation of ego strength, Hartmann

emphasized the ability of the autonomous ego functions to withstand impairment through the process of defense; that is, the ability to resist regressive impairment when the organism is faced with environmental stress (p. 140). In an earlier paper wherein Hartmann (1939b) discussed the criteria of mental health, adaptation and ego strength, he stated that the three could be ascertained by three criteria: freedom, mobility or plasticity, and synthesis (p. 10-17). All three criteria, in a broad way, define autonomous functioning. Hartmann (1939b) viewed ego strength not only in its relationship to stresses brought on by intrapsychic conflicts, but more in terms of stresses brought on by external factors in the process of adaptation. The concept of adaptation, which refers to a reciprocal interaction between the organism and its environment (Hartman, 1939a) plays a major role in Hartmann's thinking regarding ego strength and weakness. For Hartmann, an adaptive ego characterizes ego strength.

Symonds (1951) defines ego strength as "the efficiency of the ego in regulating impulses and mastering the environment...(it) is the capacity for sustaining emotional equilibrium while waiting or working for later gratification" (p. 121). He lists six criteria of ego strength: (1) the capacity to react successfully to environmental stress; (2) the development of the synthetic function of the ego; (3) the capacity for effective repression; (4) a balance between rigid and extremely plastic adjustment; (5) the ability to live by planned resolutions and compacts with self; and (6) the degree of genuine self-regard (p. 121-123).

Joffe and Sandler (1968), following the tradition set by Hartmann (1939a) emphasize the adaptive function of the ego, which includes adaptation not only to the external environment but also to inner forces

and states. These authors see autonomy as "important for adaptation in that a high degree of autonomy provides the person with a greater number of opportunities for adaptive responses" (Bellak et al., 1973, p. 67). In addition to autonomy from the drives (Hartmann) and from the environment (Rapaport), Joffe and Sandler (1968) also speak of autonomy from superego introjects. In brief, Sandler and Joffe underscore the degree of autonomous functioning as a criterion of ego strength.

Bellak and associates (1973), in their discussion regarding long-term and short-term prognosis based on ego function profiles, state that "there is a good 'a priori' basis for expecting the synthetic function of the ego to correlate very highly with overall ego strength" (p. 403). The synthetic-integrative function, in their view, is hierarchically more complex and reflects a higher level of functioning than any of the other ego functions. It is also interesting to note that the authors assume that the triad of synthetic functioning, autonomous functioning, and thought processes is most highly related to a good long-term prognosis because subjects who rate high on these functions are believed to have better-integrated premorbid personalities.

In summary, two of the ego functions, namely, synthetic function and autonomous function, are assumed to correlate highly with ego strength. To be discussed next are the factors that contribute to ego strength and weakness.

b) Factors Contributing to Ego Strength and Weakness.

In a general way, the factors assumed to affect ego strength and weakness can be classified as being either intrapsychic, intrasystemic, developmental, or external or physical. Nunberg (1938) pointed out causes

of ego weakness pertaining to each of the four classifications. The ego may be weakened by developmental arrests with more or less strong fixations and persistent infantile defensive methods. Ego strength may also be affected by physical factors such as organic illness and exhaustion, by intrasystemic factors such as anxiety, proneness to guilt feelings, and by intrapsychic factors such as excessive strengths of instincts and increased narcissism.

Hartmann (1939b) stated that ego strength is influenced by the constitution, the external environment, social learning, the organism's developmental phase, and by id (instinctual) and superego (such as guilt feelings) factors.

Symonds (1951) extensively reviewed the literature for factors that determine both ego strength and ego weakness. Much of what he said thirty years ago holds true today. As factors that determine (aid) ego strength, he suggested the following: (1) the strength of the libidinal drives; (2) being loved and respected; (3) displacements; (4) the expression of libidinal components through such mechanisms as sublimation and reaction formation; (5) the sequence of experience, particularly during early childhood; (6) the experience of self-love, self-respect, self-esteem and self-confidence; (7) liberation from a tyrannical conscience; (8) identification, particularly those identifications acquired in early childhood; (9) the integration of early ego nuclei; (10) the opportunity to work out experiences through play and sublimation; and (11) sleep, which strengthens the ego (p. 123-127).

Symonds also pointed out some of the factors which contribute to ego weakness. Among the factors that he proposed are the following: (1)

various physical factors including fatigue, intoxication, sickness, exacting tasks, and increased sensitivity to pain; (2) any traumatic experience; (3) any experience which causes an arrest of development, be it a constitutional factor, a functional physical trauma (disease, accident), or a traumatic shift in personal relationships (death, divorce); (4) unbearable threats to the self which cause ego brittleness and lead to ego inadequacy; (5) disturbed ego synthesis; (6) over-indulgent and overanxious parents which keep the child from learning how to take care of himself; and, (7) when too much ego development is turned toward counter-cathexis, that is, behavior which runs exactly opposite to impulse (p. 127-129).

Bellak and associates (1973) point out that psychological stress affects not only ego strength, but also ego functioning, adaptation, and regression. The more obvious psychological stresses include loss, attack, restraint and threats. The authors also refer to stresses brought on by experiences such as surgery, wherein patients were observed to regress. Other factors pointed out by the authors include constitutional factors, formative experiences and external factors (p. 67).

In summary, it can be said that the ego is affected, in its development and functioning, by internal and external factors. Not only is the strength or weakness of the ego related to intrapsychic factors such as conflicts between the agencies of the mind, and to external factors such as physical illness; but it is also related to developmental factors such as fixations as well as to mental processes such as sublimations and reaction-formations.

This concludes the presentation of the ego. In this section it was pointed out that ego is defined in terms of its functions, and that the

ego has innate as well as id-derived roots. Moreover, the ego evolves through various well defined stages, and that in the process of its evolution, it is affected by the processes of introjection and identification, and by the quality of the early child-mother relationship. It was also pointed out that various attempts have been made to list the functions of the ego and that their number is largely a question of consensus among professionals. Lastly, some of the characteristics of the functions of the ego were discussed, and factors contributing to ego strength and weakness were presented.

In the following section, two psychodynamic theories of schizophrenia will be presented. Both theories assume that schizophrenia is best understood as a failure of the adaptive capacities of the ego. The first of the two theories attempts to link schizophrenia to ego breakdown triggered by somatogenic and psychogenic factors, while the second theory relates schizophrenia to ego deficits or weaknesses resulting from inadequate parenting.

D. Psychodynamic Theories of Schizophrenia

During the past four or five decades an innumerable array of factors has been proposed to account at least partially for the etiology of schizophrenia. These factors vary from epidemiological, genetic, biochemical, neurophysiological and sociocultural to psychological factors. Each subsequently became the basis for numerous hypotheses and/or theories of schizophrenia.

Of particular relevance to the present study are the psychodynamic and family theories of schizophrenia as presented by Bellak (1958a) and Lidz (1973), respectively. Both authors interpret schizophrenia in terms of ego

disturbances. Bellak assumes that ego disturbance is brought about by many diverse factors whereas Lidz believes that schizophrenia in an offspring is related to family psychopathology. The theories of Bellak and Lidz will be presented in the two following sections.

1. Bellak's Multiple Factor Psychosomatic Theory of Schizophrenia

The initial formulation of Bellak's Multiple Factor Psychosomatic Theory of Schizophrenia appeared in an article, "On the Etiology of Dementia Praecox" (1947), and in a book, Dementia Praecox (1948). The formulation was presented as a two and one-half page summary of the literature (1935-1945) on the etiology of schizophrenia. In these two publications, Bellak tersely stated that schizophrenia was not a disease entity but a syndrome or reaction-type associated with a large variety of etiological factors which might range from a hypothetically completely psychogenic nature to a hypothetically completely organic nature. However, both factors were assumed always to be involved in the etiology of schizophrenia. He stated further, that the common demoninator for the syndrome was a disturbance of the ego. Lastly, he postulated both somatic and psychological predispositions, and somatic and psychological precipitating causes in the etiology of schizophrenia.

In a subsequent paper, Bellak (1949) elaborated several concepts, such as multiple factor, psychosomatic, and the pathogenesis (somatogenesis and psychogenesis) of schizophrenia. Six years later, he elaborated the concept of ego disturbance by situating it within psychoanalytical theory (Bellak, 1955). He defined the ego in terms of its functions, development, and strength (quality and quantity). Bellak highlighted several symptoms of severe ego disturbance and hypothesized that psychopathology is

determined by both qualitative and quantitative factors. In his subsequent publications, the emphasis was placed on the ego, its functions, development, and disturbances (Bellak, 1958b, 1969; Bellak et al., 1969, 1973). Bellak hypothesized that the schizophrenic symptoms could be understood in terms of ego disturbances, and in his research, he attempted to isolate those ego disturbances which characterized schizophrenia. The monograph, Ego Functions of Schizophrenic, Neurotics, and Normals (Bellak et al., 1973), represents the apex of his investigations into the etiology of schizophrenia from the point of view of ego deficits.

Unlike some theorists, Bellak did not alter the basic position of his theory over the years. Rather, he elaborated various concepts as more information became available and as psychoanalytic theory underwent greater refinement. Lastly, Bellak's understanding of psychoanalytic concepts, such as the id, ego, and superego, and the evolution, functions and disturbances of the ego, are similar to those expressed by Freud, Hartmann, Spitz, Jacobson, Rapaport, Mahler, and others as summarized above in the sections under their respective headings. For this reason these concepts will not be elaborated here.

Bellak's theory of schizophrenia will be summarized and presented under four major headings: multiple factor etiology, psychosomatic involvement, ego disturbances, and pathogenesis.

a) Multiple Factor Etiology

The term "multiple factor" means that "the clinical conditions, referred to as schizophrenia, really share only a certain number of phenomena but consist of a number of widely differing syndromes with a multitude of different etiological factors" (Bellak, 1949, p. 739). In his

first major work on schizophrenia, Dementia Praecox, (1948) which is based on a review of over 3,500 articles, Bellak classified approximately forty separate categories of possible causal factors in dementia praecox. These ranged from anatomical, biochemical, endocrine, genetic, infectious, and neurophysiological to psychological factors. Although Bellak did not review all of the literature on the etiology of schizophrenia in subsequent publications, his multifactorial approach to schizophrenia did not change (Bellak et al., 1958a; Bellak et al., 1969; Bellak, 1979). In fact, Bellak maintains that research in the etiology of schizophrenia has remained unsuccessful because it has always been expected that a single factor for any random group of patients would be found (Bellak, 1949, 1955, 1958b, 1979; Bellak et al., 1958a, 1969, 1973). At the present time Bellak (1976, 1977) is investigating whether or not minimal brain dysfunction is the major etiologic and pathogenic factor for one subgroup of adult schizophrenics. The contention that schizophrenia is not a homogeneous but a heterogeneous syndrome with many etiological factors is supported by current investigations, particularly in the area of genetics, neurophysiology and psychology (Bellak, 1979).

b) Psychosomatic Involvement

The term "psychosomatic" means "that the etiological elements of different cases may be either primarily psychogenic or primarily somatic, but always both" (Bellak, 1949, p. 740). Bellak believes that the etiological factors of schizophrenia may range from a hypothetically almost completely psychogenic nature to a hypothetically almost completely organic nature. An example of a case relatively close to the hypothetical point of organicity, would be schizophrenia associated with a known organic factor

such as brain tumor, excessive dopamine, and transmethylaton. A case relatively close to the hypothetical point of psychogenicity would be one in which the situational factors and the psychogenic dynamics are relatively manifest. Bellak also distinguishes between predisposing and precipitating causes, both of which may be either psychological or somatic in nature. According to Bellak, it is conceivable that for one form of schizophrenia, a somatic may be the principal factor, and for another the psychogenic might be the principal factor (Bellak, 1949, 1976, 1977). However, each case of schizophrenia involves both the soma and psyche.

c) Ego Disturbances

In his initial formulation, Bellak (1947, 1948) conceptualized the schizophrenic syndrome as a "deficit reaction" (p. 19, 49). Later he referred to it as a "severe decrease in ego strength" (Bellak, 1949, p. 752), a "severe disturbance of the ego" (Bellak, 1955, p. 60), a "deficit in ego functioning" (Bellak, 1958b; p. xvi), and as "severe disorders of the ego functions" (Bellak et al., 1973, p. 2). Currently, the emphasis is placed on "deficits in ego functioning" rather than on "global ego weakness".

Bellak was not the first to speak of schizophrenia in terms of ego disturbances. Freud (1911) considered the crucial factor in the development of psychosis to be the withdrawal of libidinal cathexis from the external world and its attachment to the ego or self (p. 72-76). He later expanded this to mean the loss of reality, remodeling of reality, and developing a substitute for reality (p. 187). Others conceptualized schizophrenia as an "ego deficit" (Taush, 1933), the loss of cathexis of ego boundaries and a weakness of the ego (Federn, 1952, p. 166), an

insufficient structural development of the ego (Eissler, 1954), a splitting of the ego as a defensive reaction against drives (Klein, 1946), ego weakness (Hartmann, 1953, p. 194), and as the deterioration of ego functions (Symonds, 1951, p. 168).

Although schizophrenia was conceptualized as a defect in ego functioning before Bellak formulated it as such, yet he is credited with expressing it in an experimentally verifiable form (Bellak, 1969, p. 11). Moreover, he was the first to formulate schizophrenia as the final common path of ego defects due to various etiologies and pathogenic factors.

In his paper, "Toward a Unified Concept of Schizophrenia", Bellak (1955) listed several disturbances of the ego. These were formulated in terms of the five ego functions already discussed in this paper (organization and control of motility and perception, stimulus barrier, reality testing, detour behavior, and organization and self-regulatory functions) and in terms of ego weaknesses. He summarized these ego disturbances as follows:

...the normal functionings of perception and motility are disturbed; there is an inability to differentiate subjective phenomena from objective ones. The ego boundaries are not clearly established and feelings of unreality, of *déjà vu*, of personalization occur. Subjective feelings and thoughts are ascribed to the outside world (projections). Motility is either excessive...or extremely decreased...The ego's ability to ward off internal unconscious thoughts and impulses is disturbed so that ordinarily unconscious processes become conscious; symbolism is used a great deal, the associative process is loosened; reasoning is faulty and leads to harmful actions. Fear is absent where it could reasonably be expected and present in panic proportions where an intelligent normal adult sees no cause for it. Volition is greatly impaired...detour behavior is severely impaired. Normal defenses do not function and the integration of the personality is greatly disrupted (Bellak, 1955, p. 62).

In later papers, Bellak (1958b, 1969; Bellak et al., 1973) became more systematized in his approach and pointed out specific disturbances for each of the ego functions. The most comprehensive presentation of the ego disturbances is presented in the Bellak and associates monograph, Ego Functions in Schizophrenics, Neurotics, and Normals (1973). The twelve ego functions, their component factors, and several of the disturbances for each function are presented in Table 4. Some of the disturbances of reality testing, as shown by the table, are "hallucinations and delusions; disorientation as to time, place, or person; perceptual distortion; limited reflective awareness". Bellak states that in addition to knowing the quality of the ego disturbance, the quantitative aspect must also be assessed. He has devised a technique whereby this can be done. This approach will be presented in the following chapter.

Bellak (1949, 1958b) conceptualizes the symptoms of schizophrenia in terms of ego disturbances. He states that "the characteristics of severe ego disturbance are identical with the formal signs and symptoms of schizophrenia as described by Kraepelin and Bleuler" (Bellak, 1958b, p. 5-6). Thus, the extreme disturbances of perception, thought, and motility as found in schizophrenics can be dynamically conceptualized as a result of the breakdown of the controlling and mediating action of the ego for primarily somatic or primarily psychogenic, or for both reasons (Bellak, 1949, p. 745).

The disturbances of the ego which are specific to schizophrenia have not yet been determined (Weiner, 1976, p. 874-875). However, Bellak believes that the disturbances will vary from patient to patient and will depend on the etiological factor underlying the syndrome. Thus, for one

Table 4
Ego Functions, Their Components and
Some Ego Disturbances
(Bellak et al., 1973, p. 355-372)

Ego Functions,	Major Component	Some Disturbances
1. Reality Testing	<ul style="list-style-type: none"> a. Distinction between inner and outer stimuli. b. Accuracy of perception of external events. c. Accuracy of inner-reality testing. 	Hallucinations and delusions; disorientation as to time, place, or person; perceptual distortion; limited reflective awareness.
2. Judgment.	<ul style="list-style-type: none"> a. Anticipation of probable consequences of intended behavior. b. Extent to which manifest behavior reflects an awareness of its probable consequences. c. Appropriateness of behavior. 	Oblivion to severe dangers to life and limb; unrealistic appraisal of consequences of actions; failure to learn from experience; inappropriate behavior in relation to social definitions of situations.
3. Sense of Reality of the World and of the Self	<ul style="list-style-type: none"> a. The experience of external events as real and as embedded in a familiar context. b. The experience of one's body (or parts of it) and its functioning and one's behavior as familiar and unobstructive and as belonging to (or emanating from) oneself. c. The degree of development of individuality, uniqueness, and a sense of self and self-esteem. d. The degree of separation of one's self-representations from one's object representations. 	Alienation; hypnagogic and hypnopompic phenomena; stage fright; emotional isolation as a result of obsessive defenses; déjà vu; depersonalization; derealization; dreamlike states; trances; fugues, major dissociations; world destruction fantasies; identity diffusion.
4. Regulation and Control of Drive, Affect, and Impulse	<ul style="list-style-type: none"> a. The directedness of impulse expression. b. The effectiveness of delay and control and the degree of frustration tolerance. 	Temper outbursts; habit and conduct disorders; low frustration tolerance; acting-out; tendencies toward murder or suicide; impulsiveness; drive-dominant behavior; chronic irritability and rage; excessive control of impulse.

Table 4 (cont'd)

Ego Functions	Major Component	Some Disturbances
5. Object Relations	<ul style="list-style-type: none"> a. The degree and kind of relatedness to others. b. The extent to which present relationships are adaptively influenced by, or patterned upon, older ones and serve present mature aims rather than past immature ones. 	<p>Defensive social over-activity; withdrawal; detachment; narcissistic overinvestment of self; symbiotic-dependent attachments; difficulty in perceiving others as separate.</p>
6. Thought Processes	<ul style="list-style-type: none"> a. The adequacy of processes that adaptively guide and sustain thought (attention, concentration, anticipation, concept formation, memory, language). b. The relative primary- and secondary-process influences on thought (extent to which thinking is unrealistic, illogical, and/or loose). 	<p>Magical thinking; autistic logic; condensations; attention lapses; inability to concentrate; memory disturbances; concreteness; primary-process manifestations; and primitive thought functions.</p>
7. ARISE	<ul style="list-style-type: none"> a. First phase of an oscillating process; relaxation of perceptual and conceptual acuity (and other ego controls), with a concomitant increase in awareness of previous preconscious and unconscious contents. b. Second phase of the oscillating process; the induction of new configurations that increase adaptive potential as a result of creative integrations. 	<p>Extreme rigidity in character structure and thinking where fantasy and play are difficult or impossible; regression of any ego function, produces anxiety and disruption of functioning; lack of creativity; stereotyped thinking; intolerance of ambiguity; prejudice and sterility; if the first phase predominates, overideational thinking, pseudointellectuality, pseudoartistic tendencies, eccentricity.</p>
8. Defensive Functioning	<ul style="list-style-type: none"> a. Degree to which defenses adaptively affect ideation and behavior. b. Extent to which defenses have symptomatically succeeded or failed (degree of emergence of anxiety, depression, and other dysphoric affects). 	<p>Emergence of unconscious contents triggering extreme anxiety and panic, which can affect concentration and memory functioning; pervasive feelings of vulnerability; fear of cracking up and falling apart; massive withdrawal in an attempt to prevent uncontrolled drive expression.</p>

Table 4 (cont'd)

Ego Functions	Major Component	Some Disturbances
9. Stimulus Barrier	a. Sensitivity to external and internal stimuli and degree of adaptation. b. Organization and integration of responses to various levels of sensory stimulation.	Oversensitivity to bright lights, loud sounds, temperature extremes, pain, resulting in withdrawal, physical symptoms, or irritability; thresholds too high; oblivion to nuances, underresponsiveness to environmental stimuli, impoverishment of aesthetic sensibilities.
10. Autonomous Functioning	a. Degree of freedom from impairment of "apparatuses" of primary autonomy (e.g., sight, hearing, intention, language, memory, learning, motor function, intelligence). b. Degree of freedom from impairment of "apparatuses" of secondary autonomy (eg, habit patterns, complex learned skills, work routines, hobbies, interests).	Functional blindness or deafness; catatonic postures; inability to feed, dress, or care for one's self; disturbances of will, skills, habits; ready interference with automatized behavior by drive-related stimuli; expenditure of great effort to carry out routine tasks.
11. Synthetic-Integrative Functioning	a. Degree of reconciliation or integration of discrepant or potentially incongruent (contradictory) attitudes, values, affects, behavior, and self-representations (e.g., self conflicts). b. Degree of active relating together (i.e., integrating) of psychic and behavioral events, whether contradictory or not.	Disorganized behavior, incongruity between thoughts, feelings, and actions; absence of consistent life goal; poor planning, little effort to relate different areas of experience; fluctuating emotional states without appropriate awareness of the change, as in hysterics; minor and major forms of dissociation, from parapraxes to amnesia, fugues, and multiple personalities; many other ego functions affected, sometimes very pathologically (as in psychotic defenses) because integrative function is such a basic one.

Table 4 (cont'd)

Ego Functions	Major Component	Some Disturbances
12. Mastery-Competence	<p>a. Competence: how well the person actually performs in relation to his existing capacity to interact with and actively master and affect his environment.</p> <p>b. The person's subjective feeling of competence with respect to mastering and affecting his environment; the person's expectations of success, or actual performance (how he feels about how he does and what he can do); sense of competence is scored at face value (e.g., higher than actual competence if there is an exaggerated sense of competence.</p> <p>c. The degree of discrepancy between component a and component b (i.e., between actual competence and sense of competence). It may be negative (-), in which case actual competence exceeds sense of competence. It may be equal (=), in which case actual competence and sense of competence are congruent. It may be positive (+), in which case sense of competence exceeds actual competence.</p>	<p>The person does almost nothing to alter, affect, or interact with his environment, because he is largely unable to use abilities and capacities in relation to reality. What he is able to do might be seen as merely a passive reaction rather than as an active coping. The sense of competence is almost nil, and in most ways the person feels powerless to act effectively, regardless of his actual performance.</p>

patient, the key disturbance might be stimulus barrier, for another, it might be thought process or synthetic function, and so on. This thinking correspond to Bellak's assumption that schizophrenia is a heterogeneous syndrome.

d) Pathogenesis and Schizophrenia

Bellak (1949, 1958b, 1977) believes that the outstanding factor in schizophrenia is a weakness of the ego brought about by either primarily somatic or primarily psychogenic factors. The manner in which psychogenic and somatic factors decrease the strength of the ego and bring about ego disturbances will be discussed here.

1) Psychogenesis

Bellak conceptualizes the psychogenesis of ego disturbances and psychopathology, including schizophrenia, in psychoanalytic terms, particularly in terms of developmental ego psychology. In two of his earlier papers, Bellak (1949, 1958b) outlined the psychogenesis of ego disturbances. He did not systematically elaborate these ideas in later writings although his thoughts are expressed in various places in his extensive reviews of psychoanalytic investigations and theories (Bellak, 1969; Bellak et al., 1958c, 1969, 1973). The author's salient observations and formulations were organized and presented above in the section on the ego. Of particular importance are the conceptualizations concerning the origin and evolution of the ego, and the manner in which this process might be arrested resulting in the development of a feeble ego, or in severe ego disturbances. The role of the maternal object in the evolution of the ego is also noted.

Bellak (1958b) believes that all cases of schizophrenia, excluding those precipitated by somatic factors, may be satisfactorily understood as the result of poor mother-child relationships in the development of psyche and soma. The author, therefore, considers inadequate mothering as an important factor contributing to ego disturbances.

Bellak postulates that at the birth of the child, the psychic apparatuses as well as the instincts are undifferentiated. That is, at birth, there is neither an ego nor an id. Both emerge from an undifferentiated matrix (Hartmann, 1939), or from a somato-psyche union (Spitz, 1965). Through the maturation of ego apparatuses, learning, and experiences, and through the mechanisms of introjection and identification, the ego emerges from an undifferentiated state and evolves into a highly structured and organized mental agency.

Of particular importance in the evolution of the ego is the mother-child relationship. The child at birth is in an objectless state characterized by hallucinatory confusion. Through her ministrations, the mother helps the child to move from an objectless state of existence to one of object cathexis, and eventually to differentiation, separation, and individuation. She also plays a role in the maintenance of the neonate's homeostasis by helping to reduce tension. Without this help, the neonate would become overwhelmed by stimuli and his neurological patterning process would be thrown out of kilter (Mahler, 1968, 1974, 1975).

The extent to which the child learns to manage its drives and to form object relationship depends on the quality of the mother's ministrations. Of particular importance in this process is the adequacy of the mother's personality as well as her capacity for empathy and for regression in

service of the ego, her flexibility, her emotional availability and rapport with the child. Through these qualities, assuming that the child's primary autonomous ego apparatuses are intact, the mother acts as a catalyst to quicken the child's innate equipment. Bellak (1958b) believes that "sensory participation of a maternal figure is an essential for the growth and life of the young infant, and that in its absence the infant may not develop and may possibly fail to survive even in the presence of the best physical conditions" (p. 43). Lastly, the adequate mother will intuitively know how to balance need satisfaction with tolerable need frustration in order to push the child gently towards greater ego differentiation, structuralization, and organization.

Within the symbiotic relationships, the child learns to distinguish pleasureable experiences from painful experiences and introjects these as aspects of the "good" or "bad" mother. These introjects play a role in ego structuralization. Later the child acquires the concepts of object permanency and object constancy, both of which are indispensable for development. In brief, the neonate in its experiences with the maternal object, acquires a body ego, develops ego boundaries, and moves towards greater motoric, perceptual, cognitive, affective and social development.

Inadequate mothering, which includes an inflexibility, a lack of emotional availability and rapport, as well as an incapacity to regress in service of the ego, has been found to have deleterious effects on the physical and psychological development of the child (Jacobson, 1964; Mahler et al., 1975; Spitz, 1965). When the maternal deprivation is qualitative in nature, the child may not progress beyond the autistic stage, but may remain objectless and in a state of hallucinatory confusion. Such a child

will show severe ego disturbances. This type of early and extremely severe effect upon the ego would probably result in the most severe forms of schizophrenia, such as dementia praecox, as it was originally conceived. It is probable that simple schizophrenia and the observed characteristics, such as utter lack of affect, absence of an integrated superego, and frequently almost vegetative appearance, are the results of very early trauma to the psyche and soma (Bellak, 1958, p. 45).

In cases where inadequate mothering is quantitative in nature, ego disturbances are likely to be less severe or to occur later in life. Such a child is able to develop beyond the autistic stage and enter into a symbiotic union with the mother eventually to achieve some form of separation and individuation. However, the ego might remain feeble and vulnerable to inner and outer stresses experienced during adolescence or early adulthood. Bellak (1958b) states that ambulatory schizophrenics, borderline and latent cases, and acute cases of psychosis of adulthood exemplify psychiatric disorders wherein damage to the ego occurred later in life or was less severe. Under stress, the feeble ego retreats to former levels of functioning.

In summary, the psychogenesis of ego disturbances was considered within context of an inadequate early mother-child relationship. It was noted that the quality of the maternal deprivation and the time the deprivation occurred in the child's life influence the degree of ego disturbances. In the following section, the somatogenesis of ego disturbances will be discussed.

2) Somatogenesis

In describing the somatogenesis of ego disturbances, Bellak (1949,

1958b) refers to the principle that the higher mental phenomena are linked to cerebral and particularly to cortical functioning. The consequence is that any affliction of the cerebrum may express itself in changes in the mental processes. Bellak (1949) believes that it is possible that "a considerable number of widespread afflictions of the cerebrum may so weaken the co-ordinating and integrating mechanisms...as to bring about the disturbances encountered in schizophrenia" (p. 744). Such afflictions of the brain might be brought on by genetic, chemical, histological or metabolic factors.

Bellak (1949, 1958b) interpreted the pathogenesis of somatic factors in psychological terms. He assumes that even in the presence of a primarily somatic etiology, there is a certain type of psychological development and structure which contributes to the syndrome. He states that the organic damage in such persons accentuates the psychological structure and brings it to full development. Thus, even though somatic factors might precipitate the pathology, psychological principles are still necessary to understand, to predict, and to treat the patient.

The case of schizophrenia precipitated by minimal brain dysfunction (MBD) illustrates how Bellak utilizes a psychological approach to describe its pathogenesis. He outlined his observations thus:

(1) Soft neurological signs if they include the acquisition of language and conceptual thinking, vitally interfere with adaptation to the world. (2) Perplexity and general feelings of unease.... (3) Problems in spatial orientation related to left-right dominance difficulties account for poor co-ordination and clumsiness. (4) This problem actually interferes with the establishment of self-boundaries.... (5) Problems of impulse control frighten the child, make him feel odd, often precipitate obsessive defenses. When reading or writing difficulties are added to clumsiness, peers make the child feel embarrassed. (6) These secondary emotional factors lead to feelings of inadequacy, introversion, fearfulness (Bellak, 1976, p. 200).

In summary, Bellak speculates that MBD might interfere with adaptation, create feelings of perplexity and uneasiness, beset the establishment of self-boundaries, create impulse control problems, and bring about secondary emotional reactions which eventually lead to schizophrenia.

Conclusion

Bellak's multiple factor psychosomatic theory of schizophrenia appears to be well based on empirical data, particularly data from genetic linkage studies and psychoanalytic studies of psychotic and normal children. Moreover by incorporating ego psychological concepts, such as the undifferentiated matrix and primary autonomous ego apparatuses, his theory is adequately comprehensive to account for most, if not all, of the schizophrenic disorder, and for childhood and adult schizophrenia. Of particular value is the hypothesis that the common path of all etiological factors is a severe disturbance of the ego. This hypothesis may serve as a rallying point for all approaches in the study of schizophrenia. Undoubtedly the precise psychogenesis and somatogenesis of ego disturbances will continue to be a contentious issue.

In the following section, Lidz's theory of schizophrenia will be presented. His theory assumes that schizophrenia is characterized by ego deficits resulting from family pathology.

2. Lidz's Familial Sociocultural Theory of Schizophrenia

Lidz first formulated his familial-sociocultural theory of schizophrenia in a paper, Schizophrenia and the Family (1958a), expanded the theory in subsequent writings (1958c, 1960, 1962a, 1965c, 1968, 1969a, 1970), and offered an elaborate presentation of the theory in a monograph, The Origin and Treatment of Schizophrenic Disorders (1973), which he summarized in more recent articles (1974, 1978). In the present formulation of his theory of schizophrenia, Lidz utilizes Piaget's studies and conceptualizations of cognitive development as well as psychodynamic studies of personality development in organizing and analyzing the findings of family studies (Lidz, 1974, p. 386).

There are two interrelated aspects to Lidz's theory. The first has to do with how the personalities of the parents and the transactions within the family "prevent a child from differentiating adequately from the mother, separating from the family, and gaining a sufficient coherent integration to achieve an ego identity, a capacity for intimacy, and the ability to become reasonably self-sufficient by the end of adolescence" (Lidz, 1978, p. 528). The second concerns the development of the cognitive disorder characteristic of schizophrenia.

Lidz's theory will be presented in the following pages. However, before treating the two interrelated aspects of his theory - that is, the psychopathology of the family and its relationship to the patient's personality development, and schizophrenic thought disorders - the major

concepts utilized by Lidz throughout his theory will first be discussed. This section will conclude with a critique of Lidz's theory.

a) Major Developmental Concepts

In the course of his investigations, Lidz (1973) became aware of the shortcomings of developmental theories, particularly psychoanalytic theories, to explain schizophrenia because they neglected the family setting in which the child developed (p. 16-19). Moreover, the theories did not give proper attention to the role of language in human functioning, and viewed psychopathology in terms of libidinal fixations rather than in terms of panphasic disturbances of a transactional nature. To mitigate these deficiencies, Lidz proposed a developmental theory which focused on the role of the family in human adaptation (Lidz, 1963a, 1976). The major developmental concepts that are pertinent to an understanding of schizophrenia include the following: the transmission of genetic and cultural heritages, the functions of the family in human adaptation, language and the formation of categories, and cognitive development with emphasis on overcoming cognitive egocentricity. These concepts will presently be discussed.

1) Genetic and Cultural Heritages

Lidz (1963, 1973) states that each infant is born with a dual endowment; that is, with a genetic inheritance and a cultural heritage. The genes of the infant transmit his physical structure, which includes the inherent capacity for symbolic functioning, and allow him to adapt within a limited range of physical environments. Each child is also born into a cultural heritage which represents a "filtrate of the experience of his forebears" (Lidz, 1973, p. 17). According to Lidz, it is essential that

the child assimilate the adaptive techniques developed by his forebears and required to survive in the physical and social environment in which he lives. These include learning the language of the culture in order to communicate with others, and learning to use the inborn cognitive equipment required to guide himself into the future. A person, because he is able to communicate verbally, to think reflectively, and use tools, and is able to modify his environment to suit his physiological capacities.

2) Family Functions

According to Lidz (1973), a child does not grow up and develop into a reasonably well-integrated and competent individual simply through the nurturance of inborn directives and potentialities, but requires "positive direction and guidance in a suitable interpersonal environment and social system" (p. 19). Lidz, in effect, states that there is more to personality development and integration than the mere fostering of self-actualization. Over and above this, positive direction (that is, structuring) is also required in order that the child acquire the tools and techniques required to survive in his culture.

The responsibility to foster and direct the child's development, in Lidz's view, belongs to the family. He regards the family as an "essential derivative of the biological makeup of humans (Lidz, 1978, p. 526). Moreover, every society relies on the family, or its planned substitute, to "mediate between the child's culture and biological endowments, and between the individual and society, as well as to inculcate the instrumental techniques of the culture, particularly the culture's language" (Lidz, 1978, p. 526).

Lidz (1973, 1974) summarizes under four major categories the essential functions of the family in the development of the child's personality: parental nurturant functions; providing structure necessary for personality integration; socialization functions; enculturation functions. The failure to provide the last is intimately related to the transmission of schizophrenia. More will be said about this later.

Under the category of parental nurturant functions, Lidz includes the following: the total care required by the neonate; fostering differentiation of child from mother; aiding the child to find its place as an individual in the family; and promoting the child's separation from its family at adolescence. Parental structuring functions include: providing the child with an inner (mental) structure that can eventually replace the family structure and provide superego guidance; helping the child to channel its drives by maintaining parental coalition and proper boundaries between generations, and by adhering to their respective sex-linked roles. The realization of these functions provides the child with a proper framework around which to integrate his personality. The parental socialization functions comprise teaching the child both the basic social roles and institutions of the society, as well as their worth in guiding life and furnishing motivations. The last category of parental functions, the provision of adequate enculturation, basically involves the transmission of the instrumental techniques of the culture, particularly its language with its systems of meanings, logic and manner of categorizing its experiences.

According to Lidz, the failure to provide adequate enculturation, particularly the culture's language, is intimately related to the development of schizophrenia. He considers language as the tool of tools, the

means by which man internalizes his experience, can think about it, tries alternatives, conceptualizes a future, and strives towards future goals rather than simply seek immediate gratification (Lidz, 1973, p. 22). In brief, language plays a crucial role in human adaptation. This leads to a discussion of the importance of language and the formation of categories in human adaptation. Ultimately, Lidz views schizophrenia as a failure to develop and maintain categories of experiences.

3) Language and the Formation of Categories

Lidz (1968, 1973, 1978) states that a person's experience unfolds in a ceaseless flow and in order to perceive, understand, think, and talk about experiences, it must be divided into categories. Experience, therefore, is thought to be continuous, whereas categories are discrete. Experiences may be categorized in innumerable ways and each culture does so differently; and to some degree, each person categorizes his experiences differently depending on his education and past experiences. The child must learn the system of his culture in order to think and communicate coherently. The categories into which a culture divides its world and experiences, in essence, forms the vocabulary of its language.

Categories are formed by repressing what lies between them. Lidz (1978) states that "taboos are placed on material that would obliterate fundamental categories such as between the self and the non-self upon which all further categorization rests..." (p. 531). Other matters on which taboos are placed include fusion between mother and child, fantasies of fusion in incest, and blurring the basic categories of male and female as in the case of homosexuality and transvestism. The fundamental task of the child is to differentiate the self and the non-self; that is, to establish

ego boundaries. Lastly, the formation of categories also rests upon the establishment and maintenance of "object constancy" (Lidz, 1978, p. 531).

Lidz (1968) labels the material that lies between categories as "anti-category" (p. 181). In his view, it represents material concerning the fusion between the mother and child, childhood perverse wishes and fantasies, cannibalistic impulses, and other material that is eliminated from awareness and incapable of being clearly categorized. In a way, this might very well represent one aspect of the unconscious. The schizophrenic is thought to spend much of his time in the anti-category world, a point to be discussed later.

The formation of categories is important for thinking, communicating, and filtering out the extraneous and inappropriate (Lidz, 1968, 1973, 1978). By forming categories of his experiences, the person is able to bring order to his world and formulate expectations for himself. Categories, or words, assume a predictive value in the sense that they increase the ability to utilize experience; that is, to employ what is known about an object (such as the sweetness of candy) in forming expectations when again encountering the same object. Categories also serve as filters that permit attention to essentials and eliminate the intrusion of nonessentials in the train of thought. Lidz (1968) states that "with the failure to inculcate proper categorization, the child is not only deprived of essential means of filtering out the extraneous and inappropriate, but may spend much time preoccupied with the material that lies between categories" (p. 182).

Lidz believes that parents of schizophrenics have not established clear-cut categories of their experiences but egocentrically mix the self

with all objects. Moreover, he believes that a child who grows up in such a family atmosphere, will have grave difficulties in decentering, in learning coherent meanings, in becoming able to form categories, and thus have impaired capacities for ego functioning, an issue to be discussed later.

4) Egocentricity

The concept of egocentricity is central to Lidz's views regarding categorization and schizophrenic thought disorders. This concept bears particular significance to the understanding of emotional and cognitive regression.

In his formulation of egocentricity, Lidz (1973) refers to Piaget's (1929) theory of cognitive development. Piaget postulates four major stages in cognitive development, namely, the sensory-motor, preoperational, concrete operational, and formal operational stages. He postulates further that as a child advances from one level of cognitive development to another, he experiences an increase of egocentricity which diminishes as the child masters the new level, only to appear as the child again moves into a new stage of development.

Egocentricism according to Piaget (1962) refers to the "primacy of self-satisfaction over objective recognition...and...distortion of reality to satisfy the activity and point of view of the individual" (p. 285); or, as Lidz (1978) says, it "means both the overevaluation of cognitive means of producing change and also the distortion of reality to satisfy the needs of the individual" (p. 530).

The nature of egocentricism experienced by the child differs according to the cognitive level entered upon (Lidz, 1978, p. 530). Thus, preopera-

tional children do not differentiate between fantasy and reality, nor between words and objects they designate. Their thinking is characterized by animism (regards inanimate objects as living and conscious), artificialism (belief that things are products of human creation), and participation (belief that what he does influences inanimate nature and the behaviors of others) (Lidz, 1973, p. 58). As the child gradually overcomes these egocentric notions, he moves into the stage of concrete operations when new egocentric distortions arise. The concrete operational child does not grasp that persons in a different place from the self have different views of an object or event as they do. They must still overcome the misunderstandings which arise from their difficulty to perceive that others may have different points of view. When the child overcomes these egocentricities, he moves into the stage of formal operations beginning in early adolescence. }

Lidz (1978) believes that it is the egocentricity which arises in early adolescence that is pertinent to schizophrenic states. As they enter the stage of formal operations, adolescents become capable of conceptualizing, of thinking reflectively, of thinking about thinking. Unlike the concrete operational child who proceeded from the real to the possible, the formal operational adolescent can plan from the possible to the real and in so doing can remain in the mental realm. Adolescence is an expansive period of hopes, dreams, and ideals which initially are not tempered by demands of reality. The adolescent attributes unlimited power to his own thoughts so that the dream of a glorious future or of transforming the world through ideas appears to be not only fantasy but also an effective action which in itself changes the empirical world (Lidz, 1978, p. 530).

Often it takes the adolescent years to overcome this egocentricity and to realize that there is a difference between thinking things out for oneself and working them out in reality. The adolescent's propensity to formulate plans mentally and to go on to construct imagined outcomes also contains a trap into which the vulnerable may fall. Lidz (1978) states that the egocentric aspects of formal operations are overcome through increasing socialization, by undertaking a real job, and by relating intimately to another person who has different habits, ideas, and beliefs.

According to Lidz, the failure of the adolescent to overcome his egocentricism is related to the formation of poorly defined categories, and ultimately to schizophrenic thought disorders.

To summarize, the major developmental concepts utilized by Lidz to interpret schizophrenic disorders were outlined. These included: the genetic and cultural heritages, the family functions in the nurturance of the dual endowment, division of experiences into categories, and overcoming cognitive egocentricity.

The following section presents the family pathology of schizophrenic patients, emphasizing the relationship of parental egocentricity to the egocentricity of the adolescent, and thus to schizophrenic disorders, especially to the breakdown of ego boundaries.

b) Family Pathology of Schizophrenic Patients

This section of the paper is restricted to the presentation of Lidz's generalizations regarding family pathology of schizophrenic patients. A more complete review of the family studies of schizophrenic patients will be presented in a later section.

In a general way, Lidz states that the families in which schizophrenics grow up fail to provide a proper developmental milieu. He classifies these failures or deficiencies into three categories: deficiency in providing necessary functions, defects in the organization and dynamics of the family, and disordered familial communication. Lidz interprets the three deficiency categories as manifesting profound egocentricity. These categories along with the concept of egocentricity will be presented briefly.

Lidz and associates (1965), in their studies of families of schizophrenic patients, observed that these families were unable to provide adequate nurturance, structuring, socialization, and enculturation for the developing child. For example, they noted that the nurturant care provided the patient during the first year of life was usually faulty. It was even more apparent to them that nurturance provided from birth through adolescence was faulty panphasically (Lidz et al., 1965). Deficiencies in the structuring functions were also detected. These include marriages and family life split or distorted by abiding conflicts, violation of generational and sexual boundaries, deficient parental coalition, and failure of parents to maintain respective gender-linked roles (Lidz et al., 1957b; Fleck, 1975). The socialization functions were deficient as well because the parents presented faulty models for identification. By their example, the parents led the child to believe that interdependency with another person, marriage, and parenthood were unattractive and even dangerous. Because of the parents' eccentricities, the child avoided bringing friends into the home (Lidz et al., 1965). Lastly, these families manifested deficiencies in their ability to transmit their culture's language with its meanings to their child. This was particularly apparent

in the intrafamilial communication which was always seriously disturbed (Lidz, 1973, p. 16). In brief, the families of schizophrenic patients evidenced faulty structure and functioning in almost every dimension of essential family tasks.

Secondly, deficiencies were noted in the organization and dynamics of families with a schizophrenic patient. Most notable were skewed marital relationships and family schisms (Lidz, 1973, p. 24-46). In skewed relationships, "one spouse expects the other to be a parent to him or to her, or one disturbed parent dominates the other and family life absolutely and rigidly. Such a marital coalition preempts parental functions and emotional resources, and the children's affective and psychological needs are neglected" (Fleck, 1975, p. 394). However, a family may be skewed by a dyad other than the parental one. Often this is a symbiotic mother-child relationship which dominates the group emotionally. In a skewed relationship, one parent, which is often the mother, does not establish boundaries between herself and the child; uses the child to complete her life, is impervious to the needs and feelings of the child, and intrudes into the child's life. In these families, the father is apt to be passive and ineffectual in counteracting the wife's strange ways. In schismatic relationships, the family is divided into two overtly or covertly warring camps, usually because of strife and conflict between parents (Fleck, 1975, p. 394). Usually the parents undercut the worth of the other to the child, and the child is forced to take sides to the detriment of his personality development and integration. The child is often used to complete a parent's life and to salvage the marriage.

Although skewed and schismatic relationships differ from each other, Lidz (1978) observed that they are similar in the following ways:

the use of the child to complete a parent's life or maintain the parents' marriage, which keeps the child from directing his energies and attention to his own development; the inability of one or both parents to appreciate that others, particularly family members, are separate individuals, interfering with the child's self-boundaries; the failure of the parent of the same sex as the child to provide an acceptable model for identification, together with the undercutting of that parent's worth by the spouse; the disruption of boundaries between the generations; the parents' confusions in their gender-linked roles; the feelings of emptiness or hopelessness about life by one or both parents; the distortion of perceptions, feelings, and meanings to preserve a parent's tenuous emotional equilibrium... (p. 528).

The failures and deficiencies pointed out above are similar to those presented when discussing the quality of nurturance, socialization, structuring and enculturation provided by the parents of families with schizophrenic offspring. As a final comment to this section, Lidz and associates (1965) observed that male schizophrenics were more common than female schizophrenics in skewed families, whereas the opposite was true for schismatic families.

A third category of deficiencies observed in families of schizophrenics relates to the quality of communication. Lidz (1974) states that in families of schizophrenics, "one parent, or both, has markedly disturbed ways of communicating" (p. 387). This phenomenon was observed by earlier writers. Bateson and associates (1956) emphasized how parents habitually placed the patient in double-binds; Lidz and associates (1958a) termed the style of communicating as training in irrationality; and Searles (1959) as

the efforts to drive the other crazy; Laing (1962) spoke of the process of mystification; lastly, Wynne and Singer (1963b) documented the amorphous and fragmented styles of the parents' communication. The distorted communication, on part of the parents, prevents the child from gaining or maintaining the focal attention required for conceptualization. It also impairs the acquisition of clear-cut categories of one's experiences. Fleck (1975) states that faulty communication builds up a pathogenic autonomy of its own. Young children, who are exposed to defective communication modes, have their linguistic development, perception, and concept formation distorted. Children for whom communication is confusing and ineffectual as an expressive or instrumental tool within the family are deprived of a socializing instrument outside the family. Regarding the distorted intrafamilial communication, Lidz (1978) suggests that it is an insufficient cause in the etiology of schizophrenia, and yet, he believes "a child will rarely, if ever, become schizophrenic unless the intrafamilial communication is markedly disordered" (p. 528).

Lidz in his most recent papers (1973, 1974, 1978) points out that many of the deficiencies and distorting influences, as those described above, manifest the profound egocentricities and narcissistic needs of one or both parents. The egocentricities of the parents are manifested in the following behaviors:

the intrusiveness into the child's life but imperviousness to the child's feelings; the inability to differentiate their own needs and feelings from their child's or grasp that the child views the situation differently than they do; the use of the child as an adjunct to their own lives - in general, the inability to form boundaries between the self and the child (Lidz, 1978, p. 529).

The egocentric parent, therefore, is unable properly to accommodate to the child and his needs, but requires the child to fit into the parent's needs and orientations. The child, on the other hand, is open to the needs and feelings of the parent and may be unduly sensitive to them because he was always asked to adapt himself to the parent's needs. The egocentricities of the parent and child, therefore, are reciprocal in many respects.

The child, in serving to protect the parent's emotional balance, places himself in a vulnerable position because he gains direction for his life "not from his own impulses, desires, and plans, but from noting the feelings and moods of others" (Lidz, 1978, p. 529); thus, he fails to invest energies and attention in his own development. The child also becomes aware that he can profoundly affect his parents by his own thoughts and feelings, that he is central to his parents' lives and to everyone, but at the same time, he feels controlled by others. In brief, the child becomes more "parent-centered than egocentric" (Lidz, 1978, p. 529).

The child who will become schizophrenic, because he was badly prepared for life within the family, and because he remains tied to the problem of prior generations, enters adolescence with many deficiencies. He will, for example, be unable to achieve independence from his parents. Moreover, he is unable either to establish an ego identity and a capacity for intimacy or to map a life plan.

This concludes the presentation of pathology noted within families of schizophrenic patients. It was pointed out how these pathologies interfere with the child's development in becoming an autonomous and fully functioning adult. The following section will present the second aspect of Lidz's theory; that is, his conceptualization regarding the formation of schizophrenic thought disorders.

c) Schizophrenic Thought Disorders

Lidz's conceptualizations regarding adult schizophrenia will be presented by drawing upon concepts (particularly those of egocentricity and formation of categories) discussed in the foregoing sections. His theory will be presented under the following divisions: definition of schizophrenia; schizophrenic thought disorders; adolescent egocentricity and cognitive regression; and the impairment of categories.

1) Schizophrenia Defined

Lidz (1973) defines all psychoses as "gross failures of ego functioning"; that is, "as a loss of the capacity to direct the self into the future" (p. 53). Ego functioning can be impaired by damage or dysfunction of the brain, by severe affective disturbances, and by distortions of mentation; that is, by distortions of the symbolic processes. According to Lidz (1974) "schizophrenic psychoses are those in which symbolic functioning is distorted without degradation of intellectual potential" (p. 387). The symbolic functioning can become distorted in families wherein there exist distortions in communication which provide the child with a faulty foundation in the culture's system of thinking and communicating.

Schizophrenic disorders, besides being gross failures of ego functioning, are also "failures to achieve or to maintain an integrated personality" (Lidz, 1970, p. 387). The schizophrenic patient's self-boundaries are poor; he fails to differentiate properly between the self and others and between what arises within the self and outside of it; he fails to maintain the integrity and differentiation of the self. Lidz (1970) relates the patient's tenuous self-boundaries to the parent's incapacity to provide adequate nurturance, structuring, socialization, and

enculturation; to the disturbances in intrafamilial communication; to family pathology, particularly parental egocentricity; and, lastly, to the child's cognitive egocentricities.

2) Schizophrenic Thought Disorders

Lidz (1973) believes all schizophrenic reactions to be types of withdrawal from social interaction with thought disorders being a specifically schizophrenic means of withdrawal (p. 53). The schizophrenic patient manages irreconcilable dilemmas and unbearable hopelessness by escaping to fantasy where he utilizes his own idiosyncratic meanings and reasoning, thereby impairing his ego functioning and capacity to collaborate with others.

Thought disorders, as Lidz pointed out, have been variably conceptualized. E. Bleuler (1911) defined schizophrenic thought disorders as a "derailment of associations"; that is, an inability to exclude the inappropriate. Cameron (1938) described schizophrenic thinking as "overinclusive", and Shakow (1962) demonstrated that patients were unable to maintain "segmental sets". Lidz (1973) characterizes schizophrenic thinking as being "overinclusive" in the sense that it represents the breakdown of categories. Moreover, he maintains that the "overinclusiveness" is egocentric in the Piagetian sense of "egocentricity". As an example, he notes that the patient typically believes that he is the focal point of what others do or say even when these are extraneous to him as in the case of ideas of reference and persecutory delusional systems. This is also manifested in the patient's magical thinking wherein he believes that his thoughts influence others and affect the inanimate world. Egocentric overinclusiveness, to Lidz's way of thinking, manifests the intrusion of

the self into the categories. This intrusion represents limited and defective category formation.

3) Adolescent Egocentricity and Cognitive Regression

The egocentricity which arises in adolescence appears particularly pertinent to schizophrenic disorders. Lidz (1973) mentions that typically schizophrenic patients move into mid- or late adolescence before regressing cognitively and libidinally or emotionally. In reaching this stage of development, the adolescent is confronted by psychosocial tasks such as achieving independence from the parents, establishing satisfying heterosexual relationships, planning his educational and vocational goals, and attaining an ego identity. These tasks difficult for all adolescents, are even more arduous for those who become schizophrenic because of the intrafamilial difficulties that have impaired their development and because of the impoverished extrafamilial socialization brought about by the fears and eccentricities of their parents.

The youth who becomes schizophrenic is impeded as well by his failure to decenter cognitively. Feeling hopeless in his ability to achieve the developmental tasks pertinent to his age, and despairing in ever becoming an autonomous and fully functioning person, the youth regresses cognitively and libidinally and develops more elaborate fantasy solutions. The youth, because of his tenuous boundaries and poor grounding in reality testing, resolves his developmental dilemma by falling back to childhood forms of egocentric cognition. Being unable to find meaning that appears hidden to him but obvious to others and unable to find direction for this life, he "passively seeks direction from others or from supernatural powers through interpreting signs and references" (Lidz, 1978, p. 531). The patient

comes to believe that his life is influenced by others, and that he is central to all that happens. His thinking, once again, is characterized by animisms, artificialism, and participation wherein fantasy takes precedence over reality.

4) Impairment of Categories

The schizophrenic patient will in some respects regress even more profoundly than has just been described. Such regression is characterized by the breakdown of ego boundaries and the impairment of categories. With the impairment of categorization, there is a "loss of the filtering function of categories" (Lidz, 1978, p. 531); this results in the intrusion of inappropriate associations and the derailment of thought and communication. Thinking becomes syncretic and metonymic which in itself permits the person to form indiscriminate associations and to justify further his egocentric distortions.

The schizophrenic patients, because of faulty repression of early years, may become preoccupied with material that lies between categories, or as Lidz (1973) labels it, the "inter-categorical realm" (p. 86). This realm represents the fantasies of fusion of the self with mother, and the "polymorphous perverse" fantasies confusing genitals and other orifices. It also includes cannibalistic impulses, delusions of changing sex, and other such matters that were not adequately repressed early in life. Patients may spend much of their time in this realm fantasizing and yet fearing their incestuous and devouring impulses, their desires for fusion, for sex change, and for reentering the womb. Regardless of the degree of regression the schizophrenic is not a child, and much of what he has acquired cognitively remains available to him. The retained capacities

explain the shifting character and patchiness of the thought disorder, as well as why the patient can function well in certain areas and under certain conditions (Lidz, 1978, p. 87).

Lidz (1973) interprets other schizophrenic phenomena such as hallucinations, delusions, and linguistic defenses (ambiguity and literality) in terms of regression to the inter-categorical realm (p. 80-90). As an example, delusions represent a failure to differentiate what arises within the self from what arises in the external world.

This concludes the presentation of schizophrenic thought disorders. It was pointed out that thought disorders represent egocentric overinclusiveness ego boundary breakdown, and an impairment of category formation. The content of schizophrenic thinking comprises material that lies between categories. This material which fails categorization surfaces because of faulty repression in the early years of life. Schizophrenia represents a failure both in ego functioning and in personality integration.

In the two concluding sections, Lidz's theory will first be summarized and then critiqued.

Summary

Lidz's theory states that schizophrenic disorders are characterized by cognitive and emotional regression, and that schizophrenic thinking is marked by egocentric overinclusiveness. These characteristics, in turn, are related to the parents' emotional disturbances, egocentric orientations, and disordered communications, as well as to their failure to provide the requisites that enable the child to surmount the critical developmental tasks of adolescence to become a reasonably autonomous adult. Moreover, the parents provide a faulty foundation in the culture's system

of meanings and reasonings which lead to the emotional and egocentric cognitive regression, or schizophrenia. Lidz places great emphasis on the critical role of language in human adaptation and on the importance of essential family functions in the integration of the child's personality, including his linguistic and cognitive development, and particularly his transition through adolescence into adulthood. Lidz attempts to link the schizophrenic's emotional and cognitive regression to his egocentric overinclusiveness, and the schizophrenic's egocentricity to the egocentricities, emotional disturbances, and distorted communication of the parents.

Conclusion

Lidz's theory represents an original attempt to relate schizophrenic thought disorders to Piaget's theory of intellectual development and to the development of language. The theory is well based on empirical data suggesting that the families of schizophrenics show more marital and communication pathology than those of comparative groups. Despite these positive aspects, the theory is limited in that it accounts for adult schizophrenics with thought disorders, but does not account either for childhood schizophrenia or for the cases of adulthood schizophrenia without thought disorders observed in approximately ten percent of the patients (Bellak, 1979, p. 15). Moreover, the theory remains too general and does not indicate the influence of early mother-child relationship on the etiology of ego disturbances. Lidz's theory could benefit from the integration of data from studies of psychotic and normal children (Mahler et al., 1975). Lastly, it is questionable whether difficulties in

categorization or forming words is an etiological factor. As a counter-argument, deaf children, who are disadvantaged in achieving category formation, do not appear to develop schizophrenia to a greater extent than do the non-deaf (Clausen, 1968). The most pertinent aspect of Lidz's theory is the hypothesis that personal, marital and family pathology influence the onset of schizophrenia. The precise nature of this link, however, requires elucidation.

This concludes the presentation of Bellak's and Lidz's theories of schizophrenia. Both theories assume that the syndrome can be conceptualized in terms of ego disturbances caused by specific etiological factors.

In the following section, the studies of the families of schizophrenics will be reviewed. The review will focus on the implications of personal, marital, and family pathology on ego disturbances.

E. Family Studies of Schizophrenic Patients

There are no published studies that directly investigated ego functioning patterns in families of schizophrenics. However, the findings from the reported family studies have implications for ego functioning.

This section will report the findings from more than seventy-five family studies. Particular emphasis will be placed on the studies initiated, conducted, and/or supervised by four principal researchers: Lidz and his colleagues working at the Yale Psychiatric Institute, New York; Alanen at the Psychiatric Clinic of the University of Helsinki, Finland; Wolman at Long Island, New York; and Wynne, Singer and co-workers, Rochester, New York. The four principal research centers share a common purpose which is to test the hypothesis that a pathological family environment is etiological related to schizophrenia. In their investigations,

the researchers were guided primarily by psychoanalytic principles. In addition to the investigations carried out at the four principal research centers, the major family studies of schizophrenics undertaken during the past two decades will also be reviewed.

Excluded from the review are the studies that utilized as a sample the adoptive or foster parents of schizophrenics (Kety et al., 1974; Waring et al., 1965; Wender et al., 1971, 1977; Wynne et al., 1976), as well as the studies concerning the etiological versus the responsive hypotheses controversy of disordered thinking in the parents of schizophrenics (Liem, 1974; Mishler and Waxler, 1965, 1968; Waxler, 1974; Waxler and Mishler, 1971; Wild, 1977a). Both groups of studies are considered peripheral to the purpose of the present investigation.

The review will focus on studies that investigated the personalities of and psychopathology in the fathers, mothers and siblings of schizophrenics, and on studies concerning marital relationships, parent-child relationships, and thought and communication disorders. The latter studies provide information concerning the father's and mother's psychological capacities and deficits in interpersonal relationships.

The organization of the material from family studies creates many problems. First, the source of data for analysis varies. In some investigations the source is the patient, in others it is the subject studied (as mothers) and in still others it is the hospital record or the observation of the investigator. Secondly, the method of collecting the data also varies. Some studies utilized projectives; others utilized self-report questionnaires or observations. Thirdly, some investigators studied one member of the family, for example mothers, while others

investigated the interaction among many members of the same family. It can readily be seen that the data from the family studies cannot be classified into clear-cut categories but are more appropriately placed into one or more of many overlapping categories. For this presentation, the data from family studies will be grouped according to the following overlapping categories: marital relationships; parent-child relationships; thought and communication disorder in parents of schizophrenics; and the personalities of and psychopathology in the mothers, fathers, and siblings of schizophrenics. Each subsection will terminate with a summary of the findings. Following the presentation of the last of the six categories, the implications of the family studies findings for ego functioning will be discussed.

1. Marital Relationships

The marriages of the parents of schizophrenic patients has been a consistent, although weak, area of interest (nine studies) during the past two decades. The studies reviewed are chronologically listed in Table 5. Information such as data source, method of data collection, the number of experimental and control subjects, the method of data analysis, and the subject of investigation are summarized as well.

A cursory inspection of the data summarized in Table 5, indicates that four of the studies (excluding Agresti) utilized at least one or more comparative groups, one study matched the control with the experimental sample, and one study statistically analyzed the data. These facts will be considered when the findings are interpreted.

For the purpose of this presentation, the marital studies will be grouped according to the following categories: marital pattern, power and dominance, and manner of relating.

Table 5
 Studies of the Marital Relationships of Families of Schizophrenic Patients:
 The Data Source, Method of its Collection, Subjects and
 Areas of Investigation

Investigator	Source of Data		Method of Collection		No. of Exp Couples	No. of Ctrl Couples	Comparative Matched Group	Stat Anal	Subject of Investi- tion
	Pat- ient	Sub- ject	Inter- view	Proj- ective report					
Lidz et al., 1957b	x		x		14	-	-	marital pattern, power, conflict	
Alanen 1958	x	x(a)	x		100	40(2)(b)	mothers of neurotics & normals	power, dominance	
Kolman 1961	x		x		33	-	-	power, dominance	
Fleck et al., 1963	x		x		14	-	-	marital pattern, power, conflict	
Alanen 1966	x		x		30	30(1)	parents of neurotics	marital pattern, power, conflict	
Schuham 1970	x			x	14	14(1)	parents of normals	power, dominance	
Synonds 1973	x		x		3	-	-	manner of relating	
Agresti(c) 1976	x			x				power	

(a) Mothers provided information for self and husband
 (b) Figure in bracket refers to number of control groups
 (c) Information unavailable

a) Marital Patterns

Lidz and co-workers (Lidz et al., 1957b, 1965; Fleck et al., 1963) investigated the marriages of 14 couples (parents) of schizophrenic patients. Two basic patterns were observed, marital schism and marital skew. Marital schism is characterized by a severe chronic disequilibrium and discord, a chronic failure to achieve complementarity of purpose or role reciprocity, recurrent threats of separation, a chronic "undercutting" of the worth of one partner to the children by the other, and a competition for the child's loyalty and affection. Skewed marital relationships are characterized by relative equilibrium in which the continuity of the marriage is not constantly threatened, and wherein one or both partners achieve some degree of satisfaction of their needs. In skewed marital relationships the psychopathology of one spouse dominates the home while the other spouse, the healthier person, is ineffectual in correcting the spouse's aberrant ways.

Lidz and collaborators (1957b) observed that marital schism was more common among the parents of female schizophrenic patients and that marital skew was more common among the parents of male schizophrenics. In their study, eight of the 14 marriages were designated as schismatic and the remaining six were designated as skewed.

Lidz and colleagues observed common features in the two forms of marital relationship. Both schismatic and skewed marital patterns interfere with normal development of the child by creating a family atmosphere which lacks warmth, mutual respect, and trust. In place of these conditions there exist either open or masked hostilities and conflicts, mutual depreciation

of each other's self-worth, intrusive behavior and breakdown of generation boundaries. The parents rival for the child's emotional support in the satisfaction of their needs. The child is caught in a need to bridge the gap between parents or to complete the life of the parent of the opposite sex rather than invest energies and attention in his or her own (ego) development. Lastly, both the father and mother fail to provide adequate masculine and feminine models, respectively, for their children to emulate.

Alanen (1966) studied the mutual relationship between the spouses of schizophrenic patients in comparison to the spouses of neurotic patients. The subjects comprised the biological parents of 30 schizophrenics divided evenly for sex and the biological parents of 30 neurotics divided evenly for sex.

For the study the quality of marital and family integration was formulated in terms of five categories: well integrated, broken families, schismatic families, skewed families, and mainstay families. Schismatic and skewed families were defined in accordance with Lidz' and co-workers' (1957b) conceptualization. In "well integrated" families, the parents' mutual relationship retained a predominantly positive nature and is characterized by mutual solidarity in spite of disorders, conflicts, and possible role reversals. "Broken families" are those where the normal configuration of the family is disrupted before the patient's twelfth birthday as a result of parental death, divorce or other comparable reason. In "mainstay families" one parent is affected by a serious personality disorder, but the other healthier person sets the pattern of family interaction (p. 200-201).

Alanen assigned the 60 couples to one of the five categories, and reported the findings in terms of frequencies and percentages. The author of the present project statistically analyzed Alanen's data by utilizing the chi-square technique (Keith, 1972, p. 221). The significant findings are: (1) twenty-one families of schizophrenics (70 percent) and 5 families of neurotics (16 percent) were assigned to the schismatic and skewed categories ($\chi^2 = 17.38$; $p = .00003$); (2) two families of schizophrenics (7 percent) and 19 families of neurotics (63 percent) were assigned to the well-integrated category ($\chi^2 = 21.17$; $p = .000004$); (3) eight of the families of female schizophrenics (26 percent) were assigned to the schismatic category and 2 (7 percent) were assigned to the skewed category ($\chi^2 = 5.40$; $p = .02$). For the parents of male schizophrenics, no significant difference was found between the numbers assigned to the schismatic (6) and skewed (5) categories despite Alanen's contention that skewed relations are more common among families of male schizophrenics. To summarize, the families of schizophrenics are characterized by skewed and schismatic relationships whereas the families of neurotics are generally characterized by mutual solidarity. The families of female schizophrenics tend to be schismatic, a finding similar to that observed by Lidz and his co-workers. Lastly, the families of male schizophrenics are equally schismatic and skewed, a finding not consistent with Lidz's observation.

b) Power and Dominance

The dominance-passivity pattern in the marital relationship of the parents of schizophrenics was investigated by Alanen (1958), Wolman (1961), Schuham (1970) and Agresti (1976). Alanen (1958) observed that the characteristic pattern in the marriages of the parents of schizophrenics is

that of a dominant mother and a passive father. In 44 percent of the marriages of the parents of schizophrenics, the mother was the dominant spouse whereas the father was dominant in 18 percent of the marriages. The corresponding percentages for the mothers and fathers of the neurotics are 20 and 25, while for the normals they are 20 and 30, respectively. Passive fathers were found more often in families with a male patient. In a smaller number of marriages of parents of schizophrenic patients, the fathers were exceedingly stern toward their wives, and often tyrannically commandeering and sometimes even sadistic. It should be noted that the above findings are based solely on interview material obtained from the mothers.

The husband-wife relationships of 33 families of schizophrenics was investigated by Wolman (1961). He observed that the mothers tended to be domineering, self-righteous, overdemanding and dictatorial in their behaviors towards both husband and children. The mothers managed eventually to take over the father's social role as protector and leader of the family. The husbands, on their part were passive and wished their wives to act as if they were their mothers; they wished them "to be 'ideal mothers', that is, omniscient, omnipotent, protective, and yet absolutely permissive and bending to the whims of the beloved child-husband" (p. 200). Lastly, the mothers treated their husbands as if they were children controlling their behavior, criticizing them in public and ridiculing their achievements.

Schuham (1970) investigated power(dominance) relations in emotionally disturbed and normal family triads which included father, mother and index patient. Each triad was asked to discuss four issues on which they originally disagreed and indicate whether agreement was reached or whether it was impossible to reach agreement. The discussions were tape-recorded,

transcribed and then analyzed to produce data for six variables: acts of support, contributions, acts of nonsupport, rates of support, rates of total support output, and intake. The analyses produced the following results: (1) all 14 normal families reached complete agreement during their discussion whereas only two disturbed families achieved consensus on all four of their discussions; (2) the fathers of normal families were the winners of discussions more often than the mothers, while the child was winless (in the disturbed families the winners of the discussions were more evenly divided); (3) members of normal families supported each other, whereas the members of disturbed families engaged in nonsupportive behavior; and (4) the normal family manifested the clearer power structure with the fathers receiving the most support, the mother next, and the child last. The members of the disturbed family were about equal to each other in their receipt of support except that the mother received significantly more than the child.

In summary, the normal family is characterized by: the ability to reach decisions satisfying to all; the ability of family members to form and maintain coalitions; a positive rate of support among family members; the emergence of a clear-cut power structure in which the father is in ascendancy. In contrast, the families of disturbed children fail to establish a clear leadership pattern, manifest an impaired capacity to resolve conflict between family elements, are unable to form and maintain coalition between members, and show a weakness in the specific (parental) relationship having the greatest potential for group action.

In her doctoral dissertation, Agresti (1976) tested Lidz's theory of schismatic power relations in families with a female schizophrenic child and skewed power relations in families with a male schizophrenic child. Power was defined under three types: process, outcome, and perceived. Process power was measured by content analysis, outcome power by interaction testing, and perceived power by kinetic family drawings. The results of the study indicated that: (1) for process power, the same-sexed parent usually used limit-setting power strategies, and the opposite-sexed parent usually used expansive power strategies; (2) the father held the most outcome power regardless of the sex of the child; and (3) the same-sexed parent had the most perceived power and the strongest perceived coalition with the child. The author interpreted the results as not supporting Lidz's theory and put into question as well, the dominance theory of the mothers of schizophrenics.

c) Manner of Relating

Symonds (1973) observed that the parents of schizophrenics tended to relate radially with him during therapy. Their communication tended to be one-dimensional and rigid. Interaction between the parents and the members of the group were minimal. Based on his clinical experiences, he observed that the mothers of schizophrenics were mechanical, dutiful, inflexibly involved in always doing the right thing, and attempted to get their children to validate them as good mothers. The fathers on their part were passive, observing, hypercritical, and degraded their wives to others but never directly to them. The parental climate, therefore, was frequently one of hostility wherein the participants were welded together by vindictive helplessness.

The conclusions that can be drawn, with a certain degree of assurance, from the marital studies when such variables as matching procedures and methods of analysis are considered can be summarized as follows:

- (1) skewed and schismatic marital relations are more common among families of schizophrenic patients than among families of neurotics;
- (2) families of female schizophrenics are characteristically schismatic, however, the families of male schizophrenics are as often schismatic as skewed;
- (3) very few marital relations of families of schizophrenics are characterized by mutual coalition and solidarity;
- (4) in families of schizophrenics, there is a failure to establish a clear-cut leadership (dominance) pattern, with the fathers and mothers vying for control.

This concludes the presentation of the marital relationship of families of schizophrenics. In the following section the fathers and mothers will be discussed in terms of their relationship to their children.

2. Parent-Child Relationships

The studies of the parent-child relationship of schizophrenic patients reviewed in this section are summarized in Table 6. The table presents as well the data source, method of its collection, the sample, method of analysis and the subject of investigation for each study. These data, which will not be repeated in the text, will be considered when the findings are summarized.

This presentation will focus on the personality characteristics of the fathers and mothers of schizophrenic patients as reflected in the interpersonal behavior between them and their child. For this presentation,

Table 6
 Studies of the Parent-child Relationships of Schizophrenic Patients:
 The Data Source, Method of its Collection, Subjects and
 Areas of Investigation

Investigator	Source of Data		Method of Collection		No. of Exp. Couples	No. of Ctrl. Couples	Comparative Group	Matched	Stat. Anal.	Subject of Investigation
	Pat-Sub-Observer	Inter-view	Proj- Self- report	Observation						
Lu 1961	x	x	x	x	50	50(1)(a)	siblings	-	-	maternal dominance & overprotectiveness
Hollman 1961	x	x			33	-	-	-	-	patient's perception of father
Lu 1962	x	x	x	x	24	24(1)	siblings	-	-	parental expectations of dependence & responsibility
Fleck et al., 1963	x	x	x		14	-	divided on basis of sex of pat.	-	-	nature of relationships
Lidz et al., 1965b	x	x			17	-	divided on basis of sex of pat.	-	-	nature of relationship
Stabenau et al., 1965	x		x		5	10(2)	delinquents, normals	-	-	parent-child relationship
Alanen 1966	x	x			30	30(1)	families of neurotics	-	-	family environment & parental attitudes
Taylor 1973	x			x			normal sons	-	-	maternal empathy

2

Table 6 (cont'd)
 Studies of the Parent-child Relationships of Schizophrenic Patients:
 The Data Source, Method of its Collection, Subjects and
 Areas of Investigation

Investigator	Source of Data		Method of Collection		No. of Exp. Couples	No. of Ctrl. Couples	Comparative Group	Matched	Stat. Anal.	Subject of Investi- tion
	Pat- ient	Sub- ject	Inter- view	Proj- ective						
Jimura 1974	x		x		36	-	within sample	-	-	maternal empathy
Sathyavathi 1974	x		x		40	40(1)	young-adult members	x	x	parental roles
Lee 1975	x				(c)	(c)	(c)	-	-	parental inobservi- ousness
Summers et al., 1977	x	x	x	x	17	29(2)	nonschizo patients & normals & their mothers	x	x	mother- child supervision
Sloan 1978	x		x		20	20(2)	depressive, normals	(c)	(c)	acceptance & control in fathers
Summers 1979	x	x	x	x	17	29(2)	nonschizo. patients, normals & their fathers	x	x	father- child sympathies & confirma- tion

(a) Figures in brackets refer to number of control groups
 (b) Data gathered from hospital and clinic records
 (c) Information not available

Legend: Exp. = Experimental
 Ctrl. = Control
 Stat. Anal. = Statistical Analysis

the studies will be grouped according to three categories: parent-child, mother-child, and father-child relationships.

a) Parent-child relationships

Alanen (1966) studied the parent-child relationship by investigating the rearing milieus of schizophrenic and neurotic patients. In the case of schizophrenics, three types of home environments were identified: chaotic, rigid and intermediary (has elements of both the chaotic and rigid milieus). In the case of neurotics, seven types of home environments were found: strict, over-protective, intermediary I (a state between strict and over-protective), pampering, intermediary II (a state between over-protective and pampering), indifferent, and labile. A "chaotic home atmosphere" is characterized by a combination of traits such as incoherence, intense moral fanaticism, projective wishes and prohibitions directed by the parents onto their children, lack of endurance, and parental inability to establish clear boundaries and goals for their children (p. 222). A "rigid home atmosphere" is, characteristically, emotionally impoverished, stamped by accentuated parental dominance over their children and imbued with pronounced parental expectations in their children. Psychotic and irrational elements are present as well (p. 223). When the families were assigned to their appropriate set of rearing milieu types, Alanen observed the following: (1) twenty-seven of the thirty families of schizophrenic patients were assigned either to the rigid or chaotic patterns; (2) the chaotic pattern is more common among the families of schizophrenic males (7 out of 15) and the rigid pattern is more common among the families of female schizophrenics (7 out of 17); (3) the majority of the families with a neurotic patient (23 out of 30) were assigned either to the strict, overprotective, or intermediary I

milieus. These are characterized by a superego emphasis.

In summary, the rearing milieus of schizophrenic patients are more disturbed than the milieus of neurotic patients. The family atmosphere of neurotic patients is characterized by less rigid, more rational and empathic parent-child relationships than the family atmosphere of schizophrenic patients.

Stabenau and co-workers (1965) investigated the parent-child relationships of schizophrenics, delinquents, and normals by the analysis of their stories for eight TAT cards. The stories were assessed for eight variables: parental attitudes and interactions, children's reactions, controls and discipline, basic trust, family atmosphere, success, failures and predicaments, and communication.

The results of the analysis indicated that the parent-child relationship of schizophrenics differs not only from that of normals but also from that of delinquents. The stories narrated by the normals were characterized as follows: parents allowed children autonomous behavior and showed a basic trust in the child's skills and abilities; they demonstrated an understanding of the child's need and right for self-expression, parental help was available when needed; communication was open; discipline was firm and reasonable. In the case of the stories by delinquents, the parents' involvement with the child was superficial and impersonal; parents were depicted as strictly demanding, coercive, and punitive; parents tended to moralize rather than to provide moral support; there was a failure to take care of the child's needs; children were punished when rules were not followed, children were not trusted; communication often ended in quarrels.

Stories by schizophrenics were characterized as follows: schizophrenics see the parent-child interaction as intense and personal but directed towards the satisfaction of parental needs; see children as being extension of parents and not allowed self-expression or autonomy; see discipline often as swinging from harsh demands to bribery and cajoling of the child; see children who striving for self-assertion often ending up being hurt and confused; see children as bewildered and apathetically inactive. The above descriptions, it should be noted, are based on the perceptions of the schizophrenic, delinquent and normal children as projected in the TAT stories:

Lu (1962) investigated parental expectation of dependence and responsibility in schizophrenic patients and their nonschizophrenic siblings. He observed that in 91 percent of the cases, the parents expected a higher degree of obedience, submission, and dependence from the preschizophrenic than from the nonschizophrenic sibling. In 95 percent of the cases, the preschizophrenic child was, in fact, much more obedient, submissive to, and dependent upon the parents than the nonschizophrenic child. It was also observed that in 79 percent of the cases the parents' expectations that the preschizophrenic child assume responsibility for achievement and perfection were higher for him than that for the nonschizophrenic sibling. In 75 percent of the cases the preschizophrenic's desire for achievement and perfection were much higher than those of his nonschizophrenic sibling.

The results of Lu's study indicate that the preschizophrenic child, unlike his nonschizophrenic sibling, is placed in a bind by the conflicting parental expectations that he be dependent on the parents yet at the same time assume responsibility for high level achievement and perfection.

Sathyavathi (1974) investigated the instrumental-expressive social roles of the parents in families of schizophrenic and neurotic patients. Each patient was asked eight questions regarding his parents and the answer to these questions provided the material for the analysis. The significant findings were as follows: (1) the male and female schizophrenics and the male and female neurotics perceived their fathers as more instrumental than expressive in relation to the family; (2) both the male and female neurotic and the male schizophrenics perceived their mothers as more expressive than their fathers relation to the family; the female schizophrenics, however, perceived their fathers as more expressive than their mothers in the family (an unexpected finding); (3) both the male and female neurotics perceived their mothers as more instrumental than their fathers in relation to themselves (the schizophrenic patients did not produce a specific pattern); (4) both the male and female neurotics and the male schizophrenics perceive their mothers as more expressive than their fathers in relation to themselves. The opposite is true for the female patients.

The results of the study highlight the fact that the male and female schizophrenics form two distinct groups in terms of their perception of the sex-role differential function of parents on the instrumentality expressivity dimension. The male schizophrenics perceive the father as being more instrumental than the mother to the family and the mother as being more expressive than the father both to the family and to themselves. The female schizophrenics, on the other hand, perceived the father as being more instrumental to the family than the mother and as being more expressive than the mother both to the family and to themselves.

Imura (1974) investigated the empathic capacities of schizophrenic patients and their parents. A weakness of this study lies in the fact that

the same measuring tool was used, in part, to group subjects and to assess for group differences in empathic understanding. There is reason to believe that the findings are contaminated by the experimental procedures, and thus are questionable.

The quality of imperviousness that exists within the parent-child relationship was investigated by Lee (1975). He identified two levels of imperviousness. A first level of imperviousness exists when a child sends a parent a clear message which the parent does not register. A second level of imperviousness exists when the child does not register the fact that the message he has conveyed to his parents has not been received by them. Based on his clinical experience, Lee states that level one imperviousness is common among schizophrenic patients and level two is common among the parents of schizophrenic patients.

b) Mother-child relationships

In an early study, Lidz and Lidz (1949) observed that the schizophrenic patient was reared in an unstable and unusual home environment. This led to a more precise investigation of the mothers and fathers of schizophrenic patients (Fleck et al., 1963; Lidz et al., 1965b).

For their study, the mothers were divided into two groups according to the sex of the schizophrenic patient. Lidz and his colleagues (1965b) observed that the mother of a male schizophrenic typically had difficulty achieving proper distance in relating to the child, varying from extremely intrusive oversolicitude to overt disinterest. Generally, such a mother lacked ego boundaries and could not establish boundaries between herself and the child. Such a mother would treat her child as an extension of herself, someone to complete her emotional life and who would realize her own

frustrated ambitions. Such a mother would have difficulty in differentiating her own needs from those of her child and thus lacked an empathy and awareness of the child's needs. Such a mother needed and would use her son to compensate for her own dissatisfactions and sense of worthlessness. The mother of a schizophrenic son tended to be engulfing, and at times, seductive.

The mother of a schizophrenic daughter, characteristically, was deficient both in feminine warmth and affectionate qualities, and she experienced difficulty in forming a warm and close relationship with her daughter from whom she seemed to gain no sense of fulfillment and gratification. Such a mother could be oversolicitous and even intrusive, but sought to control without compassion and often with an inimical quality to the relationship. Such a mother was more amorphous than the mother of a schizophrenic son, and tended to be colorless and nebulous persons as well as a profound blurer or fragmenter of meanings and of meaningfulness. Without exception, such a mother conveyed a sense of defeat in life and hopelessness about being a woman.

In summary, the mothers of both male and female schizophrenics are seen as inadequate in their ability to provide nurturance and to relate appropriately in accord with the child's changing needs and capacities.

In his study of the parental attitudes towards their children, Alanen (1966) observed that the mothers of male schizophrenics tended to be without boundaries and possessive of their sons, while the mothers of female schizophrenics tended to be hostile towards their daughters and possessive in their attitude. On the other hand, the mothers of neurotic patients are characterized by sternness and by an anxiously overprotective trait. The

mothers of male neurotics, like the mothers of schizophrenics, tend to be possessive of their sons. These findings are similar to Alanen's (1958) earlier observations wherein he noted that the mothers of male patients were closer to their sons who became schizophrenic than to their other children and were possessively protective of them. The mothers of female patients on the other hand were aloof, and their overprotection had an inimical quality.

Lu (1961) investigated the mother-child relationships of chronic schizophrenic patients and their siblings. The material for the analysis was obtained by interviews with the patients and their siblings. The results indicated that the mother-patient relationship was characterized by domination and overprotection on the part of the mother as well as by submission and dependence on part of the child. This mother-child pattern of relating was not observed in the nonschizophrenic child.

In a study on mother-schizophrenic son affect relations, Taylor (1973) observed that the mothers of schizophrenics were significantly less positive than controls in how much they liked their sons, and how much they felt liked by them, as well as in how they actually behaved toward their sons. No significant differences were found on any of the dependent variables when the schizophrenic sons were compared to the normal sons. In brief, the mothers of schizophrenic sons, when compared to mothers of normal sons, were found to be deficient in maternal warmth.

Summers and Walsh (1977) investigated the nature of the symbiotic bond between mother and her schizophrenic child. The symbiotic bond was conceived as comprising two vectors; namely, the mother-to-child vector and the child-to-mother vector. The results of the study show that the

schizophrenics are in accord with their mothers in reporting a tendency towards a mutually symbiotic relationship in the mother-child dyad. However, only the mother-to-child vector can be considered as being truly symbiotic. This indicates that the mother is more concerned with her own sense of security than with the well-being of the child. She is threatened by the independence of the child. This finding should not be misconstrued to mean that the child does not contribute to the symbiotic relationship. In fact, the schizophrenic patients were found to be more dependent on their mothers than were other people of the same age. The authors point to the need to differentiate clearly between a symbiotic bond and such traits as "overprotectiveness" and "domineering" as used by Lu (1961), Wolman (1965) and other theorists which do not describe the true nature of the mother-child relationship.

c) Father-child relationships

The father-child relationship as perceived by schizophrenics was investigated by Wolman (1961). It was observed that the patients expressed concern for their fathers even though this concern was not reciprocated. The patients expressed feelings of resentment towards their mothers but not towards their fathers. Regarding the social roles in the family, the mothers were perceived to play the role of father and mother; "father behaved like a child; and the child worried about both his parents as if he were their parent" (p. 203).

In their study of the fathers of schizophrenic patients, Fleck and his colleagues (1963) observed that the fathers of male schizophrenics behaved in a rivalrous rather than paternal way towards their sons. Over 50 percent of the fathers acted more like sons to their wives than husbands, and

several of them were passive and nonentities in the home, unable to counteract the aberrant ways of their wives. These husbands were unable to furnish an adequate role model for their sons.

The fathers of schizophrenic daughters were highly narcissistic men who needed constant admiration because of the anxieties surrounding their masculinity. Unable to obtain the admiration, loyalty and obedience they required from their wives, they turned to a daughter in a seductive manner and used her to fill the space unsatisfied by the wife. The daughter is placed in a situation where, in order to seek her father's love, she must differentiate herself from her mother, who is quite unsatisfactory to her father. Moreover, in turning to her father for affection, warmth and trust, the daughter is subjecting herself to his confusing combination of seductiveness and a disparagement of women. All of this culminates in restricting the development of the daughter both as a person and as a woman.

Alanen (1966) investigated the father-child relationships of schizophrenic and neurotic patients. The fathers were classified into one of eight father-types devised on the basis of the sample. The data were not statistically analyzed. In general, the fathers of male schizophrenics tended to be passive, possessive, and paranoically hostile; the fathers of female schizophrenics were passive and possessive; the fathers of neurotics tended to be passive, stern, and/or normal. The results are difficult to interpret because the 15 fathers for each group were classified according to eight categories. This resulted in a small number of fathers being assigned to each of the categories.

Sloan (1978) investigated two aspects of parental child-rearing practices: parental acceptance and method of control as perceived by schizophrenics, depressives, and normals. An analysis of the data indicate that the depressives and schizophrenics perceived their fathers as less accepting and relying more on indirect control than did the fathers of normals. Both psychiatric groups perceived their mothers as relying more on indirect control than mothers did of normals.

In a very well designed study, Summers and Walsh (1979) investigated the symbiotic bond between the father and child and the extent to which the father "confirms" the child; that is, accomodates to the child's needs. The sample comprised 17 schizophrenics, 14 nonschizophrenic patients, and 15 normals as well as their respective fathers. The father-child relationship was measured from two levels: the father-to-child vector and the child-to-father vector. The general conclusion drawn from this study is that both the schizophrenic patients and their fathers perceived the fathers of schizophrenics as tending neither to be bonded symbiotically to their offspring nor to be adaptive (accomodating) to the viewpoint and needs of their offspring. When compared to the mothers (their wives) of schizophrenics, the fathers were more differentiated from their offspring, but tended not to adapt to the feeling and need states of their children (Summers and Walsh, 1977).

To summarize the findings from the parent-child studies presents many difficulties. First, six of the fifteen studies based their investigations on material obtained only from the patient (Table 6). Secondly, only five studies matched the comparative group with the experimental group, and only seven studies statistically analyzed the data. Lastly, three of the fifteen studies (Taylor, 1973; Summers and Walsh, 1977, 1979) can be considered to

have adequate research designs from the point of view of data source, method of data collection, matching of comparative groups, and the treatment of the raw data.

When the limitations of these studies are taken into consideration, the more reliable findings can be summarized as follows:

(1) The home environments of schizophrenic patients are more disturbed than those of neurotics. The atmospheres of the former are rigid and chaotic, while those of the latter are strict and overprotective and characterized by a superego emphasis.

(2) The family environments of schizophrenic males, characteristically, are chaotic and those of female schizophrenics, rigid.

(3) The parents of schizophrenic patients tend to have conflicting expectations of them (e.g., wanting him/her to remain dependent on them and at the same time take responsibility for his/her excellence and achievements).

(4) The mothers of schizophrenic patients are not able to relate in accord with the child's changing needs and capacities. They are less warm and empathic than mothers of controls.

(5) The mothers of schizophrenic patients tend to form symbiotic relationships with their schizophrenic children in order to take care of the mother's needs, not those of the children. The symbiotic relationship goes more from mother-to-child than child-to-mother.

(6) The fathers of schizophrenics are neither bonded symbiotically to their sons, nor are they adaptive to the viewpoints and needs of their offspring.

(7) The fathers of schizophrenic males relate in a rivalrous way with the patient, while the fathers of schizophrenic females relate seductively with their daughters and use them to fulfill themselves.

The implications of these findings for ego functions will be presented later. In the following section, thought disorders and communication deviances in parents of schizophrenics will be discussed.

3. Thought Disorders and Communication Deviations Among Parents of Schizophrenics.

The majority of the investigations on the parents of schizophrenics during the past two decades focused on thought disorders and communication deviations. Among the more influential investigators in this area were (are) Rolv M. Blakar, Margaret Singer, the late Cynthia Wild, and Lyman Wynne. From a theoretical point of view, the "double-bind" hypothesis (Bateson et al., 1956), and the concepts of "pseudomutuality" (Wynne et al., 1958), "schism" and "skew" (Lidz et al., 1957b), and "egocentricity" (Blakar et al., 1970; Lidz, 1973, 1978) provided much of the research impetus. In general, the studies carried out during the past twenty years relied on the research methodology initiated and developed by Singer and Wynne (Wynne et al., 1963a, 1963b; Singer et al., 1965a, 1965b).

The studies to be reviewed in this section are chronologically presented in Table 7. The tools or instruments used in the investigations, the nature of the research design, the sample, and the areas of study are presented as well.

A cursory inspection of Table 7 reveals that investigations of communication deviations in parents of schizophrenics used a great variety of instruments and studied a wide variety of issues. The studies, therefore, could be classified according to the instruments used or according to

Table 7
 Studies of Thought Disorders and Communication Deviations in Families of Schizophrenics:
 Tools, Design, Sample, and Area of Investigation

Investigator	Tools			Design		Sample			Area of Investigation					Probability				
	OST	B-F	Ror	TAT	MT	OTH	Exp.	Cont.	Exp.	Cont.	MAT	TU	CI		AD	CO	EGO	OTH
McConaghy 1959	x						x	20(a)	45(m)(b)	20(p)	-		x					Sig
Lidz et al., 1963	x						x	20	42(m)		x		x					NS
Rosnan et al., 1964	x						x	68	98(o)	17(o)(b)	-		x					Sig
Staberiau 1965	x					x		10	10(m)	10(q)	-		x	x				Sig
Wild et al., 1965				x			x	44	34(m)	15(m)(b)	x			x				Sig
Singer et al., 1966a			x				x	38	40(m)	40(n)				x	x		x	Sig
Ciarlo et al., 1967					x		x	20	20(m)	20(o)	x						x	Sig
Haley 1968					x	x		24	24(o)	40(m)	-			x	x			NS
Ronney 1969	x	x					x	119			-	x	x					NS
Feinsilver 1970						x	x	12	12(m)		-		x	x	x			Sig
Muntz et al., 1970							x	18	22(o)		-	x						Sig
Hirsch et al., 1971				x			x	40	40(n)		x		x	x				NS

Table 7 (cont'd)
 Studies of Thought Disorders and Communication Deviations in Families of Schizophrenics:
 Tools, Design, Sample, and Area of Investigation

Investigator	Tools			Design Exp. Cont.	Sample Exp. Cont. (N)	Area of Investigation						Probability				
	OST	B-F	Ror			IAT	MI	OTH	MAT	TD	CI		AD	CD	EGO	OTH
Reiss et al., 1971				x	16	16(o)					x				x	Sig
Wright 1973	x				42	32(m)					x					Sig
Lien 1974					22	22(m)					x	x				NS
Solvberg et al., 1975				x	10	10(m)					x				x	Sig
Wald et al., 1975					72	26(o) 78(m)					x	x				Sig
Winter 1975					20	20(o)					-	x				Sig
Shapiro et al., 1976					72	22(o) 76(m)					x	x				Sig
Jones 1977					40	88(b) 20(o)					x	x				Sig
Wynne et al., 1977a					98	50(n) 50(s)					x	x				Sig
Blakar et al., 1978					20	20(m)					x					Sig
Mossige et al., 1979					12	12(m)					x					Sig

Table 7 (continued)

Legend

OST	Object Sorting Test
B-F	Bannister-Fransella Repertory Grid Test
MT	Map Test
RoR	Rorschach
TAT	Thematic Apperception Test
OTH	Other
Exp	Experimental
Cor	Correlational
Contr	Control
Mat	Matched
TD	Thought Disorders
CI	Conceptual Impairment
EGO	Egocentricity
AD	Attentional Difficulties
CD	Closure Difficulties
OTH	Other

- (a) Figures represent total number of parents (paired) divided equally per sex
- (b) One parent only from each of the families
- (m) Parents of normals
- (n) Parents of neurotics
- (o) Parents of nonschizophrenic psychiatric patients
- (p) Parents of nonpsychiatric medical patients
- (q) Parents of delinquents
- (r) Parents of nonparanoid schizophrenics
- (s) Parents of borderline patients

the issues investigated. For this presentation, the studies will be grouped according to the dominant issues investigated. These are: thought disorders, conceptual impairment, attentional and closure difficulties, and egocentricity.

a) Thought Disorders in Parents of Schizophrenics

The Bannister-Fransella Reportory Grid (B-F) (Bannister, 1963; Bannister and Fransella, 1967; Fransella and Bannister, 1977) was employed by several investigators to study thought disorders in the parents of schizophrenics. The B-F test is designed to measure the extent to which conceptual categories are blurred or loosely organized within communication.


Using the B-F test, Romney (1969) found that the relatives (fathers, mothers, siblings) of schizophrenics performed no more abnormally than those of neurotics when the effects of intelligence were factored out. Nor did he find significant differences between the fathers of the two groups. The same holds true for the mothers, brothers and sisters. This study, however, can be criticized for the inclusion of parents as old as 85 years with the attendant possibility that organic disabilities obscured actual group differences.

Muntz and Power (1970), using as a sample 18 parents of thought-disordered schizophrenics and 22 parents of non-thought disordered parents, observed that a significantly greater proportion of the former group manifested more thought disorders than the latter group on the B-F test ($p < .03$). Similarly, Winter (1975) observed that the parents of schizophrenics structured the supplied constructs of the B-F test significantly both more loosely than did the control parents and more loosely than the normal subjects of the standardization sample for the test.

In a further analysis, Winter observed significant positive relationships between the B-F scores of the parents of schizophrenics and their "patient" offsprings and between the B-F scores of the parents of nonschizophrenics and their "patient" offspring. The findings from the Muntz and Power and the Winter studies conflict with those of Romney.

In summary, the parents of schizophrenics have been found to structure constructs more loosely than do controls; that is, they manifest greater thought disorders. However, it has not been demonstrated that thought disorders are specific to the parents of schizophrenics.

d) Conceptual Impairment

Lovibond's (1953) version of the Object Sorting Test (OST) has been the most popular measure utilized to assess conceptual impairment in the parents of schizophrenics. The OST is designed to evaluate a subject's difficulties in conceptual categorization. Abnormal types of categorizations assessed include syncretistic, fabulated, , symbiotic, arbitrary and irrelevant responses, and personal and impersonal associations. The OST yields scores ranging from 0 to 57, with the higher score indicating greater conceptual impairment. A total score of seven or greater is indicative of schizophrenic thought disorders.

McConaghy (1959) utilized the OST to investigate the presence of conceptual impairment in the parents of schizophrenics. The sample comprised the parents of hospitalized schizophrenics, medical patients and normals.

The experimental group consisted of parents of schizophrenics with a thought disorder as indicated by a score of seven or higher on the OST. For the analysis, the latter two groups were combined because no intergroup

differences were observed on the total OST scores. Subsequent analyses showed that 60 percent of the parents of schizophrenics (12 out of 20) and 9.2 percent of the controls (6 out of 65) had scores of six or more ($p < .001$, two-tailed test). An analysis of the OST scores of the parents of schizophrenics indicated that 50 percent of the mothers (5) and 70 percent of the fathers (7) had scores of seven or more. It is interesting to note as well that each schizophrenic patient had at least one parent who scored seven or higher on the OST.

In summary, the OST scores of the parents of schizophrenics differ from those of controls in the same direction as do those of patients themselves. The parents of schizophrenics as a group were found to be significantly more conceptually impaired than parents of controls.

Lidz and his co-workers (Lidz et al., 1963; Rosman et al., 1964) employed the OST in three of their studies concerning conceptual impairment in the parents of schizophrenics. In the first of their studies, Lidz and his colleagues (1963) attempted to replicate McConaghy's (1959) investigation. However several changes were made in the selection and scoring procedures. For example, unlike McConaghy who admitted parents of schizophrenics to his study on the condition that their schizophrenic offspring obtain a score of seven or higher on the OST, Lidz and his colleagues admitted parents on the condition that their schizophrenic offspring show a thought disorder both clinically and on projective tests rather than obtain a score of seven or more on the OST. The sample comprised 10 pairs of parents of hospitalized schizophrenics and 21 pairs of controls. The two groups were matched for mean age, years of education, and vocabulary scores. An analysis of the subjects' scores showed that 45

percent of the parents of schizophrenics (9 out of 20) had scores of seven or above in comparison with 19 percent (8 out of 42) of control parents. The intergroup difference was insignificant ($X^2 = 3.37$; $p < .10$). A second analysis indicated that 70 percent of the patients (7 out of 10) had at least one parent with a score of seven or above, whereas 38 percent of the controls (8 out of 21) had at least one parent with a score of seven or more. Again, the intergroup difference was insignificant ($X^2 = 1.63$). Since neither of the above findings was significant, Lidz failed to replicate McConaghy's findings.

Lidz and his co-workers treated the data in two other ways. First, they combined all of the scores, calculated the median score, and then compared the two groups of parents in terms of the percentages of scores above the median, which was between 4.5 and 5.0. The results indicated that a significantly greater proportion ($X^2 = 5.96$; $p < .02$) of parents of schizophrenics (75 percent) had scores equal to the median or higher than parents of controls (38 percent). Secondly, the scores for the two groups were combined into one series and the Mann Whitney U Test was applied. The two groups were found to differ significantly in the expected direction at the .01 level.

In summary, Lidz and his co-workers failed to replicate McConaghy's findings, probably because of the procedural changes in sample selection and scoring. However, the study yielded impressive evidence that the parents of schizophrenics as a group have more difficulties with conceptual thinking and category formation than do parents of controls.

• The second study by Lidz and his co-workers (Rosman et al., 1964) followed the same procedures as their initial study. The sample, however,

was larger, comprising 68 parents (34 pairs) of hospitalized schizophrenics and 115 parents (49 couples and 11 fathers and six mothers) of nonpsychotic patients. An analysis of the subjects' OST scores showed that a significantly greater proportion ($\chi^2 = 2.91; p < .05$) of the parents of schizophrenics (51 percent) obtained scores of seven or higher than did parents of controls (37 percent). The application of the Mann Whitney U Test to the combined scores of the two groups also yielded a significant difference ($p < .05$) in the expected direction. A closer examination of the data revealed that the higher frequency of pathological OST scores of the mothers of schizophrenics was the primary contribution to the intergroup difference. The percentages of pathological scores for the mothers of schizophrenics, fathers of schizophrenics, mothers of controls and the fathers of controls were, respectively, 65, 36, 38, and 38. It was also observed that the two groups differed significantly only when the parents of higher levels of intelligence, education and occupation are compared. No differences were present when those of lower levels were compared.

In a third study by Lidz and his associates (Ciarlo et al., 1967), the authors investigated disturbance in meanings of words in parents of schizophrenics by utilizing two objective methods, the Word Association Test (WAT) and the Semantic Differential (SD). An analysis of the WAT data indicated that the parents of schizophrenics gave a significantly higher proportion of original responses than either the parents of hospitalized nonschizophrenics or normals. The parents of nonschizophrenics differed significantly from the parents of normals on original responses as well. When the subjects' combined scores were transformed into "mean idiosyncrasy scores" (p. 472), the same differences were noted as reported above.

In the second step of their study, the investigators computed "idiosyncrasy in judgments of word meanings" (p. 474) scores for each subject. An analysis of the data showed that both the parents of schizophrenics and the parents of abnormal nonschizophrenics obtained significantly higher deviation mean scores. No other significant differences were noted. In summary, the parents of schizophrenics showed more idiosyncrasy in their judgment of word meanings than the parents of normals; however, this attribute is not specific to the parents of schizophrenics, but characterizes the parents of psychiatric hospitalized nonschizophrenics as well.

One aspect of a study by Stabenau and his co-workers (1965) was the investigation of conceptual impairment in the parents of schizophrenics as measured by the OST. The sample comprised five schizophrenics, five delinquents, five normals, and their respective biological parents (father and mother) and one sibling. The index subjects were between 14 and 28 years of age and were matched for age, sex, social status, and sibling order. An analysis of the group (parents) mean OST scores showed that the parents of normals, who had the lower conceptual impairment score, differed significantly from the parents of delinquents. No other differences were noted although the parents of schizophrenics obtained higher conceptual impairment scores than the parents of normals. The results of this study indicate that conceptual impairment is not specific to the parents of schizophrenics but is also shared with the parents of delinquents. The results, however, must be cautiously interpreted because of the small sample size.

In a study by Romney (1969), referred to above, the fathers of schizophrenics, neurotics and normals were found not to differ significantly

from each other on mean OST scores. Likewise, the mothers of the three groups failed to produce significantly different mean OST scores.

Wright (1973) investigated conceptual impairment in the parents of poor premorbid (a score of 15 or more on Phillips scale) male schizophrenics by the use of the OST. The sample comprised 21 parent pairs of male schizophrenics and 16 parent pairs of normal young men. The index subjects were between the ages of 15 and 30 years and were matched for age and level of education. Three scores were computed for each subject: impairment in abstract conceptualization (OST-NA), overinclusion (OST-Q), and underinclusion (OST-U). To compute the three scores for each subject, the material obtained by the administration of Part II of the OST was utilized. In this respect Wright's study differs from the investigations using Lovibond's scoring method which employed both parts of the OST in the computation of conceptual impairment scores. An analysis of the two groups of fathers OST-NA mean scores failed to produce significant results; however, the mean of the fathers of schizophrenics ($M=7.14$) exceeded that of the fathers of normals ($M=5.63$). Thus, the fathers of schizophrenics were not found to be more conceptually impaired than the fathers of normals. In a second analysis, a single difference (D) score for each parent-couple was computed by subtracting the wives' score from those of the husbands. A T-test performed on the mean OST-NA scores produced a significant difference ($p<.02$) with the parent-couples of schizophrenics obtaining a higher mean (2.71) than the parent-couples of normals (-.94). This finding indicates that the patient-fathers exhibit greater impairment in abstract conceptualization relative to their wives than do fathers of normals relative to their wives. Lastly, a close inspection of the OST-Q and OST-U

scores reveals that most of the difference between patient-fathers' and patient-mothers' OST-NA scores can be attributed to the difference in under-inclusive non-abstract responses ($t=2.56$; $p<.02$; two-tail). In summary, the study suggests a father-mother conceptual impairment, and a tendency towards father impairment in the families of poor-premorbid male schizophrenics. Rosman and colleagues (1964) also observed a father-mother conceptual impairment in families of schizophrenics; however, the tendency was towards a mother conceptual impairment. The discrepant findings could be a function of procedural changes in scoring and sampling.

In a preliminary study, Feinsilver (1970) investigated conceptual impairment and attentional difficulties in the parents of schizophrenics. The sample consisted of six families each comprising a schizophrenic patient, sibling, mother and father, and six families each consisting of two children, mother and father with neither child ever having sought psychiatric help. Each subject was asked to describe to each of the other members of his family a series of common objects. This task was carried out in pairs. When the subject completed his description the listener gave his answer. The sessions, which were tape-recorded, provided the material for the analysis of misidentifications of object by listener, inappropriate conceptualization, and focal attentional difficulties. An analysis of intergroup scores for inappropriate conceptualization failed to produce significant findings. However, the two groups differed significantly on attentional difficulty scores. These results will be presented in the following part of this section.

In a very well designed study, Reiss and associates (1971) investigated perceptual and cognitive resources in families of schizophrenics with the

purpose of elucidating how these families developed a consensual experience of their environments and their place in it. The sample comprised 24 triads, each consisting of a father, mother, and hospitalized child from the same family. The 24 triads were divided equally into three groups, using as a basis the psychiatric status of the child: paranoid schizophrenic (P), non-paranoid schizophrenic (NP), and nonschizophrenic (NS). Each subject was administered a battery of tests designed to measure perceptual and/or cognitive resources. The battery included the following tests: the abstract test of the Shipley-Hartford Scale, the Category Width Scale designed to measure the extent of categorization, the Inclusion Test constructed to assess overinclusion and overexclusion, the Reversible Figures Test, the Blurred Pictures, Statements Matched and Nationalities Matched Tests devised to assess a person's tolerance for ambiguity, and the Embedded Figures Test. An analysis of the parental mean scores showed no significant differences between the three groups for category width, overinclusion and overexclusion, the Embedded Figures Test, and for the four measures of tolerance for ambiguity. However, there were two attributes of perceptual resources that distinguished the parents of schizophrenics (both paranoid and non-paranoid). First, their lower score on the abstract test of the Shipley-Hartford Scale suggests that they, as a group, have an "inability to discern underlying patterns or deep structures in an array of ordered stimuli" (p. 130). Secondly, the parents of schizophrenics show substantially reduced reversal rates, suggesting that they "show a strong preference for conventional rather than personal reality...(that is)...they uncanny aspects of their personal response to external stimulation" (p. 30).

In summary, studies indicate that the parents of schizophrenics are more conceptually impaired than parents of normals but not more conceptually impaired than parents of delinquents and neurotics. The question as to whether the mothers of schizophrenics are more conceptually impaired than their husbands, or vice versa, is controversial. The parents of schizophrenics were found to have difficulty in discerning underlying structures in an array of stimuli, and to demonstrate a preference for the conventional to personal reality. They were also found to be more idiosyncratic in the "judgment of word meanings"; that is, they demonstrated disturbances in the meaning of words. Lastly, conceptual impairment has not been found to be specific to the parents of schizophrenics.

c) Attentional, Closure and Related Communication Difficulties

During the past two decades, investigations of families of schizophrenics focused on attentional, closure and related difficulties in parental communication. Wynne and Singer can rightfully be considered the spearheads in this research effort. In their earlier writing, Wynne and Singer (1958) formulated a theory of schizophrenia based on a role model. They took the position that lack of clarity in parental communication is an etiological factor in schizophrenia. In their paper they coined such concepts as "mutual", "nonmutual" and "pseudomutual" relationships, terms which provided a direction in research as well as the focal points for the interpretation of their findings. In somewhat later papers, Wynne and associates reported several strategies such as the Consensus Rorschach, designed to assess communication disorders (Loveland et al., 1963; Singer and Wynne, 1965a, 1965b; Wynne, 1967; Wynne and Singer, 1963a, 1963b). Following these endeavours, Wynne and his co-workers reported the results of

their initial studies which established a link between thought disorders in schizophrenics and communication difficulties in their parents (Morris et al., 1965; Singer and Wynne, 1965a, 1965b). Singer and Wynne's first study, which compared communication disorders in parents of schizophrenics to those in parents of controls appeared in their 1966 paper, "Communication Styles in Parents of Normals, Neurotics, and Schizophrenics".

Before reviewing this study, as well as that by Hirsch and Leff (1971) and Wynne and Singer's (1977) subsequent reply to Hirsch and Leff, the Rorschach Consensus technique and the concept of attention as conceptualized by Wynne and Singer will be summarized.

Wynne and Singer point out that the Consensus Rorschach serves as an appropriate analogue in the understanding of what takes place in actual communication. In the Consensus Rorschach two or more people are asked to arrive at a response agreeable to all. To complete this task, according to Wynne and his co-workers, a subject "proposes a focus of attention, labels what he 'sees', and offers an interpretation of its meaning to the other. In turn, the listener asks for clarification or elaboration and may comment if and when a focus of attention has been understood" (Singer et al., 1972). The key word in communication is the ability to maintain a "focus of attention". If a focus of attention is maintained and perceptions are discussed, the transaction optimally concludes with closure around a "meaning" which is understood by both. On the other hand, if a focus of attention is never established, thinking is, stylistically, amorphous; and if focus of attention is established only momentarily, thinking is fragmented (Singer, 1967).

Wynne and Singer developed scoring criteria for 41 communication difficulties or deviations (Singer and Wynne, 1965a, 1965b; Wynne and Singer 1963a, 1963b), however for purposes of analysis, the 41 categories are grouped under broader classes as: disruptive behavior, various speeches which are negativistic toward the testing task, closure problems and peculiar forms of verbalization (Singer and Wynne, 1966b).

In summary, the Consensus Rorschach is considered an appropriate analogue of what occurs in actual communication since it elicits two of its essential functions - naming and explaining. The various studies on attentional, closure and related difficulties will now be presented.

Singer and Wynne (1966a) investigated communication styles in parents of schizophrenics by using the Rorschach which was individually administered to each subject. The sample comprised 19 pairs of parents of schizophrenics, 20 pairs of parents of neurotics, and 20 pairs of parents of normals. The testing session between researcher and subject (father or mother) was tape-recorded and the interaction was scored for the communication difficulties referred to above; that is disruptive behavior (DB), closure difficulties (CD), negativistic behavior (NB), and peculiar verbalization (PV). A total score (TS) was computed for each subject as well. A chi-square with two degrees of freedom was used to analyze the data. The results of the study were as follows: (1) when the scores of the parents were taken individually (that is, the frequency per member (father and mother) for each group that exceeded the group median), a greater proportion of the parents of schizophrenics when compared to the proportion of the combined parents of neurotics and normals, scored above the group median on DB, CD, PV and TS; and the parents of neurotics obtained a significantly higher proportion of scores above the median for NB and TS

when compared to the parents of normals; (2) when the parents were paired, the results were similar to these presented above except that the parents of neurotics did not differ significantly from the parents of normals on TS; and (3) the fathers of schizophrenics, who obtained a greater proportion of scores above the median, differed significantly from the fathers of neurotics and normals on TS; whereas the mothers of schizophrenics differed significantly in the expected direction from the mothers of normals on TS.

These findings indicate that the parents of schizophrenics, as a group, have major difficulties in transactions, being particularly prone to impair shared foci of attention. That is, their stylistic qualities of communication impairs the listener's ability to focus his attention on the meaning of what is being communicated. This, the authors believe, could have enduring consequences for the child's thought processes and way of relating to others.

Hirsch and Leff (1971, 1975) attempted to replicate the Wynne and Singer (1966c) study; however, there were several procedural differences (Wynne et al., 1979). The sample for the former group comprised subjects from two diagnostic groups; whereas the sample for the latter consisted of subjects from five diagnostic groups. Secondly, the schizophrenics of the Hirsch and Leff group were less chronically and severely disturbed than those of the Wynne and Singer study. The two studies also differed in the testing procedures, particularly in the inquiry phase of the administration of the Rorschach.

The sample for the Hirsch and Leff study consisted of the biological parents of 20 hospitalized schizophrenics and the parents of 20 patients diagnosed as neurotics or depressives. Each subject was individually

administered the Rorschach, and the tape-recorded interactions were scored for the 41 categories outlined by Singer and Wynne (1966b). A deviance score for each subject was calculated by dividing his/her total number of deviances by the number of responses. This procedure differs from that of Wynne and Singer who calculated a total score by the simple addition of deviances on each of the ten cards. The group mean scores were analyzed by the use of the t-statistics. The results of the analyses showed that the parents of schizophrenics scored significantly higher than the parents of neurotics on the deviance scale ($t=2.215$; $p < .05$). This finding is in agreement with that of Singer and Wynne. However, Hirsch and Leff found that 40 percent of the parents of schizophrenics had scores lying on or below the common median for all subjects, suggesting that a large proportion of schizophrenics have parents who show very little or no abnormality of speech. This result differs radically from the Singer and Wynne study where the parents of schizophrenics were observed not to score below the median when the parents of schizophrenics, neurotics and normals were combined. In a further analysis, Hirsch and Leff found a positive relationship between deviance score and the number of words spoken by a subject. When the effect of the number of words spoken was taken out, they observed no difference between the groups on the deviance score.

In summary, Hirsch and Leff found only marginal differences between the two groups, a finding considerably different from that of Singer and Wynne. However, the two studies differed somewhat in sampling and scoring procedures which could account for the differences.

In a more recent study, Wynne and Singer (1977a) investigated communication difficulties in the biological parents (father and mother) of

24 remitting and 20 non-remitting schizophrenics. The control groups comprised the parents of 20 normals, 25 neurotics and 25 borderline patients. The same testing and scoring procedures were followed as in their earlier investigation except that a deviation score (D/T score), in addition to scores for disruptive behavior, negativistic behavior, closure difficulty, verbal peculiarities as well as a total score, were computed for each subject. An analysis of the group mean scores indicated both that the scores of the two parental groups with schizophrenic offspring differed significantly from the scores for the two parental groups with normal and neurotic offspring, and that the scores for the parents with borderline patients overlapped both with those on the normal-neurotic side and on the schizophrenic side. In other words, there was no overlapping of scores between the schizophrenic and the normal-neurotic groups, a finding consistent with Wynne's and Singer's (1966a) earlier study but inconsistent with the Hirsch and Leff (1971) study. A further analysis indicated that when the effect of word count was removed from the deviance scores, the deviance scores slightly increased, a finding which is not consistent with that of the Hirsch and Leff study.

It should be pointed out that Woodward and associates (1977) criticize both the Hirsch and Leff (1971) and the Wynne and Singer (1977a) studies for using an analysis of co-variance. According to Woodward and associates, the procedures is not justified in the two studies because neither formed its groups through random assignment; thus, group differences in verbosity might be accounted for by selection procedures rather than by actual differences.

The differences between the two studies can be explained in terms of procedural differences in the administration of the Rorschach test and in

terms of sampling differences, issues to which reference has already been made (Wynne et al., 1976). Rutter (1978) underlines the point that diagnostic procedures differ in the two countries. He suggests that Americans emphasize "severe and chronic personality disorganization as the main feature of schizophrenia", whereas the British emphasize the "presence of delusions, hallucinations and a peculiar form of thought disorder as a necessary part of the acute psychotic manifestation" (p.514). According to Rutter, the inconsistent findings of the two studies might be accounted for by the differences in diagnostic procedures.

Numerous researchers utilized one or another aspect of Wynne and Singer's approach in order to investigate communication difficulties in the parents of schizophrenics. In the first of three studies, Wild and associates (1965) modified and adapted the Singer-developed criteria for use with the Rorschach and applied it to material obtained from the administration of the Thematic Apperception Test (TAT). Communications were scored for inability to maintain a consistent task set, blurring of meaning, and verbal peculiarities. A single communication score was computed for each subject. The analysis of these researchers' data indicated that a significantly greater proportion of parents of schizophrenics - both when taken singly or in pairs - scored above the median on the deviation score than did parents of controls. Secondly, there was a great overlapping of scores between the two groups. No differences were observed when the fathers were compared to the mothers for each of the groups. Since the authors did not indicate the psychiatric status of the control parents' offsprings, it is impossible to state how the findings compare with those of Wynne and Singer. However, the two studies agree that the parents of

schizophrenics demonstrate more communicational difficulties than do parents of controls.

In a second study, Wild and associates (1975) investigated attentional difficulties, closure difficulties, problem-solving efficiency, and dominance in parents of schizophrenics, psychiatrically hospitalized nonschizophrenics, and normal controls. Material for analysis was obtained from the taperecorded interactions between subjects during the administration of the Twenty Question Task (Waxler, 1974). An analysis of the frequencies of scores above the group median indicated: (1) that the mothers of schizophrenics (67 percent) were more amorphous in their thinking than were the mothers of normals (29 percent), but not more amorphous than mothers of hospitalized controls (54 percent). No differences in amorphous thinking were observed among the fathers although the fathers of schizophrenics had the highest proportion of scores above the median. When the fathers and mothers were paired, the findings were similar to those when the mothers were taken alone; (2) that the fathers of schizophrenics (58 percent) revealed significantly more closure problems than the fathers of hospitalized controls (15 percent). No other differences observed among the groups of fathers, nor were there any significant differences among the mother groups; (3) no significant differences were observed for the three groups on problem-solving efficiency; and (4) the fathers of schizophrenics were significantly more dominant than the fathers of the two other groups, and were the most dominant member of the family as well. No significant intergroup differences on dominance were found for mothers. In summary, the mothers of schizophrenics were more amorphous in their thinking than were the mothers of controls, and the fathers of schizophrenics showed more

dominant behavior and more closure difficulties than the fathers of controls. However, these findings are not specific to either the fathers or mothers of schizophrenics.

In a co-authored article (Shapiro et al., 1976), Wild observed that families of schizophrenics revealed more communication disorders than the families of normals. This finding is not meaningful since the authors experimented with various procedures in order to identify the one that yielded the best separation between the schizophrenic and normal groups.

Feinsilver (1970) devised a unique task to assess communication difficulties such as misidentification of object by listener, inappropriate conceptualization, and focal attention difficulties. The task required one person to describe common household objects and the listener to identify the objects. The descriptions of the objects were tape-recorded. In his analysis, Feinsilver observed that the parents of schizophrenics scored higher than the parents of normals on focal attention totals ($p < .01$). No significant intergroup differences were noted on the other dependent variables. The results suggest that the parents of schizophrenics have greater communication difficulties than those of controls. However, since the sample was small (six families in each group) the results must be considered as tentative.

In a study by Liem (1974) which utilized Feinsilver's technique for the assessment of communication difficulties, the parents of schizophrenics were found not to differ significantly ($p < .05$) from parents of normals on impairment of focal attention, closure problems, total scores for peculiar language and logic, and the extent of inappropriate conceptualization in communication. Liem's findings are in obvious disagreement with those of

Feinsilver as well as with those of Wynne and Singer (1966a, 1977a). Sampling differences between the Liem and Feinsilver might account for some of the differences between the two studies; and the different tools used to assess communication difficulties might account for the differences between the Liem and the Wynne and Singer studies.

Jones (1977) investigated communication deviance in the parents of schizophrenics and nonschizophrenics. The findings of his study are questionable since he predetermined the number of factors to be extracted before submitting his data to factor analysis. For the extraction of these factors he was guided by the number of binary variable clusters obtained in a previous analysis.

In a study already mentioned, Stabenau (1965) investigated communication disorders in the parents of schizophrenics, delinquents and normals by using material obtained on the Revealed Differences Test. He noted that the communication of families of schizophrenics was blurred, disruptive, and fragmented, and often it missed the primary theme. This was in contrast to the sharp, cohesive, and logical communication of the families of normals which followed primary themes. Communication of families of delinquents shifted from primary to secondary themes and wandered. These differences are not based on statistical procedures, but on observations; they are thus descriptive in nature.

Haley (1968) investigated communication abnormalities in the parents of schizophrenics, abnormal nonschizophrenics, and normals. The parents, in pairs, were asked to instruct their offspring in the selection of eight cards from a set of 24 Japanese cards. The instructions were given over a microphone. For each card correctly selected and placed on a rack, the

child was given one point. An analysis of the data indicated that the schizophrenic group obtained the lowest mean score, with the other two groups not differing from each other. In a second trial of this experiment, the child was permitted to ask questions during the instruction phase. An analysis of the new data indicated that the schizophrenic group improved the most when compared to the mean scores of the first trial. When "room for improvement" was taken as a moderating variable, the three groups were found not to differ from each other. In the third phase of this study, one group of normal children performed the task described above by following the instructions given by the parents of schizophrenics, and a second group of normal children followed the instructions given by parents of normals in the performance of the same task. An analysis of the data failed to yield a significant intergroup difference. This prompted Haley to conclude that the parents of schizophrenics are no more disturbed in their communication than are the parents of controls, and that the communication difficulty resides in the schizophrenic offspring. This argument is not air-tight since Haley did not study how a group of schizophrenic children perform on the task when receiving instructions from parents of normals.

In summarizing the studies on communication difficulties, it can safely be stated that the parents of schizophrenics showed more deviation than parents of controls on such variables as attentional difficulties, closure difficulties, peculiar verbalizations, blurring of meanings, and on a global measure of communication deviation. However, it seems that these attributes are not specific to the parents of schizophrenics but are shared with parents of patients who are less disturbed than schizophrenics but more disturbed than simple neurotics.

d) Communication Efficiency and Egocentricity

Recently, Blakar and his associates at the University of Oslo, Norway, carried out a series of investigations on communication efficiency and egocentricity in the parents of schizophrenics. More complete reports of their research projects, which have been translated from the Norwegian to the English language, are now available (Blakar, 1980a, 1980b). Their studies on communication difficulties in parents of schizophrenics were stimulated, in part, by Lidz's (1973) concept of "egocentricity", and utilized a special instrument called the Map Task (MT). Before presentation of the results of the studies by Blakar and his associates, the Map Task will be described.

A brief description of the Map Task is given by Mossige and associates (1979). They stated that in the map task:

two persons, A and B, are each given a map of a relatively complicated network of roads and streets in a town center. On A's map, two routes are marked with arrows: one short and straight forward (the practice route), the other longer and more complicated (the experimental route). On B's map, no route is marked. A's task is then to explain to B the two routes—first the simple one, then the longer and more complicated one. B will then, with A's explanation, try to find the way through town to the predetermined end point. B may ask questions, ask A to repeat explanations, or to explain in other ways, etc. The experimental manipulation is simply that the two maps are not identical; there is an extra street added on B's map. No matter how adequately A explains, no matter how carefully B carries out A's instructions, B is bound to go wrong. The two maps are different only in respect to the complicated route; the practice route is straight forward for both" (p. 487).

The authors believe the Map Task to be an appropriate analogue of real life communication. They state that a precondition for successful communication is "a-shared social reality", a common "here-and-now" within

which exchange of messages can take place (Solvberg et al., 1975, p. 518). The "shared social reality", in this study was to be created by the ease in solving the practice route; but in the case of the experimental route, the "shared social reality" was disrupted because a missing street on B's map made it impossible to solve the problem.

In one of the studies which utilized the Map Task, Solvberg and Blakar (1975) compared parents of schizophrenics to parents of normals on the following variables: time required to solve the "practice route", the number of pairs of parents from each group who solved (recognized the missing street) the experimental route, and the number of utterances used to solve the two routes. It should be stated here that in all of the studies by Blakar and associates, the wives were assigned the task of explaining the practice and experimental routes to their husbands. The analysis of the data of the Solvberg and Blakar study provided the following information: the groups did not differ significantly on the mean time required to solve the practice routes; all of the couples of normals and one parent-couple of the schizophrenics solved the experimental route; and the mothers of schizophrenics used more utterances than the mothers of normals to explain the experimental route to their husbands, but, the majority of the utterances were task irrelevant. The fathers of schizophrenics, on their part, tended to ignore the utterances of their wives more often than the fathers of normals. Lastly, no intergroup differences were observed in the emotional climate (openness, confidence, helplessness, intimacy, mutual respect) created by the interactions between husband and wife. In summary, the parents of schizophrenics showed themselves to be less efficient in communication than the parents of normals. This finding is not consistent

with that of Haley (1968) who observed no differences in efficiency of communication between the parents of schizophrenics and the parents of normals.

Blakar and associates (1978) utilized the same procedures as in the above study to investigate communication deviations in the parents of schizophrenics and normals from rural regions. Once again the Map Task was utilized to collect material which was analyzed for the following dependent variables: time required to complete the practice route, and number of parent-pairs who solved the experimental route. For the analysis, the data obtained from the subjects of the present study were combined with those obtained from the Solvberg and Blakar study, thus creating four comparative groups; parents of schizophrenics from an urban setting (UPS), parents of normals from an urban setting (UPN), parents of schizophrenics from a rural setting (RPS), and parents of normals from a rural setting (RPN). An analysis of the data indicated that the four groups of parents did not differ significantly on the mean time required to complete the practice route. However, the combined groups of parents of schizophrenics scored significantly lower than the combined groups of parents of normals for the number of experimental tasks solved (solvers/non-solvers): An analysis of group mean scores produced a similar finding when the parents of schizophrenics were compared to the parents of normals for both the rural and urban groups. The main difference between the rural and urban sample was the relative failure of rural parents of normals to solve the "experimental route"; that is, to solve the induced communication conflict. To summarize, "rural or urban dwelling" affects communication efficiency in

both the parents of normals and of schizophrenics. As well, the parents of schizophrenics showed more severe egocentrism in their communication than the parents of normals.

Mossige and associates (1979) studied "decentration" and "egocentrism" in the communication patterns of the parents of schizophrenics (PS) and of normal females (PN). According to the authors, "decentration" in communication is characterized by "the fact that the sender anticipates the receiver's decoding, takes the receiver's perspective into account, and encodes on the receiver's premises" (p. 411). Egocentrism, on the contrary, is "characterized by the fact that the participants do not take into account each other's perspectives and do not speak and listen from each others premises" (p. 411). "A shared social reality" - that is, a common here-and-now within which the exchange of messages can take place - was hypothesized as a precondition for successful communication (p. 407). Utilizing material obtained from the administration of the Map Task, three classes of data (dependent variables) were computed: the mean time required to complete the two routes; the proportion of solvers/non-solvers for each of the comparative groups; and, egocentric/decentered ratios for each of the two tasks. The results were as follows: (1) there were no significant intergroup differences in the time required to solve the practice route, but the means for the two groups varied considerably with the PS group taking 9.62 and the PN group taking 3.76 minutes to solve the task; (2) the two groups differed significantly in the number of "experimental routes" solved, with four (out of six) of the parent-pairs of the PN-group and none of the PS group solving the task - a finding similar to that of Solvberg and

associates (1975); and, (3) the PS group obtained significantly higher egocentric/decentered ratios than the PN group on both the "practice route" and the "experimental route". Further analysis revealed a stable pattern of egocentric/decentration for the combined groups of families over the two tasks. In summary, the parents of schizophrenics were found to be both less efficient and more egocentric in communication than the parents of normals.

In summary, the findings from the communication studies indicate that the parents of schizophrenics are more disturbed in their communication than are parents of controls. The parents of schizophrenics when compared to parents of controls demonstrated greater thought disorders and conceptual impairments, had more attentional difficulties particularly in the ability to maintain focus and form closures, revealed more peculiar verbalizations and blurred meanings, and have shown themselves to be less efficient and more egocentric in their communications. These findings, however, do not appear to be specific to the parents of schizophrenics. On the contrary, difficulties in the above areas appear to be positively related to the severity of the emotional disturbance in the index subjects. It was observed that the more severe the communication disorder in the parent, the more emotionally disturbed is the index subject. Thus it appears that communication difficulties are not, in themselves, sufficient factors to explain the etiology of schizophrenia. The implications of these findings in terms of ego functions will be presented at the end of the studies on the families of schizophrenics.

In the following section, the mothers of schizophrenics will be the focus of attention. Studies to be reviewed will consist of those not included in this immediate section or in prior sections.

4. The Personalities of, and Psychopathology in, Mothers of Schizophrenics

The mothers became the focal point in the family studies of schizophrenia with Frieda Fromm-Reichman's (1948) introduction of the "schizophrenogenic mother" hypothesis in the late 1940's. Early studies focused on the personalities and psychopathology of the mothers of schizophrenics, while later studies accentuated the quality of the interactive process between mother and child and between mother and father. The latter issues have already been discussed. What remains is to treat the mothers in terms of their personalities and the extent of psychopathology found in them.

The studies to be reviewed are listed chronologically in Table 8. The table presents as well information such as the source of data, method used to collect the data, the sample size, and the analysis of the data. A cursory inspection of the table reveals that none of the earlier studies, unlike the later studies, matched the comparative with the experimental group, nor were the data statistically analyzed. Even at that, only two studies (Friedman et al., 1972; Spencer, 1974) matched the comparative groups and statistically analyzed the data. In the course of this presentation reference will not be made to such information but it will be taken into consideration when the findings are summarized.

The studies of the mothers of schizophrenics will be grouped under two headings; personality traits of, and psychopathology in, mothers.

a) Personalities of the Mothers of Schizophrenics

Alanen (1958) using material obtained from Rorschach responses and psychiatric interviews, compared the mothers of 100 schizophrenics to the mothers of 20 neurotics and 20 normals for differences in personality traits. The analysis of the data from the Rorschach responses yielded

Table 8
 Studies of Mothers' of Schizophrenic Patients:
 The Data Source, Method of its Collection, Subjects and
 Areas of Investigation

Investigator	Source of Data		Method of Collection		No. of Exp. Couples	No. of Ctrl. Couples	Comparative Group	Matched	Stat. Anal.	Subject of Investi- tion
	Pat- ient	Sub- ject	Inter- view	Proj- ective						
Hollman 1957	x		x(a)		16	-	-	-	-	personality
Alanen 1958	x		x	x	100	40(2)(b)	mothers of neurotics, normals	-	-	personality psycho- pathology
Lu 1961	x	x	x		50	50(1)	siblings divided on basis of sex of pat.	-	-	personality
Fleck et al., 1963	x		x		17	-	divided on basis of sex of pat.	-	-	personality
Lidz et al., 1965b	x		x		17	-	divided on basis of sex of pat.	-	-	personality
Hollman 1965	x		x		101	-	-	-	-	personality psycho- pathology
Cohler 1972	x		x	x	23	31(3)	mothers of neurotics, borderline, normals	-	x	personality
Friedman et al., 1972	x		x		195	140(1)	mothers of nonschizo- phrenics	x	x	psycho- pathology
Spencer 1974	x		x		12	12(1)	normals	x	x	personality
Winter 1975	x		x		20	20(1)	parents of nonschizo patients	-	x	psycho- pathology

(a) Interview material is from therapy sessions
 (b) Figure in bracket indicates the number of comparative groups
 (c) Data from hospital and clinic records

Legend: Exp. = Experimental
 Ctrl. = Control
 Stat. Ana. = Statistic Analysis

significant group differences with the mothers of schizophrenics being more aggressive, more anxious, and less able to initiate and maintain affective-emotional and intellectual contacts than the mothers of normals. As well, the mothers of schizophrenics possessed a greater amount of schiziform traits. The data from the psychiatric interviews, although not statistically treated, indicated that the mothers of schizophrenics were characterized by: frequently occurring anxiety and insecurity; proneness to unrealistic behavior and thought disorders approaching the psychotic level; schizoid traits and aggressiveness; a poverty and coldness of emotional life and a lack of empathy; a proneness to dominating rather than submissive patterns of interpersonal relationships.

In summary, the mothers of schizophrenics showed more severe emotional disturbances, characterized by anxiety, aggressiveness, schizoid traits, and the lack of an ability to feel oneself into other people (p. 131).

Fleck and his colleagues (1963) noted that the mothers of female schizophrenics had little empathy for their daughters, lacked maternal warmth, were often vague and colorless, and failed to provide a suitable model of a woman with whom the daughter could identify. The mothers had difficulty in establishing boundaries between the self and the child, and they gained little, if any, gratification from their daughters. The mothers of male schizophrenics, on the other hand, tended to be overprotective and domineering, were unable to differentiate their needs from those of the child, and sought to use the child to complete their lives or to compensate for the frustrations of being women. In summary, the mothers of schizophrenics were almost always highly unstable and had difficulties in setting boundaries between themselves and the child who became

schizophrenic. Some were intrusively oversolicitous, whereas others were aloof and even inimical despite their controlling concerns (Lidz et al., 1955b).

Cohler and his collaborators (1972) investigated the MMPI profiles of the mothers of 23 schizophrenics, 10 neurotics, 16 borderline personalities, and 6 normals. A statistical analysis of the group means on the three validity scales (L, K, P) and on the ten clinical scales failed to produce any significant differences. Moreover, very few of the mothers received T-scores above 70. In summary, the mothers of schizophrenics showed no MMPI differences either in the degree or in the type of psychopathology from the mothers of the other psychiatric groups or from the mothers of normals.

Four studies investigated the personalities of the mothers of schizophrenics by utilizing the perceptions of the patients. In Wolman's (1957) earlier study the mothers were perceived as: (1) poor, suffering, rejected, betrayed and dying human being; (2) self-sacrificing martyrs who seldom took time for themselves; (3) over-protective and restrictive of the child's freedom in a consistent and usually affectionate way; (4) dictatorial, moralistic and self-righteous in their control of the patient; (5) demanding that their children exercise self-control whether regarding feelings, wants, or expectations; and, (6) bearing a threatening attitude toward the patient and punishing him for minor transgressions.

In a later study, Wolman (1965) identified in the mothers of schizophrenics six common personality traits observed by the patient. These traits are summarized as follows: professed self-sacrifice, symbiotic-protectiveness, dictatorial and self-righteous attitude, overdemanding attitude, and impossible expectations of husbands. The personality traits

observed in the two studies are similar to each other.

The schizophrenic patients in Lu's (1961) study described their mothers as being dominating and overprotective, especially towards the patient, and demanding from him submission and dependence. Spencer (1974) observed that the schizophrenic patients perceived their mothers as being significantly less affectionate and more controlling than the normals perceived their mothers.

The personality descriptions of the mothers of schizophrenics as summarized in the four studies just outlined have to be interpreted cautiously because the material was provided by the patients, who tend to distort reality, including their perception of the mother figure, as Arieti (1974) rightly points out. The clients' impressions must be tested against other sources of information, such as that of control groups and objective tests.

The extent of psychopathology in the mothers of schizophrenic patients will be presented next.

b) Psychopathology of the Mothers of Schizophrenic Patients

The mothers of schizophrenic patients have been found to be more emotionally disturbed than mothers of comparison groups. In his earlier study, Alanen (1958) observed that 12 percent of the mothers of schizophrenics were psychotic while none of the mothers of neurotics nor, of the normals was psychotic. Moreover, only 16 percent of the mothers of schizophrenics were found to be only slightly neurotic or completely healthy; whereas 55 percent of the mothers of neurotics, and 70 percent of the mothers of normals were so classified. Lastly, 63 percent of the mothers of schizophrenics were observed to be more seriously disturbed than

at a level of simple neurosis. The corresponding percentages for the mothers of neurotics and of normals were 10 and 5, respectively. In summary, the results indicate that the mothers of schizophrenics, as a group, are more disturbed than are the mothers of controls.

Similar findings were reported by Wolman (1965). In his study, nine percent of the mothers of schizophrenics were found to be schizophrenic, 12 percent were manic-depressive, and 32 percent were neurotic. Thus, slightly over 50 percent of the mothers were found to be psychopathological, a finding similar to that of Alanen (1958).

In a more detailed study, Alanen (1966) compared the parents of schizophrenic patients to those of neurotics. The major findings which concern the mothers were: (1) thirty percent of the mothers of schizophrenics were psychotic, whereas 6.6 percent of the mothers of neurotics were psychotic; (2) ten percent of the mothers of schizophrenics were schizophrenic, whereas none of the mothers of neurotics was diagnosed as such; (3) seventy percent of the mothers of schizophrenics and 16 percent of the mothers of neurotics were found to have disorders more severe than ordinary psychoneurosis. In summary, these findings which are similar to those of Alanen (1958) and Wolman (1965), indicate that the mothers of schizophrenics are more severely disturbed than the mothers of neurotics.

Friedman and co-workers (1972) investigated the prevalence of psychosomatic and organic, nonpsychosomatic disorders in mothers of schizophrenic and nonschizophrenic patients. One of the major findings was that the mothers of female schizophrenics were found to have a significantly greater incidence of psychosomatic disorders than the mothers of male schizophrenics and the mothers of nonschizophrenic patients. The latter two

groups did not differ significantly from each other. Secondly, the mothers of nonschizophrenics were found to have a significantly greater incidence of organic "physical and medical" problems (excluding the psychosomatic) than the mothers of male schizophrenics. No other significant differences were found.

Using the Eysenck PEN Inventory and the Hostility and Direction of Hostility Questionnaire (HDHQ), Winter (1975) studied the extent of psychopathology in the parents of schizophrenics. The sample comprised 20 parents of schizophrenics and 20 parents of nonschizophrenics. The analysis of the group means indicated that the parents of schizophrenics scored significantly higher than the parents of nonschizophrenics in three of the Eysenck questionnaires; that is, on Psychotism, Extraversion, and Lie Score, but no group differences were found on HDHQ. When the group scores on Psychotism and Extraversion, were compared to the norms, the differences were seen as being due largely to the abnormality of the control parents rather than to that of the schizophrenics. In summary, the parents of schizophrenics, although they scored higher on Psychotism and Extraversion, were not found to deviate from the statistical average; thus they are believed to be no more pathological than parents of nonschizophrenics.

In reviewing the studies on the mothers of schizophrenics, discrepant findings were noted which appear to be related to the source of data utilized for group comparisons. Studies that employed standardized questionnaires (Cohler, 1972; Winter, 1975) failed to differentiate the mothers of schizophrenics from those of controls, whereas studies utilizing the patients' perceptions of their mothers produced more dramatic differences. Investigations based on interview material produced not only

significant findings, but findings that were consistent from study to study. The discrepant results are difficult to explain since they could be related to the defensiveness of, or lack of awareness on part of, the mothers of schizophrenics or to biasing on part of the interviewers.

The more general findings from the studies of the mothers of schizophrenic patients can be summarized as follows: (1) the mothers of schizophrenic patients tend to be more anxious (concerned), protective, intrusive, aggressive, controlling, and withdrawn (aloof) than mothers of controls; (2) the mothers of schizophrenics lack an ability to feel oneself into other people (empathy, maternal warmth); (3) the mothers of male schizophrenics are more protective and domineering than mothers of female schizophrenics, whereas the latter are more intrusive and withdrawn than the mothers of the former; and, (4) there is more psychiatric disturbance among the mothers of schizophrenics than among the mothers of normals (approximately 10 percent are schizophrenic, and over 50 percent show a disturbance more serious than simple neurosis).

This terminates the review of the mothers of schizophrenic patients. The implication of these findings for ego functioning will be treated later. In the following section, studies concerning the fathers of schizophrenic patients will be presented.

5. The Personalities of, and Psychopathology in, Fathers of Schizophrenics

The fathers of schizophrenic patients have received very little attention from researchers to this date. The majority of the studies, which are listed chronologically in Table 9, focused on the personalities of the

Table 9
 Studies of the Fathers of Schizophrenic Patients:
 The Data Source, Method of its Collection, Subjects and
 Areas of Investigation

Investigator	Source of Data	Method of Collection	No. of Exp. Couples	No. of Ctrl. Couples	Comparative Group	Matched	Stat. Anal.	Subject of Investigation	
	Pat-Sub-Observer	Inter-View	Proj-Active	Self-report	Observation				
Lidz et al., 1957a	x	x				14	-	-	personality
Hollman 1957	x	x	x(a)			16	-	-	personality
Alanen 1958	x	x				19	5	-	personality
Hollman 1961	x	x				33	-	-	personality
Hollman 1965	x	x				101	-	-	personality
Alanen 1966	x	x				30	30(1)	-	fathers of neurotics
Conler et al., 1972	x			x		21	31(3)(b)	x	fathers of borderline, neurotic, normal
Kiin 1975	x	x		x		60	100(1)	-	fathers of nonschizo. patients

(a) Information obtained from wife of husband

(b) Figure in bracket indicates the number of comparative groups

Legend: Exp. = Experimental

Ctrl. = Control

Stat. Anal. = Statistic Analysis

fathers. The earlier studies were exploratory and descriptive in nature, often investigating only the experimental group and reporting the results in terms of frequencies or percentages rather than in statistical (inferential statistics) terms. This information which is presented in Table 9 will be taken into consideration when the findings are summarized at the end of this section.

One of the issues concerning the fathers of schizophrenics that received much attention is that of their personality characteristics. In his first study, Wolman (1957) investigated the personality traits of 16 fathers of schizophrenics, using the patients' perceptions as the data for analysis. He noted that the fathers appeared weak, especially in the home, where they had little to say and were not respected by their wives although they were friendly towards their wives. All of the fathers could be described either as "absentee" or "non-participant" fathers. Lastly, the fathers failed to support their child when assaulted by the mother.

In his second and third studies, Wolman (1961, 1965) identified four types of fathers as perceived by the patients. The four types are: (1) the sick child; that is, a father who seeks the protection of his wife; (2) the prodigy child; that is, one who seeks admiration; (3) the rebellious child, or one who tries to force his wife to love him; and, (4) the runaway child, or one who abandons his wife because she did not take good care of him (Wolman, 1965, p. 167). In summary, each of the fathers "acted in his own home not as a head of the family but as a child. They competed with their children, acted aggressively toward their sons and seductively toward their daughters. Some were meek, some brutal; none of them offered guidance to the

child they way normal fathers do" (Wolman, 1965, p. 167).

Lidz and his co-workers (1957a) investigated 14 fathers of schizophrenic patients and reported findings similar to those of Wolman. They observed that the fathers were frequently insecure in their masculinity and required the admiration and attention from their wives to bolster their masculine self-esteem. Some were paranoid in their thinking and irrational in their behavior. They tended to interfere with their wives' mothering roles, and failed to provide adequate models for their sons and daughters.

Alanen (1958) studied the fathers of schizophrenics by dividing them into two groups based on the sex of the patient. The father of a male schizophrenic was characteristically passive and submissive beside a dominant wife, and often unable to counterbalance the mother's pathogenic dominance over the child. The father of a female schizophrenic, typically was tyrannizingly domineering toward his wife, even though he was often at the same time dependent on her support. Again, the mother was found to be the dominant spouse.

Cohler and colleagues (1972) compared the fathers of 21 schizophrenic patients to the fathers of 15 borderline and 10 neurotic patients and to 6 normals on the three validity and ten clinical scales of the MMPI. The only significant difference observed was on Pt (psychoasthenia), with the fathers of normals scoring lower than the fathers of the three other groups which did not differ significantly from each other. The authors commented that the fathers of schizophrenics did not differ significantly in self-reported psychopathology from fathers of borderline or neurotic patients, or from fathers of normals. However, this statement needs to be qualified because it is possible that the unequal number of subjects per group affected the

number of observed differences.

The clinical characteristics of the fathers of schizophrenic and non-schizophrenics were investigated by Kim (1975). He noted that the former, when compared to the latter, showed poor interpersonal relationships in their families and experienced dissatisfaction in the sexual, marital, and occupational areas of their lives. It was observed as well that the fathers of schizophrenics had a higher evidence of psychiatric illness. Based on his data, the author suggested four types of fathers of schizophrenics; pseudo-mutual, paranoid and overtly rejecting; overprotective, obsessive and covertly rejecting; indulgent, dependent, and weak; and authoritative, domineering, and tyrannical.

Of the reported studies that specifically investigated the incidence of psychopathology among the fathers of schizophrenics there is one by Alanen (1966). The major findings of his study were: (1) twenty-three percent of the fathers of schizophrenics were psychotic, whereas none of the fathers of neurotics was found to be psychotic; (2) three percent of the fathers of schizophrenics were schizophrenic; and (3) seventy percent of the fathers of schizophrenics and six percent of the fathers of neurotics were found to have disorders more severe than simple neuroses. In summary, the results of Alanen's study indicate that the fathers of schizophrenic patients are more disturbed than the fathers of neurotics.

The general findings of the studies just reviewed can be summarized as follows: (1) the fathers of schizophrenics, when compared to controls, tend to be passive, submissive, weak and ineffectual persons who are unable to counterbalance the aberrant ways of their wives and unable to support the child when he is assaulted by his mother; (2) the fathers of schizophrenics

manifest feelings of inadequacy regarding their masculinity, their person, and their roles as husband and father; (3) they are narcissistic and require admiration and attention, especially from their wives to boost their egos; and (4) the fathers of schizophrenics are more seriously disturbed than are the fathers of controls.

The implication of these findings for ego functioning will be discussed later. In the following section, the studies regarding the siblings of schizophrenics will be presented and discussed.

6. Psychopathology in Siblings of Schizophrenics

The siblings of schizophrenic patients formed an important domain in the family investigations of schizophrenia for two decades, commencing in the later 1950's, peaking in the 1960's, and diminishing gradually in the early 1970's. These studies coincided with the interest, on part, of researchers, to resolve the environmental versus genetic controversy regarding the etiology of schizophrenia, and to answer the related question as to why some members of a family became schizophrenic while others were spared this tragedy. The general hypothesis of environmentalists is that schizophrenia is the extreme degree of the family's general tendency toward developing mental disorders. With the increased interest in the organic theories of schizophrenia, particularly the genetic and biochemical theories, the environmental theory lost some of its lustre; this resulted in a decrease in the number of family studies of schizophrenia.

The sibling studies converged around two general issues; namely, the degree of psychopathology among the siblings of schizophrenics, and gender concordance for psychopathology in the siblings of schizophrenics. The studies to be reviewed are listed chronologically in Table 10. The table

Table 10
 Studies of the Siblings of Schizophrenic Patients:
 The Data Source, Method of its Collection, Subjects and
 Areas of Investigation

Investigator	Source of Data		Method of Collection		No. of Exp Couples	No. of Ctrl Couples	Comparative Group	Matched Anal	Stat	Subject of Investi- tion
	Pat- ient	Sub- ject	Inter- view	Proj- ective						
Prout et al., 1956	x		x		30	30(1)(a)	patient	x	-	personality
Lu 1961	x		x		50	50(1)	patient	x	-	personality
Lidz et al., 1963	x		x		24	-	-	-	-	psycho- pathology
Lane et al., 1965	x			x	157	157(1)	patient	-	x	psycho- pathology
Alanen 1966	x		x		49	49(1)	sibs of neurotics	-	-	psycho- pathology
Stabenau et al., 1968		x	x		11	11(1)	patient	x	-	personality
Pollack et al., 1969	x	x(b)			64	120(3)	sibs of per- sonality disorders, neurotics, affective disorders	-	-	psycho- pathology, concordance
Cohler et al.,	x			x	16	25(3)	sibs of borderline, neurotics, normals	-	x	personality
Hoover et al., 1972	x			x	57	30(1)	patients	-	x	emotional entanglement, concordance

(a) Figure in bracket indicates the number of control groups
 (b) Date from hospital records

summarizes the data source, the methods used to collect the data, the sample, and the area of investigation for each study. It should be noted that only four studies attempted to match the comparative groups, four studies statistically analyzed the data, and three studies used comparative groups other than the patients. Only one study (Pollack et al., 1969) combined matching procedures and statistical analyses of the data with the use of comparative groups.

These facts must be taken into consideration in interpreting the data. The results from the nine studies will be briefly presented.

In their study of the siblings of schizophrenics, Prout and White (1956) compared the early life experiences of schizophrenics with those of their healthy siblings of the same sex. The schizophrenic patient and his healthy sibling were found to differ significantly in personality and in its development. The preschizophrenic child was described as being "more sensitive, less nappy, and less social, than his healthy sibling who was, on the other hand, more sociable, more emotionally independent, and a happier child" (p. 168).

Lu (1961) studied the mother-child relations of fifty chronic schizophrenic patients, both males and females, and of the nonschizophrenic sibling. The schizophrenic patient, when compared to his sibling, was found to be more emotionally entangled with his parents, especially with his mother. The relationship was marked by the intensity of each one's concern with and sensitivity to the other's existence, presence, and responsiveness. The nonschizophrenic sibling and the mother, on the other hand, were not emotionally entangled with each other. The sibling was not as sensitive to the mother's expectations of him, and tended to be more willing to disregard

his mothers expectations. He directed a share of his feelings toward other people and so tended to moderate his feelings toward his mother.

Lidz and associates (1963) investigated the incidence of psychopathology in the siblings of schizophrenics. For the study, the authors devised an adjustment scale with five ranges: well adjusted, adequately adjusted, emotionally disturbed, borderline, and schizophrenic. Six of the 24 siblings were assigned to the adequately and well-adjusted categories, and three were assigned to the schizophrenic category. In all, 25 percent of the siblings were found to be normal, 75 percent were persons with severe emotional disturbance, and 12.5 percent were schizophrenic. Siblings of the same sex as the patient were found to be more severely abnormal than were opposite-sexed siblings.

Lane and Albie (1965) reported that 8 percent of the siblings of schizophrenics in their study were diagnosed schizophrenics. This figure is similar to the 12.5 percent reported by Lidz and associates (1963).

Alanen (1966) investigated the siblings of schizophrenics with a similar number of siblings of neurotics. The siblings were classified into six groups: normal without any disorder traits, normal with disorder traits, psychoneurosis, non-schizophrenic functional psychoses, and schizophrenic psychoses. The siblings of schizophrenics were observed to be more seriously disturbed than the siblings of neurotics. Eight percent of the siblings of schizophrenic patients were diagnosed schizophrenic, and another 12 percent were classified as nonschizophrenic. In contrast none of the siblings of neurotics was classified either schizophrenic or psychotic. Alanen reported, as well, that siblings of the same sex as the schizophrenic patients were more seriously disturbed than their opposite-sexed siblings

(p.510). However, Pollack and associates (1969) analyzed the data and failed to find a significant difference between the two groups (p.653).

Stabenau and Pollin (1968) described the preschizophrenic child as characteristically quiet, shy, stubborn and a worrier. When compared to his more active, rebellious, friendly and attractive brother or sister, the preschizophrenic child is considered by his parents as being physically or psychologically damaged.

Pollack and colleagues (1969) investigated the extent of psychiatric illness in the siblings of psychiatric patients and the degree to which siblings of the same sex as the patient were more disturbed than siblings of the opposite sex. The sample comprised 46 schizophrenics, 68 personality disorders, 7 psychoneurotics, and 6 affective disorders and their full blood siblings who numbered 64, 104, 9, and 7, respectively. The subjects were assigned to one of the following levels of functioning: normal or adequate functioning, moderately impaired functioning, and severely impaired. The following were the major findings: (1) eight percent (5 sibs) of the sibs of schizophrenics were diagnosed schizophrenic and 58 percent were assessed psychiatrically normal; (2) one percent (1 sib) of the sibs of personality disorders were diagnosed schizophrenic and 52 percent were rated normal; (3) when the siblings of schizophrenics were compared to the siblings of nonschizophrenic patients, the findings were similar to those given above; (4) there was sex concordance for psychopathology between the male personality disorders and their male sibs, but not for female sibs; and (5) there was no significant tendency for same-sexed siblings of schizophrenics to have a higher incidence of abnormality than their opposite-sexed siblings. This is true for the sibs of both male and female patients

analyzed separately.

Cohler and co-workers (1972) investigated the MMPI profiles of 41 siblings of psychiatric and nonpsychiatric subjects. The sample comprised: 16 sibs of schizophrenics, 11 sibs of borderline patients, 8 sibs of neurotics, and 6 sibs of normals. An analysis of the group means for the three validity scales and for the nine clinical scales (Mf was excluded) failed to produce any significant differences. It was concluded that "the self-report of psychopathology does not differ among siblings of index offspring in the four diagnostic categories" (p.74).

The siblings of schizophrenics were the topic of a project conducted by Hoover and Day (1972). The project focused on four issues concerning the siblings: extent of psychopathology, level of social functioning, degree of family entanglement, and gender concordance for psychopathology. For the project, three 5-point scales were developed: Illness Scale, Functional Impairment in Life Activities Scale, and Family Entanglement Scale. The study produced the following findings: (1) fifty-nine percent of the siblings were rated on the first two illness levels indicating normality; (2) eight-seven percent of the siblings were functional at the top two levels of adjustment in life activities; (3) over 89 percent of the patients were more entangled with the family than their next-of-age siblings; and (4) the correlations for the degree of psychopathology between the patient and the same-sexed sibling and between the patient and the opposite-sexed sibling were both virtually nil.

In summary, (1) the siblings of schizophrenics were found to be more severely abnormal than are the siblings of neurotics and personality disorders; (2) the incidence of schizophrenia is approximately eight times

more prominent among the siblings of schizophrenics than that found in the general population and in controls (Alanen, 1966; Lane et al., 1965; Lidz et al., 1963; Pollack et al., 1969); (3) over fifty percent of the siblings have been found to be normal and adequate in their functioning (Hoover et al., 1972; Pollack et al., 1969); and (4) despite Alanen's (1966) and Lidz's and associate's (1963) findings, it appears that the same-sexed and opposite-sexed siblings of schizophrenics do not differ in terms of the extent of psychopathology (Hoover et al., 1972; Pollack et al., 1969).

This concludes the presentation on the siblings of schizophrenics. In the following section the significant findings from the family studies of schizophrenic patients will be summarized and their implications for ego functioning will be discussed.

7. Summary of Findings from Family Studies of Schizophrenics and Their Implication for Ego Functioning

At the beginning of this review it was indicated that there were no published studies that investigated ego functioning patterns among families of schizophrenic and neurotic patients. Ego functioning explorations have limited themselves to the studies of the patient (Bellak, et al., 1973). However, the findings from the family studies reviewed above, can be translated into ego functioning concepts.

This section will summarize the findings from the family studies according to the six categories utilized above and the implications of these findings for ego functioning will be noted. The findings will be translated into ego function concepts in accordance with the twelve functions identified by Bellak and associates (1973), namely: reality testing; judgment; sense of reality of the world and of the self; regulation and

control of drives, affects and impulses; object relations; thought processes; adaptive regression in service of the ego; defensive functioning; stimulus barrier; autonomous functioning; and synthetic-integrative functioning. The general findings with their implication for ego functioning are:

a) The parents of schizophrenics, as a group, manifest more marital conflict and disharmony than parents of controls.

The marital relationships of parents of male schizophrenics are characteristically schismatic and skewed, whereas those of female schizophrenics are typically schismatic. This implies that the parents have difficulty establishing appropriate outlets for the satisfaction of their affectional needs, have a lowered sense of self, experience difficulty managing their feelings and needs, and tend to read into the behavior of their spouses more than what is intended. In terms of the ego functions identified by Bellak and associates (1973), it can be hypothesized from this material that the parents of schizophrenics are deficient in: Reality Testing; Sense of Reality of the World and of the Self; Regulation and control of drives, affects, and Impulses; Object Relations; and Defensive Functioning.

b) The parent-child relationship, in the case of schizophrenics, is more troubled than that of normal children.

In the case of schizophrenics, the mother-child relationship is typically symbiotic, with the mother unable to relate to the needs and changing capacities of the child. On his part, the father, typically, vies with his son for the mother's affection and tries to gain the favor of his daughter. Both the fathers and mothers of schizophrenics need their

children to complete their lives. Thus, the schizophrenic is not encouraged to invest his energies in his own personal development. When viewed from the perspective of the twelve ego functions, the parents manifest deficiencies in: the Sense of Reality of the World and of the Self; Regulation and Control of drives, affects, and impulses; Object Relations; Defensive functioning; and Adaptive Regression in Service of the Ego (on part of the mothers).

c) The parents of schizophrenics manifest more thought and communication disorders than do parents of controls.

Studies indicate that the parents of schizophrenics, when compared to the parents of normals, reveal more thought disorders, conceptual impairments, and communication deviations. The parents of schizophrenics tend to have more attentional (focusing) and closure difficulties, use more peculiar verbalizations, are less efficient in communicating their thoughts and feelings, and are more egocentric, (that is, they experience difficulty perceiving a situation from the perspective of the other person). These deficiencies, it is expected, will be reflected in weakened ego functions such as Thought Processes, Autonomous Functioning, and Reality Testing.

d) The mothers of schizophrenics, when compared to mothers of the controls, tend to be more emotionally disturbed and are less adequate as persons, wives and mothers.

The mothers of schizophrenics have been described as being anxious, protective, intrusive, controlling and withdrawing. As a group they lack the ability to feel themselves into the other person; that is, they are deficient in maternal warmth and empathy. Approximately ten percent of the mothers of schizophrenics are schizophrenic themselves, and nearly 50

percent show a disturbance more severe than simple neurosis. On the basis of these findings, one would expect the mothers of schizophrenics to manifest deficiencies in all of the twelve ego functions delineated by Bellak and associates (1973) because the severity of emotional disturbance has been found to correlate positively with level of ego functioning (Bellak et al., 1973). More specifically, the mothers are expected to manifest deficiencies in these functions: Adaptive Regression in Service of the Ego; Sense of Reality of the World and of the Self; Object Relations; Synthetic-Integrative Functioning; and Regulation and Control of Drives, Affects and Impulses.

e) The fathers of schizophrenics, as a group, manifest more emotional disturbance and personality abnormalities than do the fathers of controls.

Studies indicate that in comparison with the fathers of controls the fathers of schizophrenics are more seriously disturbed, are narcissistic and require the admiration of others - particularly of their wives - to boost their egos, and they manifest feelings of inadequacy regarding their masculinity, their person and their roles as husband and father. They tend to be passive, submissive, weak and ineffectual persons who are unable to counteract the aberrant ways of their wives. In other words, the fathers tend to depreciate themselves, to experience difficulty establishing and maintaining adequate interpersonal relationships with their wives and to children, and overcontrol their drives, affects and impulses. In terms of ego functions, the fathers appear to be deficient in: Object Relations; Sense of Reality of the World and the Self; and in Regulation and Control of Drives, Affects, and Impulses.

f) The siblings of schizophrenics are more seriously disturbed than are the siblings of normals.

Schizophrenia appears in the siblings of schizophrenics approximately eight times more often than in siblings of normals. Moreover, about fifty percent of the siblings of schizophrenics are more seriously disturbed than simple neuroses. When these general findings are presented in terms of ego functions, the siblings of schizophrenics are expected to manifest weaknesses in all of the twelve ego functions delineated by Bellak and associates because psychopathology and ego functioning deficiency are positively related.

Before terminating this section three general comments will be offered regarding the findings from family studies. First, no deficiency or abnormality has been found to be specific to the parents of schizophrenics. Rather, traits which characterize the parents of schizophrenics are also shared by the parents of borderline and neurotic patients. It appears that the severity of thought disorders, conceptual impairments and communication deviations in the parents of patients are positively related to the severity of the psychiatric disorder of the most disturbed offspring.

Secondly, the studies of the past focused mainly on one variable, such as psychopathology, thought disorders and symbiotic relationships and aimed to associate the variable etiologically with schizophrenia. This approach has been unproductive. Perhaps an approach that investigates many variables simultaneously with the goal of identifying clusters, "syndromes" or patterns of deviations and abnormalities will prove more productive in differentiating the parents of schizophrenics from the parents of other psychiatric patients. The literature indicates that the parents of schizophrenics vary greatly. They are not an homogeneous group.

Thirdly, there is a dearth of replications in the family investigations of schizophrenia. In the cases where replications were attempted (Lidz et al., 1963; Hirsch and Leff, 1971; Blakar et al., 1975) procedural changes in the administration of tests, sample and/or scoring renders comparison of the two studies difficult.

This chapter will conclude with a summary and presentation of the general hypotheses.

F. Summary and Basic Hypotheses

The first part of this chapter dealt with the ego, its definition, development, evolution, and functions. The focal point of the discussion was the development of the ego and its functions. It was pointed out that the ego evolves within the context of a mother-child relationship (symbiotic relationship) wherein the mother, the primary object, is attuned to the needs and growing capacities of the child and acts as a catalyst in the ego development of the child. Within the context of this mother-child bonding, the child's ego, understood in terms of its functions, emerges and develops. The second part of the chapter reviewed two complementary psychodynamic theories of schizophrenia. The two theorists - Bellak and Lidz - postulate that schizophrenia is the result of an ego impairment which might be brought about by factors such as mental disturbances in the parents and/or psychopathology within the family. Bellak provided many concepts required for the study of ego functioning, be it in patients or in family settings; whereas Lidz through his family studies indicated the role that parents play in the etiology of schizophrenia. Although Bellak worked primarily with individual patients by investigating their ego capacities and Lidz worked primarily with the families of schizophrenics, both arrived at the same conclusion in

postulating that schizophrenia represents a breakdown of the ego. The third part of the chapter reviewed the family studies of schizophrenia. The findings from these studies provide evidence which supports a psychodynamic interpretation of schizophrenia. The results do not indicate whether family psychopathology is a sufficient cause or a precipitating cause of schizophrenia, but they do point out that there is a relationship between psychopathology within the parents (and within the family) and schizophrenia in the offspring. The family study supports Bellak's and Lidz's position that schizophrenia is related to psychogenic factors.

The family studies of schizophrenia, thus far, have not directly investigated ego capacities or ego functioning among parents of schizophrenics. However, the findings from the family studies of schizophrenics have implications for ego functionings. It is the contention of this study that the use of a technique to assess ego functions is a viable way to study the families of schizophrenics in that it provides data in terms of ego capacities which other studies do not provide, and it also presents a method that can be used to summarize the general findings of family studies.

The major hypotheses of this study, based on psychodynamic theory and on the results from family investigations, are:

1. The families of schizophrenics, as a group, are expected to produce lower ego function scores when compared to families of neurotics.

The implication is that the more severe the psychopathology of the patient the more disturbed are the members of the family and consequently, the lower the ego capacities.

Both Alanen (1966) and Lidz (1973) maintain that the "field" or family background from which schizophrenic patients come differs from that of

neurotic patients and this difference has a bearing on the etiology of the psychopathology specific to each group. Alanen and Lidz postulate that schizophrenia is the result of more serious psychopathology among the parents of schizophrenics than what is observed among the parents of neurotics. Moreover, theorists such as Bellak and Hartmann maintain there is a relationship between the degree of psychopathology and the level of ego functioning with the more disturbed individuals manifesting greater ego deficits. The studies reviewed above provide evidence in support of this hypothesis.

More specifically, the mothers of schizophrenics are expected to obtain lower mean ego function scores, particularly on Adaptive Regression in Service of the Ego (ARISE), when compared to mothers of neurotics. Theorists such as Bellak, Jacobson, Lidz, Mahler and Spitz postulate that the child's ego develops within context of the mother-child relationship. The mother, they maintain, acts as a catalyst to stimulate the neonate's innate equipment. The mother must be endowed with the capacity to emotionally tune into the needs and feelings of the child if she is to act as a catalyst. In terms of ego functions, this implies a capacity for ARISE. The mothers of schizophrenics have been found to be lacking in warmth and empathy towards their children (Alanen, 1966; Lidz et al., 1958).

Secondly, schizophrenic patients are expected to score lower than neurotic patients on a measure of ego functions. This hypothesis is based on the positions taken by Hartmann (1939a, 1939b) and by Bellak and associates (1973) stating that the level of ego functioning is positively related to the degree of psychopathology. These authors, for example, interpret psychopathology in terms of ego deficits and postulate greater

ego deficiencies in schizophrenic patients than in neurotic patients. Schizophrenics are perceived to be at the most severe end of the spectrum of emotional problems whereas neurotics are perceived to be at the milder end of the spectrum. This hypothesis has indirect support from empirical data provided by Alanen (1966), Bellak and associates (1973), and Lidz and co-workers (1958).

Applying the assumption that the level of ego functioning is positively related to the severity of emotional problems to siblings, it is hypothesized that the siblings of schizophrenics will score lower on ego functions than the siblings of neurotics. This is based on Lidz's (1973) position that siblings of schizophrenics are emotionally scarred but less so than the patients themselves as research findings demonstrate (Alanen, 1966; Pollack et al., 1969).

Both theoretical and empirical literature are less clear concerning the expected differences between the fathers of schizophrenics and neurotics.

In brief, the psychiatric status (psychopathology) of the patient is hypothesized as a (independent) variable affecting the level of ego functioning in the members of the families of schizophrenic and neurotic patients.

2. When members of the families are compared to each other the parents are expected to obtain the highest mean ego function scores and the patients the lowest with the siblings scoring between the two groups.

The general hypothesis of environmentalists is that schizophrenia is the extreme degree of the family's general tendency toward developing mental disorders. This position assumes that schizophrenia or neurosis is the consequence of the parent's emotional problem. It assumes further that the

siblings of families, wherein there is psychopathology or a psychiatric disorder in at least one of the offsprings, will reflect the scars of the parents' emotional problems but not to the same degree as that manifested by their more emotionally disturbed sibling. Therefore, based on psychodynamic (family) theory, and the implications of the family studies reviewed above, the siblings are expected to manifest greater ego functioning capacities than the patient.

In brief, family membership is hypothesized to be an independent variable affecting ego functioning patterns among families of schizophrenic and neurotic patients.

3. When the families of schizophrenic and neurotic patients are divided, separately, into two groups using the sex of the patient as a basis, inter-group differences are expected in ego functioning capacities.

This hypothesis is based primarily on the implications of empirical observations rather than on psychodynamic (family) theory. Alanen (1966) and Lidz and co-workers (1958), for example, observed behavioral differences between the fathers of male and female schizophrenics. The fathers of male patients were found to be more passive and docile than the fathers of female patients. Differences were also observed between the mothers of male and female schizophrenic patients. The mothers of male patients were observed to be more dominant and controlling than the mothers of female patients.

Literature concerning differences among siblings of male and female schizophrenics is sparse and unclear. The same is true for the patients themselves.

In conclusion, the sex of the patient is expected to influence the ego function scores, particularly the scores of the fathers and mothers.

In summary, ego functioning patterns among families of schizophrenic and neurotic patients is hypothesized to be related to three independent variables, namely the psychiatric status and sex of the patient, and family membership. The three general research hypotheses will be elaborated into statistical hypotheses at the end of chapter two.

In the following chapter, the sample, the tools and the research design utilized to test the general hypotheses will be presented.

CHAPTER II

RESEARCH DESIGN

This chapter presents the research design of the present study. The chapter begins with a discussion of the sample. The tools used and the method of sampling are then presented. This is followed by a presentation of the interviewing procedures and the scoring of the tape recorded interviews. The chapter concludes with a description of the statistical techniques employed to analyze the data and with a statement of the null hypotheses.

A. The Sample

The sample for the study consists of eight schizophrenic males, eight schizophrenic females, seven neurotic males and eight neurotic females, as well as their respective biological parents and one same-sexed full sibling, all of whom are of the caucasian race and have English as their first language. In all, 124 subjects (31 family units with 4 members each) comprise the sample for this study.

The distribution of the sample according to family membership, psychopathology, and sex of the patient is presented in Table 11. No two patients, males or females, are from the same family.

The neurotic patients and their biological parents and siblings were used as a control to the research group of schizophrenics and their biological parents and siblings. The four patient groups were group-

Table 11
The Distribution of the Combined Sample According to Family Membership
and the Psychopathology and Sex of the Patient

Psychopathology & Sex of Patient	Family Membership				Total
	Patient	Sibling	Father	Mother	
Schizophrenia Male	8	8	8	8	32
Schizophrenia Female	8	8	8	8	32
Neurosis Male	7	7	7	7	28
Neurosis Female	8	8	8	8	32
Total	31	31	31	31	124

matched for age and socioeconomic status (Blishen and McRoberts, 1976) and individually for sex. However, one family with a male neurotic patient was excluded from the study because the interview material was unavailable for two of its members.

The female schizophrenic group was used as the basis for all matching for sex, age and social status because it was assumed that schizophrenic females would be the most difficult to obtain. There are approximately three male schizophrenics for every female schizophrenic. The father's occupation when the patient was sixteen years of age was used to determine the socioeconomic status of all patients. McRoberts states that it has now become conventional to measure the father's occupation at the point in his life when the son was 16 years of age (McRoberts, 1975). He presents two reasons for this convention:

- (i) In most modern societies, 16 is the earliest age at which sons typically begin to leave home and thus father's status at this point represents a good 'status of departure' for the son.
- (ii) Given that in most modern societies the mean length of a generation is between 26 and 27 years, when the son was 16 then the father would have been between 42 to 43 years of age; in short the father would have been at approximately his mid-career point - the point at which his career had stabilized and which would best represent his occupational status (McRoberts, 1975, p. 3).

The specific nature of the two groups (research and control) along with their inclusion will now be presented.

1. The Research Group

Eligible subjects (patients) for the research group were schizophrenic males and schizophrenic females between the ages of 18-30 years as of date of admission to the in-patient or day-care program of the Royal Ottawa Hospital and who were diagnosed as such by a hospital psychiatrist.

As a basis for all of his diagnostic categories, the psychiatrist used the "Research Diagnostic Criteria (Spitzer et al., 1975a) to assess the psychiatric status of all patients. For a subject to be classified as being schizophrenic for this study, he had to meet the criteria for a diagnosis of definite schizophrenia in the judgment of the examining psychiatrist.

Any patient who was hospitalized for six consecutive months during the last two years was excluded from the study because the effects of institutionalization could alter ego functioning. Subjects with a secondary diagnosis of chronic brain syndrome, alcoholism, mental retardation or drug dependence were ruled out as well (e.g., Reid, 1973).

The schizophrenic patients who met the above criteria were considered as potential subjects for the study and were from consecutive admissions to the in-patient and day-care programs of the Royal Ottawa Hospital beginning December 1st, 1976.

A further requirement for eligibility was that both of their biological parents be alive, and that the patient have at least one same-sexed full sibling who was 16 years of age or older at the time of patient's admission. Thus the eligible subjects for the research group comprised the 16 patients (who met the above criteria) their biological parents and one same-sexed full sibling, making a total of 64 subjects.

2. The Control Group

The patients for the control group consisted of seven neurotic males and eight neurotic females between the ages of 18 and 30 years, selected from consecutive admissions to the out-patient program of the Royal Ottawa Hospital beginning December 1st, 1976.

The examining psychiatrist used Spitzer's and associates' criteria (1975a) to assess the psychiatric status of the neurotic patients and their same-sexed siblings. For a patient to be classified as being neurotic (anxiety state, obsessive-compulsive neurosis, hysteria) for this study, he was required to meet the criteria for a diagnosis of definite neurosis in the judgment of the examining psychiatrist.

Subjects with a secondary diagnosis of chronic brain syndrome, alcoholism, mental retardation, drug dependence, homosexuality, or anti-social behavior were excluded from the study. (Patients with a secondary diagnosis of homosexuality or antisocial behavior were excluded because the complex dynamics of these psychiatric categories are assumed, by this author, to be obscuring factors.)

The eligible neurotic patients were further required to have living biological parents and at least one same-sexed full sibling who was 16 years of age or older at the time of the patient's admission for psychological services. Lastly, it was required that none of the patient's siblings was able to meet either in the past or at present the criteria for schizophrenia according to Spitzer and Associates (1975a).

Summary

In summary, the subjects (family units) for the study, and the criteria for their inclusion were:

- 1) Eight schizophrenic males and eight schizophrenic females who:
 - a) were between 18 and 30 years of age at date of admission;
 - b) were from the consecutive admissions to the in-patient or day-care programs of the Royal Ottawa Hospital beginning December 1st, 1976;
 - c) were diagnosed as definite schizophrenic by a psychiatrist using the criteria of Spitzer and associates (1975a);

- d) did not have a secondary diagnosis of chronic brain syndrome, alcoholism, mental retardation, or drug dependence;
 - e) had living biological parents, both of whom were caucasian;
 - f) had at least one same-sexed full sibling 16 years of age or older as of the date of the patient's admission to the study;
 - g) were group-matched for age and socioeconomic status (Blishen and McRoberts, 1976) and individually for sex.
2. Seven neurotic males and eight neurotic females who:
- a) were between 18 and 30 years of age at date of admission;
 - b) were from the consecutive admissions to the out-patient program of the Royal Ottawa Hospital beginning December 1st, 1976;
 - c) were diagnosed as definite neurotic (anxiety state, obsessive-compulsive neurosis, hysteria) by a psychiatrist using the criteria of Spitzer and associates (1975a);
 - d) did not have a secondary diagnosis of chronic brain-syndrome, alcoholism, mental retardation, drug dependence, homosexuality, or anti-social behavior;
 - e) had living biological parents both of whom were caucasian and had English as their first language;
 - f) had at least one same-sexed full sibling 16 years of age or older as of date of patient's admission to the study, and that the patient did not have a sibling that was able to meet at the time of the study, or was able in the past to have met, the criteria for schizophrenia (Spitzer et al., 1975a);
 - g) were group matched with the schizophrenics for age and socioeconomic status (Blishen and McRoberts, 1976) and individually for sex.

3. The biological parents of the neurotic and schizophrenic patients.
4. The patient's same-sexed full sibling who was 16 years of age or older at the time of the patient's admission.

The combined sample, for the present study consisted of 124 subjects, divided evenly for family membership.

It should be pointed out that it would have been preferred that two examining psychiatrists admit the patients to the study and that only those patients for whom there was complete agreement as to the diagnosis be admitted. This, however, was not feasible for all cases and therefore it was decided that the same psychiatrist would examine all patients. This deviation from normal procedures is not considered to have adversely affected the selection of subjects because, first, the examining psychiatrist was experienced in the use of the Research Diagnostic Criteria, and secondly, the Research Diagnostic Criteria has demonstrated high inter-judge reliabilities, a matter to be discussed later.

The tools that were used in this study to assess the psychiatric and social status of the patients and the adaptive level of ego functioning of all subjects will be presented in the following section.

B. The Tools

Four research tools were used in this study: the Manual for Rating Ego Functions from a Clinical Interview (Bellak et al., 1973, p.436-491), an Interview Guide for the Clinical Assessment of Ego Functions (Bellak et al., 1973, p.422-435), Research Diagnostic Criteria (Spitzer et al., 1975a) and Socioeconomic Index (Blisshen et al., 1976).

The principal researcher used the interview guide to obtain information on ego functions while the raters used the rating manual to instruct themselves in the rating of the clinical information, obtained from the interview, in terms of the adaptive level of ego functioning. The diagnostic scale was used to classify and to admit subjects to the study. The socioeconomic status of all patients was determined by the use of Blishen's Socioeconomic Index.

The Manual for Rating Ego Functions from a Clinical Interview and the Interview Guide for the Clinical Assessment of Ego Functions will be discussed at length; whereas the Research Diagnostic Criteria and the Socioeconomic Index, both of which serve a lesser role in this research, will be briefly described. A more complete presentation of the Research Diagnostic Criteria is found in an article by Meier (1979) and a more detailed presentation of the Socioeconomic Index is found in Appendix 1.

1. Manual For Rating Ego Functions From a Clinical Interview (MANUAL)

The technique used by Bellak and his associates to assess ego functions represents one of the many approaches designed during the past three decades to assess ego functions quantitatively (p53-59). Prelinger and colleagues (1964) and Bellak and associates (1973) reviewed some of the earlier approaches. The ego function assessment approaches reviewed by these authors share the following characteristics: first, all approaches interpreted the ego in terms of psychoanalytic theory; secondly, the ego was defined in terms of its functions; thirdly, attempts were made to list the functions of the ego; fourthly, the selected ego functions were operationally defined in terms of rating scales.

The MANUAL, like its predecessors, is based on psychoanalytic theory and includes selected ego functions which are operationally defined in terms of rating scales. The MANUAL is unique in that it provides descriptive criteria on the basis of which material from clinical interviews can be rated as to the adaptive level of twelve ego functions and their component factors. It is specifically designed to be used with the interview guide to be discussed later in this chapter.

The construction of the MANUAL and studies of the validity and reliability of this technique are presented in the following sections.

Construction of The Rating Manual

Bellak and associates constructed the MANUAL for a research project wherein they investigated ego functioning among schizophrenics, neurotics and normals (Hurvich and Bellak, 1968; Bellak and Hurvich, 1969; Bellak et al., 1970, 1973). In this research, and consequently in the construction

of the MANUAL, they were guided by Bellak's "ego psychological multiplefactor conception of schizophrenia" wherein schizophrenia "is seen as a syndrome caused by different etiological factors and pathogenic pathways, all of them sharing as final common manifest paths severe disorders of the ego functions" (Bellak et al., 1973, p.1-2).

In constructing the MANUAL, the authors included as many separate psychoanalytic constructs as they believed were necessary and sufficient to encompass the major currently recognized manifestation of ego functioning. They started with a list of seven ego functions enumerated by Beres (1956) and elaborated by Bellak (1958). Based on further literature search, discussion and rating of clinical material, they revised and expanded the number to twelve (Bellak et al., 1969, p.571-572). These are presented in Table 12. The authors also developed scales for assessing libidinal and aggressive drive manifestations as well as a scale for superego functions.

In developing each of the twelve ego function scales, the authors formulated the component factors which they thought would include the major dimensions of the given ego function. For example, the authors outlined three component factors for the ego function of Reality Testing: Distinction between Inner and Outer Reality; Accuracy of Perception of External Events; and, Accuracy of Perception of Internal Events (Bellak et al., 1973, p. 440). The ego functions with their component factors are presented in Table 12. Bellak and associates define each of the twelve ego functions in terms of their component factors.

From the twelve ego functions and their component factors, Bellak and associates developed operational definitions in the form of a scoring manual to assess information from clinical interview material. The authors

Table 12
Ego Functions and Their Components (Bellak, 1977, p.62)

Ego Function	Components
1. Reality testing	Distinction between inner and outer stimuli Accuracy of perception Reflective awareness and inner reality testing
2. Judgment	Anticipation Manifestation of this anticipation in behavior Emotional appropriateness of this anticipation
3. Sense of reality	Extent of derealization Extent of depersonalization Self-identity and self-esteem Clarity of boundaries between self and world
4. Regulation and control of drives, affects, and impulses	Directness of impulse expression Effectiveness of delay mechanisms
5. Object relations	Degree and kind of relatedness Primitiveness (narcissistic attachment, or symbiotic object choices) Degree to which others are perceived independently of oneself Object constancy
6. Thought processes	Memory, concentration, and attention Ability to conceptualize Primary-secondary process
7. Adaptive regression in the service of the ego	Regressive relaxation of cognitive acuity New configurations
8. Defensive functioning	Weakness or obtrusiveness of defenses Success and failure of defenses
9. Stimulus barrier	Threshold for stimuli Effectiveness of management of excessive stimulus input
10. Autonomous functioning	Degree of freedom from impairment of primary autonomy apparatuses Degree of freedom from impairment of secondary autonomy

Table 12 (cont)

11. Synthetic-integrative	Degree of reconciliation of incongruities Degree of active relating together of events
12. Mastery-competence	Competence (how well the subject actually performs in relation to his existing capacity to interact with, and actively master and affect, his environment) The subjective role (subject's feeling of competence with respect to actively mastering and affecting his environment) The degree of discrepancy between the other two components (i.e., between actual competence and sense of competence)

specified examples of these component factors at the most regressed levels and at the most adaptive levels. Using a combination of clinical experience and developmental guidelines, they dimensionalized seven levels of adequacy for each ego function and its component factors with an undefined intermediate step. At the lower levels, the ego function descriptions include many symptom items because symptoms by definition centrally involve regressive and maladaptive aspects. Scale descriptions at higher levels include more behavior facets and reactions that characterize nonsymptomatic functioning.

After a preliminary manual was constructed, a group of psychoanalytic psychologists and psychiatrists independently rated the same clinical interview material, discussed disagreements in a group setting, revised the manual, and then rated another interview. This process was repeated many times and eventuated in the present version of the MANUAL (Hurvich and Bellak, 1968; Bellak and Hurvich, 1969).

The MANUAL contains descriptive criteria to assess each of the twelve ego functions and their component factors on a seven point continuum numbered from 1 to 7. Each of the numbers from 1 to 7 represents a modal stop. Modal stop 1 represents the most maladaptive manifestation of the function being rated, and modal stop 7 represents the most adaptive. Ego functions can also be rated in terms of "half" points, thereby, in fact, creating a 13-point scale on which to rate ego functions.

To illustrate what the full MANUAL is like, descriptions for scores 1, 5, 9 and 13 from the ego function, Reality Testing, and component: Distinction between Inner and Outer Reality, will be used.

1. Hallucinations and delusions pervade.
Minimal ability to distinguish events occurring in dreams from those occurring in waking life; and between idea, image and hallucinations.

Perceptual experience, especially, is grossly disturbed (e.g. moving things look still and vice versa).

5. Projection of inner states onto external reality is more likely than frank hallucinations or delusions. A stimulus-bound reality testing may occur at the cost of libidinal investments and gratifications.
9. Confusion about inner and outer states occurs mainly upon awakening or going to sleep.
13. Clear awareness of whether events occurred in dreams or waking life.

Correct identification of the source of cognitive and/or perceptual content as being idea or image and accurate identification of its source as internal or external.

Distinction between outer and inner percepts holds up even under extreme stress.

Checking one's perceptions against reality occurs with a very high degree of automaticity. (Bellak et al., 1973, p.440-442):

Each of the twelve ego functions and their component factors can be globally rated as to the lowest, highest, current and characteristic level of functioning. In assessing the lowest level, usually a one-time lapse or regression is not scored. Lowest ordinarily applies to functioning during a reasonable time period (at least two months). Current refers to the adaptive level of ego functioning at the time of the interview. The characteristic level is constituted by the frequency, intensity and pervasiveness of any phenomena rated and is inferred from a subject's current, lowest, and highest levels of functioning.

Validity

Published articles which deal directly with attempts to validate the technique of rating ego functions from interview material by use of the rating scales (MANUAL) are not yet available. However, the study by Bellak and associates (1973, p.286-331), which extended over a five year period, provides important information.

In their study, Bellak and associates investigated the patterns of ego functioning in schizophrenic, neurotic and normal subjects. The major hypothesis of the study was that "individuals diagnosed schizophrenic will manifest poorer ego functioning than neurotics, who in turn will show poorer ego functioning than normals" (Hurvich et Bellak, 1968, p.299). A secondary hypothesis was that "discriminable ego-function patterns would be found to characterize sub-groups within the schizophrenic population and that these patterns would be related to different primary etiologic factors (Hurvich et Bellak, 1968, p.299). The rationale for their hypotheses was Bellak's multiplefactor position which "holds that the schizophrenics constitute the final common pathway for a number of conditions with a variety of etiologic factors which are best characterized at the present time in terms of ego disturbance" (Hurvich et Bellak, 1968, p.299; Bellak, 1949, 1952, 1955, 1958, 1960).

To test their hypotheses, the authors formed three groups - schizophrenics, neurotics and normals - and interviewed each member from the three groups and rated him for characteristic level of ego functioning. The means and standard deviations for the three groups on the ego function scales are presented in Table 13. The levels of significance of differences between groups based on analyses of variance are presented as well.

Table 13
Ego Function Mean Scores, Standard Deviations and Significance of
Difference Between Groups Based on Analyses of Variance from Interview
Material (Bellak et al., 1973, p.308)

Ego Function	Schizophrenic N=50		Neurotic N=25		Normal N=25		F Ratio	P
	Mean	SD	Mean	SD	Mean	SD		
Reality testing	6.76	1.9	8.44	1.6	9.78	1.1	58.	.0001
Judgment	6.30	1.7	7.44	2.1	9.12	1.7	35.	.0001
Sense of reality	5.60	1.7	7.00	1.1	9.40	1.2	88.	.0001
Regulation and control	5.72	1.4	6.68	1.3	8.30	1.3	47.	.0001
Object relations	5.08	1.5	6.76	1.4	8.76	1.4	71.	.0001
Thought processes	6.20	2.0	8.26	1.7	9.78	0.9	41.	.0001
ARISE	6.16	1.9	7.78	1.3	8.32	1.3	26.	.0001
Defensive functioning	4.86	1.4	6.94	1.4	8.66	0.9	123.	.0001
Stimulus barrier	6.70	1.9	7.82	1.5	9.12	1.4	28.	.0001
Autonomous functioning	5.84	2.0	7.68	1.9	9.32	0.9	73.	.0001
Synthetic functioning	5.22	1.9	6.84	1.6	9.28	1.3	76.	.0001
Mean	5.86	1.7	7.42	1.5	9.08	1.2		

The results of their study showed that the f-ratios are all highly significant for the main effects and that all mean differences are in the predicted direction.

With regard to the differences between schizophrenics and neurotics and between neurotics and normals, the Duncan Multiple Range Test showed that all the mean differences between the two pairs of groups were significant beyond the .001 level. Since schizophrenics would generally be expected to show less adaptive functioning than neurotics, and neurotics less than normals, the results of Bellak and associates add a measure of validity to the ego function scales (rating procedure). In the words of the authors, "the results support the interpretation that the rating scales used in assessing interview material are measuring something related to the adaptive level of ego functioning in these groups of subjects under study" (1973, p. 309).

Supporting evidence for the validity of the ego function rating procedure comes from the results of a battery of psychological tests (Thematic Apperception Test, Rorschach, WAIS, Figure Drawings and Bender-Gestalt) that were administered to each member of the Bellak and associates study (1973, p.324-331) and then scored for adaptive level of ego functioning. The means and standard deviations for this study are presented in Table 14. The results show that all differences are in the predicted direction (except for one tie between neurotics and normals on ARISE), and that all the main effects on the analysis of variance are statistically highly significant. In the two-group comparisons, the mean of the schizophrenics for all ego functions together is significantly lower than the mean of the neurotics ($p < .05$, Duncan Multiple Range Test), while

Table 14
Ego Function Mean Scores, Standard Deviations and Significance of
Differences Between Groups, Based on Analyses of Variance from
Psychological Test Material (Bellak et al., 1973, p.328)

Ego Function	Schizophrenics (N=35)		Neurotics (N=25)		Normals (N=25)		F	P
	Mean	SD	Mean	SD	Mean	SD		
Reality testing	6.13	1.36	7.86	1.57	8.04	1.25	15.93	0.001
Judgment	6.23	1.39	7.80	1.53	8.26	1.30	16.07	0.001
Sense of reality	5.00	1.10	6.70	1.19	7.10	1.23	23.27	0.001
Regulation and control	5.86	1.22	6.98	1.54	7.26	1.07	12.05	0.001
Object relations	4.97	.96	6.40	1.27	6.76	1.07	20.83	0.001
Thought processes	5.79	1.38	7.62	1.68	7.88	1.23	16.51	0.001
ARISE	5.40	1.10	7.28	1.44	7.28	1.01	23.22	0.001
Defensive functioning	5.27	1.10	6.80	1.65	7.26	1.09	21.62	0.001
Stimulus barrier	5.50	1.21	6.88	1.37	7.30	1.13	15.27	0.001
Autonomous functioning	5.51	1.20	7.32	1.49	7.76	1.09	25.77	0.001
Synthetic functioning	5.89	1.39	7.62	1.52	7.74	1.22	16.95	0.001
Mean	5.60	1.22	7.21	1.48	7.51	1.15		

the mean of the neurotics is not significantly lower than the mean of normals. With regard to the individual ego function comparisons, all differences between schizophrenic and neurotic subjects were significant beyond the .01 level, but none of the differences between neurotics and normals was significant. The authors state that "psychological test raters were thus able to differentiate between schizophrenic and neurotic subjects but not between neurotics and normals" (Bellak et al., 1973, p.329).

The discrepancy between the results from the psychological tests and from the clinical interview material lies in the fact that the material from the psychological tests was assessed for the current adaptive level of ego functioning, while the material from clinical interviews was assessed for the characteristic adaptive level of ego functioning.

Inter-rater Reliability

Bellak and associates reported inter-rater reliability for the MANUAL based on data collected from interview material (Bellak et al., 1973, p.302,325). The interrater reliabilities are presented in Table 15.

Based on the one-hundred cases used in their study (50 schizophrenics, 25 neurotics and 25 normals), the authors obtained a mean product-moment correlation of .77 with a range of .61 to .88 for the eleven ego functions. The ego function of mastery-competence was excluded from the analysis because there was a lack of sufficient interview material to rate it. When inter-rater reliabilities are taken separately for the three groups - schizophrenics, neurotics and normals - the mean product-moment correlations; corrected by the Spearman-Brown formula, are, respectively, .60, .39, and .33 and their ranges are, respectively, .33-.84, .10-.72 and .04-.58. The authors attributed the lower correlations for the neurotic

Table 15
 Inter-rater Reliabilities for Ego Functioning Rating* by Groups.
 (Bellak et al., 1973, p.302-303)

Group	Schizophrenics (N=50)	Neurotics (N=25)	Normals (N=25)	Combined Sample (N=100)
Reality testing	.84	.31	.28	.85
Judgment	.40	.63	.58	.71
Sense of reality	.55	.47	.04	.80
Regulation and control	.64	.43	.26	.73
Object relations	.58	.45	.76	.83
Thought processes	.71	.53	.15	.80
ARISE	.70	.11	.08	.68
Defensive functioning	.33	.35	.41	.81
Stimulus barrier	.45	.10	.53	.61
Autonomous functioning	.73	.72	.21	.88
Synthetic functioning	.63	.21	.32	.80
Mean	.60	.39	.33	.77
Range	.33-.84	.10-.72	.04-.58	.61-.88

* Insufficient data on Mastery-Competence were available for inclusion in this analysis.

and normal groups to the small numbers in these two groups.

The authors used a second method to assess the degree of inter-rater agreement obtained in the three groups. They calculated the extent of disagreement among raters in scale points (Bellak et al., 1973, p.303-304). That is, if rater 1 gave a subject a score of 6 on Reality Testing, and rater 2 gave the same subject a score of 5, the degree of disagreement was 1 scale point. The results of these calculations are presented in Table 16. The mean disagreements for the three groups - schizophrenics, neurotics and normals - were, respectively, 1.41, 1.61 and 1.29.

The authors converted the results of this analysis into percentages. These data are presented in Table 17. Bellak and associates obtained for all groups combined a total agreement between the two judges on 24 percent of the ratings; 60 percent were within 1 scale point; 84 percent were within 2 scale points; and 94 percent within 3. The authors interpreted these results as reflecting a substantial degree of agreement among the raters of all three groups - more than is suggested by the reliability coefficients.

As a concluding remark on the inter-rater reliability studies of the MANUAL, the authors state, "that raters trained in the use of the rating manual can substantially agree on the adaptive level of the various ego functions even when the subjects are from a relatively restricted group" (Bellak, 1973, p.306).

Intercorrelations Among Ego Functions

The only data available concerning the intercorrelations among ego functions is that reported by Bellak and associates (1973, p.313-314). These data are presented in Table 18. The mean of intercorrelations for

Table 16
 Mean Disagreements Among Raters for Each Ego Function by Group
 (Bellak et al., 1973, p.303)

	Schizophrenics	Neurotics	Normals
Reality testing	1.38	1.83	1.32
Judgment	1.48	1.67	1.54
Sense of reality	1.44	1.21	1.54
Regulation and control	1.22	1.39	1.32
Object relations	1.36	1.54	1.07
Thought processes	1.36	1.46	1.14
ARISE	1.56	1.88	1.39
Defensive functioning	1.13	1.42	1.14
Stimulus barrier	1.64	1.92	1.21
Autonomous functioning	1.47	1.38	1.04
Syntnetic functioning	1.51	1.96	1.43
Mean	1.41	1.61	1.29

Table 17
Extent of Agreement (Percentages) Among Raters by Groups
on a 13-Point Scale (Bellak et al., 1973, p.304)

Extent of Agreement in Scale Points	<u>Schizophrenics</u>		<u>Neurotics</u>		<u>Normals</u>		<u>Total</u>	
	<u>%</u> Agree.	Cum.	<u>%</u> Agree.	Cum.	<u>%</u> Agree.	Cum.	<u>%</u> Agree.	Cum.
0	24	24	21	21	27	27	24	24
1	36	60	30	51	39	66	36	60
2	23	83	31	82	21	87	24	84
3	11	94	11	93	8	95	10	94
4	4	98	5	98	4	99	4	98
5	1	99	1	99	1	100	1	99
6	1	100						

Legend: Agree. means agreement
Cum. means cumulative

Table 18
Correlation* Between Ego Functions** for
Three Groups Based on Combined Ratings

Ego Function Compared	Schizo N=50	Neurotic N=25	Normal n=25	Ego Function Compared	Schizo N=50	Neurotic n=25	Normal N=25
RT+JU	.63	.84	.59	SR+AR	.39	.58	.15
RT+SR	.55	.62	.68	SR+DF	.52	.77	.61
RT+RC	.18	.53	.47	SR+SB	.40	.39	.53
RT+OR	.32	.55	.47	SR+AF	.53	a	.48
RT+TP	.59	.66	.62	SR+ST	.54	.69	.57
RT+AR	.30	.63	.07	RC+DR	.48	.53	.77
FT+DF	.60	.62	.66	RC+TP	.27	.23	.34
RT+SB	.31	.34	.58	RC+AR	.00	.44	.32
RT+AF	.50	.55	.36	RC+DF	.12	.40	.67
RT+ST	.52	.56	.40	RC+SB	.30	a	.68
JU+SR	a	.53	.73	RC+AF	.06	.33	.58
JU+RC	.57	.61	.61	RC+ST	.27	.45	.69
JU+OR	.41	.51	.64	OR+TP	.59	.55	.41
JU+TP	.52	.51	.27	OR+AR	.41	.65	.19
JU+AR	.06	.46	.04	OR+DF	.58	.61	.74
JU+DF	.47	.57	.52	OR+SB	.41	.40	.65
JU+SB	.31	.37	.48	OR+AF	.60	a	.48
JU+AF	.35	.61	.46	OR+ST	c	.76	.55
JU+ST	.55	.57	.54	AR+AF	.51	.50	.22
TP+AR	.62	.61	.24	AR+ST	.33	.71	.22
TP+DF	.66	.71	.65	DF+SB	.31	.70	.64
TP+SB	.46	.53	.47	DF+AF	.65	a	.40
TP+AF	.54	.67	.17	DF+ST	.72	.83	.66
TP+ST	.49	.74	.30	SB+AF	.54	a	.70
AR+DF	.49	.78	.22	SB+ST	.30	.52	.62
AR+SB	.39	.54	.11	AF+ST	.74	.77	.78
SR+RC	.24	.38	.62				
SR+DR	.54	.56	.62	Mean	.44	.57	.48
SR+TP	.60	.60	.19	Range	.00-.74	.23-.84	.04-.78

* Levels of Significance:

When N=25: $r=.38$ ($p<.05$); $r=.48$ ($p<.01$)

When N=50: $r=.27$ ($p<.05$); $r=.35$ ($p<.01$)

** (RT) Reality Testing; (JU) Judgment; (SR) Sense of Reality; (RC) Regulation and Control of Drive; (OR) Object Relations; (TP) Thought Processes; (AR) ARISE; (DF) Defensive Functioning; (SB) Stimulus Barrier; (AF) Autonomous Functioning; (ST) Synthetic Functioning.

a Data not available.

the schizophrenic, neurotic and normal groups, respectively, are: .44, .57 and .48 (and not .46, .61 and .52 as reported by Bellak, 1973, p.313-314), while the ranges for the three groups are, respectively, .00-.74, .23-.84, and .04-.78. The neurotic group has the highest mean intercorrelations and the smallest range of intercorrelations. The intercorrelations, in general, are modest in their magnitude.

Forty-seven of the 53 intercorrelations for the schizophrenic group are significant at the .05 level. For the neurotic and the normal groups, the proportions are, respectively, 47 out of 52, and 39 out of 55.

The mean correlations for each ego function with all others excluding that function are presented in Table 19. Once again, the intercorrelations for the neurotic groups, in general, are higher than those for the other two groups. ✓

In order to study the intercorrelation of scales from another point of view, the authors performed a principal-components factor analysis with varimax rotation on the matrix of intercorrelations. The matrix comprised the intercorrelations for one rater for the 11 ego function scores obtained from the schizophrenic group. The authors selected the ratings of the schizophrenic group because it contained 50 subjects (there were only 25 in each of the other two groups) and because the schizophrenic subjects showed the most variability between functions. Only the scores of one rater were selected for factor analysis because they showed the least intercorrelation, and presumably, the least halo and response effects. The factors extracted in this analysis, along with their labels and factor loadings are presented in Table 20. In all, five factors were extracted. One of the ego scales, Stimulus Barrier, was not a common factor, but a specific one,

Table 19
 Mean Correlation of Each Ego Function With all Others
 (Excluding that Function) (Bellak et al., 1973, p.315)

	Schizophrenic N=50		Neurotic N=25	Normal N=25
	Combined Data	Rater 1 Alone		
Reality testing	.45	.24	.66	.44
Judgment	.44	.23	.59	.47
Sense of reality	.49	.22	.61	.47
Regulation and control	.25	.10	.44	.52
Object relations	.49	.23	.60	.50
Thought processes	.53	.29	.69	.33
ARISE	.35	.19	.67	.15
Defensive functioning	.51	.32	.74	.52
Stimulus barrier	.37	.18	.51	.49
Autonomous functioning	.50	.32	.66	.42
Synthetic functioning	.50	.25	.81	.41
Mean	.44	.23	.63	.43
Range	.25-.51	.10-.32	.44-.81	.15-.52

Table 20
 Factor Analysis of Scores of 50 Schizophrenics
 (Bellak et al., 1973, p.315)

Factor	Factor Label	Factor Loading
I Synthetic functioning		.749
Autonomous functioning	Integrative capacity	.625
Defensive functioning		.431
II Judgment		.709
Sense of reality	Reality orientation	.582
Reality testing		a
III. Regulation and control		.696
Object relations	Socialization	.575
IV Thought process		.611
ARISE	Adaptive thinking	.603
V Stimulus barrier	--	.457

^aData not available.

and is considered as the fifth factor.

The results of the factor analysis indicates that there is a high degree of intercorrelation among some scales, and a low degree of intercorrelation among others. In brief, the data suggest that the twelve ego functions could be reduced to five factors.

These results, however, must be interpreted cautiously because the factor analysis was based on 11 scores from 50 cases. Secondly, the 50 schizophrenic subjects cannot be assumed to constitute a random sample of persons diagnosed as schizophrenic. One clear indication of this is that none of the schizophrenics in their study was diagnosed as catatonic or hebephrenic.

Discussion

Bellak's and his associates' technique of assessing ego functions from a clinical interview represents a significant contribution, not only in the field of clinical psychiatry but also in the area of clinical research. Psychodynamically oriented approaches in the study of personality have consistently been handicapped by the vagueness of psychodynamic concepts and by the absence of operational definitions. The MANUAL, by providing operational definitions for twelve functions of the ego and for several functions of the id and superego, offers a tool for the psychodynamic study of both normal and abnormal personality.

The MANUAL has demonstrated that it is a relatively valid and reliable research tool whose scales are moderately interrelated. Despite the merits of this tool, it is not without its limitations.

One of the limitations of the MANUAL is that it has been validated using only a small number of schizophrenic, neurotic and normal adult

subjects which were not group matched for sex or for intelligence. Additional studies which either replicate Bellak and associates' study, or which use other psychiatric groups, are required to assess further the validity properties of the MANUAL. Better controls in terms of age, sex, pathology, intelligence and social status will be required to assess their effect on ego functioning.

A second limitation concerns inter-judge reliability. Although the majority of the coefficient correlations were moderate in magnitude, two of the ego functions presented difficulties to the raters. These were ARISE and Sense of Reality. In the case of ARISE, difficulties arose when neurotic ($r=.11$) and normal ($r=.08$) subjects were rated, but not when schizophrenic ($r=.70$) subjects were rated. As for the ego function, Sense of Reality, raters experienced difficulty only with the normal group ($r=.04$). It is possible that the operational criteria to assess these two functions are not as clearly defined as they are for the other ten ego functions, and that interview material is more difficult to obtain to rate the two ego functions.

Another limitation concerns the interpretation of some of the individual ego function scores, particularly low scores. For example, a subject may receive a scale score of 3 on Object Relations. The low score merely indicates inadequate interpersonal skills without defining the nature of the inadequacy. A person may receive a score of 3 either because he tends to keep a distance between himself and others, or because he tends to cling to others. A similar problem concerns Defensive Functioning and Regulation and Control of Drives, both of which can receive a low rating for one of two reasons - overcontrol or undercontrol. Bellak's and

associates' technique of assessing ego functions is valuable for a global evaluation but needs to be supplemented with other psychological tests when more precise information is required.

The assessment of inter-judge reliability in terms of interrater agreement represents a useful technique. Tinsley and Weiss distinguish between inter-rater agreement and inter-rater reliability (1975). They define inter-rater agreement as representing "the extent to which the different judges tend to make exactly the same judgments about the same rated subject" (1975, p.359), while they define inter-rater reliability as representing "the degree to which the ratings of different judges are proportional when expressed as deviations from their means" (p.359). Bellak and associates report the percentage of agreement within given scale points. The authors could have reported the significance of the percentages of agreement by applying the Lawlis-Lu non-parametric chi square as suggested by Tinsley and Weiss (1975). This would have enabled them to report not only the level of significance of inter-rater agreement but also the degree of agreement which is expressed in terms of a T-value.

A fifth reservation concerns the inter-correlation of scales. The authors performed a principal-components factor analysis with varimax rotation on the matrix of inter-correlations obtained from the ego function ratings of one judge for the schizophrenic group. They extracted five factors which suggest that there are five relatively separate and distinct ego functions. However, this might not be so. A cursory glance at the coefficient correlations for the normal group indicates that all scales except ARISE are inter-correlated thus creating a two factor scale. The findings by Bellak and his associates do not resolve the issue concerning

the interdependence of the 12 ego function scales. Future research will have to address itself to this issue.

Another limitation of the Bellak and associates technique of ego function assessment is that it is difficult and time consuming to use. The MANUAL requires sustained use in order to master its technique of interviewing and scoring.

Despite the limitations of the MANUAL, it remains a valuable addition to the clinical and research tools available for the psychodynamic study of personality. Bellak's and associates' technique for the assessment of ego functions has clinical implications for diagnosis, prognosis and treatment, and their MANUAL provides criteria indispensable for the psychodynamic investigation of behavioral phenomena.

2. An Interview Guide for The Clinical Assessment of Ego Functions (GUIDE)

The GUIDE and the MANUAL, designed by Bellak and associates, comprise the two tools used to assess ego functions. A description of the GUIDE, its construction, use and limitations are described in this section.

a) Purpose and Description of the GUIDE

The GUIDE is designed to help the interviewer construct his clinical interview to obtain information on each of the twelve ego functions and their component factors which would be ratable according to their corresponding rating scales (Bellak et al., 1973, p.291). While ratable information could be obtained from any intake interview, the authors believe that the latter would probably not provide adequate information to rate all ego functions.

The GUIDE consists of sets of specific questions which are keyed to its corresponding ego function as put forth in the MANUAL. The questions

for the twelve ego functions vary in number from five for Mastery and Competence to twenty-two for Object Relations. The questions are usually very specific, as is illustrated by three of the questions taken from the ego function, Reality Testing:

- 1) Do you ever have trouble deciding whether something really happened or if it was a dream?
- 2) Have you ever wondered if a thing only happened in your mind?
- 3) Have you ever been surprised to find that what you thought was going on really wasn't?

b) Construction of The Interview Guide

The interview guide was constructed on the basis of the descriptive criteria contained in the GUIDE. The sets of questions in the GUIDE were formulated with the purpose of eliciting information which would reflect the seven levels of each of the twelve ego functions and their component factors. The clinical experiences and the theoretical assumptions of the authors served as a rationale in the construction of both the manual and the interview guide.

The present form of the interview guide is a revision of the original one used by the authors in their study (Bellak et al., 1973, p.292). The two interview guides, however, bear a substantial resemblance.

c) The User of the Interview Guide and Instructions For Its Use

In the original study, the GUIDE was used by psychoanalysts, psychoanalytically oriented psychotherapists and several trained graduate students (Bellak et al., 1973, p.294). Interviewer training consisted of thorough familiarizations with all ego function definitions and all scales in the MANUAL so that the interviewer would know what questions in the

guide were most relevant to what ego function and just how much information was required to rate a function adequately. Prior to the research proper, the interviewers conducted practice interviews which were then evaluated with the objective of sharpening information for the rating of ego functions.

The interviewers were instructed to obtain information to help determine the status of ego function deficits and strengths at critical phases in the life cycle (infancy, childhood, adolescence, adulthood, old age) and in response to stress and trauma (Bellak et al., 1973, p.291). When the interview guide did not explicitly direct the interviewer to obtain such information, the interviewers were instructed to "attempt to discover: (a) when the person began to have trouble with respect to the function, and what level of development was reached prior to illness; (b) to what extent the difficulties interfered with adaptations; (c) how long the interference lasts; (d) how often it tended to recur; and (e) how easily the person recovered after a disturbance" (Bellak et al., 1973, p.423-424). The clinical interview, then, can be said to be structured to the extent that it contains sets of specific questions each set keyed to its corresponding ego function. It is also unstructured in the sense that flexibility and ingenuity are also required of the interviewer who must be able to recognize and follow up a patient's responses in order to maximize ratable material. The interviewer's discretion dictates what questions will best elicit information about current, characteristic, highest and lowest levels of functioning (Bellak et al., 1973, p.291).

d) Sources of Unreliability

Bellak and associates (1973, p.292-293) pointed out three important

sources of unreliability that could affect the meaning and usefulness of the clinical interview as a modality to obtain information for the assessment of ego functions. These sources are: (a) the conscious attempt to distort information on the part of patients who suspected that their release from hospital would be influenced by what was said. When this source of distortion was not present, aspects of character style, such as paranoid thinking, could influence the quantity and quality of ratable verbal material; (b) the patients' varied ability for accurate introspective reporting; and (c) the acuteness of psychopathological manifestations on the reliability and validity of ego function ratings.

Bellak and his associates were not able to overcome completely the first two sources of unreliability; however, they were able to minimize the third source of unreliability by having the raters assess highest, lowest, characteristic and current levels of functioning. This suggestion was prompted by the raters' difficulty in characterizing subjects with respect to adaptiveness of ego functioning when only one rating, based solely on functioning at a given point in time, was called for. By the use of the four ratings a more accurate picture of the adaptive levels of functioning was permitted.

In summary, the interview guide, designed to aid the interviewer in gathering ratable material for the assessment of ego functions, consists of sets of questions keyed to each of the twelve ego functions. On the basis of the information elicited by these questions, each of the twelve ego functions and their component factors can be rated as to the adaptive level of functioning. The interview can be adapted to any interviewer's or

subject's style and to the nature of the material at hand.

3. The Research Diagnostic Criteria (RDC)

The RDC designed by Spitzer and associates (1975a, 1977) contains specified inclusion and exclusion criteria for twenty-five psychiatric categories. These categories are listed in Table 21.

The specific criteria for each of the diagnostic categories refer to either symptoms, duration or course of illness, or to level of severity of impairment (Spitzer et al., 1975a, p.1). For example, a patient is diagnosed as being definitely schizophrenic if the following three conditions (which represent specific inclusion and exclusion criteria) are met: Condition One: two of the following are present: thought broadcasting; delusions of control; delusions other than persecutory or jealousy last at least one week; delusions of any type accompanied by hallucinations of any type for at least one week; auditory hallucination; non-affective verbal hallucination; definite instances of formal thought disorder; obvious catatonic motor behavior; Condition Two: the patient's illness lasted at least two weeks; and Condition Three: the patient did not meet the criteria for manic or depressive syndrome during the active period of his illness.

The source of data for making diagnostic judgments will usually be a direct examination of the subject. In examining the subject, the diagnostician may use a focused clinical interview, or a structured interview guide and rating scale, such as the "Schedule for Affective Disorders and Schizophrenia" which is designed specifically for eliciting information relevant to these categories (Spitzer et al., 1975a). The clinician's task is to determine the presence or absence of the specific

Table 21
A List of the 25 Spitzer Diagnostic Categories for Which
Specified Criteria Have Been Developed*

1. Schizophrenia	14. Labile Personality
2. Schizo-Affective Disorder: Manic Type	15. Briquet's Disorder
3. Schizo-Affective Disorder: Depressive Type	16. Antisocial Personality
4. Manic Disorder	17. Alcoholism
5. Hypomanic Disorder	18. Drug Abuse
6. Bipolar with Mania: (Bipolar I)	19. Obsessive Compulsive Personality
7. Bipolar with Hypomania: (Bipolar II)	20. Phobic Disorder
8. Major Depressive Disorder	21. Unspecified Psychiatric Disorder
9. Episodic Minor Depressive Disorder	22. Other Psychiatric Disorder
10. Chronic & Intermittent Minor Depressive Disorder	23. Borderline Features
11. Panic Disorder	24. Currently not Mentally Ill
12. Generalized Anxiety Disorder	25. Never Mentally Ill
13. Cyclothymic Personality	

*Adapted from, Robert L. Spitzer, et al., Research Diagnostic Criteria, New York, New York State Psychiatric Institute, Biometrics Research, 1975a, p.1-34.

clinical phenomena and then apply the comprehensive rules provided for making diagnoses.

There is only one published study which investigated the validity of the RDC (Spitzer et al., 1975b). In this study the authors compared the kappa coefficients obtained by pairs of raters using the RDC to those of raters using either the RDC or the Diagnostic and Statistical Manual of Mental Disorders Second Edition (DSM-II). In all cases the kappa coefficients for the pairs of raters using the RDC were higher than those obtained by pairs of raters where one used the RDC and the other used the DSM-II. The authors interpreted these results as evidence supporting the congruent validity of the RDC. The findings of this study, however, are disputable because the raters using the RDC were in general more experienced and skilful than the raters using the DSM-II.

Despite the absence of RDC validation studies, there are reported studies which used criteria similar to those of the RDC which lend support to its validity. These studies employed, primarily, family and follow-up studies (Feighner et al., 1972). In one of the follow-up studies, diagnoses made at two different points in time, eighteen months apart, were compared. The clinician correctly predicted ninety-three percent of the diagnoses at follow-up. In a second follow-up study, where the time lapse between the two diagnoses was seven years, the diagnostician predicted correctly ninety-two percent of the diagnoses at follow-up. These results argue in favor of the predictive validity of the RDC, which is an extension and elaboration of the original criteria used by the Feighner group.

The reliability of the RDC has been extensively researched by Spitzer and associates. In their investigations, the authors used three different

designs; comparative, inter-rater and test-retest studies. In the comparative study, five raters evaluated the case records of a group of 120 psychiatric inpatients (Spitzer et al., 1975b). Inter-rater agreements were expressed in terms of kappa coefficients. The authors found that the kappa coefficients of the raters using the RDC were consistently higher than those using the DSM-II.

In the first of the inter-rater studies, pairs of clinicians interviewed sixty-eight newly admitted inpatients at the New York State Psychiatric Institute (Spitzer et al., 1975a, 1977). One clinician conducted a diagnostic interview and both made independent diagnoses using an early draft of the RDC. In general, the kappa coefficients reported in the study are very high and range from .75 for Schizophrenia to .97 for Major Depressive Disorders.

The second inter-rater study basically followed the same procedures as the preceding study. For this study, pairs of clinicians interviewed 150 newly admitted in-patients using a structured interview, the Schedule for Affective Disorders and Schizophrenia (SADS) (Spitzer et al., 1977). The kappa coefficients range from .68 for Minor Depressive Disorder to 1.00 for Obsessive Compulsive Disorder and Drug Abuse.

In the test-retest studies, patients were re-interviewed within one or two days. In this study, clinicians used the SADS for all interviews and the Second Edition of the RDC to make their independent ratings. In general the kappa coefficients of the test-retest study are somewhat lower than those of the preceding studies and range from .40 for Bipolar I to 1.00 for Alcoholism. The majority of the kappa coefficients lie between .70 to .85 (Spitzer et al., 1977).

The results of these studies indicate that the reliability of the RDC categories is very high even under the condition of test-retest when a lower reliability is expected because the two interviewers are likely to have slightly different case material on the basis of which to make their diagnoses. Spitzer and associates, in summarizing the results of their recent studies, state that "with only a few exceptions, the reliabilities reported here are higher than have been reported in other research studies" (Spitzer et al., 1974a, Helzer et al., 1977b).

In conclusion, it can be stated that the reliability of the RDC has been well established, but more studies are required to assess its validity. Despite its limitations, the RDC remains one of the best tools available to the researcher who wishes to admit a homogeneous group of psychiatric patients to his study.

4. The Socioeconomic Index

The two Canadian scales most commonly used to determine the social standing of an occupation are the Pineo-Porter and the Socioeconomic Index (SEI). The SEI was developed by Blishen in 1958 and revised and updated in 1967 and in 1976. The SEI differs from the Pineo-Porter (Pineo and Porter, 1967) in that the former employs an income, educational and prestige variable to determine the social standing of an occupation, whereas the latter ranks occupations only on the basis of a social prestige variable.

Rationale

The rationale underlying the construction of the SEI rests on Davis' (1949) and Parsons' (1954) theoretical positions regarding social stratification.

Davis assumes that every society has a system of positions, some of which are more important to the society than others, through this system the society's activities are carried out. People must be motivated by a system of rewards which may be economic, aesthetic, or symbolic, to fill these positions and to undertake the activities pertaining to them. Those positions which have the greatest amount of training and talent are given the greatest rewards. Each society has such a system of rewards and it is this which gives rise to a system of stratification.

Parsons, on the other hand, thinks that in any society all human activity is evaluated according to a common set of values, but not everyone concerned will necessarily evaluate the action according to the same set of values. The social system evaluates and rewards the activities of each member in terms of its contribution to the effective functioning of the system. It also ranks individuals relative to one another.

Davis, as can be seen, emphasized the rational aspect of stratification, while Parsons stressed the evaluational aspect. Davis and Parsons point to two dimensions, - differentiation and evaluation - as being crucial to an understanding of social class. Stratification is seen as a result of the interaction of these two variables which, Blisshen, states, must be congruent with each other so that functionally important roles are evaluated highly.

The theoretical positions of Davis and Parsons are given support by Inkeles' and Rossi's (1956) empirical findings wherein they were able to show that a number of Western industrial societies evaluated similarly the occupational roles which are important to the functioning of such societies.

Based on the theorizing of Davis and Parsons and on the empirical data of Inkeles and Rossi, Blishen postulated three important variables in determining the social standing of an occupation. These are the education and training required for a job (educational variable), the rewards attached to the position (income variable) and the social prestige associated with the occupation (prestige variable). On the basis of these three variables, Blishen attempted to construct a scale to determine the social standing of an occupation.

Construction of the S.E.I.

In constructing the original socioeconomic index, Blishen utilized only an educational and income variable to determine the social status of occupations. To achieve his goal, Blishen obtained data on education and income characteristics of incumbents of those occupations listed in the 1951 Canadian census. He then calculated a mean score and standard deviation for the income and educational variables for each occupation. Standard scores were then computed for the two variables for each occupation. The two standard scores were then combined to form one score, referred to as a socioeconomic score. Using this procedure, Blishen assigned a socioeconomic score to 343 occupations and ranked them according to the decreasing absolute value of the composite score. This formed Blishen's first Socioeconomic Index.

Blishen revised the SEI in 1967 using the 1961 census data and again in 1976 using the 1971 census data. The revised SEIs differed from the original SEI in two ways. First, in the revised SEIs, Blishen utilized three variables - namely an income, educational and prestige variable - and secondly, Blishen employed a new technique to determine the income and

educational variables.

The construction of the revised SEIs involved the following three steps: selection of occupations to be scaled; determining the income, educational and prestige variables of the occupations; and lastly defining class intervals of the scaled occupations. Since the construction procedures for the two revised SEIs are similar, the remainder of this section will address itself to the 1976 edition of the SEI.

The 1976 scale is based on the occupations of the male labour force population who worked in 1970 and for whom "occupation refers to the job held in the week preceding the 1971 census enumeration or the job of the longest duration since 1 January 1970 if they were not employed that week" (Blishen et al., 1976, p.71). The authors included only occupations characteristic of males in the labour force "on the assumption that the family's social status is dependent upon the occupation of the husband rather than the wife when both are working" (Blishen, 1967, p.42).

The second step in the construction of the index was the computation of the income, educational and prestige variables. The income variable is based on employment income obtained from the total enumeration of the labour force. Employment income refers to "the total of income received in 1970 as wages and salaries, net income from business or professional practice and/or net farm income" (Statistics Canada, 1972, p.12). In the socioeconomic index, the income level is "expressed as the percentage of males who worked in an occupation in 1970 and whose 1970 employment income was \$6500 or over" (Blishen, et al., 1976, p.71).

In defining the educational variable, the authors took into consideration provincial differences that existed in elementary and

secondary schooling. The educational variable is expressed as the percentage of males who worked in an occupation in 1970 and who had attended at least grade twelve if the province of schooling was Prince Edward Island, New Brunswick, Ontario, British Columbia, Yukon, or outside Canada, or who had attended at least grade eleven if their schooling had been undertaken in any of the remaining provinces (Blishen, et al., 1976, p.70). The authors also incorporated a prestige variable by assigning approximations of the Pineo-Porter prestige scores for eighty-five occupations which corresponded to those used in the 1971 census occupational classification (Blishen, et al., 1976, p.72-73). This method "consists simply in constructing a regression equation which has as the dependent variable the Pineo-Porter scores for the...(85)...occupations which overlap the census list, and has as the independent variables the corresponding income level and educational level indices. The regression weights so determined are then applied to all census occupations" (Blishen, 1967, p.42). In the 1976 revision, the unstandardized regression weights resulting from the regression analysis were .3047 for income and .3677 for education. The intercept was 12.260. The regression weights were then applied to each of the approximately 480 occupational titles in the manual (Statistics Canada, 1971, Vol.II).

The results from the regression using eighty-five Pineo-Porter occupational titles produced a socioeconomic score for each of 480 occupational titles in the manual. Blishen lists the approximately 480 occupational titles, with their socioeconomic score and rank order, in an alphabetical order (Blishen, et al., 1976, Table I).

The final stage in the construction of the scale was the determination of class intervals. The authors applied the method devised by Blishen in the construction of the 1967 scale (Blishen, 1967, p.52). The method is based upon the use of ten digits of the individual index values. Applying this to the 1976 scale results in six classes presented in Table 22. As is indicated by the table, class one comprises occupations which have a socioeconomic score of 70 or more, whereas class six is assigned to occupations having a socioeconomic score below 30. Classes two to five fall between the two extremes.

Validity Studies

Two validity studies reported the rank correlations obtained when various versions of the Socioeconomic Index were compared to a scale designed to measure the prestige of an occupation.

In one study, Blishen compared 18 categories from his 1958 SEI to similar categories in Tuckman's 25-item questionnaire (1947) and obtained a rank correlation of .91. Since Tuckman's occupational scale is considered to be a measure of social prestige, Blishen inferred that his scale was able to measure the prestige aspect of an occupation.

In a second study, Blishen compared the Pineo-Porter scores to the income and educational level scores for 88 matching occupations in the 1967 scale and obtained a coefficient of multiple correlation of .919 (Blishen, 1967, p.50-51). He interpreted the data as supporting the validity of the SEI.

Stability Studies

Only one study has been reported regarding the stability of the SEI. In this study, Blishen compared the 1967 scale to the 1958 scale and obtained a coefficient correlate of .96 (Blishen, 1967, p.50). The author

Table 22
Socioeconomic Classes Based on Ten Digits of the
Individual Index Values

Socioeconomic Score	Class
70.00 plus	One
60.00 - 69.99	Two
50.00 - 59.99	Three
40.00 - 49.99	Four
30.00 - 39.99	Five
Below 30	Six

contends that this indicates both stability in the structure over time and similarity in results despite variations in procedure.

Summary

In summary, the Socioeconomic Index appears to be a highly valid and stable tool. The rationale underlying its construction is well founded in theories of social stratification and on empirical studies. That the SEI provides scores for nearly all of the occupations listed in the census titles and that it provides a system whereby occupations are grouped into social classes are capabilities which render the SEI flexible for use in various types of research. The SEI, however, is not without its limitations. To mention only one of these, occupations which have a low salary but high social prestige, such as church ministers, are incorrectly placed when using the SEI. Despite limitations like the above, the SEI is a very useful tool for a researcher who wishes to match subjects for social class.

C. Experimental Method

This section discusses the experimental method employed in the present study. The topics discussed include the following: the selection of subjects, conducting clinical interviews, rating adaptive level of ego functions from clinical interviews, formation of testing groups, and the computation of scores from independent ego function ratings.

1. Selection of Subjects

Beginning December 1, 1976, a hospital psychiatrist selected the subjects for the present study from the out-patient, in-patient and day-care programs at the Royal Ottawa Hospital. The principal researcher did not take part in the actual selection of the subjects for this study.

A psychiatrist interviewed all 18 to 30-year-old males and females having an initial hospital diagnosis of schizophrenia and who were admitted to the in-patient and day-care programs at the Royal Ottawa Hospital, as well as all neurotic males and females between the ages of 18 to 30 years admitted to the out-patient program at the Royal Ottawa Hospital, beginning December 1, 1976. Those schizophrenic patients who, according to the judgment of the psychiatrist, met the criteria for definite schizophrenia (Spitzer et al., 1975a) were accepted as potential subjects providing that they did not have a secondary diagnosis of chronic brain syndrome, alcoholism, mental retardation or drug dependence. The neurotic patients who, according to the judgment of the psychiatrist, met the criteria for definite neurosis (anxiety neurosis, obsessive compulsive neurosis, hysteria) according to Spitzer et al., (1975a) were considered as potential controls for this study provided that they did not have a secondary diagnosis of chronic brain syndrome, alcoholism, mental retardation, drug dependence, homosexuality or anti-social behavior. In addition, each of the schizophrenic and neurotic patients met a further criterion in having living biological parents and at least one same-sexed sibling who was 16 years of age or older at the date of the patient's admission. The siblings of the neurotic patients met an additional criterion in that they were not able to at the time of the study, or in the past to have met the criteria for schizophrenia.

The sample for the present study was drawn from the accumulating pool of potential subjects and was group-matched for socioeconomic status and age, as well as individually for sex. Age was matched within five years and socioeconomic level within one class (Blishen et al., 1976) of the

female schizophrenic.

The schizophrenic females were used as the reference group for all matching, and consequently, were the first selected. Simultaneously with and/or following their selection, the male schizophrenics and the male and female neurotics were selected on the principle that the eligible potential subject was the one who met the matching requirements for sex, social class and age and who was admitted to the Royal Ottawa Hospital, Department of Psychiatry, nearest in time to, but not before, that of the female schizophrenic.

As subjects were admitted, the researcher made sure that no group differences developed on socioeconomic class and age, and when such differences did develop, selection of subjects was altered accordingly.

The data regarding the social class of the patients are presented in Table 23 while those for age are presented in Table 24, which also includes the ages for siblings, fathers and mothers. Table 23 includes, as well, the frequency of assignments, to the six levels of social class, for the combined patients divided according to psychopathology and sex.

A two-factor (psychopathology x sex) fixed effects analysis of variance was conducted on the patients' social status scores. The main effects for psychopathology ($F_{1,27} = .19$; $p = .669$), and sex ($F_{1,27} = .01$; $p = .937$) and for psychopathology x sex interaction ($F_{1,27} = .03$; $p = .857$) were found to be non-significant thereby suggesting that the patients were group-matched for social status.

A second two-factor (psychopathology x sex) fixed effects analysis of variance was conducted on the patients' age scores. The non-significant main effects for psychopathology ($F_{1,27} = 1.29$; $p = .265$) and sex ($F_{1,27} = 3.43$; $p = .079$) and for psychopathology x sex interaction ($F_{1,27} = .09$; $p = .769$) indicated that the patients were group-matched for age (Table 25).

Table 23
 Frequency of Assignments of Subjects to Each of the Social Classes;
 Means and Standard Deviations Obtained on a Scale of Social Class
 From the Combined Patients Divided According to
 Psychopathology and Sex of the Patient

Patient Group	Social Class						Mean	S.D.
	1	2	3	4	5	6		
Male Schiz.	1	3	1	2	1	0	2.88	1.36
Female Schiz.	1	4	1	1	0	1	2.75	1.58
Male Neurotic	1	3	1	2	0	0	2.57	1.13
Female Neurotic	1	4	1	1	1	0	2.63	1.30
Total	4	14	4	6	2	1		

Table 24
Means and Standard Deviations of Age Scores for the
Combined Sample Divided According to Family Membership,
Psychopathology and Sex of Patient

Families with a	Patient		Sibling		Father		Mother	
	M	S.D.	M	S.D.	M	S.D.	M	S.D.
Male Schiz.	23.88	2.75	22.63	2.83	55.25	4.23	53.00	3.59
Female Schiz.	22.25	3.81	23.63	4.47	54.00	7.93	51.88	5.69
Male Neurotic	23.00	2.94	20.71	6.32	53.71	7.45	52.86	6.89
Female Neurotic	20.75	1.91	22.63	3.38	54.88	5.96	52.38	4.63

The non-significant ANOVA results regarding the patient's social status and ages indicated that the sample was group-matched for social status and age.

Three two-factor (psychopathology x sex) fixed effects analysis of variance were conducted separately on the age scores for the siblings, fathers and mothers. These data are presented in Table 25. The data show that there were no significant differences for the main effects (psychopathology and sex) and for the psychopathology x sex interaction among the mean age scores for each of the three groups. This states that the three individual groups were group-matched for age as well. In summary, it can be said that not only were the patients group-matched for age, but the siblings, fathers and mothers were separately, group-matched for age as well.

There is every reason to believe that the subjects used in this research are representative of the schizophrenics from intact families of the Ottawa region and therefore constitutes a sample. According to the psychiatrists who participated in the present study, at least ninety percent of the English speaking schizophrenic patients are admitted either to the Civic Hospital or to the Royal Ottawa Hospital. Less than ten percent of the schizophrenic patients are seen by psychiatrists in private practice without having been previously hospitalized. Both the Royal Ottawa Hospital and the Civic Hospital serve a similar clientele. This sample is representative of at least the female schizophrenics who are admitted to the Royal Ottawa Hospital; there is no serious reason to believe that it would not be representative of the male schizophrenics.

Table 25
 The F-Values and Level of Significance Obtained
 From the ANOVA of the Age Scores for Each Group of Family Members

Group	d.f. for numerator and denominator	Psych.*Diff.		Sex Diff.		Psych. X Sex	
		F	P	F	P	F	P
Patients	1,27	1.29	.265	3.43	.079	.09	.769
Siblings	1,27	.84	.367	.84	.367	.08	.774
Fathers	1,27	.015	.903	.001	.971	.264	.611
Mothers	1,27	.096	.909	.010	.921	.184	.671

*Psych. means psychopathological

The next section discusses the procedure followed in conducting the clinical interviews.

2. Conducting The Clinical Interviews

The psychiatrist explained to the families as units (that is, a patient, his biological parents and one same-sexed sibling qualified for the study) both the purpose and nature of the study, and he solicited the families participation.

The family unit who agreed to participate in the study were then referred to the principal researcher, who interviewed each family member in order to obtain the information necessary to rate ego functions.

Not until all coding and interviewing were completed was the researcher informed either as to who were the patients and siblings, or who were the parents of the schizophrenics and neurotic patient. By means of this stipulation biasing of interviews in favour of the research hypothesis was partially controlled (eg. Rosenthal, 1964, 1968; Barber and Silver, 1968a, 1968b).

Prior to the interviews signed consents were obtained from the interviewees. General information regarding familial, educational and occupational background was obtained for each subject as well.

The eligible patients, their biological parents and their same-sexed siblings were interviewed individually by the researcher according to the questionnaire, "An Interview Guide for Clinical Assessment of Ego-Functions" designed for this purpose by Bellak and his colleagues (1973, p.422-435). The interviewer was thoroughly familiar with all ego function definitions and all scales in the Rating Manual.

Prior to the study proper, the interviewer conducted practice interviews which were taped and evaluated by the director of this study. Practice interviews continued until interviewing techniques met the standards set by the director.

As he began each of his interviews, the interviewee, particularly if he was a patient, was encouraged not to talk about his present hospital experiences which may have included discussion about medication, treatment program, staff workers, and so on. The purpose of this request was to prevent the inclusion of material which might have biased the raters in their ratings of ego functions.

All interviews were taped on a 1200 foot reel-to-reel tape at a speed of 1 7/8. Each tape contained four interviews, but only one interview from any one family. The tapes were coded promptly.

The subjects for the research were seen at the Royal Ottawa Hospital, Department of Psychiatry. Shortly after the completion of an interview, each member of the family was asked to complete a FIRO-B and FIRO-F questionnaire. Each patient and sibling was asked, as well, to complete a sentence completion test designed to elicit information for the assessment of ego development according to Jane Loevinger (1976). Lastly, each patient and each parent was invited to complete an MMPI questionnaire which was usually completed either at home in the case of parents, or at a second appointment in the case of a patient. The ancillary questionnaires mentioned above, although not an intrinsic part of this project, were administered in view of later projects. The questionnaires were usually administered by a research assistant.

The taped interviews were evaluated for levels of ego functioning by specially trained raters. The training procedure is discussed in the next section.

3. Rating Adaptive Level of Ego Functions from Clinical Interviews

The ego functions were rated by five students enrolled in the psychology program at the University of Ottawa. Two of the raters (Raters B & E) were enrolled in the honours program, one rater (D) in the Master's program, and two raters (A & C) in the doctoral program. The raters were selected by the director of this research on the basis of their clinical interest, potential and experience.

Prior to the study proper the raters participated in a specially designed training program where they became thoroughly familiar with the MANUAL and independently scored tape recorded practice protocols. At the first of the eight two-hour sessions, which made up the training program, the raters were introduced to the MANUAL and the scoring materials. During each of the three succeeding sessions the raters scored four of the twelve ego functions. After the independent scoring of each ego function, comparisons of scores were made and discrepancies were discussed. During the fifth session, the raters independently scored an entire tape recorded interview for the twelve ego functions. The raters' scores were compared and discrepancies discussed at the following session. The same procedures were followed for sessions seven and eight using a second tape recorded interview.

Intercorrelations for the five raters using the twelve ego function scores from the tape recorded interview scored at the seventh session were computed and are presented in Table 26. The intercorrelations were corrected using the Spearman-Brown Formula. The percentage of total

Table 26
Intercorrelations Corrected by the Spearman-Brown Formula
For the Five Raters Using The Twelve Ego Function Scores

Raters	A	B	C	D	E
A	1.00	.66	.43	.85	.86
B		1.00	.71	.38	.74
C			1.00	.75	.44
D				1.00	.78
E					1.00

M = .66, range = .38 - .86

agreement as well as agreement within 1, 2, 3, 4 and 5 scale points on a 13-point scale were also computed for the five raters and are presented in Table-27. As can be seen from Table 26, the intercorrelations range from .38 for raters BD to .86 for raters AE, with the mean correlation for the combined paired raters .66. The percentage of total agreement was 25, and the percentage of agreement within 1, 2, and 3 scale points were, respectively, 57, 75, and 94. These data are similar to those obtained by Bellak and associates (1973, p.303-304). However, since only one interview was used for the above calculations, the data can be only tentatively interpreted. Nevertheless, the results do suggest that the raters obtained substantial consistency in the scoring of ego functions.

Following the training program, each rater independently scored three additional tape recorded interviews. In all, each rater scored five tape recorded interviews before scoring interviews for the present study.

The five raters were grouped into seven pairs. The pairs were: AB, AC, AE, BD, BE, CD and DE. Each pair independently rated the interviews of "four families" (16 subjects), except raters AC who rated the interviews of 8 families (32 subjects). Each block of "four families" consisted of the following subjects: one male schizophrenic and his biological parents and same-sexed sibling, one female schizophrenic and her biological parents and same-sexed sibling, one male neurotic and his biological parents and same-sexed sibling, and one female neurotic and her biological parents and one same-sexed sibling.

The rationale underlying the assignment of one family from each group to each pair of raters was to control for the effects that inter-rater differences may have on individual scores and on group means. Observed

Table 27
The Percentage of Total Agreement and Agreement Within
1, 2, 3, 4 and 5 Scale Points on a Thirteen-Point Scale
For the Five Raters Using the 12 Ego Function Scores

Agreement Within	Number of Agreements	Cummulative Percentage
0 pts	30	25
1 pt	68	57
2 pts	90	75
3 pts	113	94
4 pts	119	99
5 pts	120	100

group differences may then be assumed to reflect more accurately actual differences.

The interviews were independently rated as to the adaptive level of ego functioning on each of the twelve ego functions and their component factors. The component factors were rated on characteristic and current levels of functioning, while the ego functions were rated globally on lowest, highest and characteristic levels.

The raters were uninformed as to the nature of the study and did not take part either in the selection of subjects, or in the interview assignments.

From the raters' independent evaluations, a score was obtained for each subject for each of the twelve ego functions. The following section presents the procedure.

4. The Computation of Scores From Independent Ego Function Ratings

Two raters independently evaluated each subject on the twelve ego functions according to his highest, lowest and characteristic level of functioning. Thus each subject received two ratings for each of the three levels of functioning for each of the twelve ego functions. In order to compute one score for each level of functioning for each of the twelve ego functions, the researcher averaged the two raters' scores. For example, if rater A gave a rating of 4 for the characteristic level for Reality Testing and rater B gave a score of 6 for the same level, the newly computed score would be 5. This procedure was observed in the calculations of all scores for the three levels of functioning on each of the twelve ego functions. These scores were used for all statistical calculations which involved group comparisons.

The sample was divided into groups for hypothesis testing. The formation of these groups is presented next.

5. Formation of Testing Groups

Sixteen groups using family membership and the psychiatric status and sex of the patient as a basis were formed from the selected family units. These can be thought of as Patient, Sibling, Father and Mother groups divided according to the psychopathology and sex of the patient. The sixteen groups are:

a) Patient groups: These are:

- 1) schizophrenic males
- 2) schizophrenic females
- 3) neurotic males
- 4) neurotic females

b) Sibling groups: These comprise same-sexed siblings of:

- 5) schizophrenic males
- 6) schizophrenic females
- 7) neurotic males
- 8) neurotic females

c) Father groups: These comprise the male parents of:

- 9) schizophrenic males
- 10) schizophrenic females
- 11) neurotic males
- 12) neurotic females

d) Mother groups: These comprise the female parents of:

- 13) schizophrenic males
- 14) schizophrenic females
- 15) neurotic males
- 16) neurotic females

The number of subjects comprising each group is presented in Table 11. As the table shows, the number of subjects varies from seven to eight per group.

This concludes the presentation of the experimental method. In the next section the statistical procedures used to analyze the data will be discussed.

D. Techniques of Analysis

The present research provided two categories of data for analysis. The first category pertains to inter-rater reliability scores, and the second pertains to the subject's ego function scores. The first part of this section presents the techniques employed to assess inter-rater reliability, and the second part discusses procedures used to analyze the data obtained from the ego function scores.

1. The Computation of Inter-rater Reliability

Inter-rater reliability was computed by the use of two techniques: namely, the Pearson Product Moment Coefficient of Correlation r and the calculation of disagreements among raters in terms of scale points.

The Pearson Product Moment Coefficient of Correlations were corrected by the Spearman-Brown formula (Guilford, 1965, p.458) because of the small number of subjects assessed by each rater.

The Spearman-Brown corrected correlations for the seven pair of raters for each of the twelve ego functions are presented in Table 28. The correlations were computed using the ratings for the characteristic level of ego functioning.

The table shows that the means for the paired raters across the twelve ego functions range from .55 to .85, and the means for the twelve ego functions across raters range from .55 to .83. The mean correlation was .74. The correlations obtained in this study are somewhat lower than those obtained by Bellak and associates (Bellak et al., 1973, p.302). The correlation coefficients in the Bellak and associates study ranged from .61

Table 28

Correlation Coefficients Corrected by the Spearman-Brown Formula
for the Seven Pairs of Raters¹ for Each of the 12 Ego Functions

Ego Function	Raters							MEAN
	AB	AC	AE	BD	BE	CD	DE	
I Reality Testing	.54	.68	.87	.91	.90	.89	.95	.82
II Judgment	.82	.73	.63	.63	.84	.92	.94	.79
III Sense of Reality	.67	.83	.82	.78	.87	.95	.92	.83
IV Reg. & Cont. Drives	.80	.62	.62	.43	.83	.79	.85	.71
V Object Relations ²	.26	.73	.80	.57	.85	.70	.82	.68
VI Thought Process	.79	.65	.67	.18	.88	.82	.94	.70
VII ARISE	.48	.28	.51	.86	.57	.67	.48	.55
VIII Defensive Functns.	.48	.71	.75	.52	.83	.55	.90	.68
IX Stimulus Barrier	.57	.75	.85	.31	.67	.91	.77	.69
X Auton. Functns.	.45	.82	.92	.66	.92	.81	.93	.79
XI Synthetic Functns.	.38	.84	.65	.66	.84	.84	.92	.73
XII Mastery-Competence	.41	.84	.84	.84	.88	.76	.81	.77
Mean	.55	.71	.74	.74	.82	.80	.85	.74
Range	.26-.82	.28-.84	.51-.92	.18-.91	.57-.90	.55-.95	.48-.95	.55-.83

to .88, with a mean of .77. Nevertheless, the magnitude of the correlations in both the Bellak and the present study ranges from moderate to high. The ego function with the lowest correlation (.55) was ARISE.

The second method used to evaluate inter-rater reliability consists in calculating the extent of disagreement among raters in terms of scale points. For example, if rater A assigned a value of 6 for Reality Testing, and rater B assigned a value of 5 for the same ego function, the extent of disagreement between the two raters would be 1 scale point. Bellak and associates employed this technique in calculating inter-rater reliability in their study and stated that this method reflected a greater degree of agreement than was suggested by correlation coefficients (Bellak et al., 1973, p.303-304). The authors reported the extent of disagreements in terms of mean disagreements for the combined raters for each of the ego functions, and in terms of the percentage of total agreement and agreement within 1, 2, and 3 scale points (Bellak et al., 1973, p.303-304).

Tinsley and Weiss (1975) also recommend computing both the inter-rater reliability and inter-rater agreement when using rating scales. They define inter-rater agreement as representing "the extent to which the different judges tend to make exactly the same judgments about the same rated subject", and inter-rater reliability as representing "the degree to which the ratings of different judges are proportional when expressed as deviations from their means" (Tinsley and Weiss, 1975, p.359).

By using hypothetical cases, Tinsley and Weiss demonstrated that high reliability is no indication that the raters agreed in an absolute sense on the degree to which the ratees (subjects) possess the characteristic being judged. In addition, they illustrated that low reliability does not

necessarily indicate that the raters are in disagreement. The authors state that both types of information are important in evaluating subjective ratings, particularly whenever the investigator is interested in the absolute value of the ratings or in the meaning of the ratings as defined by the points on the scale.

The mean disagreements on a 13-point scale for each pair of raters on the twelve ego functions for the combined sample are presented in Table 29. The mean disagreements for each ego function across the seven pairs of raters and the mean disagreements for each pair of raters across the twelve ego functions are presented as well. For these calculations, the ratings for the characteristic level were used.

Table 29 shows that the mean disagreements for the seven pairs of raters across the twelve ego functions range from 1.00 to 1.40 scale points, and that the mean disagreements for the twelve ego functions across the seven pairs of raters range from .89 to 1.65 scale points. The mean disagreement is 1.23 scale points.

Bellak and associates did not report mean disagreements among the raters for each ego function for the combined sample. However, using their data, for the schizophrenic, neurotic and normal groups, (Bellak et al., 1973, p.303) mean disagreements can be computed. The results of these computations are presented in Table 29 under Bellak. The mean disagreements among raters in Bellak's study range from 1.21 to 1.60 with a mean of 1.43. The results of the present study, are in general, comparable to those of Bellak. However when the mean inter-rater disagreements for the individual ego functions are compared, in eight out of the eleven comparisons, the means in the present study are smaller than those in the

Table 29

Mean Disagreements on a 13-Point Scale for Each Pair of Raters
on the 12 Ego-Functions for the Combined Sample

Ego Function	Raters							RANGE	MEAN (N=117)	Bellak Mean
	AB (N=11)	AC (N=31)	AE (N=14)	BD (N=16)	BE (N=17)	CD (N=16)	DE (N=12)			
I Reality Testing	1.82	1.96	.71	.82	1.00	1.00	.92	.82-1.96	1.18	1.48
II Judgment	1.10	1.46	1.07	1.26	1.05	1.00	.83	.83-1.46	1.11	1.54
III Sense of Reality	1.36	1.30	1.07	1.12	.82	.62	1.08	.62-1.36	1.05	1.41
IV Reg.& Cont.Drives	1.00	1.46	1.36	1.12	1.52	1.06	1.50	1.00-1.52	1.05	1.29
V Object Relations	1.46	1.12	1.14	1.62	1.64	1.44	2.33	1.23-2.33	1.54	1.33
VI Thought Process	.46	1.48	1.00	1.38	.94	.62	1.00	.46-1.48	.98	1.33
VII ARISE	1.64	2.00	1.71	1.06	1.88	1.42	1.83	1.06-2.00	1.65	1.60
VIII Defensive Funct.	1.64	1.10	1.36	1.38	1.11	1.26	1.50	1.11-1.64	1.34	1.21
IX Stimulus Barrier	1.46	.96	1.50	1.56	1.52	.56	1.42	.56-1.56	1.28	1.61
X Auton.Funct.	1.54	.90	.50	1.18	.59	1.12	1.17	.50-1.54	1.00	1.34
XI Synthetic Funct.	.90	1.36	1.07	1.12	1.18	.76	1.50	.76-1.50	1.13	1.60
XII Mastery-Competence	1.28	1.10	2.00	1.50	1.35	1.12	1.67	1.10-2.00	1.43	—
Range	.46 to 1.82	.90 to 1.96	.50 to 2.00	.82 to 1.62	.59 to 1.88	.62 to 1.44	.93 to 2.33	.46 to 2.33	.98 to 1.65	1.21 to 1.60
Means	1.24	1.33	1.21	1.26	1.22	1.00	1.40		1.23	1.43

Bellak study.

The extent of agreement and disagreement was also calculated in terms of percentages. These data are presented in Table 30. The table shows that there was total agreement between the two raters on 26 percent of the ratings; 65 percent were within 1 scale point, 87 within 2 scale points, and 95 within 3. These results are very similar to those obtained by Bellak and associates whose percentages of agreement for the same scale points, respectively, were 24, 60, 84 and 94.

The extent of inter-rater agreement was also computed by the use of the Lawlis-Lu chi-square and a T-index as recommended by Tinsley and Weiss (1975, p.367-368). The formula for the Lawlis-Lu non-parametric chi-square is as follows:

$$x^2 = \frac{(N_1 - NP - .5)^2}{NP} + \frac{(N_2 - N(1-P) - .5)^2}{N(1-P)}$$

where: N indicates the number of individuals rate,

N_1 indicates the number of agreements,

N_2 indicates the number of disagreements,

P means the probability of chance agreement on an individual, and

.5 indicates a correlation for continuity

Table 30
 Percentages of Agreement for Zero to Six Scale Points
 Differences Obtained by the Combined Pairs of Raters (N=117)

Ego Function	Scale Point Difference						
	0	1	2	3	4	5	6
I Reality testing	33	38	15	7	5	1	1
II Judgment	27	46	16	7	4	0	0
III Sense of reality	33	36	25	6	1	0	0
IV Regulation and control	21	43	21	10	4	0	0
V Object relations	21	31	21	20	15	0	0
VI Thought processes	35	36	18	5	4	0	2
VII ARISE	14	38	23	14	9	3	1
VIII Defensive functioning	25	36	26	13	1	0	0
IX Stimulus barrier	24	44	21	9	3	0	0
X Autonomous functioning	32	41	25	2	0	0	0
XI Synthetic functioning	26	42	25	7	1	0	0
XII Mastery-Competence	17	44	25	8	6	0	0
Mean Percentage	26	39	22	8	4	.21	.33
Cumulative Percentage	26	65	87	95	99	99	100

The statistic is distributed as chi-square with 1 degree of freedom. The authors state that the Lawlis-Lu Test is appropriate only when the inter-rater agreement (N_1) is greater than the agreement expected on the basis of chance (NP).

The authors recommend that a significant chi-square be followed by a measure indicating whether the inter-rater agreement is high, moderate or low. The authors propose the following as a measure of agreement:

$$T = \frac{N_1 - NP}{N - NP}$$

where N , N_1 and P are defined as in Lawlis-Lu formula. The T-index is expressed as a value ranging from a -1 to a +1. Positive values of T indicate that the observed agreement is greater than chance agreement, while negative values indicate that observed agreement is less than chance agreement. A high T-index, as .85 or higher, indicates high inter-rater agreement whereas a low T-index, as .20 or lower, indicates low inter-rater agreement.

The authors point out that the results from Lawlis-Lu chi-square and the associated T-index are contingent upon the definition of agreement. Thus when the definition is changed, the chi square and T values change.

Inter-rater agreement, for this study, is defined as agreement within two points on a 13-point scale. The rationale for the definition rests on Bellak's study wherein raters demonstrated substantial agreement within 2 scale points.

The chi-squares and the T-values obtained by the application of the Tinsley and Weiss procedure to Rater Agreement within 2 scale points are presented in Table 31. The data are presented for each pair of raters and for the combined raters separately for the parents, patients and combined sample. The variables on the left hand column correspond to those of the Lawlis-Lu formula described above. $O_a - C_a$ means observed agreement minus chance agreement. The table shows that all chi-squares, with the exception of the one for raters AB, were significant beyond the .001 level. The chi-square for raters AB was significant at the .005 level. The table also shows that the T-values range from .72 to .90 indicating both high and positive agreement among raters.

Since all chi-squares were significant beyond the .005 level when a 2 scale point difference was used as a criterion, inter-rater agreement, in accordance with Tinsley and Weiss's recommendation (1975, p.368), were computed using 1 scale point as a criterion. These data are presented in Table 32, which shows that all chi-squares except those for Raters AB and DE, are significant beyond the .001 level. The chi-squares for raters AB and DE are significant beyond the .005 level. The T-values range from .50 to .68; this indicates that the inter-rater agreements are positive and

Table 31

The Chi-Squares and T-Values Obtained by the Application of the Lawlis-Lu Test to Rater Agreement Within 2 Scale Points

Variable	AB	AC	Raters				Combined Raters			
			AE	BD	BE	CD	DE	Sample	Patients	Parents
N	11	31	16	16	17	16	12	117	30	58
N ₁	9	27	12	14	14	15	10	102	27	51
N ₂	2	4	2	2	3	1	2	15	3	7
P	.3491	.3491	.3491	.3491	.3491	.3491	.3491	.3491	.3491	.3491
NP	3.84	10.82	5.59	5.59	5.93	5.59	4.19	40.84	10.47	20.25
Chi Square* (1 d.f.)	10.13	36.50	15.20	18.84	16.27	23.67	11.83	139.99	39.37	71.07
T-Value	.72	.80	.78	.81	.72	.90	.74	.80	.85	.81
Oa-Ca	5.16	16.18	7.11	8.41	8.07	9.41	5.81	61.16	16.53	30.75

*When Chi-Square = 7.88, p = .005
 When Chi-Square = 10.83, p = .001

Table 32

The Chi-Squares and T-Values Obtained by the Application of the Lawlis-Lu Test to Rater Agreement Within 1 Scale Point

Variable	Raters							Combined Raters		
	AB	AC	AE	BD	BE	CD	DE	Sample	Patients	Parents
N	11	31	14	16	17	16	12	117	30	58
N ₁	7	19	9	10	12	12	7	76	20	39
N ₂	4	12	5	6	5	4	5	41	10	19
P	.2189	.2189	.2189	.2189	.2189	.2189	.2189	.2189	.2189	.2189
NP	2.41	6.79	3.06	3.50	3.72	3.50	2.63	25.61	6.57	12.70
Chi Square* (1 d.f.)	9.97	26.90	13.43	14.19	22.06	24.74	8.24	125.52	33.75	68.30
T-Value	.53	.50	.54	.52	.62	.68	.47	.55	.57	.58
Oa-Ca	4.60	12.21	5.93	6.50	8.28	8.50	4.37	50.39	13.43	26.30

*When Chi-Square = 7.88, p = .005

When Chi-Square = 10.83, p = .001

moderate.

The results of the analysis of inter-rater reliability indicate that there is substantial agreement among raters although the coefficient correlations range from moderate to high in magnitude. The inter-rater reliability data obtained in this study are similar to those obtained by Bellak and associates in their study.

The techniques used to analyze group differences on a measure of ego function are presented in the following section.

2. Analysis of Differences Among Group Mean Ego Function Scores

The scores obtained by the subjects on the twelve ego functions were analyzed in the following way. First, intercorrelations were computed among the twelve ego functions for each of the three levels taken separately. Secondly, the obtained intercorrelation matrices were factor analyzed using a principal components factor analysis followed by a varimax rotation. Thirdly, the derived factor scores were analyzed for group differences using a two-factor, fixed effects analysis of variance.

The intercorrelations among the twelve ego functions for characteristic (CH), low (LO), high (HI) levels are presented in Table 33 under their respective headings. The mean correlations for CH, LO and HI levels are respectively, .67, .69, and .64, and their ranges are, respectively, .12-.88, .24-.83, and .16-.88. The mean correlation coefficients obtained in this study are somewhat higher than those obtained by Bellak and associates. The latter's coefficient correlations ranged from .45 to .57 (Bellak et al., 1973, p.313-314).

The data in Table 33, show that the lowest coefficients were obtained when the ego function, ARISE (A), was compared to the other eleven ego

Table 33
Correlation Coefficients Between Ego Functions
For The Three Levels Taken Separately (N=124)

Ego Function Compared ^a	L E V E L			Ego Function Compared	L E V E L		
	CH	LO	HI		CH	LO	HI
RT+JU	.87	.77	.88	JU+MC	.78	.73	.68
RT+SR	.87	.79	.83	SR+RC	.83	.78	.79
RT+RC	.78	.73	.79	SR+OR	.82	.80	.76
RT+OR	.76	.75	.73	SR+TP	.76	.76	.66
RT+TP	.79	.78	.66	SR+A	.24	.33	.16
RT+A	.29	.33	.23	SR+DF	.80	.73	.74
RT+DF	.77	.73	.71	SR+SB	.68	.64	.68
RT+SB	.61	.54	.60	SR+AF	.85	.81	.81
RT+AF	.79	.77	.79	SR+SF	.86	.78	.80
RT+SF	.79	.74	.75	SR+MC	.83	.74	.75
RT+MC	.76	.70	.67	RC+OR	.77	.79	.77
JU+SR	.88	.80	.86	RC+TP	.68	.67	.64
JU+RC	.79	.75	.82	RC+A	.37	.40	.34
JU+OR	.75	.76	.74	RC+DF	.81	.82	.79
JU+TP	.75	.70	.71	RC+SB	.64	.65	.61
JU+A	.26	.37	.24	RC+AF	.73	.75	.74
JU+DF	.76	.73	.76	RC+SF	.75	.72	.81
JU+SB	.62	.64	.63	RC+MC	.71	.70	.70
JU+AF	.78	.78	.75	OR+TP	.65	.65	.55
JU+SF	.82	.79	.78	OR+A	.33	.44	.26
OR+DF	.82	.79	.80	A+MC	.32	.40	.24
OR+SB	.68	.69	.69	DF+SB	.74	.70	.73
OR+AF	.72	.74	.70	DF+AF	.74	.75	.73
OR+SF	.73	.75	.73	DF+SF	.78	.77	.77
OR+MC	.77	.69	.76	DF+MC	.79	.76	.78
TP+A	.39	.36	.33	SB+AF	.65	.64	.65
TP+DF	.66	.67	.60	SB+SF	.59	.62	.59
TP+SB	.51	.47	.47	SB+MC	.60	.57	.63
TP+AF	.71	.74	.62	AF+SF	.84	.83	.82
TP+SF	.76	.75	.66	AF+MC	.81	.83	.76
TP+MC	.70	.67	.55	SF+MC	.82	.81	.79
A+DF	.36	.50	.34				
A+SB	.12	.24	.09				
A+AF	.15	.28	.14				
A+SF	.30	.43	.26				
				Range	.21-.88	.24-.83	.16-.88
				Mean	.67	.69	.64

^a(RT) Reality Testing; (JU) Judgment; (SR) Sense of Reality;
(RC) Regulation and Control of Drives; (OR) Object Relations; (TP) Thought Processes; (A) Adaptive Regression in Service of the Ego; (DF) Defensive Functioning; (SB) Stimulus Barrier; (AF) Autonomous Functioning; (ST) Synthetic Functioning; (MC) Mastery-Competency.

functions. These coefficients range from .09-.44 across the three levels of functioning. All other comparison produced coefficients which range from .47 to .88 across the three levels of functioning.

The intercorrelation matrices for each level of functioning taken separately were factor analyzed using a principal components factor analysis followed by a varimax rotation. The factor-analysis subprogram in the SPSS was used for such analyses (Jae-On Kim, 1975). The results of these analyses are presented in Tables 34, 35 and 36. Table 34 presents the communalities among the ego functions for the CH level, and the eigenvalues and percentage (pct) of variance for each extracted factor. Tables 35 and 36 present the same data, respectively for the LO and HI levels of functioning. The loadings on the extracted factors for the three levels of functioning are presented in Table 37.

The results of these analyses show that for the CH level, only one extracted factor had an eigenvalue which exceeded 1.00. This factor with an eigenvalue of 8.71 accounted for 72.6 percent of the variance. All twelve ego functions, except ARISE, loaded heavily on the factor. Similar results were obtained from the LO level of functioning, where the first factor, with an eigenvalue of 8.55, accounted for 71.3 percent of the variance. Again, all ego functions, except ARISE, loaded heavily on the factor.

A factor analysis of the HI level of functioning produced two factors with eigenvalues greater than 1. The first factor had an eigenvalue of 8.36 and accounted for 69.7 percent of the variance and the second factor had an eigenvalue of 1.02 which accounted for 8.5 percent of the variance. All ego functions, except ARISE loaded heavily on the first factor, whereas

Table 34
Communalities, Eigenvalues and Percentage of Variance:
Characteristic Level

Ego Function	Communality	Factor	Eigenvalue	% of Variance
Reality testing	.81	1	8.71	72.6
Judgment	.82	2	.98	8.2
Sense of reality	.90	3	.59	4.9
Regulation and control	.75	4	.35	2.9
Object relations	.74	5	.31	2.6
Thought processes	.65	6	.23	1.9
ARISE	.11	7	.18	1.6
Defensive functioning	.79	8	.17	1.5
Stimulus barrier	.51	9	.14	1.2
Autonomous functioning	.76	10	.12	1.0
Synthetic functioning	.81	11	.09	0.8
Mastery-Competency	.78	12	.08	0.7

Table 35
Communalities, Eigenvalues and Percentage of Variance:
Low Level

Ego Function	Communality	Factor	Eigenvalue	% of Variance
Reality testing	.73	1	8.55	71.3
Judgment	.77	2	.86	8.2
Sense of reality	.81	3	.63	5.3
Regulation and control	.75	4	.39	3.3
Object relations	.76	5	.28	2.4
Thought processes	.64	6	.26	2.2
ARISE	.19	7	.21	1.8
Defensive functioning	.78	8	.20	1.7
Stimulus barrier	.50	9	.17	1.4
Autonomous functioning	.80	10	.14	1.2
Synthetic functioning	.80	11	.12	1.1
Mastery-Competency	.72	12	.11	1.0

Table 36.
Communalities, Eigenvalues and Percentage of Variance:
High Level

Ego Function	Communality	Factor	Eigenvalue	% of Variance
Reality testing	.77	1	8.36	69.7
Judgment	.81	2	1.02	8.5
Sense of reality	.85	3	.62	5.2
Regulation and control	.81	4	.42	3.6
Object relations	.73	5	.37	3.1
Thought processes	.54	6	.26	2.2
ARISE	.59	7	.22	1.9
Defensive functioning	.77	8	.17	1.5
Stimulus barrier	.56	9	.16	1.4
Autonomous functioning	.78	10	.13	1.1
Synthetic functioning	.79	11	.13	1.1
Mastery-Competency	.69	12	.08	.7

Table 37
Standardized Principal Component Coefficients
For the 12 Ego Functions

Ego Function	Level Factor	CH	LO	HI	
		1	1	1	2
Reality testing		.90	.85	.87	-0.04
Judgment		.90	.87	.90	-0.00
Sense of reality		.94	.90	.91	-0.15
Regulation and control		.87	.86	.89	.11
Object relations		.86	.87	.85	-0.01
Thought processes		.80	.80	.72	.14
ARISE		.33	.43	.30	.71
Defensive functioning		.88	.88	.87	.07
Stimulus barrier		.71	.71	.73	-0.17
Autonomous functioning		.87	.89	.87	-0.16
Synthetic functioning		.90	.89	.89	0.00
Mastery-Competency		.88	.84	.83	-0.03

ARISE alone loaded heavily on the second factor.

The results obtained from the factor analysis clearly show that for each level of functioning, except the HI level, only one factor can be extracted and that all ego functions, except ARISE, load heavily on this factor. In the case of the HI level of functioning two factors were extracted with all but ARISE loading heavily on the first factor. ARISE alone loaded heavily on the second factor.

On the basis of the factor analysis, the twelve ego functions, for each level of functioning, can be reduced to two factors (or to one factor and one item). The first factor which comprises eleven of the ego functions is labelled composite function (C); the second factor comprises the scores from the ego function ARISE and is labelled ARISE (7). The three levels of the composite function are labelled composite high (CHI), composite low (CLO), and composite characteristic (CCH); the three levels of ARISE are labelled ARISE high (HI7), ARISE low (LO7), and ARISE characteristic (CH7). Intercorrelations among the three levels - LO, HI, CH - for the two functions - composite and ARISE - taken separately, were computed. These data are presented in Table 38. The table shows that the scores for the three levels of functioning are highly intercorrelated, ranging from .92 to .95 for composite function and from .54 to .82 for ARISE.

A principal components factor analysis was carried out on the correlation matrix obtained from the scores on the three levels of functioning for the two functions taken separately. The communalities among the three levels, and the eigenvalues and percentage of variances are presented in Table 39. The loadings for each level for the two functions are presented

Table 38
Correlation Matrices of the Two Ego Function
Factors Taken Separately

	CLO	CHI	CCH	L07	H17	CH7
CLO	1.00	.92	.95			
CHI		1.00	.95			
CCH			1.00			
L07				1.00		
H17				.54	1.00	
CH7				.79	.82	1.00

Legend: CLO means Composite Low
 CHI means Composite High
 CCH means Composite Characteristic
 L07 means ARISE Low
 H17 means ARISE High
 CH7 means ARISE Characteristic

Table 39
 Communalities, Eigenvalues and Percentages of
 Variance for the Three Levels of the Two Ego Functions

Ego Function	Level	Communality	Factor	Eigenvalue	% of Variance
Composite:	LO	.95	1	2.94	98.3
	HI	.97	2	.04	1.4
	CH	.99	3	.01	0.4
ARISE:	LO	.81	1	2.76	92.0
	HI	.82	2	.19	6.4
	CH	.99	3	.04	1.6

in Table 40. The table shows that only one factor can be extracted from each of the composite function and ARISE. In the case of the composite function, the eigenvalue for factor I is 2.94 and accounts for 98.3 percent of the variance; for ARISE, the eigenvalue for factor I is 2.76 and accounts for 92.0 percent of the variance.

The results from the factor analysis suggests that only two factors can be extracted from the 12 ego functions across the three levels. One factor, which will be called Global Ego Function (GEF) comprises the combined scores of eleven ego functions from the three levels, and the second factor, which will be called Adaptive Regression in Service of the Ego (ARISE), comprises the combined scores from ARISE for the three levels of functioning.

In the present research, member, psychopathology and sex differences (the three independent variables) in GEF and ARISE scores were the two factors studied as dependent variables, using a three-factor analysis of variance. GEF and ARISE were analyzed separately. The Univariate and Multivariate Analysis of Variance Computer program designed by Finn was used for all univariate analysis (Finn, 1972).

Whenever significant differences were found in the analysis of variance, the Duncan Multiple Range Test was used as a post hoc procedure (Kirk, 1968, p.93-94). The Duncan method, used by Bellak and associates in their study, was chosen because the assumption of equal sample size could be met, and because it is a powerful test when all pairs of experimental groups are compared. The formula used is as follows:

Table 40
Standardized Principal Component Coefficients
For the Three Levels of The two Ego Functions

Ego Function	Level	Loading
Composite:	LO	.97
	HI	.98
	CH	.99
ARISE:	LO	.90
	HI	.90
	CH	.99

$$W_r = q r \alpha; r, v \sqrt{\frac{MSe}{n}}$$

where r indicates the number of means for range being tested; the value W_r indicates the difference that a comparison must exceed in order to be declared significant; qr indicates the value obtained from special tables prepared for this test by Duncan (Kirk, p.533); v indicates the degrees of freedom for the denominator; MSe represents the mean of the sum of squares of the error term, and n means the number of subjects in each of the compared groups.

For the present study group differences at the .05 level or less were interpreted as being significant. Although it is common convention to adopt levels of significance of either .05 or .01, there are authors who caution against its indiscriminant usage because of the risk in committing Type II (Beta) error; that is, failure to reject a tested (null) hypothesis when it is false (Ferguson, p.161-162). In order to avoid Beta error, some authors recommend adjusting the level of significance so that risk of committing Beta error is comparable to the risk of committing Type I (Alpha) error; that is, rejecting a tested hypothesis which is true (Ferguson, p.161-162; Kirk, p.29-33; Winer, p.10-14). In the present study, when the level of significance was greater than .05, but less than .10, a power test was performed to evaluate the likelihood of avoiding Beta (β) error, and to determine the number of subjects required to increase the power of the F test. Power is here defined as $1 - \beta$ (Cohen, p.5).

Cohen's procedure was used to evaluate the power of the F test (Cohen, p.266-397). This procedure calls for the specification of alpha (α), the number of subjects (n), the number of population means (u), and the

calculation of "effect" size (f). Once these values have been determined, one consults tables which present the power of the F test.

The formula to determine the "effect size" for unequal n 's (Cohen, p.352) is:

$$f = \frac{\sigma_m}{\sigma}, \text{ and}$$

$$\sigma_m = \sqrt{\frac{k}{\sum_{i=1}^k p_i} (m_1 - m)^2}$$

where:

σ_m means the standard deviation of population means;

σ indicates within-population standard deviation,

m indicates mean of means,

$m_1, m_2, \text{ etc.}$, indicates population means, and

$p_1, p_2, \text{ etc.}$, indicates proportion of the total N

E. The Statistical Null Hypotheses

The research hypotheses advanced in chapter I will now be restated in terms of a univariate statistical model and stated in terms of the two dependent measures.

The hypotheses are arranged in series dependent upon the size of sample and independent variables employed. The first series of hypotheses relates to member, psychopathological and sex differences for the combined sample of schizophrenic and neurotic patients, their siblings and parents.

The hypotheses are:

1. There are no significant differences among the group mean score for the two dependent variables when the sample is divided according to member.
2. There is no significant difference between the group means scores for the two dependent variables when the sample is divided according to psychopathology.
3. There is no significant difference between the group mean scores for the two dependent variables when the sample is divided according to sex.

The second series of hypotheses relates to member and sex differences for each psychopathological group taken separately. The hypotheses are:

4. There are no significant differences among the group means for the two dependent variables when a sample of families with a schizophrenic patient is divided according to member.
5. There is no significant difference between the group means for the two dependent variables when a sample of families with a schizophrenic patient is divided according to sex.
6. There are no significant differences among the group means for the two dependent variables when a sample of families with a neurotic patient is divided according to member.
7. There is no significant difference between the group means for the two dependent variables when a sample of families with a neurotic patient is divided according to sex.

The third series of hypotheses relates to psychopathological and sex differences within each member taken separately. The hypotheses are:

8. There is no significant difference between the mean scores on the two dependent variables when the patients are divided according to psycho-

pathology.

9. There is no significant difference between the mean scores on the two dependent variables when the patients are divided according to sex.
10. There is no significant difference between the mean scores on the two dependent variables when the siblings are divided according to psychopathology.
11. There is no significant difference between the mean scores on the two dependent variables when the siblings are divided according to sex.
12. There is no significant difference between the mean scores on the two dependent variables when the fathers are divided according to psychopathology.
13. There is no significant difference between the mean scores on the two dependent variables when the fathers are divided according to sex.
14. There is no significant difference between the mean scores on the two dependent variables when the mothers are divided according to psychopathology.
15. There is no significant difference between the mean scores on the two dependent variables when the mothers are divided according to sex.
The hypotheses for the fourth series concern member and psychopathological differences for each sex taken separately.
16. There are no significant differences among group means for the two dependent variables when families with a male patient are divided according to psychopathology.
17. There is no significant difference between group means for the two dependent variables when the families with a male patient are divided

according to member.

18. There are no significant differences among group means for the two dependent variables when families with a female patient are divided according to psychopathology.
19. There is no significant difference between group means for the two dependent variables when the families with a female patient are divided according to member.

This concludes the discussion of the selection of the sample, the tools employed in the present study, and the experimental method. In the following chapter the results of the analysis of variance will be presented. These results will be discussed in Chapter IV.

CHAPTER III

PRESENTATION OF RESULTS

The results from the analyses of the data are presented in this chapter. They are presented under four major classifications in accordance with the four sets of hypotheses tested. The hypotheses are concerned with the relationship of the three independent variables with the two dependent variables. The three independent variables and their levels are: (1) the psychopathology of the patient (psychopathology) which has two levels, schizophrenia and neurosis; (2) family membership (member) which has four levels, patient, sibling, father and mother, and (3) the sex of the patient (sex) which has two levels, male and female. The two dependent variables are the scores on Global Ego Function (GEF) and Adaptive Regression in Service of the Ego (ARISE).

The data were analyzed by the use of either a three-factor or a two-factor, fixed effects, analysis of variance. When the analysis yielded significant differences, and when indicated, tables presenting the means, standard deviations, and differences between the means were presented for the significant findings.

The results of the analyses are presented under the following classifications.

1. The Relationship of Psychopathology, Member and Sex With The Dependent Variables For the Combined Sample of Schizophrenic and Neurotic Patients and Their Families.

The first set of hypotheses (H), when combined, state that there are no significant differences among the group GEF and ARISE means for the three main effects - psychopathology (H₁), member (H₂) and sex (H₃) - for the combined sample. To test the three hypotheses, the subjects were grouped according to psychopathology, member and sex, and means (M) and standard deviations (SD) were computed for each of the groups for GEF and ARISE. These data are presented in Table 41.

The GEF and ARISE group means varying according to psychopathology, member and sex, were tested separately for significant differences by a three-factor analysis of variance. The results of the analyses of GEF and ARISE means presented in Tables 42 and 43 respectively.

The means on both GEF and ARISE showed significant differences among member groups, but no significant psychopathology and sex differences were found, nor were there significant interactions among the independent variables. Therefore, hypothesis 1, which states that there are no significant psychopathology differences on mean GEF and ARISE scores, and hypothesis 3, which states that there are no significant sex differences on the two dependent variables, were not rejected. Hypothesis 2, which states that there are significant member differences, however, was rejected.

Since only member differences were significant on the GEF and ARISE mean scores, the data were reorganized into member groups. Table 44 presents the means and standard deviations of the four member groups for GEF and ARISE scores. The differences between means and the level of

Table 41

Means and Standard Deviations Obtained on GEF and ARISE Scores
For The Combined Sample Divided According to Psychopathology, Member and Sex (N=124).

Variable	Psychopathology and Sex of Patient	Family Membership							
		Patients		Siblings		Fathers		Mothers	
		M	S.D.	M	S.D.	M	S.D.	M	S.D.
GEF	Schizophrenic Male	230.56	41.03	282.75	20.32	316.25	19.52	293.50	29.46
	Schizophrenic Female	223.44	35.60	268.06	74.27	320.50	29.04	291.25	40.29
	Neurotic Male	270.57	45.55	279.50	28.68	297.29	22.60	301.14	23.47
	Neurotic Female	234.75	24.45	284.69	33.80	308.75	16.74	318.75	11.88
ARISE	Schizophrenic Male	22.75	3.27	24.63	3.84	24.13	4.95	22.13	2.80
	Schizophrenic Female	22.00	2.37	25.63	5.33	22.63	4.18	24.94	3.71
	Neurotic Male	22.00	2.52	23.79	2.63	23.21	3.19	25.07	2.32
	Neurotic Female	23.19	3.91	26.75	3.39	23.44	5.20	27.00	2.56

Table 42

Summary of Analysis of Variance: Relationship of Psychopathology,
Member, and Sex with GEF for the Combined Sample

Source	d.f.	MS	F	Probability
Psychopathology of Patient (A)	1	2306.74	1.96	.164
Member (B)	3	30669.38	26.07	.0001
Sex of Patient (C)	1	220.56	0.19	.666
A x B	3	2443.76	2.08	.108
A x C	3	1482.49	1.26	.291
B x C	1	160.79	0.14	.712
A x B x C	3	1018.14	0.87	.461
Error Term	108	1176.25		
Total	123			

Table 43

Summary of Analysis of Variance: Relationship of Psychopathology,
Member, and Sex with ARISE for the Combined Sample

Source	d.f.	MS	F	Probability
Psychopathology of Patient (A)	1	15.32	1.14	.289
Member (B)	3	48.98	3.63	.015
Sex of Patient (C)	1	29.87	2.21	.139
A x B	3	11.22	0.83	.479
A x C	3	15.80	1.17	.324
B x C	1	10.85	0.80	.371
A x B x C	3	3.70	0.27	.844
Error Term	103	13.49		
Total	123			

Table 44

Means and Standard Deviations of GEF and ARISE Scores
For the Combined Sample Divided According to Member (N=124)

Member	GEF		ARISE	
	M	S.D.	M	S.D.
Patients	238.84	39.55	22.50	2.99
Siblings	278.73	43.11	25.24	3.92
Fathers	311.13	23.01	23.35	4.29
Mothers	301.16	29.13	24.77	3.30

significance for post hoc comparisons on GEF and ARISE are presented in Tables 45 and 46, respectively.

In the post hoc comparisons, the mean GEF scores of fathers and mothers differed significantly from the mean GEF scores of the patients ($p < 0.01$) and siblings ($p < 0.01$), with the mean scores of the fathers and mothers being higher than both groups. The mean GEF scores of the siblings differed significantly ($p < 0.05$) from the mean GEF scores of the patients, with the latter having the lower score. The mean GEF scores of the fathers and mothers, however, did not differ significantly from each other.

In the post hoc comparisons of ARISE group means, the mean score of the patients differed significantly from the mean score of the siblings ($p < 0.01$) and of the mothers ($p < 0.05$). The mean ARISE scores of all other comparisons did not differ significantly from each other. The siblings obtained the highest mean score on ARISE, whereas the patients obtained the lowest score.

Summarizing the results, member was found to correlate with mean GEF and ARISE scores; psychopathology and sex, however, did not relate to the scores on the two dependent variables. Moreover, the findings on GEF and ARISE were not comparable.

2(a). The Relationship of Member and Sex with the Two Dependent Variables For the Combined Families With a Schizophrenic Patient.

Hypothesis ~~4~~ states that there are no significant member differences on the mean GEF and ARISE scores for the combined member of families with a schizophrenic patient; and hypothesis 5 states the same for sex differences. To test the hypotheses, the GEF and ARISE means (Table 41)

Table 45

Comparison of Mean GEF Scores Obtained by the Combined Sample
 Divided According to Member, Using the Duncan Multiple Range Test

Group	Mean	Group			
		1	2	3	4
Fathers (1)	311.13	--	9.97 [@]	32.40**	72.29**
Mothers (2)	301.16		--	22.43**	62.32**
Siblings (3)	278.73			--	39.89**
Patients (4)	238.75				--

[@]Values represent differences between means

* p<0.05

**p<0.01

Table 46

Comparison of Mean ARISE Scores Obtained by the Combined Sample
Divided According to Member, Using the Duncan Multiple Range Test

Group	Mean	1	2	Group 3	4
Siblings (1)	25.24	--	.47 [@]	1.89	2.74**
Mothers (2)	24.72		--	1.42	2.27*
Fathers (3)	23.35			--	.85
Patients (4)	22.50				--

[@]values represent differences between means

* p<0.05

**p<0.01

were analyzed separately using a two-factor analysis of variance. The results of the analysis for both the GEF and ARISE means are presented in Table 47.

The means on GEF showed significant differences among member groups, but no significant sex difference was found, nor was there a significant member X sex interaction. The analysis of ARISE means showed no significant differences for the main effects nor for member x sex interaction. In view of these findings, hypothesis 4 was rejected in part, but hypothesis 5 was not rejected.

Since only member differences were significant on the mean GEF score, the data were reorganized into member groups. Table 48 presents the means and standard deviations of the four member groups for GEF scores. The differences between means and the level of significance for post hoc comparisons on GEF are presented in Table 49.

In the post hoc comparisons the mean GEF scores of fathers, mothers and siblings differed significantly ($p < 0.01$) from the mean GEF scores of the patients. The mean GEF scores of the fathers also differed significantly ($p < 0.05$) from the mean GEF score of the siblings. All other comparisons did not yield significant differences. However, the difference between the fathers' and mothers' mean GEF scores just failed to reach significance. The critical value for significance was 28.07.

On the basis of previous research concerning family studies of schizophrenia, the fathers were expected to differ from the mothers on mean GEF scores. To test this hypothesis, the mean GEF scores of the fathers and mothers were re-analyzed using a two-factor analysis of variance. The results of this analysis are summarized in Table 50. The GEF means showed

Table 47

Summary of Analysis of Variance: Relationship of Member and Sex
With Mean GEF and ARISE For Families with A Schizophrenic Patient

Variable	Source	d.f.	MS	F	Probability
GEF	Member (A)	3	23702.23	15.06	.0001
	Sex (B)	1	392.53	.25	.620
	A x B	3	255.31	.16	.921
	Error Term	56	1574.21		
	Total				
ARISE	Member (A)	3	20.70	1.34	.269
	Sex (B)	1	2.44	.16	.692
	A x B	3	14.82	.96	.417
	Error Term	56	15.39		
	Total				

Table 48

Means and Standard Deviations of GEF and ARISE Scores
For Families With A Schizophrenic Patient
Divided According to Member (N=64)

Member	GEF		ARISE	
	M	S.D.	M	S.D.
Patients	227.00	37.30	22.38	2.79
Siblings	275.41	53.14	25.13	4.52
Fathers	318.38	24.00	23.38	4.49
Mothers	292.38	34.11	23.53	3.49

Table 49

Comparison of Mean GEF Scores Obtained by Families with a Schizophrenic Patient Divided According To Member, Using the Duncan Multiple Range Test (N=64)

Group	Mean	1	2	Group 3	4
Fathers (1)	318.38	--	26.00 [ⓐ]	42.97**	91.38**
Mothers (2)	292.38		--	16.97	65.38**
Siblings (3)	275.41			--	48.41**
Patients (4)	227.00				--

[ⓐ]Values represent differences between means

* p<0.05

**p<0.01

Table 50

Summary of Analysis of Variance: Relationship of Member and Sex
With GEF for the Combined Parents of Schizophrenic Patients

Source	d.f.	MS	F	Probability
Member (A)	1	5407.99	5.82	.023
Sex (B)	1	8.00	.01	.927
A x B	1	84.50	.09	.765
Error	28	928.77		
Total	31	1016.32		

significant differences ($p < 0.05$) among member groups, with the fathers scoring higher than the mothers. No significant sex difference, nor member x sex interaction was found.

In summary, member was found to be related to GEF scores, but not to ARISE scores. Sex related to neither GEF nor ARISE mean scores. The results of the analysis of mean GEF scores showed that the fathers scored significantly higher than all other members, and that the mothers and siblings, who did not differ significantly from each other, also scored significantly higher than the patients.

2(d) The Relationship of Member and Sex With The Two Dependent Variables For The Combined Families with a Neurotic Patient.

This section discusses the manner in which hypotheses 6 and 7 were tested. Hypothesis 6 states that there are no significant member differences on the mean GEF and ARISE scores (Table 41) for the combined members of families with a neurotic patient, whereas hypothesis 7 states that there are no significant sex differences on the two dependent variables for the same group of subjects.

The two hypotheses were tested separately using a two-factor analyses of variance. The results of the analyses for both GEF and ARISE mean scores are presented in Table 51.

Significant differences were found among member group mean scores on both GEF ($p < 0.0001$) and ARISE ($p < 0.05$), but no significant sex differences were found. The analyses of GEF also showed a significant member x sex interaction ($p < 0.05$). In view of these findings, hypothesis 6 was rejected, however, hypothesis 7 was not rejected.

Table 51

Summary of Analysis of Variance: Relationship of Member and Sex
With GEF and ARISE for Families with A Neurotic Patient

Variable	Source	d.f.	MS	F	Probability
GEF	Member (A)	3	9887.53	13.22	.0001
	Sex (B)	1	2.28	.00	.956
	A x B	3	2178.92	2.91	.043
	Error Term	52	747.76		
	Total	59			
ARISE	Member (A)	3	38.87	3.39	.025
	Sex (B)	1	37.09	3.24	.078
	A x B	3	5.02	.42	.727
	Error Term	52	11.45		
	Total	59			

Since only member differences were significant on the GEF and ARISE mean scores, the data were reorganized into member groups. Table 52 presents the means and standard deviations of the mean GEF and ARISE scores for the four member groups. The differences between means and the level of significance for post hoc comparisons on GEF and ARISE are presented in Tables 53 and 54 respectively.

In the post hoc comparisons, the mean GEF scores of the mothers and fathers differed significantly from the mean GEF scores of the siblings ($p < 0.01$, $p < 0.05$, respectively, for mothers and fathers) and of the patients ($p < 0.01$). The mean GEF scores of the siblings also differed significantly from the mean scores of the patients ($p < 0.01$). All other comparisons failed to yield significant differences. The mothers obtained the highest mean GEF score, while the patients obtained the lowest score.

The analysis of variance of mean GEF scores also yielded a significant member x sex interaction ($p < 0.05$) which modifies the interpretation of the main effects (Kirk, 1968, p.177-178). The means and standard deviations, for the member x sex interaction, are presented in Table 41, and the differences between means and the level of significance for post hoc comparisons are presented in Table 55. The member x sex interaction is illustrated in Figure 1. The figure shows that for a member by member comparison on GEF scores for families with a neurotic patient, members of families with a female patient scored higher than similar members in families with a male patient. The one exception to this pattern is the patient, wherein the female patient scored lower when compared to the male patient.

In the post hoc comparisons of GEF mean scores, the fathers, mothers and siblings scored significantly higher than the patients, the mothers of

Table 52

Means and Standard Deviations of GEF and ARISE Scores For The Families With A Neurotic Patient Divided According to Member (N=60)

Member	GEF		ARISE	
	M	S.D.	M	S.D.
Patients	251.47	39.12	22.63	3.28
Siblings	282.27	30.52	25.37	3.32
Fathers	303.40	19.85	23.33	4.23
Mothers	310.53	19.73	26.10	2.56

Table 53

Comparison of Mean GEF Scores Obtained by Families with a
Neurotic Patient Divided According to Member, Using the
Duncan Multiple Range Test (N=60)

Group	Mean	Group			
		1	2	3	4
Mothers (1)	310.53	--	7.13 ^①	28.26**	59.06**
Fathers (2)	303.40		--	21.13*	51.93**
Siblings (3)	282.27			--	30.80**
Patients (4)	251.47				--

^①Values represent differences between means

* p<0.05

**p<0.01

Table 54

Comparison of Mean ARISE Scores Obtained By Families with a
Neurotic Patient Divided According to Member, Using the
Duncan Multiple Range Test (N=60)

Group	Mean	1	2	Group 3	4
Mothers (1)	26.10	--	.73 [®]	2.77*	3.47*
Siblings (2)	25.37		--	2.04	2.74*
Fathers (3)	23.33			--	.70
Patients (4)	22.63				--

[®]Values represent differences between means
* p<0.05

Figure 1

A Graphic Representation of Member x Sex Interaction on GEF Mean Scores

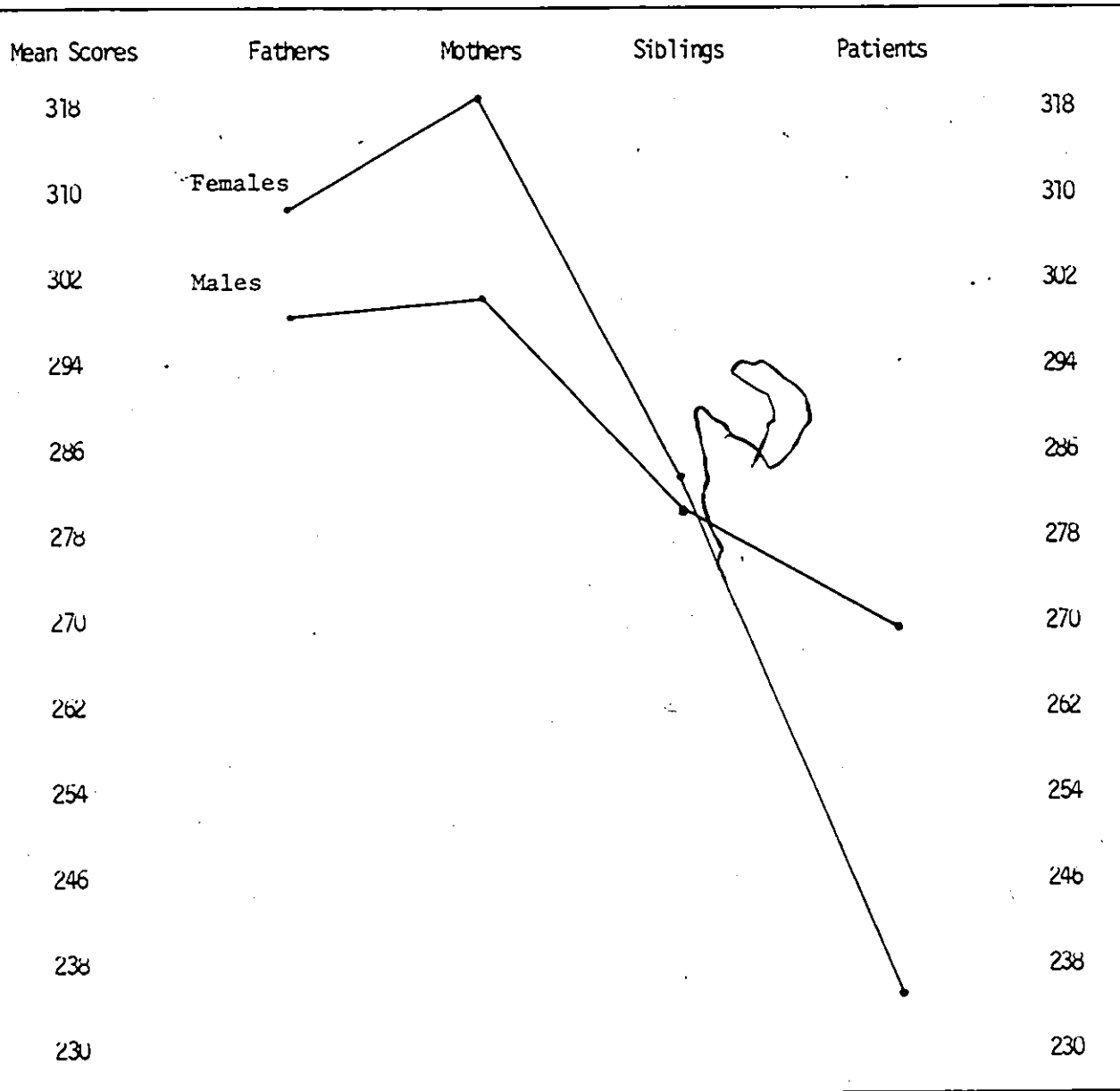


Table 55

Comparison of Mean GEF Scores Obtained by Families With A Neurotic Patient Divided According to Member and Sex, Using the Duncan Multiple Range Test

Group ^a	Mean	1	2	3	4	Group 5	6	7	8
MoFN(1) =	318.75	- -	10.00 ^b	17.61*	21.46*	34.06**	39.25**	48.18**	64.00**
FaFN(2) =	308.75	- -	- -	7.61	11.46	24.06*	29.25**	38.18**	74.00**
MoMN(3) =	301.14	- -	- -	- -	3.85	16.45*	21.64*	30.57**	66.39**
FaMN(4) =	297.29	- -	- -	- -	- -	12.60	17.79*	26.72*	62.54**
SibFN(5) =	284.69	- -	- -	- -	- -	- -	5.19	14.12*	49.94**
SibMN(6) =	279.50	- -	- -	- -	- -	- -	- -	8.93	44.75**
PatMN(7) =	270.57	- -	- -	- -	- -	- -	- -	- -	35.82*
PatFN(8) =	234.75	- -	- -	- -	- -	- -	- -	- -	- -

^apat=patient; Sib=sibling; Fa=father; Mo=mother; M=male; F=female; N=neurotic.

^bValues represent differences between means

* p<0.05

**p<0.01

both neurotic males and neurotic females and the fathers of female neurotics scored higher than the two sibling groups. The mothers of female neurotics also differed significantly from the mothers and fathers of male neurotics. Lastly, the male patients differed significantly from the female patients on GEF mean scores but not from the siblings of male patients. Table 41 shows that the mean score of female neurotics on GEF is very similar to that of both the male and female schizophrenics. The post hoc findings on the member x sex interaction points to the need to modify the interpretation of the significant main effects on GEF.

In the post hoc comparisons of ARISE group means, the mean scores of the mothers differed significantly ($p < 0.05$) from the mean scores of the fathers and patients, with the mothers scoring the highest and the patients the lowest. The mean ARISE scores of the siblings differed significantly ($p < 0.05$) from the mean score of the patients. All other comparisons of mean GEF scores failed to yield significant differences.

In summary, the fathers and mothers scored significantly higher on GEF than the siblings who in turn scored significantly higher than the patients. A member-sex interaction was found on GEF which modified the above findings. The mothers of female neurotics were found to score significantly higher than the mothers and fathers of male neurotics, and the male patients were found not to differ from the siblings of males, but differed significantly from the female patients. On ARISE the mothers scored significantly higher than both the fathers and patients, while the siblings scored significantly higher than the patients.

3. The Relationship of Psychopathology and Sex with The Two Dependent Variables for Each Member Taken Separately.

To test hypotheses 8 to 15 which pertain to the relationships of psychopathology and sex with the two dependent variables for each member group, a two-factor analysis of variance was carried out on the GEF and ARISE mean scores (Table 41) for each member group taken separately. The results of the analyses of GEF and ARISE mean scores for each member group are presented in Tables 56 and 57, respectively. The means on GEF showed no significant differences for main effects, and no psychopathology x sex interaction. The means on ARISE showed significant psychopathology and sex differences only for the combined mother group, but not for any of the other groups. There was no significant psychopathology x sex interaction on ARISE. On the basis of these results, hypotheses 8 to 13 were not rejected. But hypothesis 14, which states that there is no significant psychopathology difference on ARISE for a combined sample of mothers, and hypothesis 15 which states that there is no significant sex difference on ARISE for a combined sample of mothers, were rejected.

Since there were psychopathology and sex differences only for the mother group on ARISE, the data were reorganized for this group. Table 58 presents the means and standard deviations for the mothers when divided, according to psychopathology and according to sex. The data summarized in Table 58, shows that the mean score on ARISE for the mothers of neurotics is significantly higher than the mean score for the mothers of schizophrenics ($p < 0.05$), and that the group mean of mothers of females is significantly higher than that for the mothers of males ($p < 0.05$).

In summary, psychopathology and sex were found not to relate to member on GEF mean scores, and to relate only with the mean scores of the mother

Table 56

Summary of Analysis of Variance: Relationship of Psychopathology
and Sex with GEF for Each Member Taken Separately

Member	Source ^a	d.f.	MS	F	Probability
Patients:	Psych of Patient (A)	1	4634.46	3.36	.078*
	Sex of Patient (B)	1	3403.38	2.46	.128
	A x B	1	1590.17	1.15	.293
	Error	27	1381.19		
Siblings:	Psych of Patient (A)	1	364.38	0.18	.674
	Sex of Patient (B)	1	200.57	0.10	.754
	A x B	1	762.79	0.38	.543
	Error	27	2015.94		
Fathers:	Psych of Patient (A)	1	1736.12	3.45	.074**
	Sex of Patient (B)	1	462.42	.92	.346
	A x B	1	100.50	.20	.658
	Error	27	503.49		
Mothers:	Psych of Patient (A)	1	2552.73	3.17	.086*
	Sex of Patient (B)	1	416.21	.52	.478
	A x B	1	761.42	.95	.339
	Error	27	804.69		

* power equals .42 and β (1-.42) equals .58

**power equals .44 and β (1-.44) equals .56

^apsych means psychopathology

Table 57

Summary of Analysis of Variance: Relationship of Psychopathology
and Sex with ARISE for Each Member Taken Separately

Member	Source ^a	d.f.	MS	F	Probability
Patients:	Psych of Patient (A)	1	.52	.05	.818
	Sex of Patient (B)	1	.27	.02	.869
	A x B	1	7.24	.75	.393
	Error	27	9.61		
Siblings:	Psych of Patient (A)	1	.45	.03	.867
	Sex of Patient (B)	1	29.35	1.87	.183
	A x B	1	7.45	.47	.497
	Error	27	15.73		
Fathers:	Psych of Patient (A)	1	.01	.00	.979
	Sex of Patient (B)	1	3.45	.17	.682
	A x B	1	5.73	.28	.598
	Error	27	20.15		
Mothers:	Psych of Patient (A)	1	57.09	6.01	.021
	Sex of Patient (B)	1	44.02	5.18	.031
	A x B	1	1.51	.18	.677
	Error	27	8.49		

^apsych means psychopathology

Table 58

Means and Standard Deviations of ARISE Scores for the
Combined Mothers Divided According to the Psychopathology
and Sex of the Patient

Sex of Patient	Schizophrenic		Neurotic		Mean	
	M	S.D.	M	S.D.	M	S.D.
Male	22.13	2.80	25.07	2.32	23.50	2.92
Female	24.94	3.71	27.00	2.56	25.97	3.26
Mean	23.53	3.49	26.04	2.56		

group on ARISE. The mothers of neurotics scored higher than the mothers of schizophrenics, and the mothers of females scored higher than the mothers of males on ARISE.

Although the analysis yielded no significant main effects on GEF, yet the significance levels for the patient, father and mother groups when divided according to psychopathology were .078, .074 and .086, respectively. To determine the power of the F-test - that is, to determine the risk in rejecting a false hypothesis (Type II or Beta error) - when the level of significances are .078, .074 and .086, Cohen's method was applied (Cohen, 1969). Cohen's formula for determining power as well as the mechanics of this technique were presented in Chapter II. Using Cohen's technique, the power of the F statistics for the patients ($F=3.36$) and for the mothers ($F=3.17$) was calculated to be .42, and Beta error ($1-.42$) was found to be .58, or 58 percent. The power of the F statistic for the fathers ($F=3.45$) was found to be .44, and Beta error (β) was calculated to be .56 or 56 percent. That means that for the cases at hand, the chances in committing Beta error by not rejecting the above hypotheses ranges from 56 to 58 percent. To improve the power of the F test for all three member groups so that $\beta < 0.05$, an N of 64 is required (Cohen, 1969). Significance might be achieved if more subjects were used, nevertheless, given the data analysis, there was no significance.

The means for the four member groups on GEF are presented in Table 59. The data show that the mean score for the neurotic patients is higher than the mean score for the schizophrenic patients. This finding, although not significant for the present study, is consistent with that of Bellak and associates wherein they found significant psychopathology differences on

Table 59

Means and Standard Deviations of GEF Scores for Combined Sample
Divided According to Member and Psychopathology of the Patient

Member	Schizophrenic		Neurotic	
	M	S.D.	M	S.D.
Patients	227.00	37.30	251.47	39.12
Siblings	275.41	53.14	282.27	30.52
Fathers	318.38	24.00	303.40	19.85
Mothers	292.38	34.11	310.53	19.73

all twelve ego functions with the neurotics scoring higher than the schizophrenics (Bellak, 1973, p.308). The fathers of schizophrenics obtained a higher mean score than the fathers of neurotics. In the case of the mothers, the above pattern was reversed. It should be noted that the above differences noted did not reach the .05 level of significance.

4(a) The Relationship of Psychopathology and Member with the Two Dependent Variables for the Combined Families with a Male Patient.

Hypothesis 16 states that there are no significant psychopathology differences on GEF and on ARISE mean scores for the combined families with a male patient; hypothesis 17 states that there are no significant member differences on the two dependent variables for the same sample. The relationship of psychopathology and member of GEF and ARISE mean scores (Table 41) was tested by separate two-factor analysis of variance. The results of the analyses of GEF and ARISE means are presented in Table 60.

The means on GEF showed significant differences among member groups, but no significant psychopathology difference was found, nor was there a significant psychopathology x member interaction. The analysis of ARISE mean scores yielded no significant main effects, nor was there a significant psychopathology x member interaction.

To test for member differences on GEF, the data were reorganized into member groups. Table 61 presents the means and standard deviations of the four member groups across pathology of GEF and ARISE. The differences between means and the level of significance for post hoc comparisons on GEF are presented in Table 62.

In the post hoc comparisons, the mean GEF scores of fathers was significantly higher than the mean scores for both the siblings ($p < 0.05$)

Table 60

Summary of Analysis of Variance: Relationship of Psychopathology and Member With GEF and ARISE Scores For Families With Male Patients

Variable	Source ^a	d.f.	MS	F	Probability
GEF	Psych (A)	1	603.93	.66	.418
	Member (B)	3	9671.94	10.66	.000
	A x B	3	2324.09	2.56	.065
	Error	52	907.22		
	Total	59	1419.79		
ARISE	Psych (A)	1	.19	.02	.897
	Member (B)	3	8.90	.80	.498
	A x B	3	13.35	1.20	.318
	Error	52	11.10		
	Total	59	10.92		

^apsych means psychopathology

Table 61

Means and Standard Deviations of GEF and ARISE Scores for Families
with a Male Patient Divided According to Psychopathology and Member

Variable	Psychopathology	Member							
		Patients		Siblings		Fathers		Mothers	
		M	S.D.	M	S.D.	M	S.D.	M	S.D.
GEF	Schizophrenia	230.56	41.03	282.75	20.32	316.25	19.52	293.50	29.46
	Neurosis	270.57	45.55	279.50	28.68	297.29	22.60	301.14	23.47
	Mean	249.23	46.46	281.23	23.71	307.40	22.48	297.07	26.18
ARISE	Schizophrenia	22.75	3.27	24.63	3.84	24.13	4.95	22.13	2.80
	Neurosis	22.00	2.52	23.79	2.63	23.21	3.19	25.07	2.32
	Mean	22.40	2.87	24.23	3.25	23.70	4.10	23.50	2.92

Table 62

Comparison of Mean GEF Scores Obtained by Male Patients, Their
Siblings and Parents, Using the Duncan Multiple Range Test
(N=60, d.f.=2-5/15)

Group	Mean	1	2	Group 3	4
Fathers (1)	307.40	--	10.33 [@]	26.17*	56.17**
Mothers (2)	297.07		--	15.84	47.84**
Siblings (3)	281.23			--	32.00**
Patients (4)	249.23				--

[@]values represent differences between means

* p<0.05

**p<0.01

and the patients ($p < 0.01$), but did not differ significantly from that of the mothers. The mean scores on GEF for both the mothers and siblings differed significantly ($p < 0.01$) from that of the patients. All other member comparisons yielded no significant differences.

In summary, no relationship was found to exist between psychopathology and GEF and ARISE scores for families with a male patient. Member was found to be related only to GEF mean scores, but not to ARISE mean scores. The father, mother and sibling groups yielded means on GEF which differed significantly either from the patients' mean score. The mother group, however did not differ significantly from the father group or from the sibling group. The father group yielded a mean score on GEF that differed significantly from that of the siblings.

4(b) The Relationship of Psychopathology and Member with the Two Dependent Variables for the Combined Families with a Female Patient.

The two last hypotheses tested pertain to the relationship of psychopathology (H_{18}) and member (H_{19}) with GEF and ARISE mean scores (Table 41) for the combined families with a female patient. The hypotheses were tested separately by the use of a two-factor analysis of variance. The results of the analyses of GEF and ARISE means are presented in Table 63.

The analyses of both GEF and ARISE mean scores yielded significant member differences, but no significant psychopathology differences, nor a significant psychopathology x member interaction.

Since only member differences were significant on the GEF and ARISE mean scores, the data were reorganized into member groups. Table 64 summarizes the means and standard deviations of the four member groups for

Table 63

Summary of Analysis of Variance: Relationship of Psychopathology and Member with GEF and ARISE for Families with a Female Patient

Variable	Source ^a	d.f.	MS	F	Probability
GEF	Psych (A)	1	1908.60	1.34	.252
	Member (B)	3	23583.94	16.54	.000
	A x B	3	1095.35	.77	.517
	Error	56	1426.33		
	Total	63	2473.35		
ARISE	Psych (A)	1	26.91	1.71	.196
	Member (B)	3	57.51	3.66	.018
	A x B	3	1.15	.07	.974
	Error	56	15.72		
	Total	65	17.19		

^aPsych means psychopathology

Table 64

Means and Standard Deviations of GEF and ARISE Scores for Families
with a Female Patient Divided According to Psychopathology and Member

Variable	Psychopathology	Member							
		Patients		Siblings		Fathers		Mothers	
		M	S.D.	M	S.D.	M	S.D.	M	S.D.
GEF	Schizophrenia	223.44	35.60	268.06	74.27	320.50	29.04	291.25	40.29
	Neurosis	234.75	24.45	284.69	33.80	308.75	16.74	318.75	11.88
	Mean	229.09	30.08	276.38	56.40	314.63	23.69	305.00	32.02
ARISE	Schizophrenia	22.00	2.38	25.63	5.34	22.63	4.18	24.94	3.71
	Neurosis	23.19	3.91	26.75	3.40	23.44	5.20	27.00	2.56
	Mean	22.59	3.18	26.19	4.36	23.03	4.58	25.97	3.26

GEF and for ARISE. The differences between means and the level of significance for post hoc comparisons on GEF and ARISE are presented in Tables 65 and 66 respectively.

In the post hoc comparisons, the mean GEF scores of the fathers, mothers and siblings differed significantly ($p < 0.01$) from the mean GEF score of the patients. The mean GEF scores of the fathers and mothers also differed significantly ($p < 0.05$) from that of the siblings. All other comparisons yielded no significant differences. The fathers had the highest mean score on GEF whereas, the patients had the lowest score.

In the post hoc comparisons of ARISE scores, the siblings and mothers scored significantly higher ($p < 0.05$) than both the father and patient groups. All other comparisons yielded no significant differences. The siblings obtained the highest mean score on ARISE while the patients obtained the lowest mean score.

In summary, no relationship was found between the psychopathology of the patient and GEF and ARISE scores for families with a female patient. However, member was found to be related to both GEF and ARISE mean scores. The post hoc findings on GEF for the families with a female patient are very similar to the post hoc findings for families with a male patient (Table 62). However, the findings on ARISE for the two samples were not similar.

Table 65

Comparison of Mean GEF Scores Obtained by Female Patients, Their Siblings and Parents, Using the Duncan Multiple Range Test (N=64, d.f.=2-5/16)

Group	Mean	1	2	Group 3	4
Fathers (1)	314.63	--	9.63 [@]	37.85*	85.54**
Mothers (2)	305.00		--	28.22**	75.91**
Siblings (3)	276.78			--	47.69**
Patients (4)	229.09				--

[@]Values represent differences between means

* p<0.05

**p<0.01

Table 66

Comparison of Mean ARISE Scores Obtained by Female Patients, Their Siblings and Parents, Using the Duncan Multiple Range Test (N=64, d.f.=2-5/16)

Group	Mean	1	2	Group 3	4.
Siblings (1)	26.19	--	.22 [@]	3.16*	3.6*
Mothers (2)	25.97		--	2.94*	3.38*
Fathers (3)	23.03			--	.44
Patients (4)	22.59				--

[@]values represent differences between means

* p<0.05

Summary of Findings

The findings of this study are summarized separately for the two dependent variables according to psychopathology, member and sex differences.

a) GEF Findings:

1. Member related significantly with GEF but the orderings for member differed for the two psychopathology groups.
2. In families with a neurotic patient, there was a significant member x sex interaction.
3. Sex differences did not relate significantly with GEF mean scores.

b) ARISE Findings:

4. Psychopathology differences related significantly with ARISE for the mother group, but not for any other member group.
5. There was a significant relationship between member and ARISE for the combined sample, for families with a neurotic patient, and for families with a female patient.
6. Sex differences related significantly with ARISE for the mother group alone.

This concludes the presentation of the findings. The results will be discussed in the following chapter.

CHAPTER IV

DISCUSSION OF RESULTS

The results of the present study must be interpreted in view of three limiting conditions. First, the findings are generalizable to intact families of schizophrenic patients who have at least one full sibling of the same sex. The findings, therefore, do not necessarily apply to families broken by the separation, divorce, or death of a parent, or to situations where the patient was reared by step- or foster-parents. Secondly, the neurotic patients that served as a comparative group, represent the more serious end of the neurotic spectrum. Therefore, the findings might be different if a more representative sample of neurotics were utilized as a means of comparison. Lastly, the families studied in this project are predominantly from the higher socioeconomic strata. Hence, the present findings do not necessarily apply to families who come from the lower socioeconomic strata.

The findings of the present study will be discussed in accordance with the three independent variables; that is, according to psychopathological, member and sex differences. Figures will be utilized to facilitate the summary and discussion of the findings.

1. Psychopathological Differences

Among the various intergroup comparisons, a single psychopathological difference was observed. This difference appeared on the ARISE scores of

the mothers in the study: the mothers of the neurotics scored higher on ARISE than did the mothers of the schizophrenics (Figure 2). The ego function ARISE, refers both to the capacity for regressive relaxation of cognitive acuity and to the ability to form new configurations demanded by specific circumstances.) It is also associated with the mother's capacity to attune herself finely to the needs of the infant, a function considered essential for the child's ego development (Mahler, 1968).

The finding that the mothers of schizophrenics scored lower than the mothers of neurotics on ARISE is consistent with empirical data. The mothers of schizophrenics, when compared to mothers of controls, were found to be: impervious to the needs and demands of the child (Lee, 1975); lacking in empathy (Alanen, 1958; Fleck et al., 1963; Lidz et al., 1965b); more concerned with the satisfaction of their own needs rather than with those of the child (Stabenau et al., 1965; Walsh et al., 1977); emotionally cold and impoverished (Alanen, 1958); and "symbiotic-protective" towards their children (Wolman, 1965).

The finding on ARISE provides evidence in support of the hypothesis concerning ego development and of the psychodynamic theory of schizophrenia which interprets it as a disturbance of the ego. According to this orientation the ego is believed to evolve within context of object relationships, particularly within the context of a mother-child symbiotic relationship (Jacobson, 1964; Mahler, 1968, 1974; Spitz, 1965). It is conjectured that the capacity for ARISE equips the prospective mother for participation with the neonate in the affective interchanges that are important for his ongoing development (Spitz, 1965). Through her interchanges with the infant, the mother is thought to act as a "catalyst"

Figure 2

Psychopathological Differences on ARISE and GEF
for the Combined Sample

VARIABLE	DIFFERENCES
ARISE	Mo N > Mo Sch
GEF	Pa N > Pa Sch (p=.078)
	Fa Sch > Fa N _v (p=.074)
	Mo N > Mo Sch (p=.086)

Legend: Mo - Mother
 Pa - Patient
 Fa - Father
 N - Neurotic
 Sch - Schizophrenic
 > means greater than

to "quicken" the infant's innate equipment (Mahler, 1968, 1974). When the mother is not able to attune herself to the needs of the neonate and is emotionally unavailable to him, the infant is deprived of a catalyst necessary to the "quickenning" of his innate equipment. This state of affairs is believed to result in an underdeveloped or weakened ego, and in some situations, schizophrenia. Lidz (1973, 1974, 1978) relates the etiology of schizophrenia to the mother's inability properly to accommodate to the child and his needs; that is, to the mother's egocentric and narcissistic needs. Bellak (1958b) theorizes that all cases of schizophrenia, excluding those precipitated by somatic factors, may be satisfactorily understood as the result of poor mother-child relationships in the development of psyche and soma. He states that inadequate mothering which includes an inflexibility, a lack of emotional availability and rapport, as well as an incapacity to regress in service of the ego (ARISE) is associated with the etiology of schizophrenia.

In brief, the finding on ARISE is consistent with the published empirical data and with a psychodynamic interpretation of schizophrenia. However, the precise manner in which a mother's low score on ARISE relates to a neonate's ego deficiencies requires further investigation.

There were no significant psychopathological differences observed on GEF (Figure 2). This finding conflicts with the implication of empirical data indicating that the family members of schizophrenics are, in general, more emotionally disturbed than the family members of controls. The implication is that the former are expected to manifest greater ego deficiencies than the latter.

The failure on part of the three groups - patients, fathers, and mothers - to reach the level of significance should be cautiously interpreted because the failure might be a function of the size of the sample utilized, of the severity of the emotional disturbance of the control patients, and/or of the patient's social status. In comparison with Bellak's and associates' study (1973), the neurotic patients of the present study were more seriously disturbed, and all of the patients came from the higher social strata. Lastly, a power test indicated that one could be confident in the results only by increasing the sample size to 65 subjects per (member) group.

Bellak and associates (1973) were able significantly to differentiate a sample of schizophrenics from a sample of neurotics on each of the twelve ego functions by the use of a one-way analysis of variance. To determine more precisely the comparability between the results of the present and the Bellak and associates study, the mean scores of the patients (divided according to pathology) for each of the twelve ego functions were subjected to a two-way (psychopathology by sex) analysis of variance. The results indicated that the schizophrenics scored significantly lower than the neurotics on five ego functions, namely: Reality Testing, Sense of Reality of the World and of the Self, Object Relations, Thought Processes, and Mastery-Competence. On the remaining seven ego functions, the mean scores of the schizophrenics were lower than those of the neurotics. The results of the two studies are identical, but comparable and reflect similar tendencies.

The most unexpected observation on GEF is that the fathers of schizophrenics obtained a higher mean score than the fathers of neurotics. Although the difference between the two groups is not significant, the tendency is not consistent with empirical data (Alanen, 1966). This might very well be a function of a higher social status. Blakar and associates (1978), for example, observed that "communication efficiency" is influenced by whether the parents are "rural" or "city" dwellers a finding which implies social status. The role that social status plays on ego functions needs to be investigated.

The failure to differentiate the two sibling groups on ARISE and GEF scores was unexpected and is not consistent with the results from empirical studies. Alanen (1966), for example, observed that eight percent of the siblings of schizophrenic patients were schizophrenic themselves, while none of the siblings of neurotic patients was schizophrenic. He also noted that, when compared to the siblings of neurotics, a greater percentage of siblings of schizophrenics were more disturbed than simple neuroses. The difference in the two findings might be related to the nature of the sample. In his study, Alanen used all available siblings, whereas in the present study the siblings selected were those of the same sex as the patient and nearest to him/her in age. It is still debated whether siblings nearest in age and of the same sex as the patients are more disturbed than siblings of the opposite sex and more distant in age. If the response to the above debate is positive, then the siblings used in the present and in the Alanen studies are not comparable and, this difference might then account for the inconsistencies observed between the two studies. Further investigations are required to clarify this issue.

In summary, the only psychopathological difference observed was on ARISE where the mothers of schizophrenics scored lower than the mothers of neurotics. This finding is consistent with published empirical data and with psychodynamic theory concerning ego development and the etiology of schizophrenia, excluding those forms precipitated by somatic factors.

2. Member Differences

When member differences of GEF are examined, a pattern quickly becomes apparent (Figure 3). The fathers and mothers, who do not differ significantly from each other, except in the case of families with a schizophrenic patient, scored higher than the siblings; and the siblings in turn scored higher than the patients. This finding is consistent with the implications of Alanen's (1966) finding. He noted that the extent of psychopathology among the siblings of schizophrenics and neurotics was greater than that among the combined parents of the same patients, but less than that among the patients themselves. For example, eight percent of the siblings, three percent of the fathers, and ten percent of the mothers of schizophrenics were schizophrenic themselves. From 75 to 78 percent of the siblings and approximately 70 percent of the fathers and mothers of schizophrenics have been found to be more disturbed than simple neuroses (Alanen, 1966; Lidz et al., 1963). Since the degree of psychopathology is theorized to correlate positively with global ego functioning (Bellak et al., 1969; Hartmann, 1950; Witkin et al., 1962) the pattern in Figure 2 was expected.

Of particular significance is the finding that the fathers of schizophrenic patients scored higher on GEF than the mothers. This is not true for the fathers and mothers of neurotics where no differences were observed. These findings are comparable to those of Alanen (1966), where

Figure 3

Member Differences on GEF for the Combined Sample and
for the Sample Divided According to Psychopathology

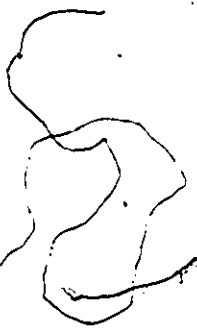
GROUP	DIFFERENCES
Combined Sample	$\begin{array}{l} \text{Fa} \\ \text{Mo} \end{array} \begin{array}{l} \diagdown \\ \diagup \end{array} \text{Sib} > \text{Pa}$
Schizophrenia	$\text{Fa} > \text{Mo} > \text{Sib} > \text{Pa}$
Neurosis	$\begin{array}{l} \text{Fa} \\ \text{Mo} \end{array} \begin{array}{l} \diagdown \\ \diagup \end{array} \text{Sib} > \text{Pa}$

Legend: Fa - Father
Mo - Mother
Sib - Sibling
Pa - Patient

> means greater than

he found that three percent of the fathers and ten percent of the mothers of schizophrenics were schizophrenic themselves. None of the fathers nor mothers of neurotics were schizophrenic. Moreover, among the families of schizophrenics a greater percentage of the mothers than of the fathers were psychotic (30 and 23 percent respectively).

An interesting pattern emerges when the mean GEF scores of the parents divided according to member and path are considered. The fathers of schizophrenics obtained the highest mean score, the mothers of schizophrenics the lowest, and the mothers of neurotics scored higher than the fathers of neurotics.



The fact that the mothers and fathers of schizophrenics represented the two extremes on a continuum of GEF mean scores has theoretical implications. It implies that the mother's ego capacities play a vital role in the development of the child's ego whereas the ego capacities of the father play a minimal role. This is given support by the fact that the fathers of neurotics tend to be more deficient in terms of ego functions than the fathers of schizophrenics, and yet it is the child of the latter that is more seriously disturbed. The above findings give support to the hypothesis of the "schizophrenogenic mother" and to the psychodynamic theory of schizophrenia. Psychodynamic theory emphasizes the role of the mother in the evolution of the neonate's ego, a role which is conceptualized to be that of a catalyst within a reality-based and nurturing environment (Bellak, 1958a; Lidz, 1973, 1974, 1978; Mahler, 1968, 1974).

Member differences were observed on ARISE as well, but only within the families of the combined sample and within the families of neurotic

patients (Figure 4). No member differences were found on ARISE within the families of schizophrenic patients. In the case of the combined sample, the father, mother, and siblings scored higher than the patients but did not differ from each other. In the case of the families of neurotics, the mothers and siblings scored higher on ARISE than the patients, but the mothers alone scored higher than the fathers. Earlier it was observed that the mothers of neurotics scored higher on ARISE than the mothers of schizophrenics (Figure 2). Now it is seen that they also score higher than the fathers of neurotics. Thus, the mothers of neurotics, by deduction, are the most endowed with respect to the ego function ARISE when compared to the other groups of parents divided according to member and path (Table 41). It may very well be that the child who becomes a neurotic is kept from more serious psychopathology because of the more adequate grounding in ego development given to him than that given to the child reared by a mother who is deficient in ARISE. It would be interesting to know what happens to families where the father compensates for the mother's deficiency in ARISE. Nevertheless, the above findings and deductions give support to the psychodynamic theories concerning ego development and the etiology of schizophrenia. The capacity for ARISE appears to be an essential quality for a mother to possess in order to equip her to aid the child in the development of his ego.

Before terminating this section it should be noted that the schizophrenic patients did not score higher on ARISE than did any of the other member groups. Earlier it was observed that the schizophrenic patients did not perform better on ARISE than the neurotic patients (Figure 2). There is controversy regarding the schizophrenic's creative

Figure 4

Member Differences on ARISE for the Combined Sample
and for the Families of Neurotics.

GROUP	DIFFERENCES
Combined Sample	<p>Sib Mo Fa</p> <p>Pa</p>
Neurosis	<p>Mo</p> <p>Sib</p> <p>Fa Pa</p>

Legend: Sib - Sibling
Mo - Mother
Fa - Father
Pa - Patient

> means greater than

potential: some believe that the schizophrenic is more talented than the ordinary person (Arieti, 1974). The data on which ARISE is based include items assessing creative endeavours such as writing, painting, and so on. The failure to differentiate the schizophrenic group from the other groups on ARISE might be a function of its operational definition or of the crudeness of the measure. It might also indicate that schizophrenics are no more creative than normals. The performance on ARISE should not be considered to provide data to resolve the controversy concerning the creativity of schizophrenic patients.

3. Sex Differences

When the sample was divided according to the sex of the patient, very similar GEF patterns emerged for the two groups (Figure 5). In the case of female patients, the fathers and mothers, who did not differ significantly from each other, performed better than the siblings; and the siblings performed better than the patients. In the case of male patients, the only divergence from the above pattern was that the mothers did not differ from the siblings. Thus the mothers of male patients were found to be less efficient in ego functioning than the fathers.

It is interesting to note that the GEF pattern for the families with a female patient is identical both to that observed for the combined families of schizophrenic and neurotic patients and to that observed for the combined families of neurotics divided according to member. In the case of male patients, the family GEF pattern is similar to that observed for the families of schizophrenic divided according to member (Figure 3).

The GEF findings, in general, are consistent with empirical data, particularly with those of Alanen (1966) who observed that the siblings of

Figure 5

Differences on GEF and ARISE for the Sample Divided
According to the Sex of the Patient

VARIABLE	SEX	DIFFERENCES
GEF	Males	$\begin{array}{l} \text{Fa} > \text{Sib} > \text{Pa} \\ \text{Mo} \end{array}$
	Females	$\begin{array}{l} \text{Fa} > \text{Sib} > \text{Pa} \\ \text{Mo} \end{array}$
ARISE	Females	$\begin{array}{l} \text{Mo} > \text{Fa} \\ \text{Sib} > \text{Pa} \end{array}$

Legend: Fa - Father
Mo - Mother
Sib - Sibling
Pa - Patient

> means greater than

both neurotics and schizophrenics demonstrated less personality disorders than the patients, but greater disorders than the parents of the patients. Also consistent with the empirical data is the observation that mothers of male patients are less efficient in terms of ego when compared to their husbands. That is, mothers of male patients have been found to be more disturbed emotionally than the mothers of female patients (Alanen, 1966; Lidz et al., 1965b).

In the case of ARISE, member differences were observed for families with a female patient but not for families with a male-patient (Figure 5). Both the mothers and siblings performed better on ARISE than the fathers and patients. Although the differences are not significant, it is interesting to note that the group consisting of parents who are of the same sex as that of the patient (as fathers of male schizophrenics) performed better than the group consisting of parents who are of the opposite sex as the patient (e.g., fathers of female schizophrenics). The one exception to this pattern is that the fathers of male neurotics are similar to the fathers of female neurotics (Table 41). The difference on ARISE scores in the case of female patients is accounted for by the elevated scores by the group of mothers and by the group of siblings, and not by a lower score of the patients, since the mean ARISE scores for the four groups of patients are similar (Table 41).

In a second analysis investigating the relationship of the sex of the patient to GEF and ARISE scores, each of the four member groups was divided according to the sex of the patient. Only one significant difference was observed and that was for the mothers on ARISE (Table 57, 58). The mothers of females performed significantly better than the mothers of males on


ARISE. Earlier it was noted that the mothers of neurotics obtained higher ARISE mean scores than the mother of schizophrenics, and that both the mothers and siblings of females obtained higher mean scores than the fathers and patients. It seems that these differences are in large part due both to the neurotic mothers' higher ARISE mean score (27.00) and to the lower mean score of mothers of male schizophrenics (22.13).

The findings on ARISE indicate that the mothers can be differentiated not only on the basis of the patients' psychiatric status but also on the basis of the patients' sex. These findings are in accord with those of Alanen (1966), Lidz and associates (1965b), and Sathyavathi (1974). On the basis of his findings concerning the instrumental-expressive social roles of the parents in families of schizophrenic and neurotic patients, Sathyavathi concludes that the male and female schizophrenics form two distinct groups in terms of their perception of the sex role differential function of parents on the instrumentality-expressivity dimension. Lidz and co-workers (1965b) observed the mothers of male schizophrenics to be more disturbed than mothers of female schizophrenics.

In summary, the results of this study on the families of schizophrenic patients provide data which are in part consistent with contemporary psychodynamic theory and with previous findings. The finding that mothers of schizophrenics scored lower on ARISE is consistent with previous findings and with contemporary psychodynamic theory which emphasizes the importance of the maternal role in the evolution and structuring of the neonates ego. The fact that family members differed significantly on GEF, with parents scoring the highest and the patients the lowest, reflects previous findings and psychodynamic theory which postulates a positive relationship between

the level of ego functioning and the status of psychiatric health. There are, however, some obvious inconsistencies between the findings of the present study and those of previous investigations. Whereas previous studies found the fathers of schizophrenics to be more disturbed in every respect than fathers of neurotics, the present study failed to provide evidence to confirm this generalization. The present study failed, as well, to provide evidence differentiating the schizophrenics and their siblings and mothers from the neurotic patients and their siblings and mothers, respectively, on GEF. This observation is inconsistent with previous findings and fails to support Lidz's theory which postulates that family pathology is more severe in families of schizophrenics and is, as well, related to the patient's illness. The failure to differentiate the two families on GEF scores should, however, be cautiously interpreted because the level of significance approximated .07. Lastly, the findings from the present study are cordial to other theoretical positions, such as Meehl's (1962) concept of "schizotaxia", Gottesman's (1973) "diathesis-stress model", Bandura's (1977) concept of "modeling", and Meichenbaum's (1977) cognitive-behavioral model. All of these theorists emphasize the role of learning, particularly that provided by the mothers in the child's early years of life, and cognition in the acquisition of behaviors.

This concludes the discussion of the findings. Before terminating this paper, some areas of interest for further investigations are suggested.



- First, is social status related to the level of ego functioning? That is, are persons from higher socioeconomic status better equipped in terms of ego capacities than persons from lower socioeconomic status?

Secondly, is it typical for fathers of schizophrenics to perform better on ego functioning than the mothers of schizophrenics? Or is the finding of this study an artifact of social status, or of intact families?

Thirdly, what happens in situations where husbands compensate for their wives' lower performance on ARISE? Is the husband's compensation related to a child's better performance on a measure of ego capacities? Is the husband's compensation sufficient to ensure adequate ego development in the child?

Fourthly, do the mothers of schizophrenics exhibit significantly lower levels of ego functioning at some point in their lives than do mothers of controls? If so, is the lower level of functioning, particularly on ARISE, related to the infancy of the child who eventually becomes schizophrenic?

Lastly, are the siblings who are nearest in age to, and of the same sex as, the patient less endowed in terms of ego capacities than are the siblings more distant in age and of the opposite sex as the patient?

SUMMARY AND CONCLUSIONS

The present study investigated ego functioning among families of schizophrenic and neurotic patients. The project was conceptualized within a psychodynamic theoretical framework and designed according to a correlational method.

In conjunction with the project, the psychoanalytic concept of the ego and its development, evolution, functions, and factors that contribute to its strength and weaknesses were presented and discussed. In this regard, the contributions of Freud, Hartmann, Erikson, Jacobson, Spitz, and Mahler were emphasized. The psychodynamic theories of schizophrenia according to Bellak and Lidz were also presented. It was pointed out that both Bellak and Lidz postulate a relationship between schizophrenia and ego deficiency or ego breakdown. The family studies of schizophrenia undertaken during the past two decades were reviewed and summarized under six headings: namely, husband-wife relationships; parent-child relationships; thought and communication disorders; and the personalities of and psychopathology in the mothers, fathers, and siblings of schizophrenic patients. The findings were formulated in terms of ego deficits. The general hypothesis of the study was that the families of schizophrenics would perform less well than families of neurotic patients on a global measure of ego functioning. More specifically, it was hypothesized that the psychiatric status and sex of the patient and family membership (independent variables) were related to the level of ego functioning. Of particular importance to the study was the performance of the mothers of schizophrenics on the ego function of adaptive regression in service of the ego, since this function has been hypothesized to have important consequences on the development of the neonate's ego capacities.

The hypotheses were tested by the use of eight male schizophrenic, eight female schizophrenic, seven male neurotic, and eight female neurotic patients and their respective biological parents and one full sibling of the same sex as the patient and nearest to him/her in age. The families of neurotic patients served as a control for the study. The samples were group matched for socioeconomic status (Blishen) and for age.

Each subject was individually interviewed by the principal researcher to obtain material to be rated for the level of ego functioning according to the operational definitions specified by Bellak and associates (1973). Five judges were specifically trained to rate the interviews for each of the twelve ego functions in terms of their highest, lowest, and characteristic levels of functioning. Neither the judges nor the principal researcher took part in the selection of the subjects; nor were they informed as to the psychiatric status of the subjects.

Each interview was rated by two judges and the average score for each of the ego functions for the three levels of functioning were used as data for all of the analyses. A principal components factor analysis (followed by a varimax rotation) of the twelve ego function scores across the three levels yielded two factors labelled Global Ego Functioning (GEF) and Adaptive Regression in Service of the Ego (ARISE).

For the analysis, the sample was divided into groups using the psychiatric status and sex of the patient and family membership as a basis. A two- or three-factor analysis of variance was used to test the hypotheses and ascertain inter-group differences. The Duncan Multiple Range Test was utilized as a post hoc procedure when indicated.

The findings of the present project support, in part, the three major hypotheses presented earlier, namely, that the psychiatric status and sex of the patient and family membership are related to the level of functioning on ARISE and GEF. The data also partly support a psychodynamic interpretation of schizophrenia.

The major finding of the study was that the mothers of schizophrenics scored lower on ARISE than the mothers of neurotics. This finding is consistent with empirical data from other studies and supports the hypothesis that the psychiatric status of the patient is related to the level of ego functioning. A second finding indicated that on GEF the parents performed better than the siblings, and that the siblings in turn, performed better than the patients. These findings are similar to those obtained by Alanen (1966) and support the present research hypothesis that family membership (in pathological families) is related to the level of ego functioning. Lastly, the mothers of females scored higher than mothers of males on ARISE. This finding partly supports the third hypothesis which states that the sex of the patient is related to the level of ego functioning.

There are, however, some obvious discrepancies between the findings of the present study and the research hypotheses and between the findings of this study and those of previous studies. Whereas previous studies found the fathers of schizophrenics to be more disturbed in every respect than the fathers of neurotics, the present study failed to provide evidence to confirm this generalization since no differences were observed on ARISE and GEF. The present study failed, as well, to differentiate the patients and siblings when divided according to the psychiatric status of the patient, on both ARISE and GEF. The same holds true for the mothers on GEF. These findings are inconsistent with previous findings from family studies and

fail to support the first hypothesis of the present study. Lastly, the third hypothesis was not supported, in part, because no significant differences were found on both ARISE and GEF between the fathers of female schizophrenics and the fathers of male schizophrenics. This observation is, as well, inconsistent with findings from previous investigations.

A psychodynamic interpretation of schizophrenia is partly supported by the findings of the present study. A fundamental postulate of theorists such as Alanen, Bellak, Lidz and Mahler is that the mother, particularly by her maternal qualities of empathy, flexibility, ability to address herself to the feelings and needs of the child and her ability to regress adaptively (ARISE), plays an important role in the evolution and structuring of the neonate's ego. The authors, based on their clinical experiences, postulate that the mother's deficiency in these qualities, particularly in ARISE, fails to adequately stimulate the neonate's potential. This results in a weakened ego development and ultimately in schizophrenia. The significantly lower scores on ARISE exhibited by the mothers of schizophrenics provides data in support of the psychodynamic position. From another viewpoint, the observed member differences in disturbed families supports the general psychodynamic position concerning psychopathology which postulates a positive relationship between the level of ego functioning and the status of psychiatric health.

When viewed from another perspective, the data of the present study fails to support a psychodynamic family theory of schizophrenia. The fact that no significant differences were observed on both ARISE and GEF when the fathers, siblings, and patients divided into groups using as a basis the psychiatric status of the patient militates against Lidz's psychodyn-

amic family theory of schizophrenia. Lidz postulates that the more severe the patient's psychopathology, the more severe is the pathology of the family. This apparent failure to support Lidz's position must be cautiously interpreted since the level of significance for many of the comparisons approached .07. Lastly, the failure to differentiate the fathers of schizophrenics, when grouped according to the sex of the patient, on both ARISE and GEF clearly contradicts his findings and fails to support his theoretical position that the behavioral differences in the fathers is related to the etiology of schizophrenia in the child.

It was pointed out that the findings from the present study may be interpreted in terms of other theoretical positions, such as, Meehl's (1962) concept of "schizotoxia", Gottesman's (1973) "diathesis - stress model", Bandura's (1977) concept of "modeling", and Meichenbaum's (1977) "cognitive-behavioral model". All of these theorists emphasize the role of early social learning and cognition in the acquisition of behavior. The mother's deficiency in ARISE may be interpreted to influence the manner in which a child learns to construe his world and the acquisition of maladaptive skills used to deal with the inner and outer worlds. Lastly, the strength of these cognitive capacities and behaviors may be related to the ability to deal with stress and ultimately to psychiatric health.

Lastly, areas for further research were suggested. Included among these were exploring the relationship of social status to the level of ego functioning; determining what might happen to the child's ego development if the husband compensates for his wife's low score on ARISE; and determining whether the superior ARISE score of fathers of schizophrenics when compared to the mothers is typical, or whether it is an artifact of the higher social status of the patient.

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APPENDIX 1

Blisnen's Socioeconomic Index

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Blishen's Socioeconomic Index

One of the more popular scales used by Canadian social scientists to determine the social standing of an occupation is the Socioeconomic Index developed by Blishen in 1958 and revised and updated in 1967 and in 1976.

This paper will present and discuss the latest revision of the Socioeconomic Index. The presentation will begin with an historical overview of Canadian scales developed to measure the social standing of occupations. This will be followed by a discussion of the theoretical framework of the Socioeconomic Index, and the steps involved in the actual construction of the index. The presentation will conclude with a discussion of its validity and stability.

HISTORICAL OVERVIEW

The first attempt made in Canada to determine the social standing of occupations was that by Tuckman (1947) who used a 25-item questionnaire designed by two American scientists, Deeg and Paterson (1947). In Tuckman's study, twenty-five occupations were ranked on prestige by a selected group of college students and job applicants at a Jewish vocational service. The rank correlation between the Tuckman and the Deeg-Paterson scales was .97.

¹Augustine Meier, University of Ottawa, Ottawa, Ontario, 1979.

In 1958 Blishen described a system whereby occupations listed in census publications could be ranked in terms of socioeconomic status (Blishen, 1958). The system, instead of prestige scores derived from a sample of Canadians, "integrated the public data regarding educational requirements and the income associated with identifiable occupations in Canada as reported by Statistics Canada" (Forcese, 1975, p.18). The occupations were thereby rank-ordered, and cutting was specified that served to distinguish seven classes.

In 1967 Pineo and Porter, in the first national study of occupational prestige in Canada, developed a scale which ranked one hundred and seventy-four Canadian occupations according to their social prestige (Pineo-Porter, 1967). The authors used the average evaluation made on an occupation by a national sample as the social standing of that occupation. In constructing their scale, the authors replicated, to the extent possible, the research design employed in the construction of the North-Hatt Scale (National Opinion Research Centre, 1953; Hodge et al., 1964).

There are no data available relating the Pineo-Porter scores with any Canadian data, however, the authors report a correlation of .98 between their-scores and the North-Hatt scale of which their's is a replication. Further, Hodge and Associates report a correlation of .99 between the 1963 and 1947 National Opinion Research Centre (NORC) studies of occupational status (Pineo-Porter, 1967, p.326). These results, as McRoberts points out, "tend to indicate that the technique will replicate with a high degree of consistency (McRoberts, 1975, p.84).

The Pineo-Porter scale differs from Blishen's Socioeconomic Index in that its list of ratings only partially overlaps the census list whereas the Blishen scale has ratings for nearly all census occupational titles. Blishen stated that the Pineo-Porter approach appears more closely to measure what is usually meant by the social standing or prestige of an occupation (Blishen, 1967, p.42). McRoberts, however, basing himself on the instructions given to the respondents at the time of the construction of the Pineo-Porter scale, contends that it is a measure of socioeconomic status, and not of social prestige (McRoberts, 1975, p.81-84).

In 1967, Blishen, using the 1961 Canadian census data, revised and updated the Socioeconomic Index by attempting to assign approximations of the Pineo-Porter prestige scale scores to census occupational titles (Blishen, 1967). The advantages of this approach are obvious. First, it is able to compute a socioeconomic index for all census occupational titles, and secondly, this system of ranking takes into consideration not only the educational and income variables, but also the prestige variable as determined by the Pineo-Porter approach. The revised Blishen scale can be said to include three important aspects of an individual's occupation, namely, the income, educational and prestige variables.

In 1976, Blishen and McRoberts updated the 1967 index by using the 1971 Canadian census data (Blishen, 1976). The technique employed to determine the social standing of the occupations was similar to that used in the construction of the 1967 scale. Recently, Blishen and Carroll (1978) developed a parallel socioeconomic index for

employed women using, again, the 1971 Canadian Census data.

RATIONALE

The construction of the Socioeconomic Index involves two theoretical issues: first, the justification in using a person's occupation as an index of his social standing; and secondly, the justification in using the income, educational and prestige variables in determining the social standing of an occupation.

In reviewing the theoretical positions regarding social stratification Blishen observed four lines of theoretical development in the works of Marx, Weber, Warner, Davis and Parson (Blishen, 1958, p.519-520).

According to Blishen's interpretation, Marx saw the individual's position in the system of production as the fundamental determinant of class position (Bendix et al., 1953). It was the utopian image of Marx, that private property, the basis of wealth and power, be abolished. Each man would work for himself, producing according to his skills and inclination and receiving according to his needs. Social status, thereby, would be determined by production, and not by wealth and power which were associated with the ownership of private property.

Max Weber offered an alternate position regarding social stratification. He accepted the objective economic foundation of class, but unlike Marx, he gave equal importance to subjective awareness and to the importance of power (Weber, 1946). Weber noted "that persons distinguished among themselves by prestige as well as by power and economic possession" (Forcese, p.3). From Weber's

theoretical position, three principal dimensions of social stratification can be deduced, namely "the honorific (prestige), the political (power), and the economic (wealth)" (Forcese, p.3).

The approach of Warner emphasizes subjective awareness and claims that class, and class divisions in the social structure, is what people in the community say it is (Warner, 1949). It is the consensus of the people that determines the position of other people in the social structures.

A fourth line of theoretical development is that advocated by Davis (1949) and Parsons (1954). It is the complementary social stratification theories of Davis and Parsons which provided the rationale for the construction of the Socioeconomic Index.

Davis assumes that every society has a system of positions, some of which are more important to the society than others, through which its activities are carried out. People must be motivated by a system of rewards which may be economic, aesthetic or symbolic, to fill these positions and undertake the activities pertaining to them. Those positions, which have the greatest amount of training and talent, are given the greatest rewards. Each society has such a system of rewards and it is this which gives rise to a system of stratification.

Parsons, on the other hand, thinks that in any society all human activity is evaluated according to a common set of values, but not all concerned will necessarily evaluate the action according to the same set of values. The social system evaluates and rewards the activity of each member in terms of its contribution to the effective functioning of the system. It also ranks individuals relative to one

another.

Davis, as can be seen, emphasized the rational aspect of stratification (educational, economical), while Parsons, stressed the evaluational aspect (prestige). Davis and Parsons point to two dimensions - differentiation and evaluation - as being crucial to an understanding of social class. Stratification is seen as a result of the interaction of these two variables, which Blisshen states, must be congruent with each other so that functionally important roles are evaluated highly.

The theoretical positions of Davis and Parsons are given empirical support by the findings of Inkeles and Rossi (1956) wherein they were able to show that a number of western industrial societies evaluated similarly the occupational roles which are important to the functionings of such societies.

Parsons and Davis have also indicated the crucial importance of occupations in a system of stratification. The authors' contention is supported by Kahl and Davis' analysis of nineteen different indicators used to describe the American system of stratification (Kahl and Davis, 1955). The analysis showed that two variables - occupational position and quality of house and residential area - seem to underlie all other indicators.

Forese supports the view that an occupation is an indicator of social status. He states:

"...most sociologists argue that in modern industrial society the three fundamental dimensions of stratification - prestige, power, and privilege - are all reflected in occupation. This suggests that occupations are the best indicators with which to work" (Forese, 1975, p.18).

Based on the theorizing of Davis and Parsons and on the empirical data of Inkeles and Rossi, Blishen postulated three important variables in determining the social standing of an occupation: the education and training required for a job (educational variable), the rewards attached to the position (income variable) and the social prestige associated with the occupation (prestige variable). Using these three variables, Blishen constructed a scale to measure the social standing of an occupation.

CONSTRUCTION OF THE SEI

In constructing the original Socioeconomic Index (SEI), Blishen utilized an educational and an income variable to determine the social status of occupations. To achieve his goal, Blishen obtained data on education and income characteristics of incumbents of those occupations listed in the 1951 Canadian census. He then calculated a mean score and standard deviation for the income and educational variables for each occupation. Standard scores were then computed for the two variables for each occupation. The two standard scores were then combined to form one score, referred to as a socioeconomic score. Using this procedure, Blishen assigned a socioeconomic score to 343 occupations and ranked them according to the decreasing absolute value of the composite score. This formed Blishen's first Socioeconomic Index.

Blishen revised the SEI in 1967 using the 1961 census data and again in 1976 using the 1971 census data. The revised SEI's differed from the original edition in two ways. First, in the revised SEI's, Blishen utilized three variables - income, educational, and prestige -

to determine the social status of an occupation; and secondly, Blishen employed a new technique to calculate the income and educational variables.

The construction of the revised SEI's involved the following three steps: selection of occupations to be scaled; determining the income, educational and prestige variables of the occupations; and lastly, defining class intervals of the scaled occupations.

Since the construction procedures for the two revised SEI's are similar, the remainder of this section will address itself to the 1976 edition of the SEI.

The 1976 scale is based on the occupations of the male labour force population who worked in 1970 and for whom "occupation refers to the job held in the week preceding the 1971 census enumeration or the job of the longest duration since 1 January 1970 if they were not employed that week" (Blishen et al., 1976, p.71). The authors included only occupations characteristic of males in the labour force "on the assumption that the family's social status is dependent upon the occupation of the husband rather than the wife when both are working (Blishen, 1967, p.42).

The second step in the construction of the index was the computation of the income, educational and prestige variables. The income variable is based on employment income obtained from the total enumeration of the labour force. Employment income refers to "the total of income received in 1970 as wages and salaries, net income from business or professional practice and/or net farm income" (Statistics Canada, 1972, p.12). In the revised socioeconomic index,

the income level is "expressed as the percentage of males who worked in an occupation in 1970 and whose 1970 employment income was \$6500 or over" (Blishen, et al., 1976, p.71).

In defining the educational variable, the authors took into consideration provincial differences that existed in elementary and secondary schooling. The educational variable is expressed as the percentage of males who worked in an occupation in 1970 and who had attended at least grade 12 if the province of schooling was Prince Edward Island, New Brunswick, Ontario, British Columbia, Yukon, or outside Canada, or who had attended at least grade 11 if their schooling had been undertaken in any of the remaining provinces (Blishen et al., 1976, p.72).

The authors also incorporated a prestige variable by assigning approximations of the Pineo-Porter prestige scores for 85 occupations which corresponded to those used in the 1971 census occupational classification (Blishen et al., 1976, p.72-73). This method "consists simply in constructing a regression equation which has as the dependent variable the Pineo-Porter scores for the ... (85) .. occupations which overlap the census list, and has as the independent variables the corresponding income level and educational level indices. The regression weights so determined are then applied to all census occupations" (Blishen, 1967, p.42). In the 1976 revision, the unstandardized regression weights resulting from the regression analysis were .3047 for income and .3677 for education. The intercept was 12.260. The regression weights were then applied to each of the approximately 480 occupational titles in the manual (Statistics

Canada, 1971, Vol. II).

The results from the regression using 85 Pineo-Porter occupational titles is a socioeconomic score for each of 480 occupational titles in the manual. Blishen lists the approximately 480 occupational titles, with their socioeconomic score and rank order, in an alphabetical order (Blishen et al., 1976, Table I).

The final stage in the construction of the scale was the determination of class intervals. The authors applied the method devised by Blishen in the construction of the 1967 scale (Blishen, 1967, p.52). The method is based upon the use of ten digits of the individual index values. Applying this to the 1976 scale results in six classes which are presented in table 1.

As is indicated by the table, class one comprises occupations that have a socioeconomic score of 70 or more, whereas class six is assigned to occupations that have a socioeconomic score which is below 30. Classes two to five fall between the two extremes.

SEI FOR EMPLOYED WOMEN

Recently Blishen and Carroll (1978) developed a Socioeconomic Index for employed women using the 1971 census data on the education and income levels in 465 occupations having female incumbents in 1970. The construction procedures for the 1978 SEI were the same as those employed in the development of the 1976 SEI.

The unstandardized regression weights, resulting from the regression analysis, were .5133 for income and .3212 for education. The intercept was 20.578. The regression weights were then applied to each of the 465 occupations. When the socioeconomic scores in the

Table 1

Socioeconomic Classes Based on Tens Digits
of the Individual Index Values

Socioeconomic Score	Class
70.00 plus	One
60.00 - 69.99	Two
50.00 - 59.99	Three
40.00 - 49.99	Four
30.00 - 39.99	Five
Below 30	Six

1978 SEI were compared to those of identical occupations in the 1976 SEI, the authors noted a similarity between the mean scores ($r=.843$).

The results should not be interpreted to mean that the two socioeconomic indices are interchangeable, or that there are no sex differences. On the contrary, the authors observed that for the same occupations, women tend to receive a lower salary, and have more years of education than the men. This difference is masked since the socioeconomic index is the product of two weighted scores, that is, for income and education scores. For this reason, the authors caution against the exclusive use of occupationally based socioeconomic indices in the study of sexual stratification.

VALIDITY STUDIES

Two validity studies reported the rank correlations obtained when various versions of the SEI were compared to a scale designed to measure the prestige of an occupation.

In the first study, Blishen compared 18 categories from his 1958 SEI to similar categories in Tuchman's (1947) 25-item questionnaire and obtained a rank correlation of .91. Since Tuchman's occupational scale is considered to be a measure of social prestige, Blishen inferred that his scale was able to measure the prestige aspect of an occupation.

Blishen, in the second study, compared the Pineo-Porter scores to the income and educational level scores for 88 matching occupations in the 1967 scale and obtained a coefficient of multiple correlation of .919 (Blishen, 1967, p.50-51). He interpreted the data as supporting the validity of the SEI.

In a related study Inkeles and Rossi compared the occupational ranking on the North-Hatt 90 occupational prestige scale (Hatt, 1950) with similar prestige scales constructed in Great Britain, New Zealand, Japan, and Germany (Inkeles and Rossi, 1956). Blishen then computed the rank correlations between the ratings of the occupational prestige in each of these countries and the Socioeconomic Index. The highest rank correlation, 0.94, was found between Canada and the United States. Between Canada and the other countries mentioned the rank correlations were: Germany, 0.74; Great Britain, 0.85; New Zealand, 0.89, and Japan, 0.90 (Blishen, 1958, p.523). The author interprets these high correlations as an indication that the Socioeconomic Index reflects the same variables which underlie prestige scales. The high correlations, the author thinks, are indices of the validity of his scale. This is based on the assumption that the Western Industrialized countries tend to produce similar orderings in the social standings of occupations (Blishen, 1967, p.50).

STABILITY OF THE SOCIOECONOMIC INDEX

Blishen reports one study regarding the stability of the Socioeconomic Index. In this study he compared the 1967 scale to the 1957 scale and obtained a coefficient correlation of .96 (Blishen, 1967, p.50). The author contends that this indicates both stability in the structure over time and similarity in results despite variations in procedure.

Blishen's results compare favorably with two other reported studies. Deeg and Peterson, using a shortened version of the Counts

Scale (Counts, 1925), compared the rank order of occupations of his scale to that of Counts developed twenty-one years earlier. The obtained rank order correlation was .97, suggesting that there was little change in the social status of occupations during the twenty-one year period following Count's study (Deeg and Paterson, 1947).

A high degree of stability in occupational prestige over time was also observed by Hodge and associates (1964). The authors, in 1964, replicated a study undertaken in 1947 which used the North-Hatt Prestige Scale (National Opinion Research Centre, 1953). They obtained a Pearson correlation coefficient of .99 when they compared the results of their study to the results of the 1947 study.

Blishen and McRoberts did not compare the 1976 scale to the 1967 scale because the methods used in computing the educational level and income differed for the two scales. However, the authors noticed that some of the occupations which were ranked from 1 to 24 in the 1967 scale, improved their rank order in the 1976 scale, while others registered a drop in their rank order. For example, veterinarians, optometrists, pharmacists, judges and magistrates improved their rank order, while chemical engineers, civil engineers, architects and electrical engineers registered a drop in their rank order (Blishen, 1976, p.73).

DISCUSSION

The 1976 Socioeconomic Index appears to be a highly valid and stable tool. The rationale underlying its construction is well founded in theories of social stratification and on empirical studies.

The fact that the Socioeconomic Index provides scores for nearly all the occupations listed in the census titles and provides a system whereby occupations are grouped into six classes, renders it flexible for various types of research.

One of the limitations of the SEI is that some occupations, as minister, which bear high social prestige, receive a lower ranking when compared to occupations requiring equal years of education, because of lower income. The SEI, therefore is not able to appropriately rank occupations when the score on one of the variables deviates extremely from the expected mean interpolated from the two remaining variables.

Secondly, measuring devices as the SEI, serve to identify real differences in Canadian society. The SEI does not identify real classes in the sense of integrated and conscious groups. At best, it approximates such identification and permits a magnitude of analysis that would not otherwise be possible (Forese, p.18).

A more serious criticism of the SEI is the use of a "prestige" variable as measured by the Pineo-Porter scale. Goldthorpe and Hope (1972), Hope (1972) and McRoberts (1975) argue that the Pineo-Porter scale measures not the "prestige" but the socio-economic status of an occupation. The authors base their reasoning on the procedures used in the construction of the scale. Since Blishen's scale is a measure of the socio-economic status of an occupation, one can question the utility of incorporating the "prestige" or a second "socioeconomic status" variable within the SEI. Both, supposedly, measure the same quality of an occupation.

Bearing in mind the above limitations, the SEI, nevertheless, remains one of the best tools available to a researcher who wishes to group subjects for social status.

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APPENDIX 2

Abstract of
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Abstract of

Ego Functioning Patterns Among Families of Schizophrenic And Neurotic Patients¹

The family studies of schizophrenia in the past focussed on the patient-parent and the patient-sibling relationship with the purpose of shedding light on the etiology of schizophrenia and on its bias in selecting one sibling over the other. The more recent family studies have been concerned with communication patterns between schizophrenic patients and their parents and the disordered styles of communication so often observed in schizophrenics. A neglected area in family studies has been the investigation of parental competencies or incompetencies dealing with inner and outer reality and in relating to their offspring. This study, which extended over a four year period, investigated ego functioning patterns among members of families with a schizophrenic and neurotic patient.

The sample comprised eight schizophrenic male, eight schizophrenic female, seven neurotic male and eight neurotic female patients and their respective biological parents and one same-sexed sibling, all of whom were of the caucasian race and had English as their first language. The patients were between 18 and 30 years of age and were group-matched for age and social status. In all the sample comprised 124 subjects.

¹Augustine Meier, Doctoral dissertation presented to the School of Graduate Studies of the University of Ottawa, March, 1981, xvi-389 p.

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Each subject was individually interviewed to obtain material for the assessment of twelve selected ego functions (Bellak). The interviews, which were tape-recorded, were scored by five specially trained judges who were not aware of the purpose of the study nor of the psychiatric status of the subjects.

The ego function scores were factor analyzed using a principal components factor analysis followed by a varimax rotation. Two factors, labelled Global Ego Function (GEF) and Adaptive Regression in Service of the EGO (ARISE) were extracted. For the analysis, the sample was divided into 16 groups using, as a basis, the psychiatric status and sex of the patient, and family membership. A two-way analysis of variance was performed on the GEF and ARISE scores.

The most outstanding finding was that the mothers of schizophrenics scored lower than mothers of neurotics on ARISE, a finding compatible with Mahler, Jacobson, and Spitz's postulate regarding the development of psychoses. The results of the study, in general, are consistent with Lidz, Alanen and Wolman's empirical findings, and give support to the psychodynamic interpretation of schizophrenia. The author suggests that family studies in the future give greater importance to the investigation of ego functioning strengths and weaknesses among parents and see how these relate to the etiology of schizophrenia.