

SOME ASPECTS OF PSYCHOSEXUAL
DEVELOPMENT IN
PROCESS-REACTIVE SCHIZOPHRENIA

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ABSTRACT

SOME ASPECTS OF PSYCHOSEXUAL DEVELOPMENT IN PROCESS-REACTIVE SCHIZOPHRENIA

by Cheryl Normington

Psychoanalytic theory was utilized to predict psychological differences between schizophrenics and normals, and between process and reactive schizophrenics, in levels of personality organization. Specific areas studied were: pregenital psychosexuality, parental identification, and love-object preference.

The 45 schizophrenic and 15 normal subjects for the study were selected from the male patient population and hospital staff, respectively, of a large mid-western veteran's administration neuropsychiatric hospital. The schizophrenic patients were rated by use of the Abbreviated Becker-Elgin Scale (ABES), with the 15 receiving the highest ABES scores being classified as process schizophrenics, the 15 receiving the lowest scores being classified as reactive schizophrenics, and the 15 receiving intermediate scores being designated as the mid-group.

The Blacky Picture Test and a perceptual time estimation task were individually administered to all subjects. Blum's scoring system was utilized in scoring the Blacky Picture Test. Subjects' judgments of exposure times of perceptual stimuli were converted into scores based upon the ratios of estimated to actual time, and then multiplied by a factor of 10; absolute deviations of scores from an accurate judgment score of 10 were found. The deviation scores obtained by each subject on the seven stimulus cards of the task were then ranked; these ranks were converted into T scores, and mean T scores for groups, on each

of the seven stimulus cards, were utilized in statistical comparisons.

Findings Concerning Schizophrenics and Normals:

- A Schizophrenics were found to exceed normals on the perceptual time estimation task narcissism measure, suggesting greater narcissistic concern by schizophrenics.
- B Schizophrenics were also found to exceed normals on the Blacky Picture Test factor of narcissism. This measure correlated significantly with total length of time hospitalized, however, and so findings with the measure may be attributable to differences between groups in length of time hospitalized. Thus, hypotheses concerning narcissism can be said to be supported only by perceptual time estimation task findings.

Findings Concerning Process and Reactive Schizophrenics:

- C Process schizophrenics exceeded reactive schizophrenics on the perceptual time estimation task narcissism measure, suggesting greater narcissistic concern by process schizophrenics.
- D Process schizophrenics also exceeded reactive schizophrenics on the Blacky Picture Test factor of narcissism, but as was indicated above, this measure did correlate significantly with total length of time hospitalized, and so findings with the measure may be attributable to differences between groups in length of time hospitalized.
- E Process and reactive schizophrenics differed on the Blacky Picture Test factor of mother as preferred identification object, with process schizophrenics expressing greater preference for identifying with the mother.

- F Reactive schizophrenics exceeded process schizophrenics on the perceptual time estimation task heterosexuality measures, suggesting greater heterosexual concern by reactive schizophrenics.
- G Reactive schizophrenics also exceeded process schizophrenics on the Blacky Picture Test heterosexual fantasy measure. It was determined, however, that this finding could best be attributed to age differences between the groups. Thus, hypotheses concerning heterosexuality for process and reactive schizophrenics are supported only by perceptual time estimation task results.

Findings Concerning Reactive Schizophrenics and Normals:

- H Reactive schizophrenics were not found to differ significantly from normals on Blacky Picture Test combined factors of father as preferred identification object and overtly positive perception of self and father, suggesting that the groups are comparable on the dimension of identification with the father and positive feelings toward father and self.
- I Significant differences were not found between reactive schizophrenics and normals on the Blacky Picture Test factor of mother as preferred identification object; the groups appear to be comparable concerning (lack of) preference for the mother as an identification object.
- J Reactive schizophrenics did not differ significantly from normals on the Blacky Picture Test factor of negative perception of self and father, suggesting that the groups are comparable concerning tendency to express negative feelings toward self and father.

K Reactive schizophrenics and normals were not found to differ significantly on the Blacky Picture Test factor of heterosexual fantasy; the groups appear to be comparable in levels of phantasy involvement with the opposite sex.

The results did not provide support for the remaining hypotheses pertaining to psychosexual organization, defensiveness concerning infantile impulses, preference for identifying with the father, and quality of feelings expressed toward father and self. Some tendencies (.10 level) in the direction of (1) process schizophrenics exceeding reactive schizophrenics on test indices of oral rejection, and (2) reactive schizophrenics exceeding process schizophrenics on the combined indices of father as preferred identification object and overtly positive perception of self and father, were found, however.

The results, and additional findings concerning temporal distortion, were discussed in terms of psychoanalytic theory, with a crucial explanatory role being given to the concepts of fixation and regression, as a means of interpreting differences found between schizophrenics and normals, and between process and reactive schizophrenics.

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IN PROCESS-REACTIVE SCHIZOPHRENIA

By
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TABLE OF CONTENTS

	Page
INTRODUCTION	1
PROCESS-REACTIVE SCHIZOPHRENIA	9
STATEMENT OF HYPOTHESES	18
OPERATIONAL PREDICTIONS	22
METHOD	25
Subjects	25
Characteristics of the Samples	26
Procedure	32
RESULTS	38
DISCUSSION	61
ADDITIONAL FINDINGS	68
SUMMARY AND CONCLUSIONS	75
BIBLIOGRAPHY	79
APPENDICES	84

LIST OF TABLES

TABLE	Page
1. Characteristics of the Samples	29
2. Comparisons of the Groups on Mean Age	30
3. Comparisons of the Groups on the Blacky Picture Test Factor of Narcissism (XI-C)	39
4. Comparisons of the Groups on the Blacky Picture Test Factors (Combined Scores) of Oral Craving (I-A), Oral Rejection (I-B), Supply-Seeking (II-B), and Resentment Over Oral Deprivation (II-C)	40
5. Comparison of Process and Reactive Schizophrenics on the Blacky Picture Test Factor of Oral Rejection (I-B) .	41
6. Comparison of Process and Reactive Schizophrenics on the Blacky Picture Test Factors (Combined Scores) of Sugar-Coating (I-C), Playfulness (II-A), Choosing Obvious Neutral Responses (III-B), Attempted Denial of Anal Preoccupation (III-C), Denial of Masturbation Guilt (V-C), and Minimizing Castration Anxiety (VI-B)	43
7. Comparison of Process and Reactive Schizophrenics on the Blacky Picture Test Factors (Combined Scores) of Sugar-Coating (I-C), Playfulness (II-A), Choosing Ob- vious Neutral Responses (III-B), and Attempted Denial of Anal Preoccupation (III-C)	43
8. Comparisons of Groups on the Blacky Picture Test Factors (Combined Scores) of Undisguised Oedipal In- volvement (IV-A), Disguised Oedipal Involvement (IV-B), and Mother-Surrogate as Love Object (XI-A)	44
9. Comparisons of the Groups on the Blacky Picture Test Factors (Combined Scores) of Father as Preferred Identification Object (VII-A) and Overtly Positive Per- ception of Self and Father (X-A)	46

LIST OF TABLES - Continued

TABLE	Page
10. Comparison of Process and Reactive Schizophrenics on the Blacky Picture Test Factor of Father as Preferred Identification Object (VII-A)	47
11. Comparison of Process and Reactive Schizophrenics on the Blacky Picture Test Factor of Overtly Positive Perception of Self and Father (X-A)	47
12. Comparisons of the Groups on the Blacky Picture Test Factor of Mother as Preferred Identification Object (VII-B)	49
13. Comparisons of the Groups on the Blacky Picture Test Factor of Negative Perception of Self and Father (X-B).	50
14. Comparisons of the Groups on the Blacky Picture Test Factor of Heterosexual Fantasy (XI-B)	51
15. Mean T Scores of Groups on the Perceptual Time Estimation Task (Rank Data)	53
16. Comparisons of Mean T Scores of Groups on the Perceptual Time Estimation Task (Rank Data)	54
17. Mean T Scores of the Groups for Card Preference	56
18. Comparisons of Mean T Scores of Groups for Card Preference	57
19. Mean Total Deviation Scores of Groups on the Perceptual Time Estimation Task	69
20. Comparisons of Mean Total Deviation Scores of Groups on the Perceptual Time Estimation Task	70
21. Mean Number of Over, Under, and Equal Estimations of Groups on the Perceptual Time Estimation Task	73
22. Comparisons of the Groups on Over, Under, and Equal Estimations	73

LIST OF APPENDICES

APPENDIX	Page
A. Abbreviated Becker-Elgin Prognostic Scale	85
B. Supplementary Tables	89
C. Stimulus Cards	103

INTRODUCTION

Schizophrenia is being studied from many points of view, with the psychoanalytic being one of these. The origins of psychoanalytic theory concerning the disorder can be traced to the writings of Freud, who grouped schizophrenic phenomena around the concept of regression.

The Psychoanalytic Concept of Regression

The psychoanalytic concept of regression, originated by Freud, and set forth and expanded by Fenichel (1945), concerns the types of libidinal organization and object relationships which the infant passes through as it develops toward maturity. Initially, the infant is said to be in a stage of "primary narcissism," in which the ego and super-ego do not yet exist. The ego comes into being with the discovery of objects, and exists to the extent that it is differentiated from such objects. During the earliest state of primary narcissism, the auto-erotic stimulation of the erogenous zone of the mouth is pleasurable to the infant. Later, as the ego becomes differentiated from objects, the aim of oral eroticism becomes the incorporation of objects.

This oral state, characterized first by pleasurable sucking (early oral stage) and later by incorporation of objects (late oral-sadistic stage), is followed by the anal-sadistic stage. Although anal pleasure has always been present, the anal-erogenous zone seems to become the chief executive of all excitation in the second year of life. Excitations are discharged through defecation, and later, retention as well as elimination becomes a source of pleasurable sensation.

The desire to incorporate objects, found in the previous period, is modified during the early anal-sadistic stage, for here impulses to destroy and to preserve the object are both present, and this conflict is solved by a partial incorporation, in which part of the object is incorporated, while the remainder is preserved in the external world. Gradually, in the later anal-sadistic period, the aim of incorporation is given up, and other ambivalent aims come into existence, in which the object is merely an instrument for the sake of one's pleasure.

Following the anal-sadistic phase, interest in the genitals and in genital masturbation increases, and a genital discharge of all kinds of sexual excitement comes into being around the fourth or fifth year of life. This period is called the phallic phase, and object relations are characterized by Oedipal strivings. In the positive Oedipus complex the boy loves his mother, and hates his father because the father takes mother for himself. When love for the father prevails, and the mother is hated as a disturbing element in the boy's love for the father, a negative Oedipus complex is said to exist. Traces of the negative Oedipus complex normally do occur along with the positive, and may be augmented by constitutional and experiential factors. Important predisposing factors are pregenital fixations, especially anal ones, and the readiness to substitute identifications for object relationships.

The Oedipus complex is normally resolved through the introjection of the objects of the Oedipus complex, according to psychoanalytic theory, and in this way sexual longings for the objects are replaced by an asexual alteration within the organization of the ego. The identifications that resolve the Oedipus complex are not complete. They tend to replace the sexual and hostile impulses toward the parents, however, and a tender object relationship continues along with the identification. That part of the ego that was altered by identification retains a special

position, and stands in contrast to the other constituents of the ego in the form of a superego.

The superego is not simply an identification with the frustrating object of the Oedipus complex. In accordance with the "completeness" of the Oedipus complex, all persons bear features of both parents in their superego, psychoanalytic theory postulates. Under our cultural conditions, however, the fatherly superego is usually decisive, and men who have a pronounced motherly superego have usually had a dominant mother, who was the decisive source of frustration.

The superego is the heir of the parents, as a source of threats and punishments, and also as a source of protection and a provider of reassuring love. Being on good or bad terms with one's superego becomes as important as being on good or bad terms with one's parents had previously been, and with the existence of the superego, self esteem comes to be regulated by the feeling of having done or not done the right thing. Ego ideals of the person and other aspects of the superego are as intertwined as were the protecting and threatening powers of the parents. Indeed, a person's identification, his feelings toward the objects of identification, his ego ideals, and his self esteem are all closely interrelated.

In the mature person Oedipal strivings have been overcome through identification with the figure who was the decisive source of frustration, usually the father; object choice has become more or less limited to persons of the opposite sex, and capacity for full genital sexual expression is obtained. The accomplishment of these goals is never complete, however; characteristics of the earlier levels of libidinal organization and object relations persist to a degree. If development is disturbed, there may be a total arrest at one of the early levels, or, more characteristics of an early stage may be retained than is usual. In either case, a fixation is said to exist. If satisfaction is

blocked for any reason at a new level, there may be a backward movement to an earlier stage that was more successfully experienced. Such regression backward is complementary to fixation, in that the stronger a fixation, the more easily will regression take place if difficulty does arise.

Regression in Schizophrenia

In schizophrenia, the regression which occurs is postulated to reach back to a much earlier time than it does in neuroses. The schizophrenic's regression is at least in part to primary narcissism, the period when the ego was not yet developed, or had just begun to be developed. Thus, the pathogenic fixation of the schizophrenic may tentatively be considered as related to the early oral period preceding the oral-sadistic stage, according to Fenichel (1945).

Although the major instinctual predispositions for schizophrenia are believed to stem from fixations during the early-oral stage, schizophrenic regression may also reinstate other pre-genital drives, as a part of the generalized schizophrenic disorganization.

Early Studies of Regression in Schizophrenia

In early studies (1938, 1938a, 1939), Cameron has questioned the application of the concept of regression to schizophrenic thought processes. Using incomplete sentence fragments, and a manipulative task with blocks, which elicited verbal productions, he concluded that schizophrenic disorganization did not yield a language product comparable with that of normal children.

Somewhat more recent studies, stemming from diverse theoretical viewpoints, provide additional evidence which is pertinent to the hypothesis that schizophrenic adaptation is characterized by a regression to and/or fixation at early levels of development. Werner's (1948)

genetic developmental principle has been an important source of several such studies. Werner views the process of development as going through various stages of differentiation and hierarchic integration. Mental life proceeds from a stage of little differentiation of functions to greater differentiation, and perception is at first diffuse, and then becomes well articulated.

Based on Werner's theoretical ideas, a scoring system for the Rorschach was developed by Friedman (1953), which was designed to indicate the level of perceptual differentiation. His data indicate that the formal or structural organization of Rorschach responses of schizophrenics is similar (but not identical) to that of the responses of young children. On the basis of his findings, Friedman concludes that there is a perceptual regression in schizophrenics, although not a complete one.

Using Friedman's scoring system, Hemmendinger (1953, 1960) directly tested Werner's developmental theory. Normal children, ages three to ten, and normal adults were the subjects. The findings indicated a developmental hierarchy in perceptual integrations from global, amorphous percepts, through mediocre details, to well integrated, form dominant perceptions.

Siegel (1953), using what was essentially Friedman's scoring system, showed that perceptions of a group of 30 catatonic and hebephrenic patients were similar to those of two to five-year-old children, with responses being global and amorphous, whereas responses of a group of paranoid schizophrenics were more similar to the more differentiated, but little integrated perceptions of children of ages six to ten.

Although the application of the concept of regression to schizophrenic thinking has been criticized by Cameron (1938, 1938a, 1939), the regression hypothesis does gain some credence through the

remaining research cited above. The next chapter on process-reactive schizophrenia will include recent studies pertinent to the investigation of differential degrees of regression in schizophrenia.

Research Studies of Narcissism and Orality in Schizophrenia

Psychoanalytic theory postulates that the regression in schizophrenia is at least in part to primary narcissism, or the early oral period. Sears (1943) points out that the concept of primary narcissism has received little empirical investigation, perhaps because the concept does not lend itself easily to a positive definition. More recently, however, attempts have been made to operationally define, and empirically study the concept.

Young (1960), in an investigation of the hypothesis that schizophrenics are more narcissistic than neurotics, and that neurotics are more narcissistic than normal individuals, defined narcissism in terms of seven measures. As a guide to the selection of these measures, the traits of excessive admiration of the self, feelings of superiority, subjective orientation, attention demanding, exhibitionistic tendencies, feelings of omnipotence, lack of genuine interest in other persons, and preference for occupations that permit egocentric gratifications were utilized. Four of the measures consisted of questionnaire scales, designed to measure traits of superiority, subjectivity, need for attention, and omnipotence. Two additional measures consisted of projective techniques adapted for quantitative scoring. These were three T-A-T cards, and one Blacky Picture Test cartoon. The seventh measure, an occupational appeal inventory, was developed by Young. Each of these seven measures was administered individually to 30 hospitalized schizophrenics, 30 out-patient neurotics, and 30 normal individuals. Young finds that the results of the study strongly support

the Freudian hypothesis that narcissism is more characteristic of schizophrenics and neurotics than of normal individuals, and that support is also given to the related hypothesis that the degree of narcissism varies directly with the severity of psychopathology.

Orality among schizophrenics, psychoneurotics, and normals was investigated by Olson (1960), who operationally defined the concept in terms of the personality traits of dependency, social submissiveness, and pessimism. The additional characteristics of a generally unfavorable concept of the mother, a preoccupation with food, and a heightened concern with orally-gratifying behavior were also included in the definition. Dependency, submissiveness, and pessimism were measured by subscales from standard paper-and-pencil personality inventories, modified for "card-sort" administration. Osgood's semantic differential was utilized in the measure of perception of the mother, and preoccupation with food was studied by means of a perceptual threshold task. The first cartoon of Blum's Blacky Picture Test comprised the sixth measure of concern with orally-gratifying behavior. Although pessimism and heightened concern with orally-gratifying behavior were not found to be more typical of schizophrenics than of psychoneurotics or normals, the schizophrenics were found to differ significantly from the neurotics and normals, in the expected direction, on the remaining characteristics of dependency, submissiveness, a strong interest in good, and a concept of mother as "bad." Olson concludes that on the whole, support is given to the major premise that orality is more marked in schizophrenics than in neurotics or normals.

In studying abstraction ability of 30 schizophrenic patients and 30 matched control subjects, Lewis, Griffith, Riedel, and Simmons (1959) found the schizophrenic patient group to demonstrate significant impairment in abstracting oral as compared to anal and phallic proverbs.

No such differences were shown by the control group. The authors interpret their findings as consistent with psychogenic theories concerning the etiology of schizophrenia.

The most recent work in regard to narcissism and orality in schizophrenia is by Figetakis (1963), whose investigation of personality dimensions in process-reactive schizophrenics will be discussed in the next chapter. The chapter deals with the concept of process-reactive schizophrenia, and with research studies stemming from this concept.

PROCESS-REACTIVE SCHIZOPHRENIA

Schizophrenics, as a group, have not been found to be homogeneous. Indeed, heterogeneity among schizophrenics has been noted, and dealt with in some manner since the time when the entity, then called Dementia Praecox, was first differentiated from the mass of mental patients by Kraepelin (Arieti, 1955). Kraepelin divided the patients into three groups, the hebephrenic, the catatonic and the paranoid, and later accepted Bleuler's suggestion of a fourth type, the simple. The most outstanding and most important of the common characteristics of these apparently dissimilar cases was a progressive tendency toward a state of dementia, according to Kraepelin. He himself came to recognize, however, that not all cases meet this criterion of ending in dementia. Some cases stabilize at a less severe level, and some seem to make complete recoveries.

Many investigators of schizophrenia have followed in Kraepelin's footsteps, in the sense that outcome of the illness is utilized as a criterion for classifying patients. Repeatedly it has been observed that some patients experience relatively "stormy" schizophrenic breaks while in others the disease develops insidiously over a period of years, beginning in early childhood. A positive correlation was found to exist between a late, sudden, stormy onset, and good prognosis whereas on the other hand, the patient undergoing a progressive and gradual deterioration was found to be less likely to recover. These differences among schizophrenics provided the initial rationale for the process-reactive classification.

Current Conceptualization

The categories "process" and "reactive" schizophrenia currently tend to be thought of as embodying the extremes on a developmental continuum of levels of personality organization (Becker, 1959; Zimet and Fine, 1959; Kantor and Winder, 1959). Process schizophrenia is viewed as a behavioral disturbance of gradual and insidious onset often beginning in early childhood with a lack of clearly discernible stress factors. Prognosis is poor in contrast to the more positive outlook for those at the other end of the continuum, the reactive schizophrenics. Reactive schizophrenics are considered to have a relatively normal pre-psychotic personality adjustment and to have experienced a sudden onset of psychosis in the presence of precipitating factors.

The Development of Rating Scales

A considerable number of experimental studies have been generated within this framework. Becker (1956, 1959) has made important methodological contributions toward the development of a rating scale for classifying patients on a process-reactive continuum. Prior to the work of Becker, Wittman (1941) developed the Elgin Prognostic Scale to predict a patient's prognosis from pertinent case history material. End points for each of the items on the scale were employed. Becker (1956) sought to increase the precision of the scale by subdividing each item into a number of descriptive statements, so as to describe the relative degree each item is applicable to the person being rated, and a factor analysis was carried out by Becker (1959) in order to assign weights to the descriptive statements for each scale item. Thus a Becker-Engin score is obtained for a subject by summing the weights of the statements judged to describe the subject's history. The magnitude of this score determines the position of the subject on the process-reactive continuum. High scores are associated with the process end of the

continuum, and low scores are associated with the reactive end of the continuum.

Mason (1962) reports that Becker has further modified the Elgin Scale by producing an abbreviated scale of 10 rather than 20 items, and that correlations of .90 and .96 between the abbreviated and complete Becker-Elgin scales have been found by Zlotowski (1962) and Pearl (1962) respectively. This Abbreviated Becker-Elgin Scale will be used in the present study, for the classification of schizophrenic subjects.

In addition to the Becker-Elgin Prognostic Scale, Kantor, Wallner, and Winder (1953) have also published a set of criteria to evaluate patients on the basis of clinical history and presenting symptoms and thereby to assign to them a process-reactive classification. Generally, process-reactive studies have utilized one of these sets of criteria and have pitted schizophrenics from the extremes of the process-reactive distribution against each other. Differences between process and reactive schizophrenics in thought processes, motivational factors, and motor behavior have been suggested by work such as that of Becker (1956), Mason (1962), Reisman (1960), Smith (1959), Zlotowski and Bakan (1963) and Zukowsky (1960).

Perceptual Maturity

In the perceptual area, studies utilizing the Rorschach technique generally indicate that reactive schizophrenics show more indices of perceptual maturity than do process schizophrenics. Becker (1956), scoring patients on a modification of the Elgin Prognosis Scale, elaborated Friedman's (1953) Rorschach scoring system based upon genetic developmental principles, and demonstrated a negative correlation of it with Elgin scores. Process schizophrenics (those receiving high Elgin scores) were found to have a lower mean "genetic-level" score

than did reactives (those receiving low Elgin scores). This was interpreted by Becker as indicating both a perceptual and a thought regression in the process schizophrenics.

Zimet and Fine (1959), employing a traditional psychoanalytic approach, carried out a study similar to the one above, in an investigation designed to evaluate the degree of perceptual regression in schizophrenics. When all Rorschach responses of the subjects were dichotomized into mature and immature combinations, it was found that 56% of the responses of process schizophrenics were rated as immature in contrast to 20% for the reactives. As in the study by Becker (1956), process schizophrenics revealed genetically "lower" type perceptions than did reactive schizophrenics.

More recently, Fine and Zimet (1962) report that in process schizophrenia, "primary process" Rorschach responses predominate over "secondary process" responses, whereas the reverse situation holds for reactive schizophrenics. This finding is felt to be consistent with psychoanalytic expectations by the authors, who posit drive-dominated percepts in process schizophrenics and ego-dominated percepts in reactive schizophrenics, due to differential maturational levels of genetic development.

Sullivanian theory has been utilized in studying regression in process and reactive schizophrenic patients by Kantor and Winder, according to Winder (1960). An age-level scoring system was developed by Kantor and Winder, by assembling children's Rorschach norms for each of Sullivan's developmental epochs. The degree of regression or primitivization of veterans who had become overtly schizophrenic after making an acceptable adjustment as adults was measured by the Rorschach age-level score. Patients were also rated from life-history information obtained from relatives as to the earliest developmental epoch during which the patient had experienced a life situation

considered pathogenic by mental health concepts. A substantial correlation was found between the Rorschach age-level score and the rating from the life-history information.

The Question of Organic Involvement

Brackbill and Fine (1956) compared the Rorschach performance of process and reactive schizophrenics to the productions of patients with known central nervous system pathology, and concluded that reactives' Rorschach performance differs from that of process and organic subjects' but that process schizophrenics and organic subjects cannot be differentiated from each other. On this basis Brackbill and Fine felt that some central nervous system pathology may be present in process schizophrenics, a concept related to that espoused by Bellak (1948) who suggests that at one extreme of the schizophrenic behavioral reaction continuum, organic etiology may be pre-eminent.

McDonough (1958), on the basis of a study comparing process and reactive schizophrenics, brain damaged individuals, and normals, on critical flicker fusion perception and the presence of the Archimedes Spiral aftereffect, failed to support Brackbill and Fine's conclusions. McDonough found that normals and both schizophrenic groups performed differently than did organics, but that the process and reactive schizophrenic groups could not be distinguished from each other.

Stimulus Content

Closely related to the process-reactive categorization is the good and poor premorbid classification based upon the use of the Phillips Scale of Premorbid Adjustment (1953) with clinical data being furnished by patient informants. Garmezy and Rodnick (1959) have summarized a considerable amount of data comparing this classification

to that of process versus reactive. A number of the students of Garnezy and Rodnick have used the good and poor premorbid classification in perceptual studies dealing with stimuli which vary in thematic content. Dunn (1954), in a study of visual discrimination, found that schizophrenics performed equally as well as normals for tachistoscopically presented pictures showing objects and a series of silhouetted mother-boy figures depicting whipping and feeding. However, for the scolding scene, the schizophrenics showed poorer discrimination than the normals, the variance being largely produced by the poor premorbid subjects.

Harris (1957) found that poor and good premorbid subjects differed on size judgments of pictures with mother-son thematic content of dominance, acceptance, ignoring, and overprotection. Poor premorbid adjustment schizophrenics, who had presumably experienced poor mother-son relationships, tended to overestimate picture size, whereas good premorbids tended to underestimate picture size. The poor premorbid groups also tended to attribute a greater amount of rejection to their mothers when asked to answer questions concerning parent-child attitudes and practices of their mothers.

Parental Dominance

Parental dominance in good and poor premorbid schizophrenics has been the subject of investigation by Garnezy, Stockner, and Clarke (1959) and by Farina (1960). Garnezy, Stockner, and Clarke (1959) used a projective task for assessing the sex of the parental figure perceived by the patient as being dominant. They found that whereas good male premorbids tended to perceive the father-figure as being dominant, poor premorbids perceived the mother-figure as being the dominant parent.

Complementary results with good and poor premorbid schizophrenics were obtained by Farina (1960), who observed the spontaneous interactions of parents of good and poor premorbid male schizophrenics through a one-way mirror, and found that mothers of poor premorbid sons tended to be dominant over the fathers, whereas the fathers tended to be dominant over the mothers of the good premorbid schizophrenic sons. Farina suggests that the reversal from the normal expectation of the father being dominant for the poor-premorbid group gives some support to the notion that the identification process in poor premorbid sons' childhood is deviant and contributes to the development of process schizophrenia.

Ego Strength and Psychosexual Dimensions

Whereas the above studies have pitted schizophrenics from the extremes of the continuum against one another, Figetakis (1963) applied a psychoanalytic rationale to the concept of a process-reactive schizophrenia continuum, and investigated the problem areas of ego-strength, psychosexual drive categories, love-object orientations, and identification process outcomes in process-reactive schizophrenia. The Elgin Prognostic Scale was applied to case-history material by Figetakis, and subjects were administered the Barron Ego-Strength Scale, the Draw-A-Person Test, and selected cards from the Blacky Picture Test.

Figetakis found that:

- A. Barron Ego-Strength Scale scores were negatively correlated with Elgin Prognostic Scale ratings, with subjects rated as reactive schizophrenics tending to produce the larger Barron scores, indicative of higher levels of ego-strength.

- B. Draw-A-Person Test sexual differentiation ratings were negatively correlated with Elgin Prognostic Scale ratings, with subjects rated as reactive schizophrenics tending to receive sexual differentiation ratings corresponding to higher genetic-levels of sexual identification development.
- C. Blacky Picture Test orality factor scores were positively correlated with Elgin Prognostic Scale ratings, with subjects rated as process schizophrenics tending to produce the larger factor scores reflecting higher levels of oral drive motivation.
- D. Blacky Picture Test heterosexual phantasy factor scores were negatively correlated with Elgin Prognostic Scale ratings, with subjects rated as reactive schizophrenics tending to produce the larger factor scores, indicative of higher levels of phantasy involvement with the opposite sex.
- E. Blacky Picture Test narcissism factor scores were positively correlated with Elgin Prognostic Scale ratings, with subjects rated as process schizophrenics tending to produce the larger factor scores, reflecting higher levels of involvement with self as love-object.

Theoretical Premises

It is assumed by Figetakis (1963) that schizophrenia involves degrees of regression which are more extensive for process than for reactive schizophrenics, and he points out that this assumption is an indispensable element of all contemporary theoretical proposals (Becker, 1959; Kantor and Winder, 1959; Zimet and Fine, 1959). The assumption that during life-development, abnormal integration patterns occur earlier in childhood for process than for reactive

schizophrenics is also explicit in the formulations of all of the above authors.

These assumptions of differential levels and degrees of regressive mechanisms and fixation processes (developmental arrest) are pertinent to the present study, and will be utilized as basic theoretical premises.

STATEMENT OF HYPOTHESES

According to psychoanalytic theory, there is regression in all schizophrenics, with the regression being at least in part to primary narcissism, and the early oral period, the decisive points of fixation. Thus, one would expect schizophrenics, regardless of their process-reactive classification, to demonstrate greater indices of primary narcissism, and of orality, than normals.

Although the decisive points of fixation in all cases of schizophrenia are believed to be these early levels of object relationship and libidinal organization, the regression need not be complete. Higher levels of development may be reached, and maintained to a greater extent by some schizophrenics than by others. Considering the process-reactive concept, one expects the process schizophrenics, who show insidious onset of the disease and poor prognosis, to be characterized by a more thorough fixation at, and subsequently a more complete regression to, the early levels of primary narcissism and orality than the reactive schizophrenics. Indeed, the reactive schizophrenics are expected to have approached an adequate, normal personality adjustment prior to psychosis, suggesting less initial fixation at, and consequently less regressive pull back to these early levels. Thus, the hypotheses are:

Hypothesis I Schizophrenics will show greater indices of primary narcissism than will normals.

Hypothesis II Process schizophrenics will show greater indices of primary narcissism than will reactive schizophrenics.

Hypothesis III Schizophrenics will show greater indices of orality (or derivatives of orality) than will normals.

Hypothesis IV Process schizophrenics will show greater indices of orality (or derivatives of orality) than will reactive schizophrenics.

Additional differences between process and reactive groups (male) can be foreseen, whereas, for many areas, differences are not expected between the reactive schizophrenics (males) and normals (males). One such area of anticipated difference between process and reactive schizophrenics concerns ego defensiveness in regard to infantile (oral, anal, and early phallic) impulses. Gradually, with the infant's increasing mastery of motility, it becomes necessary for the ego to learn to ward off impulses that are either dangerous or inappropriate, and mechanisms first used against painful external stimuli become turned against inner drives. Greater defensiveness concerning infantile impulses is expected by reactive than by process schizophrenics. It is hypothesized that:

Hypothesis V Reactive schizophrenics will demonstrate greater defensiveness concerning infantile (oral, anal, and early phallic) impulses than will process schizophrenics.

Because the reactive schizophrenics are thought to have reached higher levels of development to a greater extent than have process schizophrenics, Oedipal involvement is expected to be greater for the reactive schizophrenic than it is for the process schizophrenic. It is also anticipated that reactive schizophrenics will express greater Oedipal involvement than will normals. Hypotheses are:

Hypothesis VI Expression of Oedipal conflict will be greater for reactive schizophrenics than for process schizophrenics.

Hypothesis VII Expression of Oedipal conflict will be greater for reactive schizophrenics than for normals.

In addition, because the reactive schizophrenics are believed to have approached an adequate, normal personality adjustment prior to psychosis to a greater extent than have the process schizophrenics, greater identification with the father, greater acceptance of the father as an ego ideal, and more positive feelings toward father and self are expected of the reactive schizophrenics than of the process schizophrenics. The reverse of this, identification with the mother rather than the father, and negative feelings toward self and father, is expected to be more characteristic of the process group than of the reactives. Significant differences are not expected between the reactive schizophrenics and normals for these areas. Hypotheses are:

Hypothesis VIII Reactive schizophrenics will express greater identification with the father and more positive feelings toward father and self than will process schizophrenics.

Hypothesis IX Reactive schizophrenics will not differ significantly from normals in identification with the father and positive feelings toward father and self.

Hypothesis X Reactive schizophrenics will express less identification with the mother than will process schizophrenics.

Hypothesis XI Reactive schizophrenics will not differ significantly from normals in (lack of) identification with the mother.

Hypothesis XII Reactive schizophrenics will express fewer negative feelings toward self and father than will process schizophrenics.

Hypothesis XIII Reactive schizophrenics will not differ significantly from normals in (lack of) expression of negative feelings toward self and father.

And lastly, reactive schizophrenics are expected to express greater concern with heterosexuality than will process schizophrenics, whereas reactives and normals are not expected to differ significantly on this dimension. Hypotheses are:

Hypothesis XIV Reactive schizophrenics will express greater concern with heterosexuality than will process schizophrenics.

Hypothesis XV Reactive schizophrenics will not differ significantly from normals in concern with heterosexuality.

OPERATIONAL PREDICTIONS

Operational predictions for the hypotheses being investigated are given below. All predictions are for male subjects.

- Hypothesis I Prediction A Schizophrenics will exceed normals on the Blacky Picture Test factor of narcissism (XI-C).
- Prediction B Schizophrenics will show greater (ranked) distortion on the narcissism perceptual task stimulus than will normals.
- Hypothesis II Prediction A Process schizophrenics will exceed reactive schizophrenics on the Blacky Picture Test factor of narcissism (XI-C).
- Prediction B Process schizophrenics will show greater (ranked) distortion on the narcissism perceptual task stimulus than will reactive schizophrenics.
- Hypothesis III Prediction A Schizophrenics will exceed normals on the combined Blacky Picture Test oral expressive factors of Oral Craving (I-A), Oral Rejection (I-B), Supply-Seeking (II-B), and Resentment over Oral Deprivation (II-C).
- Prediction B Schizophrenics will show greater (ranked) distortion on the dependency perceptual task stimulus than will normals.
- Hypothesis IV Prediction A Process schizophrenics will exceed reactive schizophrenics on the combined Blacky Picture Test oral expressive factors of Oral Craving (I-A), Oral Rejection (I-B), Supply-Seeking (II-B), and Resentment over Oral Deprivation (II-C).
- Prediction B Process schizophrenics will show greater (ranked) distortion on the dependency perceptual task stimulus than will reactive schizophrenics.

- Hypothesis V Reactive schizophrenics will exceed process schizophrenics on the combined Blacky Picture Test defensive factors of Sugar-Coating (I-C), Playfulness (II-A), Choosing Obvious Neutral Responses (III-B), Attempted Denial of Anal Preoccupation (III-C), Denial of Masturbation Guilt (V-C), and Minimizing Castration Anxiety (VI-B).
- Hypothesis VI Reactive schizophrenics will exceed process schizophrenics on the combined Blacky Picture Test Oedipal involvement factors of Undisguised Oedipal Involvement (IV-A), Disguised Oedipal Involvement (IV-B), and Mother-Surrogate as Love Object (XI-A).
- Hypothesis VII Reactive schizophrenics will exceed normals on the combined Blacky Picture Test Oedipal involvement factors of Undisguised Oedipal Involvement (IV-A), Disguised Oedipal Involvement (IV-B), and Mother-Surrogate as Love Object (XI-A).
- Hypothesis VIII Reactive schizophrenics will exceed process schizophrenics on the combined Blacky Picture Test positive identification and positive feelings toward father and self factors of Father as Preferred Identification Object (VII-A), and Overtly Positive Perception of Self and Father (X-A).
- Hypothesis IX Reactive schizophrenics will not differ significantly from normals on the combined Blacky Picture Test positive identification and positive feelings toward father and self factors of Father as Preferred Identification Object (VII-A) and Overtly Positive Perception of Self and Father (X-A).
- Hypothesis X Process schizophrenics will exceed reactive schizophrenics on the Blacky Picture Test factor of Mother as Preferred Identification Object (VII-B).
- Hypothesis XI Reactive schizophrenics will not differ significantly from normals on the Blacky Picture Test factor of Mother as Preferred Identification Object (VII-B).
- Hypothesis XII Process schizophrenics will exceed reactive schizophrenics on the Blacky Picture Test factor of Negative Perception of Self and Father (X-B).

Hypothesis XIII Reactive schizophrenics will not differ significantly from normals on the Blacky Picture Test factor of Negative Perception of Self and Father (X-B).

Hypothesis XIV Prediction A Reactive schizophrenics will exceed process schizophrenics on the Blacky Picture Test factor of Heterosexual Fantasy (XI-B).

Prediction B Reactive schizophrenics will show greater (ranked) distortion on the heterosexuality perceptual task stimuli than will process schizophrenics.

Hypothesis XV Prediction A Reactive schizophrenics will not differ significantly from normals on the Blacky Picture Test factor of Heterosexual Fantasy (XI-B).

Prediction B Reactive schizophrenics will not differ significantly from normals as to (ranked) distortion on the heterosexuality perceptual task stimuli.

METHOD

SUBJECTS

The schizophrenic and normal subjects for this study were selected from the male patient population and the hospital employees, respectively, of the Battle Creek Veteran's Administration Neuropsychiatric Hospital, Battle Creek, Michigan.

Selection of the Schizophrenic Subjects

The pool of patients from which the schizophrenic subjects were drawn consisted of patients who had appeared before the hospital diagnostic staffs within the past 18 months, and who had been diagnosed as having some form of schizophrenia. The clinical histories of these schizophrenics were screened to exclude patients from the study for any of the following characteristics:

1. Insufficient anamnesic information
2. Above 45 years of age
3. History of brain damage
4. Evidence of mental deficiency

Classification of Schizophrenic Subjects

The schizophrenic subjects who were not excluded from the study on the basis of the above criteria were classified by means of the Abbreviated Becker-Elgin Scale (ABES). Two-rater reliability between the writer and a second advanced graduate student¹ was established by the second student randomly selecting, and then independently rating,

¹Frank Kirby

ten of the first twenty-five case histories classified by the writer. A rank order correlation of .94 was obtained, and accepted as satisfactory. Additional patients were rated only by the writer.

Upon completion of the testing of subjects, each of the forty-five schizophrenics was assigned to one of three groups on the basis of the ABES score. The fifteen patients having the highest ABES scores were assigned to the process group, the fifteen patients with the lowest ABES scores were assigned to the reactive group, and the remaining fifteen patients were designated as the mid-group.

CHARACTERISTICS OF THE SAMPLES

Process Group

This group, comprised of the 15 subjects with the highest ABES scores, consisted of 11 whites and 4 Negroes, of whom 3 were married and 12 were single. Their ages ranged from 25 to 44, with a mean of 35.73 years. Six of the group obtained I.Q. scores within the range of 80-90, and 9 scores within the 91-110 classification. The average total number of months of hospitalization for the process patient was 51.27 months, and 9 of the patients were on closed wards, whereas 6 were on open wards. Hospital diagnoses included 9 schizophrenic reactions unclassified type, 5 paranoid type, and 1 schizo-affective type.

Reactive Group

This group, comprised of the 15 subjects with the lowest ABES scores, consisted of 15 whites, of whom 5 were married, 8 were single, and 2 were divorced. Their ages ranged from 20 to 42, with a mean of 32.53 years. Five obtained I.Q. scores within the range of 80-90, 9 scored within the range of 91-110, and 1 obtained a score of 120+. The average total number of months of hospitalization for the reactive

schizophrenic was 19.33 months, and of the group, 5 were on closed wards, 8 were on open wards, and 2 had privilege cards allowing them ground privileges during designated hours. Hospital diagnoses included 9 schizophrenic reactions unclassified type, 4 paranoid type, 1 catatonic type, and 1 schizo-affective type.

Mid-group

The 15 subjects whose ABES scores fell in the middle of the distribution, between the process and reactive cutoff points, were designated as the mid-group. Although no hypotheses were formulated with respect to this group, a description of the group, and comparisons between mid-group and reactive schizophrenics will be included, for the sake of completeness.

The mid-group consisted of 9 whites and 6 Negroes, of whom 2 were married, 9 were single, and 4 were divorced. Their ages ranged from 21 to 42, with a mean of 31.47 years. Two obtained I.Q. scores within the range of 80-90, 11 scored within the 91-110 classification, and 2 obtained scores within the range of 111-120. The average total number of months of hospitalization for the mid-group schizophrenic was 21.07 months, and of the group, 5 were on closed wards, 8 were on open wards, and 2 had privilege cards. Hospital diagnoses included 10 schizophrenic reactions unclassified type, 4 paranoid type, and 1 schizo-affective type.

Schizophrenic Group

This group refers to the 45 schizophrenic subjects, regardless of ABES scores, cast into a single undifferentiated category, to provide one heterogeneous group for comparisons with the normals in the analysis of test data.

Normal Group

The normal group was comprised of 15 male staff members, 6 of whom were aids, 5 of whom were from the occupational and physical therapy staff, and 4 of whom were temporary clerical employees in the Psychology Service.

The group consisted of 11 whites and 4 Negroes, of whom 12 were married, and 3 were single. Their ages ranged from 19 to 43, with a mean of 29.66 years. Five obtained I.Q. scores within the range of 80-90, 8 scored within the range of 91-110, and 2 obtained scores within the 111-120 classification. All of the group denied having been referred for or having sought psychiatric care, and all denied the use of tranquilizers.

Characteristics of the schizophrenic and normal subjects are summarized in Table 1. For each of the variables of age, marital status, race, and I.Q. score, comparisons were made between process and reactive schizophrenics, mid-group and reactive schizophrenics, reactive schizophrenics and normals, and the total schizophrenic group and normals.

The process and reactive schizophrenics were found to differ on the variable of age, with the process group tending to be older than the reactives (Table 2). This is not surprising, in that whereas a high remission rate is expected for the reactive patients, the process schizophrenics tend to remain, and grow old in a hospital setting. No differences were found between the process and reactive groups for the variables of marital status, race, or I.Q. score (Tables A, B, and C in Appendix).

Mid-group and reactive schizophrenics were found to differ only on the variable of race, in the direction of more Negroes and fewer Caucasians in the mid-group (Table B in Appendix). No differences

Table 1. Characteristics of the Samples

	Process	Mid-group	Reactive	Total Schizo-phrenic	Normal
No. of Subjects	15	15	15	45	15
<u>Age</u>					
Range	25-44	21-42	20-42	20-44	19-43
Mean	35.73	31.47	32.53	33.24	29.66
S. D.	5.26	6.92	7.44	6.71	7.96
<u>Marital Status</u>					
Single	12	9	8	29	3
Married	3	2	5	10	12
Divorced	0	4	2	6	0
<u>Race</u>					
White	11	9	15	35	11
Negro	4	6	0	10	4
<u>I. Q Score</u>					
80-90	6	2	5	13	5
91-110	9	11	9	29	8
111-120	0	2	0	2	2
120+	0	0	1	1	0
<u>ABES Scores of Schizophrenic Groups</u>					
Mean	32.87	26.80	19.60	26.42	
Median	31.25	26.38	20.25	26.38	
Range	30-40	24-29	14-23	14-40	
S. D.				6.02	

Table 2. Comparisons of the Groups on Mean Age

	Process (N=15)	Mid- group (N=15)	Reactive (N=15)	Total Schizophrenic (N=45)	Normal (N=15)
Mean	35.75	31.47	32.53	33.24	29.66
S. D.	5.26	6.92	7.44	6.71	7.96
<hr/>					
Comparisons			F	t	Sign. Level
Process vs. Reactive			2.00	2.558	.02
Mid-group vs. Reactive			1.16	.678	N.S.
Reactive vs. Normal			1.14	2.045	N.S.
Total Schizophrenic vs. Normal			1.19	3.150	.01

were found between mid-group and reactives as to age, marital status, or I. Q. score (Table 2, and Tables A and C in Appendix).

The reactive schizophrenics and normals were found to be comparable in regard to the variables of age, race, and I. Q. score (Table 2, and Tables B and C in Appendix). They differed only as to marital status, with fewer reactive schizophrenics than normals being married, and more reactive schizophrenics than normals being single or divorced (Table A in Appendix).

The total schizophrenic group, as the reactive schizophrenics, differed from the normals in regard to marital status, with a smaller proportion of schizophrenics than normals being married, and a larger proportion being single or divorced (Table A in Appendix). These differences between the normal and the schizophrenic groups are to be expected, in that schizophrenic persons are typically characterized as experiencing difficulty forming and maintaining satisfying interpersonal relationships with persons of the opposite sex. The total schizophrenic

group also differed from the normals with respect to age, with the schizophrenics being significantly older (Table 2). No differences were found between these groups for the variables of race and I. Q. score (Tables B and C in Appendix).

Hospital Characteristics of the Schizophrenic Subjects

Information concerning the additional characteristics of total length of hospitalization, psychiatric diagnosis, and type of ward was obtained for the schizophrenic subjects. This information is summarized in Table D in the Appendix. The total months of hospitalization refers to the cumulative time spent by patients in a psychiatric hospital setting. Process and reactive schizophrenics, and mid-group and reactive schizophrenics were compared on this variable, and on the variables of psychiatric diagnosis and type of ward. Because of the small number of cases of schizo-affective and catatonic schizophrenia, these categories were combined for the chi square analyses concerning psychiatric diagnosis.

Process and reactive schizophrenics were found to differ in total months of hospitalization, with process schizophrenics tending to remain in a hospital setting for a longer period of time (Table E in Appendix). This is not surprising, since process schizophrenics are expected to have a poorer prognosis, and to require a longer period of hospitalization than do reactive schizophrenics. No differences were found between the process and reactive groups in regard to psychiatric diagnosis, or type of ward (Tables F and G in Appendix).

Mid-group and reactive schizophrenics were not found to differ on any of the variables of total months of hospitalization, psychiatric diagnosis, or type of ward (Tables E, F, and G in Appendix).

PROCEDURE

Each subject was told that he had been selected to take part in a research project, and that his participation would be appreciated. Patients were reassured that the results of their tests would in no way influence their course in the hospital.

The Thorndike Vocabulary Test, a perceptual time estimation task, and the Blacky Picture Test were administered to each subject by the author. Prior to this, the Abbreviated Becker-Elgin Scale had been administered to all schizophrenic subjects. Standard directions were used for the administration of each of the tests, with the shorter, more easily understandable children's instructions being employed for the Blacky Picture Test (Blum, 1950).

Thorndike Vocabulary Test

The vocabulary test, developed by Thorndike (1942) for inclusion in a Gallup survey of the American voting public is described by him as a brief "screening" test of intelligence. It is an abbreviation of the vocabulary section of the I. E. R. Intelligence Scale, CAVD, and consists of 20 words with five multiple-choice alternatives for each. The test was standardized by administering it, together with the Otis Self-Administering Intelligence Examination Form A, to 994 seventh through eleventh grade pupils, and also administering both the vocabulary test and the American Council Psychological Examination to 268 entering college freshmen. According to Thorndike (1942) it is estimated that ". . . correlations between two forms of the test would be .83, and the correlation of the test with a perfect criterion would be .90." (Thorndike, 1942, p. 132)

Blacky Picture Test

Blum's (1950) Blacky Picture Test is a psychoanalytically orientated instrument designed to tap various stages of psychosexual development, its arrest, or residues. Each of the 11 cartoon drawings of the test depicts either a stage of psychosexual development or a type of object relationship within that development. Blum (1962) has factor analyzed responses to each of the 11 cartoons, and has found two or three factors per card, providing a total of thirty factors. These factors provide an improved system for research use of the technique. Eighteen of the thirty factors were utilized in testing hypotheses in the present study.

The short, easily understandable children's directions (Blum, 1950) were utilized in administering the test. After the completion of testing, the subjects' names, and other identifying information were removed from the protocols, so that each protocol bore only a code number at the time that it was scored. Further safeguard against subjectivity of scoring was provided by the scoring system itself (Blum, 1962), which appears to have a high degree of objectivity inherent in it. In order to assess more precisely the degree of this objectivity, five protocols were randomly selected, and scored by a second independent rater,¹ and the percentage agreement obtained on the items of the protocols between the second rater and the author was 91%.

Perceptual Time-Estimation Task

The perceptual time-estimation task being utilized is similar to the one devised by Pearl (1962), who tachistoscopically presented one neutral and three conflict arousing picture stimuli to schizophrenic

¹Bob Laywell

subjects, previously rated as primarily having conflicts and difficulty in one of the three areas of aggression, sex or dependency. Findings by Pearl supported the hypothesis that time perception distortions are greatest when schizophrenics are presented stimuli representative of their major conflict.

Seven stimulus cards (a neutral card and cards representing the areas of narcissism, dependency, aggression, homosexuality, and heterosexuality) were utilized in the present study. Predictions were made concerning four of these (the narcissism, dependency, and two heterosexual stimuli). The inclusion of the remaining three stimuli was for the purpose of furnishing "bulk," so as to provide adequate range for subsequent ratings of the cards which was to be carried out.

The seven cards were presented to subjects through a Gerbrands tachistoscope which permitted identical lighting and commonality of stimuli presentation. Each picture was presented at three different exposure speeds, 10, 20, and 30 seconds, and each subject therefore viewed 21 tachistoscopic presentations. Both card order and presentation time were randomized for each of the subjects by use of a table of random numbers.

Subjects were given no initial time estimation set for the presentation of pictures, but simply told that some pictures were going to be presented through the viewing instrument. Following the first timed presentation and each subsequent one, subjects were asked to judge the length of time the picture was present on the instrument screen. After completing the time estimation task, subjects ranked the seven stimulus pictures, as to degree of "liking," with a rank of one designating the picture liked best, etc.

Four of the seven stimulus pictures, those representing the areas of dependency, aggression, and heterosexuality, and a neutral card, were identical to those previously used by Pearl (1962), by Sines (1955)

and by DeVault (1955). The dependency stimulus was borrowed from the Thematic Apperception Test and depicts a downcast young man with his hat in his hand, standing behind an older woman who is looking out of the window. This card is an example of what Henry (1956) calls "motherlike situations" (situations in which older female figures are present), and he points out that it is assumed ". . . that attitudes seen in present fantasy and expressed toward motherlike situations are a derivative of earlier experiences with the mother or with her surrogate." (Henry, 1956, p. 122). The aggression stimulus shows a huge, scowling man with manacled wrists and clenched fists raised ready to strike down upon an unsuspecting smaller man standing in front and facing the other direction. This drawing was specifically made for Sines' (1955) research. The heterosexual picture shows an attractive young woman in a filmy negligee lying on a couch with her arms outstretched toward a man leaning somewhat toward her (Esquire, the Magazine for Men, April 1954, p. 48). A second Thematic Apperception Test picture, depicting a peaceful scene with a boat against a stream bank, was used as a neutral stimulus.

Another Thematic Apperception Test picture, used to represent the area of homosexuality, was the fifth stimulus card in the present study. This card depicts men lying on the grass near one another, taking it easy. Bellak (Abt and Bellak, 1959) describes the picture as indispensable for disclosing contemporary man-to-man relationships, and indicates that homosexual drives and fears may become quite apparent in stories to this picture.

Of the remaining two stimulus pictures, one, representing the area of narcissism, shows a bronze, muscular young man displaying his physique (Muscle Builder Magazine, May, 1963). The other a second heterosexual stimulus, pictures a pretty girl in a red dress gazing up from a prone position (Look, April 23, 1963, p. 57). These two pictures,

which were neither taken from a standard psychological test or from previous research, as in the case of the previous stimulus cards, were selected through being judged by three advanced graduate students¹ in addition to the author as representing the areas of narcissism, and heterosexuality respectively. Twelve pictures for the area of heterosexuality and ten pictures for the area of narcissism were initially selected by the author, and were then rated by the four judges on a scale from 0 through 7, with 0 representing no stimulus value and 7 representing high stimulus value for the area under consideration. The two pictures selected for actual inclusion in the study received the highest ratings for their respective content areas, the mean rating of the picture representing heterosexuality being 6.25, and the mean rating of the picture representing narcissism being 7.00.

In summary, the seven stimulus cards used in the study, and their sources, were:

Neutral Card	Thematic Apperception Test, Card 12BG
Narcissism Card	Muscle Builder Magazine, May, 1963
Dependency Card	Thematic Apperception Test, Card 6BM
Aggression Card	Drawn for Sines' (1955) research
Homosexuality Card	Thematic Apperception Test, Card 9BM
Heterosexuality 1 Card	Esquire, the Magazine for Men, April, 1954
Heterosexuality 2 Card	Look, April 23, 1963

All subject judgments of the exposure times of these stimuli were converted into scores based upon the ratios of estimated to actual time. To facilitate computations, these ratios were multiplied by a factor of 10, and the absolute deviation of scores from an accurate judgment score of 10 was then found. Three such scores were available for each card, since each card had been presented at 10, 20, and 30 second intervals, and these scores were combined, giving a total deviation score for each subject on each of the seven cards.

¹Jerry Beckerle, Frank Kirby, and Bob Laywell.

Because the above measure was expected to be sensitive to a possible tendency of process schizophrenics to distort greatly on all stimuli, regardless of content, the following procedure was adhered to in obtaining scores for the testing of hypotheses. The total deviation scores of each subject on the seven stimulus cards were ranked from 1 to 7, with a rank of 1 being assigned to the stimulus card eliciting the greatest amount of distortion, and the rank of 7 being used to designate the stimulus card eliciting the least distortion of time estimate. These ranks for each subject were converted to T scores (Edwards, 1956) and comparisons were made between groups as to mean T scores, by the use of t tests. In this way, the relative degree of distortion among the seven stimuli for each subject was taken into consideration.

Ranks assigned to pictures by subjects, as to degree of "liking, " were also converted into T scores, and comparisons were made between groups as to these mean scores by t tests.

A final area of comparison between groups concerned tendencies toward over, under, and equal estimation of exposure times. t tests were used to analyze differences between the groups as to mean number of over estimations, mean number of under estimations, and mean number of equal estimation.

Data pertinent to the testing of hypotheses are given in the results section which follows, whereas additional findings concerning mean total deviation scores (unranked) and over, under and equal estimations are reported in a subsequent chapter.

RESULTS

BLACKY PICTURE TEST RESULTS

Findings Related to Hypothesis I, Prediction A and to Hypothesis II, Prediction A

Narcissism (Blacky Picture Test Factor XI-C)

This test factor from Card XI of the Blacky Picture Test provides a measure of the extent that one is preoccupied with self-centered need-gratification strivings. Persons scoring high on the factor are described by Blum (1962) as having a narcissistic rather than a heterosexual orientation, as seeking to be admired by others, and as expressing a willingness to relinquish the masculine role in order to achieve narcissistic gratification.

The total schizophrenic group was found to score significantly higher than the normals on this factor, and the process schizophrenics also exceeded the reactive schizophrenics, as was expected (Table 3).

Findings Relating to Hypothesis III, Prediction A and to Hypothesis IV, Prediction A

Combined Oral Expressive Factors (Blacky Picture Test Factors of Oral Craving I-A, Oral Rejection I-B, Supply-Seeking II-B, and Resentment over Oral Deprivation II-C)

This combined measure utilizes pooled scores received by each subject on four factors, from Cards I (Oral Eroticism) and II (Oral Sadism) of the Blacky Picture Test, each of the factors being a test measure of a dimension of oral conflict.

No differences between groups were found for this measure (Table 4).

Table 3. Comparisons of the Groups on the Blacky Picture Test Factor of Narcissism (XI-C)

<u>Total Schizophrenic vs. Normal</u>			
	0	1 or more	
Total Schizophrenic	20	25	45
Normal	12	3	15
	32	28	60

$X^2 = 4.38^*$
 $Df = 1$
 Significance level .05

<u>Process vs. Reactive</u>			
	0	1 or more	
Process	2	13	15
Reactive	10	5	15
	12	18	30

$X^2 = 6.78^*$
 $Df = 1$
 Significance level .01

* Corrected for continuity

Table 4. Comparisons of the Groups on the Blacky Picture Test Factors (Combined Scores) of Oral Craving (I-A), Oral Rejection (I-B), Supply-Seeking (II-B), and Resentment Over Oral Deprivation (II-C)

<u>Total Schizophrenic vs. Normal</u>				
	0-3	4-7	8-11	
Total Schizophrenic	16	23	6	45
Normal	5	9	1	15
	21	32	7	60

$X^2 = .61$
 $Df = 2$
 Significance level N. S.

<u>Process vs. Reactive</u>				
	0-3	4-7	8-11	
Process	5	8	2	15
Reactive	6	7	2	15
	11	15	4	30

$X^2 = .16$
 $Df = 2$
 Significance level N. S.

In a further analysis, the four factors were considered separately, rather than being combined into a single measure, and it was found that process and reactive schizophrenics did show some tendency to differ on the individual factor of Oral Rejection (significance level .10) in the direction of greater expression of oral rejection by the process than by the reactive schizophrenics (Table 5). The constellation indicated by this factor of Oral Rejection is, according to Blum (1962), one of maternal rejection, with dependency needs being thwarted by the mother, who apparently is unable to bestow affection upon the child.

Table 5. Comparison of Process and Reactive Schizophrenics on the Blacky Picture Test Factor of Oral Rejection (I-B)

	0	1	2	
Process	5	7	3	15
Reactive	11	2	2	15
	16	9	5	30

$\chi^2 = 5.24$

Df = 2

Significance level .10

No other differences between groups were found when comparing process and reactive schizophrenics, and the total schizophrenic group and normals on the individual factors of Oral Craving, Oral Rejection, Supply-Seeking, and Resentment over Oral Deprivation.

Findings Related to Hypothesis V

Combined Defensive Factors (Blacky Picture Test Factors of Sugar-Coating I-C, Playfulness II-A, Choosing Obvious Neutral Responses

III-B, Attempted Denial of Anal Preoccupation III-C, Denial of Masturbation Guilt V-C, and Minimizing Castration Anxiety VI-B)

On each card of the Blacky Picture Test, at least one factor reflects a defensive style of responding to the test stimuli, according to Blum (1962). The defensive factors for Cards I (Oral Eroticism), II (Oral Sadism), III (Anal Sadism), V (Masturbation Guilt), and VI (Castration Anxiety) were combined for the present measure, with pooled scores for each subject being utilized, in an effort to obtain estimates of defensiveness concerning infantile (oral, anal, and early phallic) impulses for the groups. No difference between the process and reactive schizophrenics was found.

Only the defensive factors for Cards I (Oral Eroticism), II (Oral Sadism), and III (Anal Sadism) were utilized in a further comparison of process and reactive schizophrenics, in order to obtain a measure of their defensiveness in regard to pregenital (oral and anal) impulses. No difference between the groups was found (Table 7).

Findings Relating to Hypotheses VI and VII

Combined Oedipal Factors (Blacky Picture Test Factors Undisguised Oedipal Involvement IV-A, Disguised Oedipal Involvement IV-B, and Mother-Surrogate as Love Object XI-A)

Factors from Cards IV (Oedipal Intensity) and XI (Love Object) were combined for this measure of Oedipal involvement, with pooled scores for each subject being utilized. No differences were found between the groups (Table 8).

Findings Relating to Hypotheses VIII and IX

Combined Identification and Ego Ideal Factors (Blacky Picture Test Factors of Father as Preferred Identification Object VII-A and Overtly Positive Perception of Self and Father X-A)

Table 6. Comparison of Process and Reactive Schizophrenics on the Blacky Picture Test Factors (Combined Scores) of Sugar-Coating (I-A), Playfulness (II-A), Choosing Obvious Neutral Responses (III-B), Attempted Denial of Anal Preoccupation (III-C), Denial of Masturbation Guilt (V-C), and Minimizing Castration Anxiety (VI-B)

	4-9	10-15	16-21	
Process	4	8	3	15
Reactive	2	8	5	15
	6	16	8	30

$X^2 = 1.16$

Df = 2

Significance level N.S.

Table 7. Comparison of Process and Reactive Schizophrenics on the Blacky Picture Test Factors (Combined Scores) of Sugar-Coating (I-C), Playfulness (II-A), Choosing Obvious Neutral Responses (III-B), and Attempted Denial of Anal Preoccupation (III-C)

	3-6	7-10	11-14	
Process	2	11	2	15
Reactive	1	9	5	15
	3	20	7	30

$X^2 = 1.82$

Df = 2

Significance Level N.S.

Table 8. Comparisons of Groups on the Blacky Picture Test Factors (Combined Scores) of Undisguised Oedipal Involvement (IV-A), Disguised Oedipal Involvement (IV-B) and Mother-Surrogate as Love Object (XI-A)

<u>Process vs. Reactive</u>				
	0-3	4-7	8-11	
Process	4	11	0	15
Reactive	2	10	3	15
	6	21	3	30

X²= 3.72
Df= 2
Significance level N.S.

<u>Reactive vs. Normal</u>				
	0-3	4-7	8-11	
Reactive	2	10	3	15
Normal	1	12	2	15
	3	22	5	30

X²= .72
Df= 2
Significance level N.S.

Factors from Cards VII (Identification Process) and X (Ego Ideal) were combined for this measure, with each subject's scores being pooled. Process and reactive schizophrenics showed some tendency to differ on the measure, in the expected direction of greater expression of positive identification and positive perception of self and father being made by reactive than by process schizophrenics (significance level .10). See Table 9. No difference between reactive and normal groups was found.

Similar results were obtained when the two factors (VII-A and X-A) were considered individually rather than being combined into a single measure. Reactive schizophrenics showed some tendency to express greater preference for the father as an identification object than did process schizophrenics (significance level .10), and reactive schizophrenics also showed some tendency to indicate a more overtly positive perception of self and father than did process schizophrenics (significance level .10). See Tables 10 and 11. No differences between reactives and normals were found for either of these measures.

Findings Relating to Hypotheses X and XI

Mother as Preferred Identification Object (Blacky Picture Test Factor VII-B)

For persons scoring high on this factor, which is taken from Card VII of the Blacky Picture Test, the mother is the decisive figure and serves as the preferred identification object, according to Blum (1962). Furthermore, disappointment and hostility toward her accompany the feminine identification, satisfactory heterosexual relationships are unattainable, and a purely narcissistic approach to the opposite sex prevails, Blum (1962) suggests.

Table 9. Comparisons of the Groups on the Blacky Picture Test Factors (Combined Scores) of Father as Preferred Identification Object (VII-A) and Overtly Positive Perception of Self and Father (X-A)

<u>Process vs. Reactive</u>				
	3-5	6-8	9-11	
Process	6	7	2	15
Reactive	2	5	8	15
	8	12	10	30

$X^2 = 5.92$
 $Df = 2$
 Significance level .10

<u>Reactive vs. Normal</u>				
	3-5	6-8	9-11	
Reactive	2	5	8	15
Normal	3	4	8	15
	5	9	16	30

$X^2 = .32$
 $Df = 2$
 Significance level N.S.

Table 10. Comparison of Process and Reactive Schizophrenics on the Blacky Picture Test Factor of Father as Preferred Identification Object (VII-A)

	0-2	3-5	6-8	
Process	5	9	1	15
Reactive	1	9	5	15
	6	18	6	30
X ² = 5.17				
Df= 2				
Significance level .10				

Table 11. Comparison of Process and Reactive Schizophrenics on the Blacky Picture Test Factor of Overtly Positive Perception of Self and Father (X-A)

	1-2	3-4	5-6	
Process	4	11	0	15
Reactive	4	7	4	15
	8	18	4	30
X ² = 4.89				
Df= 2				
Significance level .10				

Process and reactive schizophrenics differed significantly, in the expected direction on this measure, with the process group expressing greater test indices of preference for the mother as an identification object (Table 12). No difference was found between the reactive and normal groups.

Findings Relating to Hypotheses XII and XIII

Negative Perception of Self and Father (Blacky Picture Test Factor X-B)

In this factor, taken from Card X (Ego Ideal) of the Blacky Picture Test, father and self are downgraded and life is viewed pessimistically (Blum, 1962). No differences between the groups were found for the measure. See Table 13.

Findings Relating to Hypothesis XIV, Prediction A and to Hypothesis XV, Prediction A

Heterosexual Fantasy (Blacky Picture Test Factor XI-B)

This factor, from Card XI (Love Object) of the Blacky Picture Test, is described by Blum (1962) as expressing heterosexual interests, at the phantasy level of behavior. Process and reactive schizophrenics differed significantly on the measure in the expected direction, with the reactive schizophrenics demonstrating greater test indices of heterosexual fantasy (Table 14). No difference between reactives and normals was found.

Table 12. Comparisons of the Groups on the Blacky Picture Test Factor of Mother as Preferred Identification Object (VII-B)

<u>Process vs. Reactive</u>				
	0-1	2-3	4-5	
Process	5	8	2	15
Reactive	13	2	0	15
	18	10	2	30
X ² =9.16				
Df= 2				
Significance level .02				
<u>Reactive vs. Normal</u>				
	0-1	2-3	4-5	
Reactive	13	2	0	15
Normal	10	2	3	15
	23	4	3	30
X ² =3.40				
Df= 2				
Significance level N.S.				

Table 13. Comparisons of the Groups on the Blacky Picture Test Factor of Negative Perception of Self and Father (X-B)

	<u>Process vs. Reactive</u>			
	0-1	2-3	4-5	
Process	8	6	1	15
Reactive	7	8	0	15
	15	14	1	30

$X^2 = 1.56$
 $Df = 2$
 Significance level N.S.

	<u>Reactive vs. Normal</u>		
	0-1	2-3	
Reactive	7	8	15
Normal	6	9	15
	13	17	30

$X^2 = .00^*$
 $Df = 1$
 Significance level N.S.

* Corrected for continuity

Table 14. Comparisons of the Groups on the Blacky Picture Test Factor of Heterosexual Fantasy (XI-B)

<u>Process vs. Reactive</u>				
	0-2	3-5	6-8	
Process	11	3	1	15
Reactive	3	10	2	15
	14	13	3	30

X²= 8.68

Df= 2

Significance level. 02

<u>Reactive vs. Normal</u>				
	0-2	3-5	6-8	
Reactive	3	10	2	15
Normal	2	8	5	15
	5	18	7	30

X²= 1.76

Df= 2

Significance level N.S.

PERCEPTUAL TIME ESTIMATION TASK RESULTS

The total deviation scores for the seven stimulus cards of the perceptual time estimation task were ranked for each subject, a rank of 1 being assigned to the stimulus card eliciting the greatest amount of distortion, and the rank of 7 being used to designate the stimulus card eliciting the least distortion of time estimation. These ranks for each subject were converted to T scores, and the mean T scores for groups, on each of the seven stimuli, are presented in Table 15. Comparisons of mean T scores between groups are given in Table 16.

Findings Relating to Hypothesis I, Prediction B and to Hypothesis II, Prediction B

Narcissism Card

On the narcissism card the total schizophrenic group exceeded the normals, and the process schizophrenics exceeded the reactives in degree of time distortion, as was the expectation. See Table 16.

Findings Relating to Hypothesis III, Prediction B and to Hypothesis IV, Prediction B

Dependency Card

Expected differences between groups were not found for the dependency card. See Table 16.

Findings Relating to Hypothesis XIV, Prediction B and to Hypothesis XV, Prediction B

Heterosexuality Cards

On both of the heterosexuality cards, reactives exceeded process schizophrenics, and reactive schizophrenics also exceeded the normals

Table 15. Mean T Scores of Groups on the Perceptual Time Estimation Task (Rank Data)

Stimulus Card	Process (N=15)	Mid- group (N=15)	Reactive (N=15)	Total Schiz. (N=45)	Normal (N=15)
Neutral					
Mean	47.933	52.000	51.067	50.333	50.200
S. D.	8.19	11.01	8.64	9.32	9.48
Narcissism					
Mean	56.000	50.200	47.600	51.267	47.467
S. D.	7.91	9.31	9.52	9.43	8.53
Dependency					
Mean	49.800	50.667	49.067	49.844	51.267
S. D.	9.69	9.40	7.81	8.90	8.56
Aggression					
Mean	49.533	48.144	53.200	50.289	51.333
S. D.	10.13	8.93	10.27	9.81	9.63
Homosexuality					
Mean	50.867	52.267	44.144	49.089	49.067
S. D.	8.93	9.38	5.62	8.79	8.73
Heterosexuality 1					
Mean	47.400	46.333	52.267	48.667	47.733
S. D.	10.66	10.32	9.33	10.15	10.54
Heterosexuality 2					
Mean	48.200	50.267	53.600	50.689	52.533
S. D.	8.56	6.74	10.45	8.87	9.84

Table 16. Comparisons of Mean T Scores of Groups on the Perceptual Time Estimation Task (Rank Data)

Stimulus Card	Process vs. Reactive	Reactive vs. Normal	Total Schizophrenic vs. Normal
Neutral			
F test	1.11	1.20	1.04
t test	1.872	.430	.089
Sign. level	N.S.	N.S.	N.S.

Narcissism			
F test	1.45	1.25	1.22
t test	5.038	.800	2.667
Sign. level	.0005*	N.S.	.005*

Dependency			
F test	1.16	1.20	1.08
t test	.440	1.541	1.019
Sign. level	N.S.*	N.S.	N.S.*

Aggression			
F test	1.03	1.14	1.04
t test	1.982	1.079	.556
Sign. level	N.S.	N.S.	N.S.

Homosexuality			
F test	2.53 ¹	2.42	1.01
t test	4.182	2.741	.014
Sign. level	.001	.02	N.S.

Heterosexuality 1			
F test	1.30	1.28	1.08
t test	2.406	2.473	.664
Sign. level	.025*	.02	N.S.

Heterosexuality 2			
F test	1.49	1.27	1.24
t test	2.908	.548	1.164
Sign. level	.005*	N.S.	N.S.

¹ Heterogeneity of variance, degrees of freedom determined by use of Welch's formula (Walker and Lev, 1953).

* One-tailed test.

on the heterosexuality 1 stimulus. No difference was found between reactive schizophrenics and normals on the heterosexuality 2 stimulus. These results are generally consistent with predictions concerning the cards, the only exception being that the reactive schizophrenics had not been expected to differ from the normals on the heterosexuality 1 stimulus.

Neutral, Aggression and Homosexuality Cards

Predictions were not made concerning the neutral, aggression, and homosexuality cards, and no differences between groups were found for the neutral and aggression stimuli. On the homosexuality card, however, both process schizophrenics and normals exceeded the reactive group, who showed markedly little distortion for the card.

Card Preferences

After having completed the making of time estimations, each subject was asked to rank the seven stimulus cards in order of preference, with a rank of 1 indicating the card most liked. These ranks were converted into T scores, and the mean T scores for card preference are presented in Table 17. As can be seen from the table, all of the groups tended to express highest preference for the heterosexuality 2 card, and lowest preference for the aggression stimulus.

Comparisons between groups were made for the narcissism, dependency, and heterosexuality stimuli, and are given in Table 18. No differences between process and reactive schizophrenics were found. The normals, however, differed from the reactive schizophrenics and from the total schizophrenic group on the dependency and heterosexuality 2 stimuli, with the normals showing less preference for the dependency picture, and greater preference for the heterosexuality 2 picture than did either the reactive schizophrenics or the total schizophrenic group.

Table 17. Mean T Scores of the Groups for Card Preference

Stimulus Card	Process (N=15)	Mid- group (N=15)	Reactive (N=15)	Total Schiz. (N=45)	Normal (N=15)
Neutral					
Mean	52.06	53.40	53.53	53.00	51.20
Narcissism					
Mean	52.33	47.66	49.73	49.91	48.26
S. D.	6.59	7.72	9.27	7.99	9.47
Dependency					
Mean	51.26	53.66	52.06	52.33	47.13
S. D.	5.81	5.18	6.05	5.65	7.67
Aggression					
Mean	39.20	39.33	40.46	39.67	40.66
Homosexuality					
Mean	46.40	48.13	46.80	47.11	48.40
Heterosexuality 1					
Mean	51.73	50.06	51.46	51.09	53.40
S. D.	8.02	10.70	10.70	9.73	7.73
Heterosexuality 2					
Mean	57.00	57.73	55.93	56.89	60.93
S. D.	11.02	8.65	6.61	9.02	5.39

Table 18. Comparisons of Mean T Scores of Groups for Card Preference

Stimulus Card	Process vs. Reactive	Reactive vs. Normal	Total Schizophrenic vs. Normal
Narcissism			
F test	1.98	1.04	1.40
t test	1.557	.850	1.179
Sign. level	N.S.	N.S.	N.S.

Dependency			
F test	1.08	1.60	1.84
t test	.629	3.140	4.643
Sign. level	N.S.	.01	.001

Heterosexuality 1			
F test	1.78	1.91	1.58
t test	.150	.961	1.510
Sign. level	N.S.	N.S.	N.S.

Heterosexuality 2			
F test	2.78 ¹	1.50	2.81 ¹
t test	.588	3.846	3.061
Sign. level	N.S.	.001	.01

¹ Heterogeneity of variance, degrees of freedom determined by use of Welch's formula (Walker and Lev, 1953)

Correlations of the Findings With Age, and With
Length of Total Hospitalization

Significant differences were found between groups on the Blacky Picture Test measures of narcissism, mother as preferred identification object, and heterosexual fantasy, and trends in the expected direction were found concerning the factors of father as preferred identification object and overtly positive perception of self and father, and oral rejection. Significant differences between groups were also found on the perceptual time estimation task measures of narcissism,¹ and heterosexuality.

Since the groups in the study were not matched for age, Spearman rank order correlations² were carried out between the above measures, and age. See Table I in the Appendix. Significant correlations were obtained in two of the eight cases, with the correlation between the Blacky Picture Test narcissism measure and age being significant at the .05 level, and the correlation between the Blacky Picture Test heterosexual fantasy measure and age being significant at the .02 level. Significant correlations were not obtained, however, between age, and the perceptual time estimation task measures of narcissism and heterosexuality. Thus, hypotheses of the study concerning narcissism and heterosexuality are supported by the perceptual time estimation task findings. The findings with the Blacky Picture Test measures for these variables may be attributable to age differences between the groups, however.

¹A significant Spearman rank order correlation (.05 level) was found between the perceptual time estimation task and the Blacky Picture Test narcissism measures. Of the remaining three correlations between perceptual time estimation and Blacky Picture Test measures, none were significant. See Table H in Appendix.

²All Spearman rank order correlations incorporate the correction for tied ranks.

Since the process and reactive schizophrenics also differed significantly in mean months of total hospitalization, this variable, too, was correlated with the Blacky Picture Test and perceptual time estimation task measures on which significant differences between groups, or trends in the expected direction, were found. See Table J in the Appendix.

One of the eight correlations was statistically significant, that one being the correlation (.02 level) between the Blacky Picture Test measure of narcissism, and length of total hospitalization. A significant correlation was not obtained between length of total hospitalization and the perceptual time estimation task measure of narcissism, however. Thus, hypotheses of the study concerning narcissism continue to receive support by the perceptual time estimation task findings. The findings with the Blacky Picture Test measure of narcissism may be attributable to length of total hospitalization and/or age, however.

In order to more clearly ascertain whether the findings with the Blacky Picture Test measures of heterosexuality and narcissism are attributable to age, process and reactive schizophrenics were matched on this variable; 11 pairs (matched within one year for age) were compared on the Blacky Picture Test measure of narcissism, and on the Blacky Picture Test measure of heterosexual fantasy, by means of the Wilcoxon matched-pairs signed-ranks test. The matched pairs of process and reactive schizophrenics were found to differ significantly on the narcissism measure (.05 level, one tailed test), but not on the heterosexual fantasy measure. See Tables K and L in the Appendix.

Schizophrenics were also matched with normals, for comparisons between these groups on the Blacky Picture Test narcissism measure. Because the schizophrenic group consisted of three times the number of normals, three schizophrenics were matched (within one year of age) to each of the 11 normals. Thus, comparisons could be made between

a group of 33 schizophrenics, and 11 normals, who were comparable in age. The schizophrenics and normals were found to differ significantly on the Blacky Picture Test narcissism measure (.05 level, Chi square two-tailed test). See Table M in the Appendix.

Although significant differences between groups on the Blacky Picture Test measure of narcissism do continue to be found when groups are matched for age, the matching of process and reactive schizophrenics for length of total hospitalization, as well as age, did not appear feasible, and was not carried out. Thus, the possibility does exist that findings with the Blacky Picture Test measure of narcissism are attributable to differences between the groups as to total length of hospitalization.

Since significant differences between process and reactive schizophrenics do not continue to be found on the Blacky Picture Test heterosexual fantasy measure when matched pairs are used, it would appear that the findings with this measure can best be attributed to age differences between the process and reactive groups.

DISCUSSION

Love Object Preference

Findings from the narcissism card of the perceptual time estimation task supported the research hypotheses concerning the relative degree of narcissistic orientation of process schizophrenics, reactive schizophrenics, and normals; the findings suggest greater self-absorption, and need for narcissistic gratifications in schizophrenics than in normals, and greater narcissistic orientation in process schizophrenics than in reactive schizophrenics. Significant differences were found between schizophrenics and normals, and between process and reactive schizophrenics on the Blacky Picture Test narcissism measure (Factor XI-C), also. Since the measure was found to be significantly correlated with length of total hospitalization, however, it is possible that findings concerning the measure are attributable to differences between the groups as to length of total hospitalization.

Findings from both of the heterosexuality cards of the perceptual time estimation task supported the research hypotheses concerning heterosexual interests in process and reactive schizophrenics. The groups also differed significantly in the expected direction on the Blacky Picture Test heterosexual fantasy measure (Factor XI-B), but this finding, it was determined, can best be attributed to age differences between the groups. Thus, hypotheses concerning greater heterosexual interest by reactive than by process schizophrenics receive support only from perceptual time estimation task results.

No differences between reactives and normals were expected, as to heterosexual object interests, and findings from the Blacky Picture Test heterosexual fantasy measure (Factor XI-B) and from the heterosexuality 2 stimulus supported this expectation. Results from the

heterosexuality 1 stimulus, on which reactives exceeded normals, however, suggested greater heterosexual involvement of some kind on the part of the reactive schizophrenics. Since the normals and the reactive schizophrenics did not differ as to the degree of "liking" for the heterosexuality 1 card, as determined by their ranking of the cards, the greater distortion by the reactive schizophrenics cannot simply be considered an indication of positive heterosexual interest. Rather, the findings are suggestive of greater conflict on the part of the reactive schizophrenics concerning the area of heterosexuality.

Results of the study give some support to Figetakis' (1963) contentions that schizophrenics on the reactive end of the process-reactive continuum have greater heterosexual interest than do schizophrenics on the process end of the continuum, and that, conversely, process schizophrenics are more dominated by self-interests and less interested in other people for their own sake than are reactive schizophrenics.

In addition, results give some indication of greater self-absorption by schizophrenics than by normals; this finding is consistent with Young's (1960) results, in support of the hypothesis that narcissism is more characteristic of schizophrenics and neurotics than of normal individuals.

Pregenital Psychosexuality

Contrary to expectations, oral drives and needs were not found to be more pronounced in schizophrenics than in normals, nor to be more pronounced in process than in reactive schizophrenics, with an exception being that process schizophrenics did show some tendency to express more feelings of having experienced oral rejection by a maternal figure than did reactive schizophrenics.

The finding that some tendency did exist for greater feeling of oral rejection to be expressed by process than by reactive schizophrenics

is consistent with the work of Harris (1957), who reports that poor premorbid schizophrenics attributed a greater amount of rejection to their mothers when asked to answer questions on parent-child practices and attitudes of their mothers than did good premorbid schizophrenics.

Hypotheses concerning differences in Oedipal involvement between the groups received no support, and the results suggest that Oedipal conflicts are no more pronounced in reactive schizophrenics than they are in process schizophrenics or in normals.

Differences were also expected between process and reactive schizophrenics as to defensiveness concerning infantile impulses, and these were not found; it appears tenable to assume that the groups do not differ on this dimension.

In part, these negative results are consistent with previous research findings. Figetakis (1963) failed to obtain differences between process and reactive schizophrenics for "phallic sexual conflict," a dimension comprised of Oedipal conflict and castration anxiety measurements, similar to the dimension of Oedipal involvement used in the present study.

Oral drives and needs were found to be more pronounced in schizophrenics located on the process end of the continuum than on the reactive end of the continuum by Figetakis (1963), however, and he concluded from the results of his study that oral drive components appear to be more basic to the personality of process than of reactive schizophrenics. Studies by Olson (1960) and by Lewis, Griffith, Riedel and Simmons (1959) are also pertinent, in pointing to more marked orality in schizophrenics than in normals.

It should also be noted that in the present study, schizophrenics and reactives expressed greater "liking" for the dependency stimulus card than did normals. A possible interpretation of this finding is that

schizophrenics patients, at least those who are in a hospital setting oriented primarily toward custodial care, are more able to openly express dependency needs than are normals. One might further speculate that such a hospital setting may provide sufficient gratification of dependency needs so that these are no longer pressing for expression, and thus are not apparent to a marked degree on psychological tests.

In light of these considerations, it would appear that although hypotheses concerning orality tended not to be supported, this is an area where sufficient contradiction exists to indicate need for further clarification. Oral rejection, particularly, would appear to be a potentially fruitful dimension for further investigation.

Parental Identification and Perceptions of Self and Father

Blacky Picture Test results gave support to some of the hypotheses concerning parental identification and positive feelings toward father and self. Findings indicate that reactive schizophrenics show some tendency to identify more strongly with the male parent, and also show some tendency to express more positive feelings toward father and self than do process schizophrenics. The results further indicate that reactives and normals are similar both in their preference for identifying with the male rather than with the female parent, and in their tendency to express positive feelings toward self and father. Complementary findings pertaining to identification with the mother were obtained, in support of the contention that process schizophrenics are more strongly identified with the female parent than are reactive schizophrenics.

Blacky Picture Test results did not provide support for hypothesized differences between reactive and process schizophrenics in

expression of negative feelings toward self and father, however. Rather, the findings indicate that process schizophrenics are no more likely to express negative feelings toward self and father than are reactive schizophrenics, or normals.

These results concerning parental identification further confirm the findings of Figetakis (1963), who reports that reactive subjects show greater tendency to identify with the male parental figure than do process schizophrenics. Figetakis failed to find significant differences between process and reactive schizophrenics in tendency to identify with the female parent, however, whereas greater identification with the female parent by process than by reactive schizophrenics is indicated in the present study.

The present findings concerning the identification preferences of process and reactive schizophrenics supplement the earlier works of Garnezy, Stockner, and Clarke (1959) and of Farina (1960). The former report that good male pre-morbids tend to perceive the father-figure as being dominant, whereas poor pre-morbids perceive the mother-figure as the dominant parent. Complementary results were obtained by Farina (1960), who, utilizing ratings of observed interactions, found mothers of poor pre-morbid schizophrenics to be dominant over the fathers, whereas the fathers tended to be dominant over the mothers of the good pre-morbid schizophrenic sons.

The results of the present study, together with findings of Garnezy, Stockner, and Clarke (1959) and Farina (1960) suggest that the male parent, perceived by the reactive schizophrenic and judged by others to be the more dominant parent, is the preferred identification figure for male reactive schizophrenics, whereas for the male process schizophrenic the female parent is perceived and judged to be dominant, and is the preferred object of identification. Such findings lend support to the contention that identification occurs with the more dominant parent,

who is regarded as the decisive source of frustration. Furthermore, identification with the male parental figure appears to be associated with the expression of overtly positive feelings toward father and self.

Summary and General Considerations

To briefly summarize the above differences between groups, it was found that some indication is given of greater narcissistic involvement with self by schizophrenics than by normals.

Process and reactive schizophrenics were found to differ in that process schizophrenics show greater preference for identifying with the mother than do reactive schizophrenics. There is also some indication of greater narcissistic involvement with self by process than by reactive schizophrenics, and less heterosexual orientation. In addition, process schizophrenics show some tendency to express more feelings of oral rejection and a less overtly positive perception of self and father than do the reactive schizophrenics.

The findings of the study may be interpreted as reflecting psychological differences between schizophrenics and normals, and between process and reactive schizophrenics as a function of regression-fixation processes in development. The study suggests that normals function at higher levels of personality integration than do schizophrenics. Moreover, reactive schizophrenics tend to demonstrate higher levels of functioning than do process schizophrenics, and generally approach the level of integration obtained by normals.

These results are consistent with the contention that both process and reactive schizophrenia have a common basis in psychological disturbance, but, as is pointed out by Figetakis (1963) such findings do not negate the possibility that schizophrenia, or process schizophrenia only, involves organic factors as well.

The results also point to the usefulness of perceptual time estimation tasks as a means of exploring personality dimensions, and suggest that such tasks, as well as the Blacky Picture Test may have value in estimating severity of illness, predicting prognosis, and exploring differential areas of psychological conflict in schizophrenics. In the clinical setting, such knowledge may be useful in the treatment and psychotherapeutic management of schizophrenic patients.

ADDITIONAL FINDINGS

Predictions for this study concerning groups on the perceptual time estimation task were made in regard to ranked data, with each subject's total deviation scores for the seven cards being ranked from one to seven. Ranks for subjects were converted into T scores, and mean T scores were computed, with comparisons being made between groups. These data have been presented and discussed in preceding chapters.

The mean total deviation scores, prior to ranking, are presented in Table 19, and although no predictions were made in regard to these scores, comparisons between process and reactive, and reactive and normal groups are given in Table 20.

As can be seen from Table 20, with the cards being combined to give a single overall measure, the process schizophrenics showed greater variability and time distortion than did the reactive schizophrenics. And, the reactive schizophrenics were more variable, and showed greater time distortion than did normals.

Discussion of the Above Findings

In verbal estimations of the 10, 20, and 30 second exposure times used for the perceptual time estimation task, differences between groups for both variability and accuracy were found, and it would appear tenable to conclude that variability and inaccuracy of time estimations for short intervals characterize process schizophrenics to a great extent, characterize reactive schizophrenics to a moderate extent, and are least characteristic of normals. This is in contrast to the findings of Dobson (1954), who reports that matched groups of neurotics, normals, oriented schizophrenics, and nonoriented (for time)

Table 19. Mean Total Deviation Scores of Groups on the Perceptual Time Estimation Task

Stimulus Card	Process (N=15)	Reactive (N=15)	Normal (N=15)
Neutral			
Mean	17.74	10.22	6.88
S. D.	11.71	6.62	3.20
Narcissism			
Mean	42.78	10.20	6.39
S. D.	81.38	9.30	4.71
Dependency			
Mean	19.77	8.33	9.04
S. D.	12.20	4.18	7.18
Aggression			
Mean	20.66	12.64	6.90
S. D.	19.86	12.84	3.72
Homosexuality			
Mean	23.33	7.65	6.55
S. D.	18.97	5.38	3.56
Heterosexuality 1			
Mean	19.81	9.44	6.36
S. D.	19.34	4.95	4.04
Heterosexuality 2			
Mean	30.94	16.03	6.76
S. D.	41.98	22.06	3.82
Total (Cards Combined)			
Mean	170.35	78.46	48.87
S. D.	151.00	51.57	23.11

Table 20. Comparisons of Mean Total Deviation Scores of Groups on the Perceptual Time Estimation Task

Stimulus Card	Process vs. Reactive	Reactive vs. Normal
Neutral		
F test	3.13'	4.27'
t test	4.490	2.774
Sign. level	.001	.02

Narcissism		
F test	76.55'	3.89'
t test	1.812	1.877
Sign. level	N.S.	N.S.

Dependency		
F test	2.92'	2.95'
t test	7.956	.408
Sign. level	.001	N.S.

Aggression		
F test	2.39	11.92'
t test	1.914	1.995
Sign. level	N.S.	N.S.

Homosexuality		
F test	12.42'	2.29
t test	5.685	1.029
Sign. level	.001	N.S.

Heterosexuality 1		
F test	15.24'	1.51
t test	3.476	3.048
Sign. level	.02	.01

Heterosexuality 2		
F test	3.62'	33.42'
t test	1.521	2.037
Sign. level	N.S.	N.S.

Total (Cards Combined)		
F test	8.57'	4.98'
t test	3.556	3.115
Sign. level	.01	.01

' Heterogeneity of variance, degrees of freedom determined by use of Welch's formula (Walker and Lev, 1953)

schizophrenics differed in variability but not in mean accuracy in estimating intervals of 17, 38, and 72 seconds.

Wallace and Rabin (1960) however, indicate that Johnston reports differences both in accuracy and in variability between schizophrenics and normals in their estimates of 5, 10, 90, and 100 second intervals, with schizophrenics being less accurate than normals. Other researchers, also, find greater inaccuracy of estimations for short periods of time by schizophrenics than by normals (Lhamon and Goldstone, 1956), and Rabin (1957) reports long time judgments (one-half hour to an hour) to be poorer in schizophrenics than in non-psychotics. Thus, the present findings are consistent with much of the prior research in this area.

Temporal distortions are believed to be quite common in schizophrenia by many writers, such as Kiersen (1951), and some, as Dubois (1954) and Minkowski (1926) believe that extreme distortions of subjective time are central symptoms of the disorder. Psychoanalytic writers support the notion of regression in discussing disturbances in temporal concepts found in mental disorders, and in many of these views difficulties encountered at early levels of psychosexual development are associated with specific types of temporal distortions. A close connection between disturbances in awareness of reality and temporal distortions has also been pointed out by many, such as Bergler and Roheim (1946), Scott (1948), and Schneider (1948).

Findings of the present study indicate that there is temporal distortion by schizophrenics. Furthermore, process schizophrenics show a more marked distortion than do reactives, and one might speculate that this greater temporal disturbance is associated with an earlier and/or more complete fixation during psychosexual development by the process than by the reactive schizophrenic. As is pointed out by Wallace and Rabin (1960) however, considerable future work in

terms of theoretical formulations and experimentation is needed in this area of temporal distortions in psychopathological conditions before substantial progress can be reported.

Over, Under, and Equal Estimations

A further aspect of temporal distortion on which information is provided by the present study concerns over, under, and equal (exact) estimation of the presentation interval. Findings support the contention that schizophrenics show a more marked tendency to overestimate presentation times than do normals, and that process schizophrenics overestimate time to a greater extent than do reactive schizophrenics. No differences between the groups were found as to mean number of accurate (exact) estimations. Normals, however, underestimated presentation times to a greater extent than did schizophrenics. See Tables 21 and 22.

The tendency of normals to underestimate presentation times is consistent with the report of Wallace and Rabin (1960), who, in reviewing time estimation studies, find that generally, extremely brief periods, of a second, or a fraction thereof, tend to be overestimated, whereas longer intervals are underestimated by normals.

Overestimation of time intervals has been reported by Lhamson and Goldstone (1956) and by Pearl (1962) as characterizing the performance of schizophrenics, as was found in the present study. Fisher and Fisher (1953) suggest that in general, subjects' unconscious perceptions of parents as being dominant is correlated with their tendency to overevaluate, and thus, overestimate time. Since parental domination has been reported in several studies of schizophrenics and their family dynamics (Kohn and Clausen, 1956; Farina, 1960), schizophrenic subjects might well be expected to overestimate time to a greater extent than do normals, as was found. And, process schizophrenics, who have

Table 21. Mean Number of Over, Under, and Equal Estimations of Groups on the Perceptual Time Estimation Task

	Process	Reactive	Normal
Over			
Mean	10.53	7.53	3.87
S.D.	7.39	8.51	7.10
Under			
Mean	7.80	9.87	14.13
S.D.	6.78	9.37	7.78
Equal			
Mean	2.67	3.60	3.00
S.D.	2.82	5.70	3.44

Table 22. Comparisons of the Groups on Over, Under, and Equal Estimations

	Process vs. Reactive			Reactive vs. Normal		
	<u>F</u>	<u>t</u>	<u>Sign. Level</u>	<u>F</u>	<u>t</u>	<u>Sign. Level</u>
Over	1.33	2.304	.05	1.44	2.467	.02
Under	1.91	1.880	N.S.	1.45	3.160	.01
Equal	4.09 ¹	.925	N.S.	2.74 ¹	.181	N.S.

¹ Heterogeneity of variance, degrees of freedom determined by use of Welch's formula (Walker and Lev, 1953)

presumably experienced earlier, and/or more complete domination, should, on this basis, be expected to overestimate time even more readily than do reactive schizophrenics, as was found to be the case.

SUMMARY AND CONCLUSIONS

Psychoanalytic theory was utilized in the present study, to predict psychological differences between schizophrenics and normals, and between process and reactive schizophrenics, in levels of personality organization. The specific areas studied were love object preference, pregenital psychosexuality, and parental identification.

The 45 schizophrenic and 15 normal subjects for the study were selected from the male patient population and hospital staff, respectively, of a large mid-western veteran's administration neuropsychiatric hospital. The schizophrenic patients were rated by use of the Abbreviated Becker-Elgin Scale (ABES), with the 15 receiving the highest ABES scores being classified as process schizophrenics, the 15 receiving the lowest scores being classified as reactive schizophrenics, and the 15 receiving intermediate scores being designated as the mid-group.

All subjects were individually administered the Blacky Picture Test, a perceptual time estimation task, and a vocabulary test by the author. Groups were found to be comparable as to estimated I. Q. score, and the schizophrenic groups were also comparable on the variables of psychiatric diagnosis, and type of ward.

The Blacky Picture Test was scored according to Blum's (1962) system. Subjects' judgments of exposure times of perceptual stimuli were converted into scores based upon the ratios of estimated to actual time, and then multiplied by a factor of 10; absolute deviations of scores from an accurate judgment score of 10 were found. The deviation scores obtained by each subject on the seven stimulus cards of the task were then ranked; these ranks were converted into T scores,

and mean T scores for groups, on each of the seven stimulus cards, were utilized in statistical comparisons.

To briefly summarize the results, it was found that:

- A Schizophrenics ranked higher on the distortion score for the narcissism perceptual task stimulus than did normals, suggesting greater narcissistic concern by schizophrenics than by normals.
- B Schizophrenics exceeded normals on the Blacky Picture Test factor of narcissism. The measure was found to be significantly correlated with length of total hospitalization, however, indicating that findings with the measure may be attributable to differences between groups as to length of time hospitalized.
- C Process schizophrenics ranked higher on the distortion score for the narcissism perceptual task stimulus than did reactive schizophrenics, suggesting greater narcissistic concern by process than by reactive schizophrenics.
- D Process schizophrenics exceeded reactive schizophrenics on the Blacky Picture Test factor of narcissism. The measure was found to be significantly correlated with length of total hospitalization, as was pointed out above, however, indicating that findings with the measure may be attributable to differences between groups as to length of time hospitalized.
- E Process schizophrenics exceeded reactive schizophrenics on the Blacky Picture Test factor of mother as preferred identification object, indicating greater preference for identification with the mother by process than by reactive schizophrenics.

- F Reactive schizophrenics ranked higher on the distortion score for the heterosexuality perceptual task stimuli than did process schizophrenics, suggesting greater heterosexual concern by reactive than by process schizophrenics.
- G Reactive schizophrenics exceeded process schizophrenics on the Blacky Picture Test factor of heterosexual fantasy. It was determined, however, that this finding can best be attributed to differences between the groups in age.
- H Reactive schizophrenics did not differ significantly from normals on the combined Blacky Picture Test factors of father as preferred identification object and overtly positive perception of self and father, suggesting that these groups are comparable on the dimension of identification with the father and positive feelings toward father and self.
- I Reactive schizophrenics did not differ significantly from normals on the Blacky Picture Test factor of mother as preferred identification object, suggesting that the groups are comparable concerning (lack of) preference for the mother as an identification object.
- J Reactive schizophrenics did not differ significantly from normals on the Blacky Picture Test factor of negative perception of self and father, suggesting that the groups do not differ concerning tendency to express negative feelings toward self and father.
- K Reactive schizophrenics did not differ significantly from normals on the Blacky Picture Test factor of heterosexual fantasy, suggesting that the groups do not differ in levels of phantasy involvement with the opposite sex.

The results did not provide support for the remaining hypotheses pertaining to psychosexual organization, defensiveness concerning infantile impulses, preference for identifying with the father, and quality of feelings expressed toward father and self. Trends (.10 level) in the direction of (1) process schizophrenics exceeding reactive schizophrenics on the Blacky Picture Test factor of oral rejection, and (2) reactive schizophrenics exceeding process schizophrenics on the combined Blacky Picture Test factors of father as preferred identification object and overtly positive perception of self and father, were found, however, and these appear to be areas of some promise for future research.

The above results, and also additional findings concerning temporal distortion, were discussed in terms of psychoanalytic theory, with a crucial explanatory role being given to the concepts of fixation and regression, as a means of interpreting differences found between schizophrenics and normals, and between process and reactive schizophrenics.

The generally positive results of this study contribute further empirical support for the construct validity of the Blacky Picture Test, and also point to the usefulness of perceptual time estimation tasks as a means of exploring personality dimensions. Finally, the Blacky Picture Test, and the perceptual time estimation task appear to have some value for estimating severity of illness, predicting prognosis, and exploring areas of psychological conflict pertinent to the treatment of schizophrenics.

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APPENDICES

APPENDIX A

ABBREVIATED BECKER-ELGIN PROGNOSTIC SCALE

A. Defects of Interest Versus Definite Display of Interest:

- _____ 0. Keen ambitious interest in some of the following: home, family, friends, work, sports, arts, pets, gardening, social activities, music, dramatics.
- _____ 2. Moderate degree of interest in several activities, e.g., social gatherings, sports, music, opposite sex, etc.
- _____ 4. Mild interest in a few things such as job, family, quiet social gatherings. The interest is barely sustaining.
- _____ 6. Withdrawn and indifferent toward life interests of average individual. No deep interests of any sort.

B. Insidious Versus Acute Onset of Illness:

- _____ 0. Development over a period of 0-1 months with sudden, dramatic divorcement from more or less commonplace living.
- _____ 1. Development over a period of 2-4 months with marked personality changes from relatively commonplace living.
- _____ 2. Development over a period of 5-7 months with moderate personality changes. May be some accenting of previous trends but personality changes also.
- _____ 3. Changes have taken place over a period of 8-12 months, with noticeable personality modifications, but primarily an accenting of existing trends.
- _____ 4. Slow development of symptoms, but possible to detect personality changes in 2 years prior to onset.
- _____ 6. Very slow development of symptoms so that final disorder appears as an exaggeration of already strongly accentuated personality traits. Indications even prior to adolescence.

C. Shut-in Personality:

General: The psychotic condition is simply an exaggeration of the peculiar type of personality shown all through childhood. Stormy childhood often with overprotection and anxiety, a difficult adolescence characterized by inability to get along with and mix with other children.

- _____ 5. Very much as described above.
- _____ 3. Moderately the picture described above.
- _____ 1. Only mildly this way, but some resemblance to pattern.
- _____ 0. Apparently normal childhood, little evidence of shyness or unusual difficulty.

D. Heterosexual Contact:

- _____ 0. Purposefully contacts the other sex, dates frequently, makes successful effort to be attractive in manner, dress, accessories, etc., so as to be popular with women.
- _____ 2. Dates when situation affords. Maybe marries but has difficulties in compatibility. Wants to interact with other sex, has some techniques, but not completely successful.
- _____ 3. If married, apt to divorce or separate. Generally this is rated as a mid-point between 2 and 4.
- _____ 4. Moderate lack of heterosexual contact. Tends to avoid dates and dances, but has on occasion participated in same. Might think he would like to marry someday, but little enthusiasm for it.
- _____ 6. No association with the opposite sex. Never had any dates. Avoids dances and social gatherings which require the intermingling of men and women.

E. Careless Indifference Versus Worrying, Self-conscious Type:

- _____ 0. A worrier, subjectively sensitive, critical of self, preoccupied with own conflicts, but shows little of the extreme, bizarre, unusual, mysterious or socially unacceptable in behavior.
- _____ 2. Some concern and preoccupation with difficulties--a moderate position. Also rate here if he is neither indifferent nor a worrier.
- _____ 4. Withdrawal and disinterest in social surroundings, careless of social requirements, given to day-dreaming and eccentricity, dirty, disheveled appearance, profane language, unacceptable habits.

F. Exclusive Stubborn Traits Versus Insecurity and Inferiority Feelings:

- _____ 0. Timid, lacks self confidence, feels insecure and inferior. Very sensitive and critical of self; feels certain problems in life but participates and does not accept his lot passively or without regret and struggle.
- _____ 1. Moderately like 0 above.
- _____ 2. Neither timid nor stubborn.
- _____ 3. Moderately stubborn.
- _____ 4. Complete withdrawal from surroundings and interests, inadequate in meeting life, but stubborn and opinionated, refuses to change, even if suggested, to achieve a more adequate adjustment. Opinionated and egocentric.

G. Precipitating Conditions (Situational Reaction):

- _____ 0. A strong relationship between onset of symptoms and situational problems that would require definite and continued effort to adjust satisfactorily; i.e. death, failure, loss, interpersonal strife. The average person would definitely try to flee such a situation rather than attempt to change it.
- _____ 1. Marked stresses related to onset, but not as severe as 0 above.
- _____ 2. Moderate stresses related to onset such as financial problems, interpersonal discord, etc., which would cause considerable worry to the average individual.
- _____ 3. Mild stresses that the average person would react to in some way but which would not usually lead to a breakdown.
- _____ 4. Onset of psychotic symptoms not related to any disturbance or difficulty in the patient's situation--or a disturbance of such a trivial nature that it would be ignored or quickly forgotten by the average person.

H. Duration of Psychosis since First Onset:

- _____ 0. Under 2 months.
- _____ 1. 2-4 months.
- _____ 2. 4-6 months.
- _____ 3. 6-8 months

- _____ 4. 10-12 months.
- _____ 5. 1-2 years.
- _____ 6. 2-3 years.
- _____ 7. Over 3 years.

I. Hebephrenic Symptoms: extreme indifference, complete divorce between ideas and affect; extreme carelessness in appearance and reaction with untidiness in some cases, silly behavior, often silly laughter without appropriate stimulation.

- _____ 0. Not as above.
- _____ 1. Mildly as above.
- _____ 2. Moderately as above.
- _____ 3. Markedly as above.
- _____ 4. Very markedly as above.

J. Physical Interpretation of Delusions: The patient has certain feelings (possibly hallucinations) that are linked up with definite delusional ideas; for instance, that there is a snake in his stomach, that food passes right through his body, that someone is passing electrical currents through his body, that the food he eats is poisoned, etc.

- _____ 0. Not as above.
- _____ 1. Mildly as above.
- _____ 2. Moderately as above.
- _____ 3. Markedly as above.
- _____ 4. Very markedly as above.

APPENDIX B

SUPPLEMENTARY TABLES

Table A. Comparisons of the Groups as to Marital Status

<u>Process vs. Reactive</u>				
	Single	Married	Divorced	
Process	12	3	0	15
Reactive	8	5	2	15
	20	8	2	30
X ² = 3.30				
Df = 2				
Sign. level N. S.				

<u>Mid-Group vs. Reactive</u>				
	Single	Married	Divorced	
Mid-group	9	2	4	15
Reactive	8	5	2	15
	17	7	6	30
X ² = 2.01				
Df= 2				
Sign. level N. S.				

<u>Reactive vs. Normal</u>				
	Single	Married	Divorced	
Reactive	8	5	2	15
Normal	3	12	0	15
	11	17	2	30
X ² = 7.16				
Df= 2				
Sign. level .05				

<u>Total Schizophrenic vs. Normal</u>				
	Single	Married	Divorced	
Total Schizophrenic	29	10	6	45
Normal	3	12	0	15
	32	22	6	60
X ² = 16.41				
Df= 2				
Sign. level .001				

Table B. Comparisons of the Groups as to Race

<u>Process vs. Reactive</u>			
	White	Negro	
Process	11	4	15
Reactive	15	0	15
	26	4	30
X ² = 2.59*			
Df= 1			
Sign. level N. S.			

<u>Mid-group vs. Reactive</u>			
	White	Negro	
Mid-group	9	6	15
Reactive	15	0	15
	24	6	30
X ² = 5.21*			
Df= 1			
Sign. level .025			

<u>Reactive vs. Normal</u>			
	White	Negro	
Reactive	15	0	15
Normal	11	4	15
	26	4	30
X ² = 2.59*			
Df= 1			
Sign. level N. S.			

<u>Total Schizophrenic vs. Normal</u>			
	White	Negro	
Total Schizophrenic	35	10	45
Normal	11	4	15
	46	14	60
X ² = .00*			
Df= 1			
Significance level N. S.			

* Corrected for continuity.

Table C. Comparisons of the Groups as to I.Q. Score

<u>Process vs. Reactive</u>				
	80-90	91-110	120+	
Process	6	9	0	15
Reactive	5	9	1	15
	11	18	1	30
X ² = 1.08				
Df= 2				
Sign. level N.S.				

<u>Mid-group vs. Reactive</u>				
	80-90	91-110	111+	
Mid-group	2	11	2	15
Reactive	5	9	1	15
	7	20	3	30
X ² = 1.82				
Df= 2				
Sign. level N.S.				

<u>Reactive vs. Normal</u>				
	80-90	91-110	111+	
Reactive	5	9	1	15
Normal	5	8	2	15
	10	17	3	30
X ² = .40				
Df= 2				
Sign. level N.S.				

<u>Total Schizophrenic vs. Normal</u>				
	80-90	91-110	111+	
Total Schizophrenic	13	29	3	45
Normal	5	8	2	15
	18	37	5	60
X ² = .90				
Df= 2				
Sign. level N.S.				

Table D. Hospitalization Characteristics of the Schizophrenic Subjects

	Process	Mid-Group	Reactive
Number of Subjects	15	15	15
<u>Total Months Hospitalization</u>			
Mean	51.27	21.07	19.33
S. D.	46.06	15.53	13.21
<u>Psychiatric Diagnosis</u>			
Schizo-affective	1	1	1
Catatonic	0	0	1
Paranoid	5	4	4
Unclassified	9	10	9
<u>Type Ward</u>			
Closed Ward	9	5	5
Privilege Card	0	2	2
Open Ward	6	8	8

Table E. Comparison of the Schizophrenic Groups on Mean Months of Total Hospitalization

	Process (N=15)	Mid-group (N=15)	Reactive (N=15)	
Mean	51.27	21.07	19.33	
S. D.	46.06	15.53	13.21	
<u>Comparisons</u>		<u>F</u>	<u>t</u>	<u>Sign. level</u>
Process vs. Reactive		12.17'	4.420	.01
Mid-group vs. Reactive		1.38	.584	N. S.

' Heterogeneity of variance, degrees of freedom determined by use of Welch's formula (Walker and Lev, 1953).

Table F. Comparisons of the Schizophrenic Groups as to Psychiatric Diagnosis

<u>Process vs. Reactive</u>				
	Paranoid	Unclassified	Other	
Process	5	9	1	15
Reactive	4	9	2	15
	9	18	3	30
$X^2 = .44$ Df= 2 Sign. level N.S.				

<u>Mid-group vs. Reactive</u>				
	Paranoid	Unclassified	Other	
Mid-group	4	10	1	15
Reactive	4	9	2	15
	8	19	3	30
$X^2 = .40$ Df= 2 Sign. level N.S.				

Table G. Comparisons of the Schizophrenic Groups as to Type of Ward

<u>Process vs. Reactive</u>				
	Closed Ward	Privilege Card	Open Ward	
Process	9	0	6	15
Reactive	5	2	8	15
	14	2	14	30
X ² = 3.44				
Df= 2				
Sign. level N.S.				

<u>Mid-group vs. Reactive</u>				
	Closed Ward	Privilege Card	Open Ward	
Mid-group	5	2	8	15
Reactive	5	2	8	15
	10	4	16	30
X ² = .00				
Df= 2				
Sign. level N.S.				

Table H. Correlations of Blacky Picture Test and Perceptual Time Estimation Task Measures

	Spearman Rank Order Correlation	Signifi- cance Level
Blacky (Narcissism) and Time Estimation Task (Narcissism Card)	.340	.05
Blacky (Combined Oral) and Time Estimation Task (Dependency Card)	.022	N.S.
Blacky (Heterosexual Fantasy) and Time Estimation Task (Heterosexuality 1 Card)	.102	N.S.
Blacky (Heterosexual Fantasy) and Time Estimation Task (Heterosexuality 2 Card)	.143	N.S.

Table I. Correlations of the Findings With Age

	Spearman Rank Order Correlation	Signifi- cance Level
Blacky (Narcissism) and Age	.296	.05
Blacky (Oral Rejection) and Age	.141	N.S.
Blacky (Father as Preferred Identification Object and Positive Perception of Self and Father) and Age	-.079	N.S.
Blacky (Mother as Preferred Identification Object) and Age	.091	N.S.
Blacky (Heterosexual Fantasy) and Age	-.358	.02
Time Estimation Task (Narcissism Card) and Age	.273	N.S.
Time Estimation Task (Heterosexuality 1 Card) and Age	-.088	N.S.
Time Estimation Task (Heterosexuality 2 Card) and Age	-.129	N.S.

Table J. Correlations of the Findings With Length of Total Hospitalization

	Spearman Rank Order Correlation	Signifi- cance Level
Blacky (Narcissism) and Length of Total Hospitalization	.376	.02
Blacky (Oral Rejection) and Length of Total Hospitalization	.020	N. S.
Blacky (Father as Preferred Identification Object and Positive Perception of Self and Father) and Length of Total Hospitalization	-.226	N. S.
Blacky (Mother as Preferred Identification Object) and Length of Total Hospitalization	.250	N. S.
Blacky (Heterosexual Fantasy) and Length of Total Hospitalization	-.252	N. S.
Time Estimation Task (Narcissism Card) and Length of Total Hospitalization	.284	N. S.
Time Estimation Task (Heterosexuality 1 Card) and Length of Total Hospitalization	-.062	N. S.
Time Estimation Task (Heterosexuality 2 Card) and Length of Total Hospitalization	-.014	N. S.

Table K. Comparison of Process and Reactive Schizophrenics (Matched Pairs) on the Blacky Picture Test Factor of Narcissism (XI-C)

Pair	Reactive, Narcissism Score	Process, Narcissism Score	d	Rank of d	Rank with less fre- quent sign	Signifi- cance Level
1	0	2	2	4.5		
2	0	7	7	11.0		
3	0	2	2	4.5		
4	0	4	4	8.5		
5	2	6	4	8.5		
6	6	2	-4	8.5	8.5	
7	0	0	0	1.5		
8	2	2	0	1.5		
9	0	1	1	3.0		
10	0	3	3	6.0		
11	1	5	4	8.5		
					T= 8.5	.05*

* One tailed, Wilcoxon Matched-Pairs Signed-Ranks Test, in Siegel, 1956.

Table L. Comparison of Process and Reactive Schizophrenics (Matched Pairs) on the Blacky Picture Test Factor of Heterosexual Fantasy (XI-B)

Pair	Reactive, Heterosexual Score	Process, Heterosexual Score	d	Rank of d	Rank with less fre- quent sign	Signifi- cance Level
1	6	2	4	9		
2	5	1	4	9		
3	6	2	4	9		
4	5	1	4	9		
5	5	1	4	9		
6	3	4	1	-4	4	
7	0	1	1	-4	4	
8	1	2	1	-4	4	
9	4	4	0	1.5		
10	3	3	0	1.5		
11	3	1	2	6		
					T= 12	N.S.*

* One tailed, Wilcoxon Matched-Pairs Signed-Ranks Test, in Siegel, 1956.

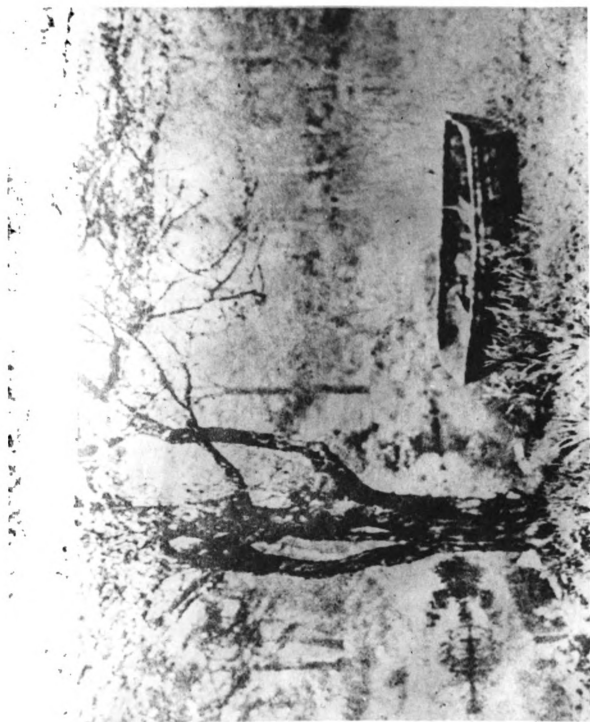
Table M. Comparison of Schizophrenics and Normals (Matched Groups)
on The Blacky Picture Test Factor of Narcissism (XI-C)

	0	1+	
Schizophrenic	13	20	33
Normal	9	2	11
	22	22	44
$X^2 = 4.36^*$			
Df= 1			
Sign. level .05			

* Corrected for continuity

APPENDIX C

STIMULUS CARDS



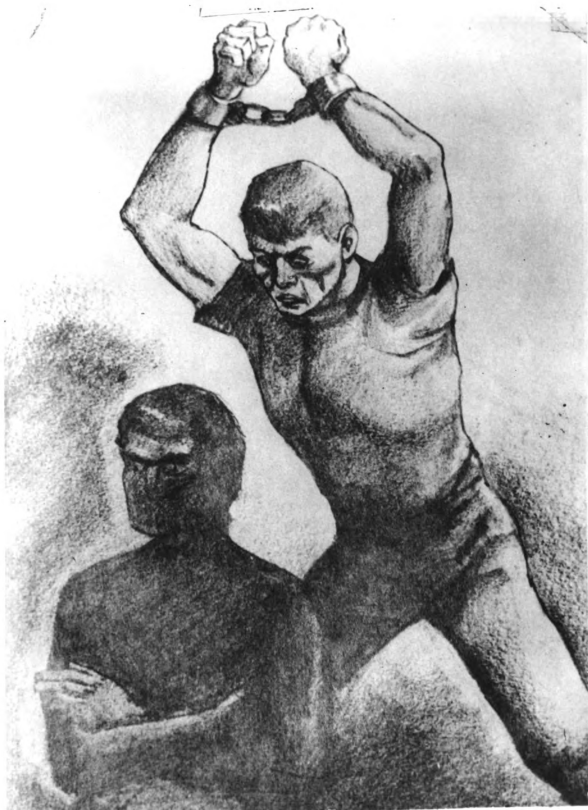
Neutral



Narcissism



Dependency



Aggression



Homosexuality



Heterosexuality 1



Heterosexuality 2

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