Community and Interpersonal Functioning in the Course of Schizophrenic Disorders

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Abstract

The purpose of this article is to evaluate the role of community and interpersonal functioning in the developmental course and outcome of schizophrenic disorders. Based on a review of the research literature, it appears that certain patterns of poor functioning may be characteristic of at least a subgroup of schizophrenic individuals, predate the onset of the disorder, and predict the outcome of the disorder. Thus, some patterns of poor community and interpersonal functioning may be seen as potential indicators of vulnerability to the development of schizophrenic episodes rather than solely as consequences of schizophrenic psychotic symptoms.

The purpose of this article is to review the research literature regarding the role of community and interpersonal functioning in the developmental course and outcome of schizophrenic disorders. Three broad categories of studies are reviewed: (1) studies that evaluate the community and interpersonal functioning of persons diagnosed as having a schizophrenic disorder; (2) studies that compare the community and interpersonal functioning of individuals at risk to develop schizophrenia with the functioning of those not at risk; and (3) studies that determine the prognostic significance of community and interpersonal functioning. Excluded are studies that have operationally defined community and interpersonal functioning based on global characteristics such as socioeconomic class and marital status (Phillips and Zigler 1961) since these studies do not allow pinpointing of the relationships between specific variables (e.g., quantity and quality of interpersonal contacts) and the course and outcome of schizophrenic disorders. Also excluded are studies that have been focused on the interpersonal functioning of patients with members of their own families since familial interactions may include variables that make the results difficult to generalize to nonfamilial interactions. The possible role of family members as sources of stress contributing to the developmental course of schizophrenia is evaluated by Lukoff et al. (1984) in another article within this issue.

Community and Interpersonal Functioning of Persons With a Schizophrenic Disorder

Perhaps the first step in examining the role of community and interpersonal functioning in the course and outcome of schizophrenic disorder is to determine if the functioning of schizophrenic individuals is different from that of nonschizophrenic individuals. In spite of the large number of studies that are relevant to this comparison and that are reviewed in this section, there are two difficulties with drawing conclusions from them. First, diagnostic practices and operational definitions of community and interpersonal functioning vary considerably from study to study. Second, most studies do not indicate the symptomatic status of the patients at the time of their testing. Although many studies do indicate the chronicity of patients' illnesses, this provides no clue about symptomatic status since chronicity is almost always defined simply by...
length of illness. However, knowledge of the symptomatic status of patients is obviously critical in determining whether the aspect of functioning investigated is indicative of a more enduring difference between schizophrenic and nonschizophrenic individuals or is linked to episodes of active schizophrenic symptoms.

Community Functioning. The results of numerous studies have indicated that schizophrenic patients are significantly more poorly adjusted to the demands of community living than nonschizophrenic individuals. Goodman et al. (1969), for example, compared the functioning of schizophrenic patients and normal subjects on the five factors of the Social Dysfunction Rating Scale: apathetic detachment, dissatisfaction, hostility, health-finance concern, and manipulative dependency. Schizophrenic patients were more poorly adjusted than the normal subjects on all five factors. Spitzer et al. (1970) reported that the instrumental role functioning scales (e.g., student, wage earner) of the Psychiatric Status Schedule differentiated among several psychiatric groups and between inpatients and outpatients. Poorer functioning was characteristic of schizophrenic patients, particularly of the more chronically ill patients. Similarly, Serban (1975) found that chronically ill schizophrenic patients functioned at significantly poorer levels than acutely ill schizophrenic patients on 4 of 21 areas measured by the Social Stress and Functioning Inventory for Psychotic Disorders: social adjustment (instrumental role), interpersonal adjustment, sexual problems, and substance abuse. Both types of patients performed significantly more poorly than normal subjects on 13 areas. Hogarty and Katz (1971) found that community residents performed significantly better than schizophrenic patients on all scales of the Katz Adjustment Scales, including not only measures of symptoms but also measures of disturbed interpersonal behaviors, a measure of the frequency of performance of socially expected activities such as "works" and "visits friends," and a measure of the frequency of performance of leisure and self-improvement activities such as "goes to the library" and "works in and around the house."

These results indicate that an impairment in community functioning is characteristic of patients with a schizophrenic disorder. Furthermore, the evidence suggests that the longer the duration of illness, the greater the degree of impairment. Unfortunately, these conclusions can only be tentatively advanced since no studies have investigated the extent to which the many components of community functioning vary with symptomatic status, and only one study has compared the functioning of various psychiatric groups.

Interpersonal Functioning. The interpersonal functioning of persons diagnosed as having a schizophrenic disorder has been studied from several perspectives, including evaluations of the overall quantity and quality of interpersonal relationships, sensitivity to interpersonal stimuli, preferences for isolation or interaction, deficits in specific interpersonal skills, and rejections by interpersonal partners. Each of these perspectives are reviewed below.

Quantity and quality of interpersonal relationships. A number of investigators have systematically observed the social interactions of relatively chronic schizophrenic patients and have found that the frequency of their interactions is extremely low. For example, Schooer and Spohn (1960) and Hunter, Schooer, and Spohn (1962) used the Location Activity Inventory for direct observation of the behavior of a total of 150 chronic schizophrenic inpatients living on several different treatment wards. The results of several weeks of observations indicated that only a small proportion of patients had sustained social relationships with three or more fellow patients. Indeed, only 2.7 percent of the observations were characterized by social activity, and the median number of observations of social activity per patient was zero. Using a different method of observation, Wilensky and Soloman (1960) confirmed these results. They found that the rate of social interaction of 101 chronic male schizophrenic patients ranged from 3.3 to 6.3 percent of all observations. Recent data collected by Paul and Lentz (1977) indicated an almost identical rate of social interaction for the 56 chronic schizophrenic female patients they observed. Before implementation of an active treatment program, patients interacted at an average rate of 4 percent of observed opportunities with a range per patient of from 0 to 30 percent. Longabaugh et al. (1966) directly observed patients using a procedure that allowed them to code behavior using categories that were specifically designed to match the variables of Thibaut and Kelley's (1959) social exchange theory. They too found the same low rate of interaction among patients, and they concluded that this was due to the patients' "social bankruptcy"; i.e., patients controlled few resources and had little reason for social exchanges.

Only schizophrenic patients were observed in these studies. The results of several additional studies in which both schizophrenic and nonschizo-
phrenic patients were observed suggest that this low rate of interaction may be peculiar to schizophrenia. Schooler and Paykel (1966) used the Location Activity Inventory to observe 148 chronic schizophrenic patients and 48 chronic nonschizophrenic psychiatric patients. Their results indicated that the major difference between the two groups was in the rate of their social interaction; schizophrenic patients interacted significantly less than nonschizophrenic patients even when length of hospitalization was partialled from the observational data. Goldman (1964) used a modified version of the Location Activity Inventory to record the activities of 175 chronic schizophrenic and 20 nonschizophrenic psychiatric inpatients. Observations were restricted to a 1-hour period in which patients were free to engage in a variety of recreational activities. The nonschizophrenic patients interacted at a significantly higher rate than the schizophrenic patients, with no differences among three groups of schizophrenic patients who varied in the length of their hospitalization (0-2 years, 2-4 years, >4 years). Rosen et al. (1980) found that 46 schizophrenic and 44 affective disorder inpatients, all of whom were diagnosed according to Research Diagnostic Criteria, were significantly different in their rates of interactions in each of two settings, a dining hall during lunch and a gymnasium during recreation periods. The lowered rate of social interaction for the 44 schizophrenic patients was consistent across both settings, although it significantly increased across time. Interestingly, this significant difference in interaction rate between the two types of patients was found despite the fact that the schizophrenic patients were less chronically ill, i.e., they had fewer previous hospitalizations than the affective disorder patients.

Similar results suggesting that schizophrenic individuals have a more restricted range and pattern of social interactions than nonschizophrenic individuals have been reported using a rather different methodology, that of examining the social networks of schizophrenics and nonschizophrenics. Pattison et al. (1975) found that the social networks of schizophrenic patients were smaller and more interconnected than those of neurotic and normal comparison subjects. Tolsdorf (1976) found that, in contrast to medical inpatients, schizophrenic inpatients reported that they had little confidence in the ability of their networks to assist them in times of personal crisis. Furthermore, although the social networks of the schizophrenic patients were not different in size than those of the medical patients, they were composed to a significantly greater degree of connections only with relatives.

The bulk of these results suggests that schizophrenic patients, irrespective of the chronicity of their illness, interact at a rate lower than that of nonschizophrenic individuals, even those diagnosed as having a major psychiatric disorder other than schizophrenia. However, the results of several studies comparing schizophrenic individuals of differing levels of symptomatology have found that the rate of interpersonal interaction varies with the severity of illness. Sokolovsky et al. (1978) and Cohen and Sokolovsky (1978) studied the social networks of schizophrenic and nonschizophrenic individuals living in single-room-occupancy hotels in New York City. They found that schizophrenic individuals with moderate to severe residual symptoms had smaller networks with more dependent and more uniplex relationships (only one basis for the relationship) than nonschizophrenic individuals and schizophrenic individuals with minimal or no residual symptoms. There were no differences in the networks of nonschizophrenic individuals and schizophrenic individuals with minimal or no residual symptoms.

Longabaugh et al. (1966) reported that their measure of patients' interactional efficiency was negatively correlated with ratings of the patients' illness made by psychiatrists and nursing staff. Rosen et al. (1980) noted that schizophrenic patients' interaction increased across the span of the observations as they presumably recovered from their acute illnesses. Unfortunately, changes in symptoms across the span of the observations were not measured, so that the purported relationship between changes in symptoms and changes in social interactions remains speculative. Brown, Wooldridge, and VanBruggen (1973) also found a negative correlation between ratings of illness made by nursing staff and observed frequencies of interaction. In addition, they collected extensive sociometric data and found a negative correlation between patients' sociometric rank and level of illness. Thus, these results qualify any conclusion that poor interpersonal functioning is uniquely characteristic of schizophrenic individuals. The Cohen and Sokolovsky (1978) and Sokolovsky et al. (1978) results in particular suggest that not only are variations in the rate of interpersonal interactions associated with variations in symptomatology, but the absence of pathology may be associated with a rate of interaction that is the same as that of nonschizophrenic individuals. However, considering the Rosen et al. (1980)
and Schooler and Paykel (1966) results, it may be appropriate to conclude that the rate of interpersonal interactions of schizophrenic patients, but not that of patients suffering from other major psychiatric disorders, lowers during at least the symptomatic phase of their illness and, for some patients, returns during the asymptomatic phase to levels that match those of nonschizophrenic individuals. Unfortunately, no investigators have either longitudinally monitored changes in symptoms and changes in interactions, or specifically related premorbid to postmorbid rates.

Results contradicting the relationship between schizophrenia and a lowered rate and restricted pattern of interpersonal interactions have been reported by several investigators. For example, MacDonald (1964) observed the same patients observed by Goldman (1964), but in a different setting (a relatively structured group meeting) using a different instrument. In contrast to Goldman’s results, MacDonald found no differences between the interactions of schizophrenic patients and nonschizophrenic patients. The contrast between these two sets of results may be due to differences in instrumentation or to differences in the settings in which the patients were observed. Goldman’s setting was considerably less structured than MacDonald’s, and Mariotto and Paul-(1975) and Mariotto (1978) have indicated that a significant proportion of the variance in the frequency of observed interactions of chronic schizophrenic patients can be attributed to variations in settings. Results reported by Curran et al. (1980) also question the relationship of social interaction deficits and schizophrenia. They found that diagnosis was unrelated to the frequency with which “inadequate social skills” was listed by treatment personnel in patients’ Problem Oriented Medical records as a major difficulty for which treatment was necessary. Surprisingly, only 7.4 percent of the 779 patients’ records surveyed by Curran et al. (1980) were considered to have major deficiencies in social skills. Unfortunately, treatment personnel had been instructed to code “time-limited” or “specific” social skills deficits (e.g., “since becoming psychotic, the patient has had difficulty with other people”) in categories of problems other than deficiencies in social skills, thus systematically underestimating social skills deficiencies. Strauss and Carpenter (1972) found no differences among 85 schizophrenic, 9 nonschizophrenic psychotic, and 17 nonpsychotic patients in their self-report of the frequency of their social contacts in the year before a followup conducted 2 years after their participation in the World Health Organization’s International Pilot Study of Schizophrenia. Since the self-reports were of interactions during a likely asymptomatic period following inpatient treatment, these results may reflect the fact that there are no differences in the rates of social interaction among different groups of psychiatric patients during asymptomatic periods.

Sensitivity to interpersonal stimuli. One hypothesis might be that the reduced frequency of schizophrenics’ social interactions reflects a reduced reinforcement value of interpersonal stimuli. Numerous studies have been conducted to determine the effects of interpersonal stimuli on schizophrenics’ performances in a variety of tasks. Two experimental paradigms have been used: comparisons of schizophrenics’ responsiveness to various types of interpersonal stimuli, and comparisons of schizophrenics’ and nonschizophrenics’ differential responsiveness to these stimuli. Schizophrenics’ sensitivity to interpersonal stimuli: The results of several studies have indicated that schizophrenic subjects perform better in social than in nonsocial conditions. For example, Query, Moore, and Lerner (1964) found that the work output (producing artificial poppies) of chronic schizophrenics was greater when they worked in five-man groups than when they worked alone. Positive effects of social stimuli were also reported by Wing and Freundenberg (1961) in a similar “sheltered” workshop situation. They demonstrated that schizophrenics’ productivity systematically increased and decreased with the introduction and withdrawal of a style of supervision characterized by warmth, encouragement, and demonstration. Using an entirely different task, a simple verbal operant conditioning task in which the experimenter provided social reinforcers (e.g., “good”) contingent upon schizophrenics’ production of sentences that consisted of a first person pronoun plus a word with an affective denotation, Salzinger and his colleagues (e.g., Salzinger and Pisoni 1958, 1961; Salzinger and Portnoy 1964) found that these reinforcers significantly increased target responses compared to baseline conditions in which no reinforcers were delivered. There were, however, a number of extremely regressed and withdrawn patients who produced so little speech of any sort that the effects of the social reinforcers could not be determined since so few were actually delivered.

These results generally suggest that less chronic schizophrenic patients respond better in positive social conditions than in nonsocial conditions. A number of other studies
have reported contradictory results; either social stimuli had no effect compared to the absence of such stimuli, or patients attempted to escape social stimuli. Miller and Drennen (1970) verbally reinforced chronic schizophrenics for saying the names of animals during a noun-naming task. The rate of naming animals was measured before and after nine sessions in which the schizophrenics received either praise, praise plus tangible reinforcers such as candy and cigarettes, and tangible reinforcers alone for participating with the experimenter in performing simple motor and verbal tasks. The results indicated that the rate of naming animals increased only for those patients who participated in either of the two conditions using tangible reinforcement. Although these results might be interpreted as indicating that the patients were unresponsive to purely social stimuli, it should be noted that the patients were relatively chronic and had an initially low level of emitting the target response. Like the similarly chronic patients in the Salzinger studies, those receiving only social reinforcement did not show a conditionning effect. It may have been necessary to pair the experimenter with tangible reinforcers so that his social responses, which were the only stimuli used in the animal-naming task, could acquire reinforcing value.

Gelburn and Anker (1970) manipulated the presence of the experimenter to determine if schizophrenics would be motivated to escape him. Patients participated in five trials of letter cancellation interspersed with inter-trial rest periods. The experimenter was present at either a close or a far distance during the entire session, during the trials only, or during the rest periods only. The results indicated that the schizophrenics increased the speed of their canceling when the experimenter was present only during the trials irrespective of his distance from the subjects. The authors interpret this result as indicating that "when reducing the time spent by the experimenter with the subject was contingent on efficient performance, such improvement occurred" (Gelburn and Anker 1970, p. 197). An alternative explanation is that patients were motivated to perform more efficiently by the presence of the examiner during experimental trials. Results that qualify those of Gelburn and Anker (1970) were reported by Mitchell, Mowat, and Stoffelmayer (1975). They provided chronic schizophrenic inpatients with opportunities to avoid the presence of the experimenter or to receive praise delivered by the experimenter while they participated in a marble-dropping task. The schizophrenics were either socially isolated for 45 minutes before the task or had a 10-minute interview with the experimenter. Those schizophrenics who were socially isolated primarily sought praise from the experimenter, while those schizophrenics who were interviewed primarily avoided the experimenter. Thus, these results suggest that satiation and deprivation of social contact may moderate schizophrenics’ responsivity to social stimuli. The task used by Gelburn and Anker (1970) was lengthy, and patients may have become satiated in the initial portions of the task after which they were motivated to escape from the experimenter. Unfortunately, Gelburn and Anker (1970) do not provide trial-by-trial data to confirm or disconfirm this hypothesis.

Hunter (1961) and Schooler and Zahn (1968) used the Kohs Block Design Test to determine the effects of patients’ mutual interdependence on task performance. Patients completed portions of the Kohs Block Design Test in each of three sessions. In the first two sessions, patients and the experimenter worked interdependently with each person completing half of each design. In the third session, patients either continued to work with the experimenter or worked with a confederate who was dressed as a fellow patient. Interestingly, the results of the two experiments were contradictory; patients in Hunter’s (1961) experiment performed significantly worse when they completed the design with the patient-confederate while patients in the Schooler and Zahn (1968) experiment performed significantly better with the patient-confederate. Schooler and Zahn (1968) noted that one difference in the procedures of the two studies may have caused the contradictory outcomes. In the Hunter procedures, the patient-confederate completed his half of the design twice as rapidly as the patient with whom he was working, inadvertently establishing a competition condition. In the Schooler and Zahn procedures, the patient-confederate completed his half of the design at the same pace as the patient with whom he was working.

In summary, the results of these studies seem to suggest that schizophrenic patients are in general responsive to social stimuli, although the degree of responsivity varies according to the amount of deprivation of social contact and the chronicity of patients’ illness.

**Differential responsiveness of schizophrenic patients and nonschizophrenic patients.** The results of numerous studies that have investigated the differential responsivity to social stimuli of schizophrenic patients and nonschizophrenic comparison subjects have generally indicated that schizophrenic patients...
are no less responsive than the comparison subjects. Salzinger and Pisoni (1960), for example, found that positive verbal reinforcement was equally effective in increasing schizophrenics' and normals' production of "target" sentences (first person pronoun plus a word with an affective denotation) in a verbal operant conditioning task. Both groups began the task with the same operant level, both increased with verbal reinforcement to the same degree, and both extinguished when the verbal reinforcer was withdrawn, although the schizophrenics extinguished more rapidly than the normals. Leventhal (1959) also used a verbal operant conditioning task to investigate the effects of praise (saying the word "good"), punishment (saying the words "not so good"), and a combination of the two on schizophrenics', neurotics', and normals' production of sentences beginning with a first-person pronoun. In marked contrast to Salzinger and Pisoni's (1960) results, schizophrenics increased the target response only under the two punishment conditions while normals increased the response under all three conditions. A major difference in the procedures of the two studies that might help to explain this discrepancy is that the Salzinger and Pisoni (1960) task was actually part of an ongoing interview, while the Leventhal (1959) task was a series of discrete trials in which subjects produced sentences using words written on a prompt card. Perhaps the interview method used by Salzinger and Pisoni (1960) contained subtle "punishment" cues (e.g., interviewer turning away) when subjects emitted an incorrect sentence.

However, results reported by Rierdan and Brooks (1977) suggest another explanation for the discrepancy between Salzinger and Pisoni's (1960) and Leventhal's (1959) results. Rierdan and Brooks (1977) delivered seven types of social reinforcement to schizophrenics and normals who were participating in a verbal operant conditioning task that was identical to Leventhal's (1959). The seven types of reinforcement consisted of pairings of positive and negative words with a positive, neutral, or negative tone of voice plus a no reinforcement condition. The reinforcers were delivered through a well-controlled method that assured uniformity from session to session. The results indicated that schizophrenics and normals learned equally well when the word and tone of voice were congruent (positive/positive, negative/negative), but schizophrenics' learning was significantly impeded relative to that of normals when the tone of voice and the meaning of the word were incongruent. If the praise condition in the Leventhal (1959) experiment consisted of a neutral tone of voice paired with the positive word "good," then schizophrenics would not have learned with that incongruent pairing. However, the pairing of "not so good" with a neutral voice may have been seen by schizophrenics as congruent and learning occurred. In the Salzinger and Pisoni (1960) on-going interview, the positive verbal reinforcers ("good," "yes," and "mm-hmm") may well have been paired with a congruent tone of voice and with congruent aspects of the interviewer's behavior such as eye contact and body posture.

Stotsky (1957) used a finger-lift reaction time task and the Purdue Pegboard Test to evaluate the effects of encouragement on the performance of regressed and remitted chronic schizophrenics and hospital aides. Encouragement was administered in 5-minute sessions by individuals who were well known to the subjects. For the aides, the "encourager" was the experimenter; for the schizophrenics, the encourager was each one's therapist. The results indicated that all subjects improved their performances after encouragement, but the beneficial effects were less for the schizophrenics on the complex Purdue Pegboard Test than on the simpler reaction time test. Berkowitz (1964) also evaluated the effects of experimenter-delivered encouragement on the finger-lift reaction time of chronic schizophrenics and nonpsychiatric medical inpatients. Reaction time was measured with encouragement before and after three 1/2-hour interviews with the experimenter in which he was either warm or neutral. A control condition was also used in which subjects did not participate in interviews with the experimenter. In contrast to Stotsky's (1957) results, reaction times were significantly slower for schizophrenics who received warm interviews compared to those who received either neutral interviews or none at all. Essentially no differences were noted among the reaction times of the nonpsychiatric patients in the three conditions. Although this might suggest that experimenter warmth and encouragement may hinder schizophrenics' performances, a closer look at the data indicate that the schizophrenics in the warm interview condition had a much longer reaction time than the other two groups of schizophrenics after several practice trials conducted before the interviews were begun. Unfortunately, this difference was not covaried, and the results are thus extremely difficult to interpret. In fact, the results appear to reflect primarily a practice effect with no differential sensitivity to the conditions by either the schizophrenics or the medical inpatients.
Using the Asch Task, Schooler and Spohn (1961) measured the responsivity to social pressure of chronic schizophrenics, remitted schizophrenics, and tuberculosis patients. For the schizophrenic patients, the confederates were either dressed as dietary hospital workers or as fellow patients. All subjects were responsive to social pressure no matter what its source, with the chronic schizophrenics the most responsive of all. Pishkin (1966) used a modified Asch task in which the stimulus to be judged was the size of a figure dressed either as a patient or as an aide. Inpatient, newly admitted schizophrenics and hospital aides estimated the height of the figure in combination with a confederate who was dressed as either a patient or an aide, and who either overestimated, underestimated, or accurately judged the figure. The results indicated that all subjects were influenced by the confederate and that normals and schizophrenics were not different in the accuracy of the judgment or in the time required to make a judgment. Schizophrenics, however, required more information to make a judgment (defined as illuminations of the figure), and more information was required by both types of subjects when the confederate was a patient.

Thus, these results are not consistent with the hypothesis that, in general, schizophrenics show lowered frequency of social interaction than nonschizophrenics due to reduced reinforcement value of social reinforcement. Although certain types of social stimuli such as Rierdan and Brooks' (1977) congruent and incongruent pairings of voice and tone may affect the performance of schizophrenics differently than that of nonschizophrenics, germane to this review is the consistency of the finding that schizophrenics are responsive to social stimuli.

Preferences for isolation or interaction. Another hypothesis might be that the difference in rates of social interaction of schizophrenics and nonschizophrenics reflects primarily the preferences of schizophrenics for a limited amount of social contact. Preferences have been measured with both direct and indirect methods, and the results have generally substantiated schizophrenics' preferences for fewer interactions. For example, Schooler (1963) asked male and female chronic schizophrenics and normals to indicate on a 12-item questionnaire the characteristics of another person with whom they would prefer to work on a puzzle completion task. Male schizophrenics, compared to normals, significantly less often preferred to work and make friends with another person, to be held responsible for the outcome of the task, and to give expressions of positive feelings. Female schizophrenics similarly expressed less affiliative preferences than normal subjects, although they preferred to work with a partner significantly more often than male schizophrenics. Brown (1965) asked 29 psychiatric inpatients with a mix of diagnoses to single out from the other patients those they preferred and those they disavowed as partners in group therapy and recreational activities. The more severely ill patients more often rejected their peers as partners than the less ill patients.

Apparently, preferences for social interaction show less of an increase with treatment time for schizophrenic than for nonschizophrenic patients. Gilliland and Sommer (1961) reported that the number of friends made by alcoholics and depressives increased as treatment progressed compared to nonparanoid schizophrenics, whose friendships increased at a slower rate, and to paranoid schizophrenics, whose positive choices declined.

Indirect methods of measuring preferences have been used in several studies, and the results have been somewhat contradictory. Duke and Mullens (1973) asked schizophrenic and nonschizophrenic inpatients and hospital employees to place each of a set of cardboard cutouts of human figures at distances from them that made them feel comfortable. Schizophrenics placed the figures significantly farther away than the other groups. Blumenthal and Meltzoff (1967) had schizophrenic outpatients and normals replace pairs of human figures that were originally presented at one of three standard distances from one another. The figures were selected from those used in the Make-A-Picture-Story Test. Although the schizophrenics were significantly less accurate than normals, unlike the subjects of Duke and Mullen (1973), they did not systematically replace the figures farther apart than the normals. Tolor (1970) also used a replacement task with chronic schizophrenic inpatients and college students. There were no differences between the groups in either accuracy or replacement distance. Of course, the assumption that replacement distance reflects personal preference for level of affiliation may be unjustified, and those studies that used indirect methods of assessing affiliation have less face validity than those that used direct methods.

In summary, the results of these studies, particularly those that used direct methods of measuring preferences, indicate that schizophrenics prefer to interact at a rate lower than that preferred by nonschizophrenics. This finding, however, is moderated by patients' sex, schizophrenic subtype, and level of illness. Females...
appear to be more affiliative than males, and paranoid schizophrenics appear to be less affiliative than nonparanoid schizophrenics. The greater the severity of patients’ illnesses, the lower was the preferred rate of interaction. As nonparanoid patients recover, their preferences shift to match more closely those of the nonschizophrenic patients.

Interpersonal Skills. Perhaps the lowered rate of preferred and actual interactions among schizophrenic patients reflects a lack of the skills necessary to initiate and maintain interpersonal relationships. Unfortunately, the difficulty in reviewing the research literature that bears on this proposal is that there is no straightforward, widely accepted model of interpersonal skills than can serve to organize this disparate literature. Perhaps a model suggested by Wallace (Wallace et al. 1980; Wallace 1982) can act as an organizer. A skillful interpersonal response is hypothesized to be the result of “accurately receiving” interpersonal stimuli, “correctly processing” them to select the most appropriate response, and “sending” the response in a manner designed to maximize attainment of the goals of the interaction. “Accurately receiving” refers to the correct recognition of an interpersonal partner’s identity, status, and verbal and nonverbal messages. “Correctly processing” involves generation and evaluation of alternative responses. “Sending” the response includes the effective use of topographical features such as the amount and timing of eye contact, hand gestures, and various vocal characteristics. Thus, the proposal that schizophrenics’ interpersonal skills are inadequate can be framed in terms of inadequate interpersonal receiving, processing, and sending skills.

Receiving skills. A number of studies have investigated schizophrenics’ correct recognition of an interpersonal partner’s emotions. Dougherty, Bartlett, and Izard (1974) asked 31 chronic female schizophrenics and 23 normals to view 32 photographs that portrayed eight emotions. Each subject participated in two tasks: emotion labeling and emotion recognition. The results indicated that the schizophrenics were significantly less accurate than normals in both tasks for all emotions except enjoyment. Walker, Marwit, and Emory (1980) used the same tasks as Dougherty, Bartlett, and Izard (1974) with 48 schizophrenics and 48 normals divided into three age groups: 8–12 years old, 13–19 years old, and 20–50 years old. All of the adult schizophrenics were chronic, poor premorbid patients. Schizophrenics were significantly less accurate than normals in all age groups, with the adults performing even less accurately than the younger patients. Similarly, Muzekari and Bates (1977) found that chronic schizophrenics performed significantly more poorly than college students in identifying four emotions portrayed in photographs and eight emotions portrayed in videotaped scenarios. The difference was found when recognition was measured by responses either to an open-ended interview or to multiple-choice questionnaires, although schizophrenics performed better on the latter than on the former. As in the Dougherty, Bartlett, and Izard (1974) study, no differences were noted between the groups in correctly identifying happiness. Negative results were reported by Pilowsky and Bassett (1980), who asked schizophrenics, neurotics, and alcoholics to comment on six photographs used by Eckman and Friesen (1975), one for each of four emotions plus two neutral photographs. Schizophrenics were not significantly less accurate than the other two groups, although they gave significantly more verbose responses to the fear and anger photographs and commented significantly less often on the affect and interior state of the person portrayed in the photographs. Perhaps these negative findings reflect the fact that the schizophrenics who participated in the Pilowsky and Bassett (1980) experiment were considerably less chronic than those who participated in the previously cited experiments.

Another approach to investigating the receiving skills of schizophrenics has been to determine if they are affected by inconsistent interpersonal stimuli differently than are nonschizophrenics. Newman (1977) presented 30 schizophrenic inpatients and 30 hospital employees with 12 tape-recorded sentences that were paired with incongruent tones of voice. They asked subjects to rate the friendliness of the messages and the confusion they felt in listening to them. The results indicated that schizophrenics resolved the inconsistency by weighting the verbal component significantly more than the normals, and they were significantly more confused by the negative than by the positive tone of voice. The normals were not differentially affected by the negative or positive tone of voice. As cited previously, Rierdan and Brooks (1977) found that schizophrenics’ learning in a verbal operant task was significantly impeded compared to that of normals when they were presented with reinforcers that paired incongruent messages and tones of voice. Their learning was equal to that of normals when the reinforcers were congruent messages and tones of voice, even if the message was negative (punishment). Thus, incon-
sistencies in interpersonal stimuli seem to lead to deficient reception by schizophrenic patients. Evidence that thought-disordered schizophrenics perform more poorly with personal than with impersonal stimuli has been reported by Griffith, Frith, and Eysenck (1980). They asked thought-disordered schizophrenics, nonthought-disordered schizophrenics, and nonpsychotic psychiatric patients to sort both schematics of faces that varied on nine dimensions and schematics of abstract shapes that similarly varied on nine dimensions. Thought-disordered schizophrenics performed at a significantly poorer level with the faces than with the abstract shapes in comparison to the other two groups who performed better with the faces than with the abstract shapes. Additional data come from Bannister and Salmon (1966) who compared the test-retest stability of thought-disordered schizophrenics' and normals' sortings of objects and photographs of faces. Although both groups were less stable in their sortings of the photographs than of the objects, the schizophrenics were significantly less stable than the normals, particularly for the photographs of faces.

In summary, the results of these studies suggest that the receiving skills of schizophrenic patients may be poorer than those of nonpsychotic schizophrenics. However, almost all of these studies compared the skills of relatively chronic schizophrenics to those of normals. The degree to which the deficiencies noted in these studies are uniquely characteristic of schizophrenia or are the result of having any chronic major psychiatric disorder cannot be determined. Indeed, the one study that compared thought-disordered schizophrenics and other psychiatric patients (Griffith, Frith, and Eysenck 1980) found poorer skills only for the thought-disordered schizophrenics. This could indicate that the deficiency is characteristic only of a narrowly diagnosed group of "nuclear" schizophrenics, or it could reflect the possibility that the thought-disordered schizophrenics were more symptomatic at the time of their testing. Unfortunately, data are not given in the report to determine patients' symptomatic states.

Processing skills. The processing skills of schizophrenics have been investigated from two perspectives: differences between schizophrenics' and nonschizophrenics' interpersonal constructs, and differences between schizophrenics' and nonschizophrenics' generation and evaluation of solutions to interpersonal problems. Senf, Huston, and Cohen (1956) asked groups of chronic schizophrenics, "early" schizophrenics (mean duration of illness of 1 year), depressives, and neurotics to comment on each of six cartoons. The responses were rated for understanding of the cartoons' environmental context, speakers, action, social roles, and humorous quality. Chronic schizophrenics were significantly poorer than all other groups in their understanding of all elements of the cartoons except the simplest element, the environmental context. Early schizophrenics, however, were not different from the depressive and neurotic subjects in their understanding of any element of the cartoons. Helfand (1956) asked four groups of subjects to read an autobiography and then complete a Q sort as they thought the person portrayed in the autobiography might complete the sort. The four groups of subjects were 15 chronically ill patients who resided on locked wards, 10 less chronic patients who lived on open wards and were being readied for discharge, 19 tuberculosis patients, and 20 normals. The sorts produced by the chronic schizophrenics were significantly poorer matches for the actual Q sort than those produced by all other groups. In contrast, the sorts produced by the less chronic schizophrenics were as accurate as the sorts produced by other groups. Farina, Holzberg, and Kimura (1966) asked groups of 10 good premorbid female schizophrenics, 10 poor premorbid female schizophrenics, 10 female nonschizophrenic psychiatric patients, and 10 prisoners to indicate which of 12 interpersonal characteristics differentiated between individuals the subjects liked and individuals the subjects disliked. The poor premorbid schizophrenics had less finely differentiated interpersonal constructs since they discriminated liked from disliked individuals on only two characteristics, which was significantly less than other groups. Again, the good premorbid schizophrenics were not different from the nonschizophrenic groups. Thus, these results suggest that poor processing of interpersonal constructs is uniquely characteristic of poor premorbid schizophrenics.

Evidence confirming that this processing deficit is unique to a subgroup of schizophrenics was reported by Bannister (1962) and Bannister and Fransella (1966) who used a more complex measure of the differentiation of interpersonal constructs, Kelly's Repertory Grid Test. Bannister (1962) investigated the constructs of 30 normal adults, 20 thought-disordered schizophrenics, 20 nonthought-disordered schizophrenics, 20 depressives, and 20 neurotics. Subjects were asked to rate 20 photographs of individuals on traits such as fair-mindedness, hard working, and timid. The results indicated that the thought-disordered
Several studies conducted by Platt, Spivack, and Siegel have focused on schizophrenia's ability to generate and evaluate response options to interpersonal problem situations. Platt and Spivack (1972a) administered the Means-Ends-Problem-Solving Task (MEPS) to 53 psychiatric inpatients, 70 percent of whom were diagnosed as schizophrenic, and to 61 hospital employees. The results indicated that patients generated fewer options and had a lower ratio of relevant to total options than normals. Platt and Spivack (1972b) administered the MEPS and the Phillips Premorbid History Scale to 103 patients, a majority of whom were schizophrenic. The group was divided at the median Phillips score, and the results indicated that the poor premorbid patients generated significantly fewer options and had a significantly lower relevancy ratio than good premorbid patients. Platt and Siegel (1976) found a relationship between level of psychotic pathology as measured by the Minnesota Multiphasic Personality Inventory (MMPI) and problem-solving ability. Significantly more of the poor male problem solvers than the good male problem solvers had peaks on the Pa, Sc, and F scales and scored higher on the Goldberg Index. No differences were noted on any MMPI scale for females. Thus, the ability to generate options to interpersonal problems appears to be poor for the psychiatric patients studied by Platt, Spivack, and Siegel, most of whom had a schizophrenic disorder. Although the fact that the data were all collected using one instrument (MEPS) aids comparisons among these studies, the generalization of the results reported to problems other than the 10 used in the MEPS is unknown. Further research is needed to examine the differences between schizophrenics and other psychiatric groups in generating effective problem solutions.

Thus, the results suggest that poor interpersonal processing skills are uniquely characteristic of some types of schizophrenic patients. The more chronically ill, thought-disordered, and poor premorbid patients appear to have less finely differentiated and less stable interpersonal constructs and are less able to generate effective solutions to interpersonal problem situations.

Sending skills. Numerous studies have focused on the differences in the quantity and quality of speech of schizophrenics and nonschizophrenics. These studies have been thoroughly summarized (e.g., Maher, 1966, 1972; Pavy 1968; Schwartz 1978, 1982), and only a few will be reviewed here to present several relevant results. These results generally indicate that there are differences in the speech of schizophrenics and nonschizophrenics that do not appear to be caused by schizophrenics' inability to understand and use the rules of speech. Rather, these differences appear to be caused by schizophrenics' deficiencies in certain "processing" skills such as self-editing and perspective taking.

One method of assessing the global adequacy of schizophrenic speech has been to investigate its "predictability." For example, Salzinger and his colleagues used the Cloze procedure (subjects guess words that have been systematically deleted from samples of speech) to analyze the free speech produced by schizophrenics and normals. Salzinger, Portnoy, and Feldman (1966) found that the proportion of correct guesses was significantly higher for samples of speech taken from open-ended interviews with nonpsychotic psychiatric patients than for samples taken from interviews with acutely ill, first admission schizophrenics. The differences were greater as the length of the sample of speech increased. However, the two groups did not differ in the frequency of their usage of lexical and functional words. Salzinger, Portnoy, and Feldman (1966) asked college students to "unitize" the samples of speech obtained in their 1964 study. The students divided each sample into grammatical units and crossed out unnecessary words. The results indicated that "schizophrenic speech leads to a medium amount of agreement in the reconstruction task—i.e., that on the whole the communicability of schizophrenic speech is poorer than that of most normal speech but, in the majority of cases, better than the poorest normal speech" (Salzinger, Portnoy, and Feldman 1966, p. 114).
Cohen, Rosenberg, and their colleagues have proposed that the poor communicability of schizophrenics’ speech is due not to a deviant set of associations but to a breakdown in the schizophrenics’ editing of their own responses that would normally eliminate inappropriate verbalizations. This implies a two-stage model of producing a verbal response: the first stage includes producing associations to arrive at a correct verbalization, and the second stage involves editing these associations to eliminate those that are inappropriate to the specific context. As summarized in Cohen (1978), the results of several experiments have indicated that acute, first admission schizophrenics struggle to edit inappropriate responses but are unable to do so because they perseveratively reject and then resample inappropriate responses. This perseveration is broken when schizophrenics shift to idiosyncratic associations from their own inappropriate responses (Cohen, Nachmani, and Rosenberg 1974). These investigators suggest that chronic schizophrenics, on the other hand, have stopped their ineffectual attempts at self-editing and have become “impulsive” speakers who emit their initial associations (Kantorowitz and Cohen 1977).

Another influence on sending skills has been identified by Rochester (1978), who has theorized that schizophrenics, particularly thought-disordered schizophrenics, fail to take account of the listener’s cognitive context. Rochester and Martin (1978) found that schizophrenics produced speech in which clauses were linked to ambiguous referents. Rochester (1978) interpreted this result as indicating that schizophrenics are unable to sustain the “rapid shifting of attention between prior clause (or the immediate situation) and the clause being produced” (p. 325). This deficit results in the production of clauses with ambiguous referents that are confusing to listeners. However, the production of the structural elements of speech within phrases does not require such rapid shifting of attention, so that these elements generally remain intact in schizophrenics’ speech.

Aspects of sending skills other than the quality and form of speech have received far less attention. For example, Gottheil et al. (1970) filmed 10 female schizophrenic inpatients and 10 female nonschizophrenic subjects describing events in their lives that made them happy, sad, and angry. Transcripts of the descriptions were rated for the type of event that was described and for the intensity of the emotion. Additionally, 34 college students viewed the films without sound and rated the type of event that was being described by each subject. Schizophrenics were as accurate as normals in describing happy, sad, and angry events. Only for happy events were schizophrenics judged to have produced less intense descriptions. In comparison to the results contrasting schizophrenics’ and nonschizophrenics’ accurate recognition of emotions, schizophrenic patients in this relatively simple situation seemed to be as good at “transmitting” emotions as normal subjects.

Shimkunas (1972) investigated self-disclosure skills by asking schizophrenics and normals to participate in an interview in which the interviewer either disclosed personal feelings, with an implicit demand for interviewee self-disclosure, or discussed impersonal topics. The results indicated that both groups of subjects performed equally well in the impersonal condition. Schizophrenics, however, produced delusional and autistic speech in the interviewer disclosure condition while normals responded appropriately to the implicit demand to disclose their own feelings. Levy (1976) used essentially the same task and dependent measures with 40 schizophrenics and 40 alcoholics, except that explicit instructions were given either to self-disclose or not. Schizophrenics and alcoholics performed much the same when given instructions not to self-disclose. Under instructions to disclose, alcoholics increased their self-disclosure, but schizophrenics became more avoidant and, when interacting with the low self-disclosing interviewer, gave more impoverished responses. Paranoid schizophrenics, compared to nonparanoid schizophrenics and alcoholics, were significantly more suspicious when interacting with a self-disclosing interviewer. Thus, timing and appropriateness of self-disclosing statements may be more difficult for schizophrenics, especially paranoid schizophrenics, than for nonschizophrenics.

The results of these studies indicate that schizophrenic patients are deficient in certain sending skills such as editing of inappropriate responses, disclosing personally relevant information under appropriate conditions, and keeping account of the listener’s context. Of course, these deficits do not occur for all schizophrenics all of the time. Patients are able to use the structural elements of speech as well as nonschizophrenics; they can portray at least simple emotions; and they have speech that is at least as understandable in most circumstances as that of many nonschizophrenics.

As Schwartz (1982) notes:

On the one hand, schizophrenic speech is easy to recognize . . . but, on the other hand, it makes
Reactions of interpersonal partners. In addition to schizophrenic patients' deficits in specific social skills, perhaps one aspect of the interactional process that contributes to significantly lowered rates and/or preferences for interaction is that schizophrenics are more often rejected as interpersonal partners. Several studies cited previously provide indirect evidence that supports this contention. Longabaugh et al. (1966) noted that schizophrenics are "socially bankrupt"; i.e., they control few of the reinforcers that would make interactions rewarding. Pishkin (1966) found that schizophrenics were seen as less credible communicators since both schizophrenic and nonschizophrenic subjects required more information to make a judgment when the confederate in an Asch Task was dressed as a patient. The results of the sociometric data collected by Brown (1965) and by Brown, Wooldridge, and VanBruggen (1973) clearly indicated a reciprocal relationship between level of illness and rejection as an interpersonal partner. Not only did the more ill patients reject others more often than the less ill patients, but they were in turn more often rejected by the less ill patients. Levy's (1976) and Shimkus' (1972) findings of increases in autistic and delusional speech and in suspiciousness with a self-disclosing interviewer would similarly suggest that interactions with schizophrenics may be difficult for their interpersonal partners.

Boswell and Murray (1981) provided evidence of the rejection of schizophrenics as interpersonal partners. They asked male and female college students to listen to audiotapes of interviews with four schizophrenics, four unipolar depressives, and four normals. The diagnoses of the 12 patients were confirmed using the Schedule for Affective Disorders and Schizophrenia. The interviews consisted of six questions about the interviewee's mood, future plans, living situation, and occupation. After listening to an interview, students completed a mood adjective checklist, a rejection scale, and a modified interpersonal checklist. The results indicated that the schizophrenics and the depressives were significantly more often rejected as partners than the normals, with no difference between the psychiatric groups. Both schizophrenics and depressives elicited significantly more sadness and significantly less elation and vigor than the normals, with the schizophrenics eliciting significantly more fatigue than the other groups. Normals were also seen as significantly less meek and submissive than either of the psychiatric groups. Thus, this evidence supports the hypothesis that rejection of a schizophrenic patient as an interpersonal partner is likely to serve as a pernicious feedback loop that may help to maintain the lowered rate and preference for social interaction among such patients.

Summary. The bulk of the evidence seems to suggest that certain subgroups of schizophrenic individuals have poorer community and interpersonal functioning than nonschizophrenic individuals, even those diagnosed as having a major psychiatric disorder other than schizophrenia. These subgroups of schizophrenic individuals consistently score more poorly on measures of community functioning than nonschizophrenic individuals; they engage in interpersonal interactions at a rate lower than that of nonschizophrenic individuals, and they seem to prefer this lowered rate, at least during symptomatic periods; their interpersonal skills, particularly their processing of interpersonal stimuli, are poorer than those of nonschizophrenic individuals; and they are less rewarding and more likely to be rejected as interpersonal partners, reinforcing the lowered rate of interaction and providing fewer opportunities to learn interpersonal skills. The schizophrenic individuals who have these deficits are primarily the poor premorbid, chronically ill, thought-disordered individuals. Thus, deficient interpersonal functioning may be characteristic only of narrowly defined, nuclear schizophrenia and may represent a carryover into adulthood of deficiencies that existed before the onset of the disorder. It could also be argued that these deficits represent the cumulative effects of institutionalization; while that may be partially true, the results of studies reviewed below suggest that deficient interpersonal functioning predates the onset of the initial schizophrenic episode.

Several caveats that qualify this conclusion should be noted. No study has systematically monitored variations in interpersonal functioning concomitant with variations in symptomatology; indeed, the results of several studies indicated that the rate of preferences for interpersonal interactions varied with the severity of the illness, and schizophrenic individuals are as accurate as nonschizophrenic individuals in "sending" at least simple emotions. Although schizophrenic individuals may be rejected as interpersonal partners, this rejection is quite similar to that experienced by a group of nonschizophrenic psychiatric patients, those individuals
diagnosed as having an affective disorder.

Interpersonal Functioning Among Preschizophrenic and High-Risk Individuals

Deficits in interpersonal functioning in persons with a schizophrenic disorder could be an integral part of the schizophrenic psychotic episode itself, secondary effects of schizophrenic psychotic symptomatology or vulnerability, or potentiating factors that are antecedents to schizophrenic episodes and may influence their development. In recent years, investigators have turned increasingly to studies of the social characteristics of preschizophrenic individuals and populations at high risk for later schizophrenia in an attempt to address these distinctions. If interpersonal functioning is found to be deficient during the period preceding the onset of any psychotic symptoms, such deficits could not be solely a direct or secondary part of the psychotic symptoms themselves, but rather might be indicators of vulnerability to schizophrenic episodes. This section reviews studies that have used either of the following two strategies to examine the prepsychotic period: (1) the study of archival records from persons who later developed schizophrenic disorder, or (2) the direct examination of individuals who are at heightened risk for later schizophrenia.

Archival Record Research. Watt, Lewine, and their colleagues have used the archival record method to investigate the relationship between premorbid social behavior and later onset of a schizophrenic disorder. In a series of studies (e.g., Watt et al. 1970; Lewine, Watt, and Fryer 1978; Watt 1978; Lewine et al. 1980), school records were scanned to determine if the spontaneous comments recorded by teachers would reveal behaviors that discriminated among children who became schizophrenic, children who developed other psychiatric disorders, and children who did not develop a psychiatric disorder. Teachers' comments were coded on 23 variables grouped into two major clusters: academic competence and interpersonal competence. As summarized in Lewine et al. (1980), preschizophrenics were significantly poorer in childhood interpersonal competence but not academic competence than either of the other groups. This difference, however, was not apparent until grades 7-12 (Watt 1978). Preschizophrenic girls became significantly more introverted and passive than either of the other groups, while schizophrenic boys became significantly more disagreeable, unpleasant, uncourteous, inconsiderate, and poorly behaved.

Robins (1966) and O'Neal and Robins (1957) found somewhat similar results in a 30-year followup of 150 children who had been referred to a child guidance clinic for evaluation and treatment. Of the boys referred to the clinic for antisocial behavior, 20 percent were later diagnosed as schizophrenic. When the antisocial behavior was categorized as being either criminal and requiring the attention of the law or minor and directed toward the family, the preponderance of antisocial preschizophrenic boys had engaged in the latter type of behavior. In contrast, the results of studies of children referred to a clinic for being shy and withdrawn have indicated that very few became schizophrenic (Morris, Soroker, and Burruss 1954; Michael, Morris, and Soroker 1957).

High-Risk Research. Studies of populations at high risk for schizophrenia allow selection of optimal procedures for direct assessment of social functioning and thereby offer advantages over studies that are dependent on archival material. Most of these studies have examined children born to a schizophrenic parent, a group that is known to be at heightened risk for later schizophrenia, and have to date reported mainly cross-sectional comparisons of this group with children of normal parents or representative classroom peers (low-risk children). The results of these studies have generally suggested that the scholastic and interpersonal competencies of children at heightened risk to develop schizophrenia are poorer than the competencies of children at low risk.

Rolf (1972) investigated the social and academic competencies of four target groups of 9- to 10-year-old children who were at risk to develop or had already developed different types of psychopathology: children of schizophrenic mothers; children of internalizing mothers (mothers diagnosed as having either depression, anxiety reaction, or phobia); children referred for psychological evaluation and treatment because of “externalizing” (Achenbach 1966) difficulties; and children referred for “internalizing” (Achenbach 1966) difficulties. Each child was matched with a classmate on the basis of sex, age, grade, social class, intactness of the home, previous standardized achievement scores, and, if available, IQ scores. In order to provide additional comparisons with a more representative group of normal children, each subject was also paired with a randomly selected classmate. Academic and interpersonal competencies were measured by both a peer nomination procedure and teacher
ratings. The results indicated that peers consistently viewed sons of schizophrenic mothers as significantly less competent than either their matched or random controls. Compared to the other target groups, they were ranked as more competent than the boys with externalizing difficulties and as less competent than the sons of internalizing mothers and the internalizing boys. Unfortunately, the statistical significance of this pattern of ranks was not reported. A rather different pattern emerged for the girls. Peers did not rate the competencies of daughters of schizophrenic mothers as different from that of either their controls or any other high-risk group except the girls with externalizing difficulties who had lower levels of social competence. This failure to distinguish the daughters of schizophrenic mothers may be related to the fact that the peer nomination procedure elicited fewer social role nominations for girls in general than for boys, which would make the peer measure of competence less sensitive to differences among girls than among boys. The ratings made by teachers were less discriminating than those made by peers. Sons of schizophrenic mothers were never rated significantly lower than their controls by teachers, and for only one of a large number of variables (a cluster of items that defined emotional stability and maturity) were daughters of schizophrenic mothers rated as significantly poorer than their controls.

In a followup report, Rolf and Garmezy (1974) investigated the differences among the same subjects in academic performance and attendance at school. Based on grades in five curriculum areas and overall grade point average, the children of schizophrenic mothers always performed more poorly than their controls, albeit not always to a statistically significant degree. The sons of schizophrenic mothers were significantly poorer than their randomly selected but not their matched controls in two of the five curriculum areas, while daughters of schizophrenic mothers were significantly poorer than either their matched or randomly selected controls only in overall grade point average. The male target groups were equal in academic performance, while the daughters of schizophrenic mothers performed more poorly than the other three target groups. The authors note that the academic performance of both the sons and daughters of the pathological mothers had been particularly poor the year before this comparison, which corresponded to the year in which the mothers were given extensive treatment for their illnesses. Attendance at school was not significantly different from that of the matched or randomly selected controls for any of the target groups except for the internalizers who were absent significantly more often than their controls. The authors again note that because of the mothers' illnesses, the sons and daughters of schizophrenic mothers had been absent significantly more often in the previous year than either their matched or randomly selected controls. Thus, children of schizophrenic mothers show some indication of performing more poorly than low-risk peers in academic grades; part of this deficit may reflect transitory influences of the treatment of their mothers' illnesses.

MacCrimmon et al. (1980) examined the clinical status of three groups of 12- to 16-year-old children whose attentional functioning had been measured earlier by Asarnow et al. (1977): children placed in foster care whose biological mothers had schizophrenia, children placed in foster homes whose biological parents did not have a major mental illness, and children who were being raised by their biological parents and whose parents did not have a major mental illness. The first two groups were matched on the basis of sex, current age, race, religion, and age at placement in foster care. The third group was matched with the other two in age, sex, and school year. All children were administered the Psychiatric Status Schedule (PSS), the MMPI, and a battery of eight attention-demanding tests. The results of the PSS indicated that the children of schizophrenic mothers were significantly poorer in their performance of the student role and significantly higher in social isolation and depression-anxiety than either of the other two groups who did not differ from one another on any PSS scale. The results for the MMPI appeared to be associated primarily with the effects of foster care or the factors leading to foster placement, with the few significant differences (Hs, Hy, Pd scales) being between the community group and the two foster care groups with no differences between the latter. Only on the Schizophrenia scale did the mean of the children of schizophrenic mothers significantly exceed that of the other two groups. There were no significant differences among the groups in any other scale.

Watt, Grubb, and Erlenmeyer-Kimling (1982) asked teachers to assess the academic and interpersonal competencies of 15-year-old children of one or two schizophrenic parents (n = 44) and 15-year-old normal children (n = 70). Each child was assessed by at least two major-area teachers on the following two instruments: a measure (Pupil Rating Form) of 28 areas of interpersonal and academic behaviors similar to that used by Watt, Lewine, and their
colleagues in their “follow-back” studies, and a measure (Hahnemann High School Behavior Rating Scale) of 13 behaviors related primarily to academic achievement. The normal children had been obtained by random phone calls which, unfortunately, resulted in a significant difference in social class between the two groups. With social class covaried for all analyses, the results indicated that the groups were different on almost all scales of both instruments. Not only were the children of schizophrenic parents described as less scholastically motivated than the controls, but they were also described as significantly less pleasant, popular, cooperative, adjusted, and calm than the controls. In contrast with the results of the follow-back studies, sex differences were not present. An unexpected finding was that the groups were significantly different in IQ, with the control group scoring considerably higher than the high-risk group (means of 118 and 105). When both the social class and IQ differences were covaried, all but one of the differences between the academic and interpersonal competencies of the groups disappeared: The high-risk children were described as having significantly less harmonious relationships than the control children. Interestingly, the high-risk group was not seen as being significantly more introverted than the control group.

Using a completely different approach to defining a high-risk group, Haberman et al. (1979) assessed the interactional skills of college students who were judged to be at hypothesized risk for psychosis based on deviantly high scores on Chapman, Chapman, and Raulin’s (1976) Physical Anhedonia or Perceptual Aberration Scales. The measure of interactional skills was a modification of Goldsmith and McFall’s (1975) Interpersonal Behavior Role Play Test, which consisted of 25 difficult interpersonal situations to which subjects provided audiotape-recorded responses that were later rated for adequacy on a 3-point scale. Compared to 19 control subjects, the 16 subjects who scored high on the Physical Anhedonia Scale were rated as significantly less competent in interactional skills. The 20 subjects who had high scores on the Perceptual Aberration Scale were not significantly different from the controls.

Summary. The bulk of the evidence indicates that deficiencies in interpersonal functioning predate the onset of the initial schizophrenic episode in many cases. The deficiencies seem to differ according to the sex of the child in follow-back studies but, within sex, appear to be consistently related to schizophrenia. The interpersonal deficits that characterized the boys who were at heightened risk to develop schizophrenia or who later developed schizophrenia were primarily being disagreeable, unpleasant, antisocial, and emotionally immature. The deficiencies that characterized the girls were somewhat less consistently described from study to study. In the follow-back studies of Watt, Lewine, and their colleagues, girls who later became schizophrenic were described as introverted and passive. However, in the high-risk study of Watt, Grubb, and Erlenmeyer-Kimling (1982), which used much the same instrument to measure social competence as in the follow-back studies, no sex differences were found. Girls at heightened risk to develop schizophrenia were described in the same way as boys: less pleasant, popular, cooperative, calm, and adjusted than the control children. Corroborating the evidence of interpersonal deficiencies characteristic of children at risk to develop schizophrenia was the finding of Haberman et al. (1979) that subjects “at risk” for schizophrenia as defined by high scores on the Physical Anhedonia Scale have poor interpersonal skills.

The evidence for academic deficiencies unique to children who were at heightened risk to develop schizophrenia or who later became schizophrenic is not consistent and does not allow a firm conclusion to be drawn. In the follow-back studies, no differences in academic achievement were noted between the controls and the children who later became schizophrenic. In Rolf and Garmezy’s (1974) report of children at risk to develop schizophrenia, lower academic competence was reported for these children compared to the control children but not always to a statistically significant degree. Differences were not found among the target groups, and their data suggest that poorer performance may be due to the disruptive effects of treatment of the mothers’ illnesses.

Prognostic Significance of Community and Interpersonal Functioning

Although the evidence seems to indicate that deficient interpersonal functioning is uniquely characteristic of schizophrenia and predates the onset of the initial schizophrenic episode, it remains to be proved that such functioning has prognostic value; i.e., is predictive of the outcome of the disorder. This section reviews studies that have determined the prognostic value of community and interpersonal functioning using one of the following two research strategies: (1) investigation of the relationship between adult functioning and outcome; (2) investi-
lations of the relationship between childhood and adolescent functioning and outcome.

Adult Functioning. The several studies that have investigated the relationship between adult community and interpersonal functioning and outcome have generally reported a significant, though often only weak or moderate relationship. The strongest relationships appear to be with the social aspects of outcome.

Prediction of rehospitalization. Rehospitalization has been by far the most frequent operational definition of outcome. (The article by Falloon (1984) in this issue addresses some of the problems associated with this operational definition.) Lorei (1964) found that ratings of the social adequacy of 104 patients, 79 percent of whom were schizophrenic, were significantly related to the probability that patients would be rehospitalized within 9 months after discharge from inpatient treatment. Social adequacy was measured by a 12-item scale that assessed a combination of community and interpersonal functioning variables such as patients' appropriate use of money, appropriate personal appearance and habits, quality of interpersonal relationships, and consideration of others. Although the correlation between the total social adequacy score and the probability of rehospitalization was significant but low (r = .20), it was as high as the correlations of rehospitalization with other variables such as presence/absence of substance abuse, marital status, past employment, and total previous hospitalizations. Serban (1975) correlated scores on the Social Stress and Functioning Inventory for Psychotic Disorders with rehospitalization/nonrehospitalization during a 2-year followup period. The results indicated that a summary measure of social and community adjustment correlated significantly with the rehospitalization/nonrehospitalization dichotomy for chronic but not acute schizophrenics. However, although the correlation was significant, it was low, accounting for less than 2 percent of the variance of outcome. Negative results for the association with rehospitalization have been reported by Schwartz, Myers, and Astrachan (1975), who measured the psychopathology, social and community adjustment, and frequency of rehospitalizations of 132 schizophrenics who had received inpatient treatment 3 to 6 years before the administration of the measures. They found that although psychopathology and social and community adjustment were significantly negatively correlated, neither was related to the frequency of rehospitalization.

Several studies have focused on the relationship of interpersonal functioning to rehospitalization. Ellsworth et al. (1968) found that social workers' ratings of both patients' interpersonal skills with family members and general socialization skills were significantly correlated with return/nonreturn to the hospital. Ratings of similar variables made by significant others were not correlated with the return/nonreturn dichotomy. Sokolovsky et al. (1978) and Cohen and Sokolovsky (1978) found that of the group of single-room-occupancy hotel residents who had minimal or no residual schizophrenic symptoms, those residents who were rehospitalized had smaller social networks than those who were not rehospitalized. In contrast, rehospitalization for the residents who had moderate or major residual symptoms was associated primarily with changes in symptomatology. When both groups of residents were combined, those who were rehospitalized had significantly more dependent relationships and fewer helping relationships than those who were not rehospitalized. Freedman et al. (1967) correlated measures collected at time of schizophrenics' admission to a free community clinic with subsequent hospitalization versus no hospitalization during a minimum of 48 months of followup. Patients were randomly assigned at admission to receive chlorpromazine, promazine, or placebo. Correlations were calculated with the data collected only from the 142 patients who received placebo. The results indicated a significant relationship between eight variables and the hospitalization/no hospitalization dichotomy. Quite different from the findings of Ellsworth et al. (1968), two of the eight concerned interactional skills as reported by relatives: explicit oppositionalism (r = .23; i.e., rehospitalization was associated with a low degree of explicit oppositionalism) and solitariness (r = .20; i.e., rehospitalization was associated with a high degree of solitariness). These results were replicated with several samples of new patients, including some treated with medication (Rosen et al. 1972). In contrast to these positive results, Lorei and Gurel (1972) did not find a relationship between social isolation and rehospitalization, and Mintz, O'Brien, and Luborsky (1976) reported that there was an insignificant correlation between social effectiveness and rehospitalization.

In summary, aspects of interpersonal functioning appear to correlate with later rehospitalization. However, most studies suggest that these relationships are significant but relatively weak, probably partially due to the inadequacy of rehospitalization as a criterion variable.
Prediction of length of hospitalization stay. A number of studies have indicated that hospital ratings of good adjustment differentiated long-term from short-term stayers (Ellsworth and Clayton 1959;  Schooler et al. 1967; Ellsworth et al. 1968). Adjustment has most often been measured by ratings of interpersonal skills in dealing with staff members. For example, Ellsworth et al. (1968) correlated length of stay with scores on the Motility-Affect-Communication-Cooperation (MACC) Scale, which was completed by hospital staff members, with psychologists’ and social workers’ ratings of symptoms, and with relatives’ ratings of premorbid community functioning. The results indicated that scores on the communication and social contact subscales of the MACC, ratings of cooperativeness, and ratings of friendship skills were as highly and significantly correlated with length of stay as were measures of premorbid occupational functioning and ratings of reductions in symptomatology. However, all of the correlations were low and, when all predictors were combined in a multiple regression analysis, only the partial correlation between the relatives’ ratings of premorbid employment and the length of stay was significant.

Salzinger and his colleagues found that their measures of sensitivity to interpersonal stimuli and predictability of speech were related to length of stay. Salzinger and Portnoy (1964) asked 72 patients to participate in their verbal operant conditioning task and then determined whether patients had been discharged 6 months later. The results indicated that the majority of the 38 patients who had been discharged had shown conditioning and extinction effects, while the majority of the 34 patients who remained had not shown these effects. The relationship was particularly strong for first admission females with at least a high school education. Salzinger, Portnoy, and Feldman (1966) found that the predictability of schizophrenics’ speech as measured by the Cloze procedure was significantly negatively correlated with length of stay (the more predictable, the shorter the stay), particularly when the communicability score was calculated from a relatively longer sample of speech.

Multidimensional outcome. Strauss and Carpenter (1974, 1977) have suggested that schizophrenic outcome is a multidimensional phenomenon that can be defined by four variables: frequency of social contacts, duration of hospitalization, severity of symptoms, and employment status. The results of a followup of 85 DSM-II schizophrenic inpatients conducted 2 years after their participation in the International Pilot Study of Schizophrenia indicated that the best predictor of each of the four measures of outcome was the corresponding measure administered at the time of admission. The best predictor of the frequency of social contacts during the followup period was the frequency of social contacts just before admission (r = .44); the best predictor of the duration of hospitalization in the followup period was duration of hospitalization before admission (r = .32); employment status in the followup period was predicted by preadmission employment status (r = .36); and the best predictor of symptoms in the followup period was duration of previous hospitalization (r = .43). Based on the pattern and the size of these correlations, Strauss and Carpenter (1974, p. 41) concluded that outcome is composed of “several semi-independent processes.” However, the results of a 5-year followup conducted with 61 of the 85 DSM-II schizophrenics indicated that level of preadmission social contacts was a more powerful predictor of 5-year outcome than any other prognostic variable (range of r from .35 to .46; Strauss and Carpenter 1977). Level of preadmission social contacts was significantly correlated with all outcome items except duration of hospitalization. Thus, level of preadmission social contacts appears to be an important predictor of long-term outcome for several aspects of schizophrenic disorders.

Childhood and Adolescent Functioning. The relationship between outcome and social or “community” (e.g., scholastic functioning in childhood and adolescence) has been investigated in numerous studies that have been well summarized by Garmezy (1968) and by Kokes, Strauss, and Klorman (1977). Only a few studies are summarized here in order to present several relevant points.

Vaillant (1964) examined the utility of seven prognostic signs for predicting short- and long-term outcome. The prognostic signs included presence/absence of a clear precipitating event, presence/absence of affective symptoms, presence/absence of a schizoid personality, acute onset of the disorder, presence/absence of confusion at admission, blood relative with a history of schizophrenia, and presence/absence of a preoccupation with death. Seventy-two patients were followed for an average of 10 years after treatment in this study, long-term outcome was defined as good for subjects who had satisfactory occupational adjustment and were living independently of families...
of origin. One hundred and three patients were followed for 12 to 24 months after treatment; in this study, short-term outcome was defined as good based on attainment of gainful employment and satisfactory personal relationships, reestablishment of the best level of premorbid functioning, and an absence of a "significant" (amount not specified) amount of medication. The results indicated that absence of a schizoid personality was correlated with both long- and short-term good outcomes \( r_{sht} = .69 \) for short-term study. Schizoid personality was defined as "a chronic inability to relate to nonfamilial figures and a tendency toward autistic preoccupation" (Vaillant 1964, p. 510).

In a later study (Vaillant 1978) that included 128 of the 175 patients in the Vaillant (1964) study plus a new sample of 105 patients, Vaillant essentially replicated his earlier results but also found that the relationship between the prognostic factors and outcome was far less than perfect. The prognostic factors did discriminate between 51 patients who had achieved a "full remission" 1 year after treatment and 182 patients who had not. Sixty-three percent of the fully remitted patients did not have a schizoid premorbid adjustment compared to only 26 percent of the nonremitted patients. Full remission was defined as "free from psychotic symptoms and Bleuler's primary symptoms for 1 year, reattained best level of premorbid adjustment, not on phenothiazines, and had at least one friend" (Vaillant 1978, p. 80). However, none of the prognostic factors discriminated between 20 of the fully remitted patients who experienced continuing psychotic episodes and spent at least 25 percent of their time in neuropsychiatric facilities during a 10-year followup and 31 fully remitted patients who collectively spent only 17 percent of the followup period in neuropsychiatric facilities. Bland, Parker, and Orne (1978) found that Vaillant's prognostic factors were not significantly correlated with posttreatment outcome during a 10-year followup period. Outcome was defined by economic productivity, social relationships, and psychopathology. Mintz, O'Brien, and Luborsky (1976) similarly found that Vaillant's prognostic criteria did not significantly correlate with readmission rates of 100 schizophrenic patients treated with either group or individual psychotherapy. Thus, these prognostic factors would appear to be much better predictors of short-term outcome defined as responsibility to a treatment regimen than of long-term outcome defined by economic productivity and the quality and quantity of social relationships.

The more typical and somewhat more psychometrically refined scales of adolescent and childhood premorbid social functioning are the Elgin Prognostic Scale (Wittman 1941), the Phillips Premorbid History Scale (Phillips 1953), the Premorbid Asocial Adjustment Scale (Gittelman-Klein and Klein 1969), the Strauss-Carpenter Prognostic Scales (Strauss and Carpenter 1974), and the UCLA Premorbid Adjustment Survey (Evans, Goldstein, and Rodnick 1973). As summarized by Kokes, Strauss, and Korman (1977), early studies with the Elgin Scale (Wittman 1941; Wittman and Steinberg 1944) and the Phillips Scale (Phillips 1953; Farina and Webb 1956; Seidel 1960; Farina, Garmezzy, and Barry 1963) indicated that premorbid social functioning was correlated with outcome defined by length of stay, total duration of hospitalizations, and number of rehospitalizations.

Later studies of these premorbid social adjustment indicators using expanded operational definitions of outcome have found somewhat less consistent results. Bromet, Harrow, and Kasl (1974) correlated scores on the Phillips Scale with outcome determined 8 months after discharge from inpatient treatment. Outcome was measured by several scales of social adjustment, occupational adjustment, and psychopathology, as well as by the length of inpatient treatment. The Phillips scores for 33 schizophrenics were significantly correlated with length of hospitalization, a replication of many earlier results including those of the authors (Harrow, Tucker, and Bromet 1969). However, the Phillips scores were not significantly correlated with any other outcome measure. Lewinsohn (1967) found that the Phillips scores of 117 patients, 44 percent of whom were schizophrenic, were not significantly correlated with rates of rehospitalization during a 15-month followup period, although they were correlated with length of hospitalization and with significant others' ratings of posttreatment community adjustment. Strauss and Carpenter (1974) found that scores on the Phillips Scale were not related to 2-year outcome defined as frequency of social contacts, severity of symptoms, employment status, and duration of hospitalization. Thus, much like Vaillant's prognostic factors, scores on the Phillips Scale seem to predict short-term outcome defined by the length of hospital stay better than they predict long-term outcome defined by occupational and social adjustment. The fact that scores on the Phillips Scale did not coordinate with rehospitalization in the more recent studies may reflect the changing role of inpatient treatment during the 25-year span in which these studies were conducted.
As part of a major investigation of the effects of medication and supportive aftercare therapy on outcome, Goldberg, Schoeler, Hogarty, and their colleagues (Goldberg et al. 1977) correlated several premorbid adjustment scales with outcome defined as "clinical deterioration of such a magnitude that hospitalization was imminent" (p. 173). The results indicated that the pooled premorbid adjustment scores were significantly correlated with outcome. Also significantly correlated were ratings of current social relationships outside of the home. When all predictors were taken into account in a multiple regression analysis, the semipartial correlation of the pooled premorbid adjustment scores with outcome was not significant, although the semipartial correlation between current social relationships and outcome was. Thus, measures of more current social functioning may be better indicators of outcome than measures of adolescent social functioning, as also indicated by Strauss and Carpenter's results (1974, 1977).

However, the results of studies using two newly developed scales have indicated that premorbid adjustment is related to outcome. The Premorbid Asocial Adjustment Scale was developed by Gittelman-Klein and Klein (1969) to measure adolescent and childhood social adjustment defined by the quality and quantity of social relationships as well as adolescent sociosexual relationships. Scores on the scale were correlated with the 2-year posthospital treatment outcomes of 86 schizophrenics. Outcome was defined by the duration of posttreatment hospitalization, occupational adjustment, dependency on social and familial support, and social isolation. The correlations between almost all of the premorbid and outcome variables were significant, with a better premorbid state being associated with a better outcome. Inspection of a scattergram of the relationship between the total premorbid score and a rating of overall outcome indicated a curvilinear relationship such that poor premorbid scores were almost exclusively associated with a poor outcome, while good premorbid scores bore little relationship to outcome. These results were essentially duplicated by Pollack, Levenstein, and Klein (1968), who correlated a preliminary version of the Premorbid Asocial Adjustment Scale with outcome. Additionally, they found that patients with the poorest outcomes were significantly more likely to have had childhood scholastic difficulties than patients with better outcomes.

Evans, Goldstein, and Rodnick (1973) measured adolescent premorbid social adjustment with another recently developed scale, the UCLA Premorbid Adjustment Survey. Outcome at two time points (6 months and 1 year posttreatment) was defined by severity of psychopathology, number of rehospitalizations, and occupational and community adjustment. On the basis of their scores on the Premorbid Adjustment Survey, patients were classified as having either a good or a poor premorbid adjustment. The results indicated that good premorbid patients were significantly less ill at both 6 months and 1 year posttreatment, and fulfillment of homemaking duties significantly improved at both measurement points compared to the level just before hospitalization for good but not for poor premorbid female patients. No relationship was found between premorbid functioning and frequency of rehospitalization. Good premorbid patients maintained their significantly greater pretreatment involvement in community activities outside of the home at the two followup measurement points. Thus, the results of the newer, more psychometrically refined scales suggest that premorbid adjustment is predictive of long-term outcome defined by occupational and community adjustment.

Using a rather different approach to determining the relationship between premorbid adjustment and outcome, Roff (1974) followed 33 patients who had been hospitalized as adolescents with a diagnosis of schizophrenia. The 33 were divided into favorable \((n = 13)\) and unfavorable \((n = 20)\) outcome groups on the basis of global judgments of social functioning, occupational adjustment, and the use of mental health services during a 17- to 30-year followup period. The poor outcome patients had been described in their hospital charts as "never having gotten along with other children and as actively antagonizing others with subsequent rejection" (p. 182). Patients with good outcomes had been described during their hospitalizations as being shy, nervous, and ignored rather than rejected by their peers.

**Summary.** The evidence seems to suggest that adult community and interpersonal functioning is predictive of long-term outcome defined by social and community adjustment. The results of Strauss and Carpenter's (1977) 5-year followup of patients in the International Pilot Study of Schizophrenia are particularly compelling. Not only was outcome defined in a multidimensional fashion, but the results indicated that preadmission social functioning was the most powerful predictor of each outcome scale,
The purpose of this article was to investigate the differences in functioning of schizophrenic and nonschizophrenic individuals. The results of these studies yielded a tentative conclusion that the functioning of certain subgroups of schizophrenic individuals is poorer than that of nonschizophrenic individuals. More data, however, are clearly needed about the extent to which functioning varies with varying symptom states.

Second to be reviewed were studies that compared the functioning of individuals at risk to develop schizophrenia with the functioning of individuals not at risk. The results of these studies seemed to indicate that a specific pattern of deficits in interpersonal functioning is characteristic of individuals who are at heightened risk to develop the disorder. These deficits are not indicative of a schizoid adjustment; rather, they appear to reflect an immature, poorly controlled, less cooperative adjustment. Third to be reviewed were studies that investigated the prognostic significance of community and interpersonal functioning. The results of these studies, at least for those using the more recently developed, psychometrically sound measures of adult functioning and adolescent premorbid functioning, indicated that such functioning is predictive of outcome as defined by social and community adjustment. Thus, given that poor functioning prefaces the onset of the disorder, is predictive of future outcome, and might be uniquely characteristic of schizophrenic individuals, poor community and interpersonal functioning may be seen as an indicator of vulnerability to the development of schizophrenic episodes. However, because the term “community and interpersonal functioning” is a label for an amalgam of numerous skills, it may be more appropriate to conclude that certain of these skills (e.g., occupational adjustment, making friends) are more likely to be stable vulnerability indicators, certain skills (e.g., processing interpersonal stimuli) are likely to be mediating vulnerability indicators, and other skills (e.g., receiving interpersonal stimuli, sending responses) are more likely to be episode indicators. The differences among stable vulnerability indicators, mediating vulnerability indicators, and episode indicators are discussed by Nuechterlein and Dawson (1984). Unfortunately, there is little evidence about which skills fall into which category. Additionally, the development of these skills is heavily dependent upon the specific environment in which the individual functions. Thus, any skills would be expected to have considerable interindividual variability despite the fact that all individuals are diagnosed as having a common psychiatric disorder. More studies are needed to clarify the issue of the relative contribution of the disorder and the environment to the development of community and interpersonal functioning.

References


Bannister, D. The nature and measurement of schizophrenic thought disorder. Journal of Mental
Chapman, L.J.; Chapman, J.P.; and


Ellsworth, R.B.; Foster, L.; Childers, B.; Arthur, G.; and Kroeker, D. Hospital and community adjustment as perceived by psychiatric patients, their families, and staff. Journal of Consulting and Clinical Psychology, 32: Monograph supplement, 1968.


Gelburt, A.S., and Anker, J.M. Humans as reinforcing stimuli in...


MacDonald, W.S. The large group meeting hour: An evaluation of behavior in a structured setting.


Rochester, S.R. Are language processing deficits in acute schizophrenia actually information-


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