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Social Functioning in First- and Multi-Episode Schizophrenia

By

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Abstract

This study successfully demonstrated that deficits in social functioning are present near the onset and throughout the course of schizophrenia. A second hypothesis, that social functioning abilities would exist on a continuum positively related to length of illness, was explored but not substantiated. The effects of length of illness on social functioning were examined by comparing 40 first-episode (FE) schizophrenia patients with 40 multi-episode (ME) schizophrenia patients and a control group of 40 non-psychiatrically ill individuals. All participants in the FE and ME samples were outpatients in a state of relative remission at the time of assessment and all FE participants had been receiving treatment for a period of one year or less. Participants were screened for inclusion using the Structured Clinical Interview for DSM-III-R or for DSM-IV (SCID-I; Spitzer et al., 1990; version 2; First et al., 1996), and the Case Manager Rating Scale for substance use (Drake et al., 1990). Four measures of social functioning were utilized, including The Cannon-Spoor Premorbid Adjustment Scale (PAS; Cannon-Spoor et al., 1982), The Social Functioning Scale (SFS; Birchwood et al., 1990), The Quality of Life Scale (QLS; Heinrichs et al., 1984), and The Assessment of Interpersonal Problem Solving Skills (AIPSS; Donahoe et al., 1990). As predicted, Control participants significantly outperformed FE and ME participants on all social functioning measures. FE and ME samples did not differ in their performance on the SFS and AIPSS. On the QLS, ME participants outperformed FE participants, due to superior performance on the Interpersonal Relations and Intrapsychic Foundations subscales. Possible

explanations for the lack of difference between schizophrenia samples on the SFS and AIPSS, and for the superior performance of ME participants on the QLS were explored. Limitations of the study included lack of focus on symptoms and on the duration of untreated psychosis (DUP). Recent DUP research indicates that participants in many FE samples are not as "newly ill" as once thought. Future research may benefit from measuring the DUP and from examining FE and ME groups comparable on the amount of time that has elapsed since the most recent acute phase of their illness.

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I would like to dedicate this thesis to the most important people in my life:

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Social Functioning in First- and Multi-Episode Schizophrenia

Individuals newly diagnosed with schizophrenia or schizophreniform disorder may have already experienced myriad life-altering symptoms and events before the name of their condition is made known to them. Two of the questions which may be foremost in their minds at the time of diagnosis are: "What can I expect to happen to me while I have this disorder?" and "When (and how) will I get better?" These questions, concerning course and outcome, are of great interest to researchers as well and have been the focus of vast amounts of research conducted in an effort to ascertain anything that will lessen the 'costs' of the disorder, both to individuals and to society.

The nature of schizophrenia, however, makes answering these rudimentary questions very difficult and makes the answers themselves imprecise and often speculative. Even after decades of research into its causes and cures, one of the better-established facts about schizophrenia is that it is heterogeneous in its development, expression, and response to treatment. Not only is there a large amount of heterogeneity inherent to the disorder itself, there is also heterogeneity in research findings in which a treatment (e.g., social skills training) which is found to be effective for one sample is found to be ineffective for another. The amorphous nature of the disorder has presented a considerable challenge to mental health practitioners and researchers alike and has forestalled the progression toward understanding and cure.

In an effort to reduce the heterogeneity in research samples, which is often lamented as a primary cause of inconclusive or contradictory results, increasing attention recently has been directed toward defining subtypes of schizophrenia and subgroups of schizophrenia patients. Subtypes of schizophrenia have been established by both researchers and diagnostic instruments in an effort to explain contrariety in outcome between different

patient groups. Crow (1980b), for example, developed two subtypes of schizophrenia, Type I and Type II. He differentiated these 'types' of schizophrenia by the symptom category (i.e., positive or negative) that dominated an individual patient's clinical presentation. Five additional subtypes of schizophrenia are delineated in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (1994; DSM-IV) and have provided structure to volumes of research; they include: Paranoid, Disorganized, Catatonic, Undifferentiated, and Residual types. Other researchers have focused on subgrouping schizophrenia patients according to factors such as gender, age at onset (e.g., early vs. late), type of onset (insidious vs. abrupt) and level of premorbid functioning.

More recently, another subgroup of schizophrenia patients has been identified in an effort to determine not only which symptoms and outcomes are common to the subgroup but also which symptoms are present at the onset of the disorder and which represent a deterioration of functioning over time. Individuals who present for treatment following a first episode of psychosis provide a unique opportunity for researchers to examine schizophrenia in its early stages and to compare patients' clinical and functional outcomes to those of their multi-episode counterparts.

Although no one symptom has been found to be pathognomonic of the disorder (DSM-IV), and each individual diagnosed with schizophrenia presents with his or her own unique cluster of symptoms, there are commonalities between individual clinical presentations which allow for a singular diagnosis. In this manner, although those experiencing their first episode of schizophrenia may be of particular interest due to the features which make them unique (e.g., they may be neuroleptic-naïve, they may be less isolated from their families and the

community), they can be expected to hold in common several characteristic features with those who have experienced multiple episodes of schizophrenia.

Diagnostic markers, in particular, are held in common by those experiencing first and multiple episodes of schizophrenia. The primary features of the disorder include positive and negative symptoms and impairment in a major area of functioning. In addition, a number of symptoms are considered 'associated features' of the disorder, including cognitive, social, and affective impairments. Since it may be reasonably expected that there will be similarities between people who have been diagnosed with the same disorder, those who receive a diagnosis of schizophrenia or schizophreniform disorder can be expected to share common diagnostic features as well as some similar affective, social, and life experiences.

Other concomitant symptoms, however, can be expected to vary enormously between people of different ages, genders, socioeconomic, educational, and cultural backgrounds. In much the same way, it is reasonable to expect that individuals experiencing their first episode of psychosis will be faced with a different set of circumstances and difficulties than will those who have endured multiple episodes and perhaps secondary effects of the disorder. Examining the differences between these two populations not only provides evidence for the course and outcome of the disorder; it also aids in identifying the particular treatment needs specific to each population.

One of the primary diagnostic features of schizophrenia is a decline in a major area of functioning, such as social functioning (DSM-IV; Davidson & Stayner, 1997). Indeed, deficits in social functioning, such as social withdrawal and an inability to fulfill social roles, tend to be found in the majority of individuals with schizophrenia (Bellack, Sayers, Mueser, & Bennett, 1994). Social functioning deficits have been noted in studies of both first- and multi-episode

schizophrenia patients (e.g., Davidson & Stayner, 1997; Erickson, Beiser, Iacono, Fleming, & Lin, 1989). Although impairments in social functioning may be intrinsic to the disorder, they may also be secondary to other aspects of the disorder such as hypersensitivity to stimulation, cognitive impairment, or the use of antipsychotic medications.

The purpose of the present research project was to examine the social functioning of outpatients experiencing their first-episode of schizophrenia and to compare it with that of chronic (i.e., multi-episode) schizophrenia patients and matched non-psychiatric controls. The specific aim of this study was to determine if the social functioning of first-episode patients was as impaired as that of multi-episode patients. If no significant difference exists in the level of impairment of the two groups, it would suggest that the deterioration of functioning precedes or occurs near the time of onset of psychotic symptoms (Bilder et al., 1992). If, however, first-episode patients are found to be less impaired than their multi-episode counterparts, it may suggest that impairments of specific processes such as social functioning are not entirely inherent to the disorder but are subject to the effects of deterioration over time (Sweeney, Haas, & Li, 1992). This discussion will begin by focusing on what is currently known about the development and clinical presentation of schizophrenia in a review of the most current models of the disorder and its symptomatology. Then, attention will be directed toward the study of first episode schizophrenia in particular and the reasons for separating this group of individuals from their multi-episode counterparts.

What is Schizophrenia? Prevalence and Diagnostic Markers

With a lifetime prevalence of approximately 1% [estimated between 0.2%-2.0%, depending on how strictly it is defined (e.g., narrow versus broad, disorder

versus spectrum of disorders]] and an incidence of 1 per 10 000 per year (e.g., Beiser & Iacono, 1990; Carson & Sanislow, 1993; DSM-IV; Littrell, 1995; Seeman, 1993), schizophrenia is not an uncommon disorder. It is estimated that schizophrenia affects approximately 50 000 Canadians (Beiser & Iacono, 1990) and 2-4.5 million Americans (Carson & Sanislow, 1993; Littrell, 1995) and that it affects males and females approximately equally (Carson & Sanislow, 1993; DSM-IV). Although age at onset is variable, first episodes of psychosis generally develop in young people in their mid to late twenties (DSM-IV). Schizophrenia patients occupy 20-25% of all beds available for psychiatric inpatient care and account for 40% of all long-stay hospital days (Meise & Fleischhacker, 1996). The direct costs of schizophrenia in Canada are approximately three billion dollars in health care and social care every year (Beiser & Iacono, 1990) and the indirect costs which arise from the morbidity and mortality of the disorder are estimated to be even greater (Meise & Fleischhacker, 1996).

The study of a disorder as heterogeneous as is schizophrenia has been made possible by what Beiser and Iacono (1990) refer to as the 'convenient, shared illusion' of an accepted definition of the disorder as presented by classification systems such as the DSM-IV. The characteristic symptoms of schizophrenia have been identified as involving a range of cognitive and emotional dysfunctions, including: "perception, inferential thinking, language and communication, behavioral monitoring, affect, fluency and productivity of thought and speech, hedonic capacity, volition and drive, and attention" (DSM-IV, p. 274). These symptoms must appear as a cluster that impairs normal functioning; none is pathognomonic of schizophrenia on its own (DSM-IV).

Positive, Negative, and Deficit Symptoms

At the base of the disorder are those symptoms that must be present to warrant a diagnosis of schizophrenia. Although encompassing a wide variety of symptomatology, the diagnostic markers of schizophrenia may be broadly described as belonging to one of two groups of features: positive and negative symptoms. These features are generally considered to be independent of one another (e.g., Carpenter, Heinrichs, & Wagman, 1988; Addington & Addington, 1991) and are distinguishable by clinical presentation. Positive features, for example, are often referred to as the 'florid' or 'psychotic' features of the illness and at least one positive symptom must be present to warrant a diagnosis of schizophrenia (DSM-IV). Negative symptoms, however, tend to be more difficult to evaluate and may or may not be present during a psychotic episode. Positive and negative symptoms are further distinguished by their temporal stability; specifically, negative symptoms are viewed, once present, as enduring characteristics of the disorder while positive symptoms tend to fluctuate over time (Carpenter et al., 1988). Both types of symptoms, however, have been found to stabilize early in the course of the disorder (Thara, Henrietta, Joseph, Rajkumar, & Eaton, 1994), indicating that they are common to both first- and multi-episode schizophrenia patients.

The first cluster of diagnostic features are what have been referred to as 'positive' symptoms, so called because they represent behaviours or attributes which have been 'added to' the schizophrenia patient's premorbid level of functioning. In neurological terms, positive symptoms are active processes expressed in an excessive or distorted manner due to the loss of inhibitory mechanisms (Carpenter et al., 1988). Positive symptoms are always present in psychotic episodes (DSM-IV) and so are common to both first- and multi-episode schizophrenia patients.

Examples of positive symptoms include hallucinations, delusions, and grossly disorganized behaviour or speech. Hallucinations, the perception of a stimulus when no such stimulus is present, may occur in any sensory modality, including auditory, visual, olfactory, gustatory, and tactile (DSM-IV). The content of delusions, which are erroneous beliefs based on a misinterpretation of perceptions, tends to be organized in themes that may be of a persecutory, referential, somatic, religious, or grandiose nature. Grossly disorganized behaviour may be expressed in a number of ways, from difficulties in performing tasks of daily living (e.g., maintaining hygiene) to catatonic motor behaviours or inappropriate behavioural reactions (e.g., acting like a child; DSM-IV). Finally, disorganized speech is viewed as an indicator of underlying disorganized thought and may present as tangential, incomprehensible, incoherent, or loosely associated patterns of speech (DSM-IV).

The second cluster of diagnostic symptoms is termed 'negative' because it reflects a loss of premorbid functioning. Although negative symptoms are common to the clinical presentation of schizophrenia, they do not need to be present for schizophrenia to be diagnosed (DSM-IV). Negative symptoms are more difficult to evaluate than are positive ones because they occur on a continuum with normality, are nonspecific, and may be due to other factors, including: medication side-effects, demoralization, understimulation, or as a result of positive symptoms (DSM-IV). The three negative symptoms included in the definition of schizophrenia include affective flattening, alogia, and avolition.

Two 'types' of negative symptoms have been proposed: those that are primary to the disorder and those that are secondary. Primary negative symptoms are viewed as enduring traits which are present during and between psychotic episodes, which can be observed regardless of whether the individual with schizophrenia is being treated pharmacologically, and which show little

response to antipsychotic medications and temporal or state changes (Carpenter et al., 1988). These are often termed 'deficit' symptoms and are proposed to be directly related to brain pathology, although the specific systems responsible for their action have yet to be identified (Carpenter et al., 1988).

Secondary negative symptoms are viewed as resulting from the manifestations and treatment of schizophrenia and from the schizophrenia patient's attempts at coping with the disorder. For example, secondary negative symptoms may be due to drug effects, dysphoric mood, social isolation, and the self-protective reduction of stimulation (Carpenter et al., 1988). These symptoms tend to be responsive to temporal and state changes and to the amelioration of positive symptoms (Carpenter et al., 1988).

Among individuals experiencing their first episode of psychosis, the presence or absence of negative symptoms has been viewed as an important diagnostic marker. Although negative symptoms may develop over the course of the disorder, the presence of negative symptoms in a first-episode population is often indicative of a more insidious process of decline and disorder onset, often observable through poor premorbid functioning (Addington & Addington, 1993; Carpenter et al., 1988; Jackson et al., 1989).

Given that negative symptoms, particularly deficit symptoms, are generally viewed as enduring traits, it is not surprising that their presence among those experiencing their first episode of psychosis have been found to be indicative of poor outcome (Addington & Addington, 1993; Carpenter et al., 1988). However, although negative symptoms have been found to endure, even into periods of remission, Addington and Addington (1991) noted improvement in those symptoms over time.

Decreased Functioning and Additional Diagnostic Markers

The positive and negative symptoms of schizophrenia are accompanied by another cluster of diagnostic markers, and by a group of 'associated features.' The first of the additional diagnostic markers indicates that in order for the disorder to be diagnosed, the individual experiencing positive and/or negative symptoms must also experience a decline in a major area of functioning (e.g., social, occupational, self-care; DSM-IV). The decline must have been present for a significant period of time from the onset of psychotic symptoms (DSM-IV). The level of functioning must be either below premorbid levels or must represent an inability to achieve what normally would have been expected of the individual, had he or she not developed the disorder (DSM-IV). Many individuals with schizophrenia, for example, are unable to hold a job for a sustained period of time; the majority (60-70%) do not marry, and most have limited social networks (DSM-IV).

The other additional diagnostic markers make reference to the period of time during which signs of disturbance must be present to warrant a diagnosis of schizophrenia and present exclusion criteria that prevent diagnosis of the disorder under specific conditions. For schizophrenia to be diagnosed, continuous signs of disturbance (e.g., positive and negative symptoms) must be present for a minimum of six months (a minimum of one month is required for a diagnosis of schizophreniform disorder); the six month period may include periods of prodromal or residual symptoms (DSM-IV). Exclusion criteria preclude the possibility of schizophrenia symptoms being attributable to another condition by ruling out mood disorders, substance or medication use, general medical conditions, and pervasive developmental disorders as the cause of psychotic symptoms (DSM-IV).

Although not diagnostic features of the disorder, additional experiences which have been associated with schizophrenia include: inappropriate affect, anhedonia, dysphoria, abnormalities in psychomotor activity, cognitive dysfunction, lack of insight, depersonalization, derealization, and somatic concerns (DSM-IV). In addition, individuals with schizophrenia have a lower life expectancy than do those in the general population, mostly likely due to high incidence (10%) of suicide and comorbid substance-related disorders (DSM-IV).

Functional vs. Clinical Outcome

Fundamental to the study of schizophrenia is a desire to be able to better treat the specific symptoms of the disorder and to ameliorate its outcome. Positive, negative, and associated symptoms culminate into a clinical presentation and a predicted course of progression that is referred to as outcome. As there is an emphasis in the schizophrenia literature on biological bases of schizophrenia, so too is there an emphasis on biological treatments and on clinical outcome. The emphasis on biology has successfully produced pharmacological interventions that have been shown to ameliorate clinical outcome - that is, to alleviate symptoms and reduce vulnerability to relapse (Kane & Marder, 1993). Generally, however, these interventions do little to ameliorate functional outcome, which is often overshadowed by the focus on biology and symptom reduction.

Psychosocial interventions have demonstrated effectiveness in managing the symptoms of schizophrenia and have also contributed to ameliorating functional outcome. Functional outcome includes social functioning as well as social problem solving and community functioning. Social functioning deficits such as impairments in social skills, for example, have been found to be resistant to pharmacologic interventions (Liberman & Foy, 1983). Social skills training

programs and psychosocial treatments, designed to increase patients' skills in coping with a wide variety of interpersonal situations (Penn & Mueser, 1995; Wallace et al., 1980), have had success (e.g., evidence of reduced psychopathology, improved social functioning, and fewer relapses) even though there is wide variability in the goals and outcome measures of these studies (Kern, Green, & Satz, 1992; Mueser, Bellack, Douglas, & Wade, 1991; Penn & Mueser, 1995; Wallace et al., 1980).

Section Summary

Prevalent in approximately 1% of the population, schizophrenia is heterogeneous in its presentation, population, and response to treatment. The symptoms and associated features that define the disorder, including positive and negative symptoms and a decrease in functioning, can be expected to be held in common by schizophrenia patients to some extent; even these, however, tend to vary among individuals in their presentation and severity.

Outcome is the culmination of symptoms into measurable variables and it is of great interest both to individuals with schizophrenia and to the researchers who study the disorder in an attempt to lessen its impact on individuals and society. Although outcome is often regarded and measured in a clinical sense, that is, in terms of symptoms and vulnerability to relapse, it is also useful to observe the functional impact of the disorder. Social functioning is a key component of functional outcome in that it describes an individual's ability to integrate into society, to contend with situations that involve other people, and to make use of social resources such as family members and friends.

What Causes Schizophrenia?

Research that has hypothesized multiple causative factors in the development of schizophrenia tends to focus on a diathesis-stress model in which an interaction between predisposition and environmentally induced risk leads to the development of the disorder (Beiser & Lacono, 1990). According to this model, a vulnerability to schizophrenia is acquired through a genetic predisposition or as a result of an early environmental insult to the brain, but is not sufficient to manifest the disorder without being 'triggered' by stress. The stress component of the model has been hypothesized to take many forms, among them traumatic independent life events, use of drugs, and stressful living conditions - due to low socioeconomic status or family environments characterized by high levels of 'expressed emotion.' The amount of environmental stress theoretically required to 'trigger' expression of the disorder differs from person to person, as does the type and amount of vulnerability (stress threshold) that at-risk people have for schizophrenia (Fowles, 1993).

Biological Models

At the base of the diathesis-stress model of schizophrenia is the biological vulnerability to the disorder. That neural factors predispose individuals to schizophrenia does not appear to be a contentious issue. Neurological impairments, such as increased ventricular-brain ratio, neurocognitive deficits, and neurologic soft signs have been found in the majority of schizophrenia patients (Sweeney, Haas, & Li, 1992; Whelton et al., 1992). Arguments for the role of biological vulnerability in the development of schizophrenia are supported by several bodies of research, including twin studies, adoption studies, the occurrence of the disorder across cultures, computed tomography (CT) and magnetic resonance imaging (MRI) evidence, and post-mortem brain morphology

investigations. Finally, the factor that has served to increasingly focus the search for the cause of schizophrenia on the biological domain over the past 40 years (Whelton et al., 1992) - and that may be one of the most persuasive arguments for the presence of a biological component - is the relative efficacy of neuroleptic medications in treating the disorder.

Twin Studies

One of the most compelling findings implicating biological factors in the etiology of schizophrenia is the well-accepted concept of increased risk among close relatives of schizophrenia patients. Although the prevalence of schizophrenia in the general population is approximately 1%, the children and siblings of schizophrenia patients have respective lifetime risks of 13% and 9% (Prescott & Gottesman, 1993). Moreover, the offspring of two people with schizophrenia have a 46% lifetime risk of developing the disorder (Prescott & Gottesman, 1993).

Twin studies, in particular, provide an opportunity to estimate the relative importance of shared genes and experiences for the development of schizophrenia (Prescott & Gottesman, 1993). Among monozygotic (MZ) twins, who share 100% of their genes, the lifetime risk for one twin to develop schizophrenia when the other twin has been so diagnosed is 48% (Prescott & Gottesman, 1993). The risk is much smaller (17%) among dizygotic (DZ) twins, who share only approximately 50% of their genes (Prescott & Gottesman, 1993).

The argument for genetic transmission of the disorder is also bolstered by research examining the children of unaffected twins where their co-twins were diagnosed with schizophrenia. An increased number of the children of phenotypically unaffected MZ twins develop the disorder (17%) than do the children born to unaffected DZ twins (2%; Prescott & Gottesman, 1993). This

indicates that the unaffected MZ twins possess and transmit a genetic liability for schizophrenia even though they do not express schizophrenic symptomatology (Prescott & Gottesman, 1993).

Adoption Studies

Although the sample sizes in adoption research tend to be very small, the results of these investigations have consistently demonstrated increased rates of schizophrenia among the adopted-away offspring of individuals with schizophrenia and among the biological parents of adopted-away children who develop the disorder (Prescott & Gottesman, 1993). These rates are higher than those found among unrelated adoptive relatives (Prescott & Gottesman, 1993), indicating the importance of a genetic vulnerability to the disorder. In the very few studies of MZ twins separated at birth where one twin developed schizophrenia, 58% of the co-twins were also affected (Prescott & Gottesman, 1993).

Conversely, however, twin and family studies have also been employed to bolster the argument against schizophrenia being a solely biologic disorder and toward a hypothesis of genetically mediated risk. In the studies of unaffected MZ and DZ twins, for example, the phenotypically unaffected MZ twins were found to possess a genetic liability for schizophrenia that most likely went unexpressed due to differences in environmental experiences (Prescott & Gottesman, 1993). In addition, the very fact that approximately half of MZ twins whose co-twins develop schizophrenia never develop the disorder is striking evidence against the hypothesis that genetics are the sole causative factor of schizophrenia. A final argument for an environmental contribution that is derived from family studies is that approximately 89% of individuals diagnosed with schizophrenia are born to

parents who, at the very least, do not phenotypically develop the disorder (Fowles, 1993).

The Dopamine Hypothesis

The biological hypothesis that has been the focus of the most attention over the past 20 years involves the neurotransmitter dopamine (Carson & Sanislow, 1993; Williamson, 1993), ostensibly due to the success of neuroleptics in treating schizophrenia. As Weinberger (1987) points out, however, it is unlikely that the dysfunction of any single neurotransmitter could account for a disorder as heterogeneous as schizophrenia or that the brain pathology associated with the disorder would affect only a single neurotransmitter system. There is evidence that dopamine is an important contributing variable in the pathophysiology of schizophrenia. This evidence stems from the finding that dopaminergic drugs (e.g., L-DOPA, amphetamines) can cause psychotic symptoms in nonpsychotic individuals and can exacerbate symptoms in schizophrenia patients, and from the evidence that neuroleptic drugs bind to and block postsynaptic dopamine receptors (Carson & Sanislow, 1993; Weinberger, 1987).

The dopamine hypothesis of schizophrenia is that the disorder is the result of excess activity in dopaminergic pathways in the brain (Carson & Sanislow, 1993). Several such pathways are known to exist in the brain and the actual site of therapeutic dopamine blockade has yet to be identified. The majority of clinical attention thus far has been devoted to the mesolimbic tract, so called because it originates in the mesencephalon and terminates in the limbic forebrain (Carson & Sanislow, 1993). Recent postmortem neurochemical studies have discovered increased numbers of limbic dopamine receptors in schizophrenia

patients (especially among those experiencing more positive symptoms) providing support for mesolimbic dopamine hyperactivity (e.g., Crow, 1980a).

There are factors that do not support the dopamine hypothesis as the singular cause of schizophrenia. First, there is substantial variance in drug response; typical antipsychotic drugs are ineffective in approximately 7%-30% of the individuals to whom they are prescribed (Kane & Marder, 1993; Leff, 1992; Lieberman et al., 1993). Even among those whose symptoms do improve with the use of neuroleptics, many retain residual symptomatology (Kane & Marder, 1993). Furthermore, typical antipsychotic drugs, although superior to placebo, have had limited effectiveness in treating the negative symptoms of schizophrenia (Lieberman & Fleischhacker, 1996; Malla, 1995), a finding some researchers have taken to indicate that negative symptoms have a different pathophysiology than do positive ones (e.g., Crow, 1980a; Crow, 1980b).

A final factor that Carson & Sanislow (1993) contend is not sufficiently explained by the dopamine hypothesis is that dopamine receptors are blocked quickly following the administration of neuroleptics and yet a period of days or weeks usually passes before an amelioration of symptoms occurs. This, however, may be due to brain plasticity, as will be investigated in the 'Critical Period' portion of this discussion.

Despite their limitations, antipsychotic drugs remain the primary treatment modality used in the care of acute schizophrenia (Kane & Marder, 1993). When administered early, neuroleptics have been found to reduce relapse (Penn & Mueser, 1996; Rifkin, 1993) and to ameliorate the long-term course of the disorder (Meise & Fleischhacker, 1996). What neuroleptics cannot do, however, is alleviate residual cognitive and social deficits (Penn & Mueser, 1996).

The Neurodevelopmental Model

In addition to emphasizing the predisposing influence of structural brain changes found in schizophrenia patients, the neurodevelopmental model also focuses on the interaction between brain morphology and developmental and stress factors. This theory of schizophrenia provides answers to questions not adequately addressed in other, more strictly biological theories, including the reason why structural brain abnormalities present at birth, and unprogressive from that time forward, cause the onset of schizophrenia so many years later. According to this theory, a brain lesion is present early in life and interacts with normal maturational events much later (Weinberger, 1987). This theory has also provided evidence that some of the structural changes evident in schizophrenia, such as cerebral ventricular enlargement, for example, are found to be associated with environmental insults such as obstetric complications (Murray, Reveley, & Lewis, as cited in Nasrallah, 1993). In addition, these brain changes have been found to distinguish affected and unaffected discordant MZ twins (Nasrallah, 1993), providing a competing hypothesis for the genetic transmission theory.

Given the subtle and nonspecific nature of neuropathological findings (Weinberger, 1987), the etiology of a lesion pathognomonic of schizophrenia is impossible to determine. Histopathological findings indicate that schizophrenia is associated with histoarchitectural neuropathology suggestive of a disruption of genetically programmed central nervous system neurodevelopmental processes (Nasrallah, 1993). These processes include neuronal proliferation and migration, as well as "subtractive" processes of neuronal elimination, such as synaptic pruning, which "sculpt" the brain (Nasrallah, 1993, p. 271). Results from CT and post-mortem brain tissue analyses have found evidence of anatomical pathology in the periventricular limbic and diencephalic areas and, particularly, in the

prefrontal cortex (Freeman & Karson, 1993; Weinberger, 1987). The clinical features of schizophrenia are "at least theoretically consistent with dysfunction of the brain areas implicated as the site of the lesion" (Weinberger, 1987, p. 661).

There exist multiple explanations of the etiology of the lesion. Two prominent factors, however, provide evidence that the lesion originates in the immature brain. First, the lesion has been discovered to be old and inactive, due to a notable absence of gliosis. Gliosis, a reaction in tissue in the developed brain that is a sign of neuronal loss, degeneration, or inflammation, does not take place if damage occurs in the immature brain. Second, that there is a lack of concomitant neurologic symptoms that would be expected to accompany a developing lesion also implicates early developmental pathology (Nasrallah, 1993; Weinberger, 1987). Some of the possible early causes of the lesion include congenital transmission (Weinberger, 1987), abnormal neurodevelopment (Geddes & Lawrie, 1995), obstetric complications (Geddes & Lawrie, 1995), and perinatal complications. Possible perinatal complications include season of birth (e.g., exposure to a virus during the mother's second trimester of pregnancy; McGrath, Welham, & Pemberton, 1995; Nasrallah, 1993) and severe emotional trauma to the mother while pregnant (e.g., learning of the father's death; Beiser & Iacono, 1990).

The lesion itself, however, is acknowledged to be an insufficient explanation for the development of schizophrenia, particularly given that other disorders that are associated with similar pathology (e.g., Alzheimer's disease, traumas, tumors) do not present with schizophrenia like symptoms (Weinberger, 1987). Several developmental factors that may be related to the pathogenesis of schizophrenia converge in early adulthood, which is the period during which the disorder is most often diagnosed. These include the maturation of the dorsolateral prefrontal cortex and peak levels of dopaminergic activity in the brain

(Weinberger, 1987). In addition, early adulthood is often a time filled with environmental and psychological stress. If an individual enters this period with a lesion that impairs frontal cortex functioning and mesolimbic dopamine activity, he or she may be unable to adapt appropriately to environmental stressors and a pattern of schizophrenialike behavioural decompensation could occur (Weinberger, 1987).

Brain Plasticity and The 'Critical Period'

Although the concept of first-episode schizophrenia is not usually presented as a theory in itself or as an approach to the understanding of the disorder, this area of research can be useful in better discerning what is primary and secondary to the disorder. It can also be used to help determine which deficits in functioning can be prevented or ameliorated through early intervention. In addition, research conducted on first-episode, neuroleptic naive schizophrenia patients tends to be less contaminated by the confounding influences of pharmacological interventions, disease progression, secondary social difficulties, and by retrospective reporting biases and reliance on third-party observation (Haas & Sweeney, 1992).

The first few years following onset of the first psychotic episode may be viewed as a critical period, during which time symptoms respond most quickly to pharmacologic interventions (Lieberman et al., 1992; Szymanski, Cannon, Gallacher, Erwin, & Gur, 1996) and the prevention of progressive deficits in functioning is still a possibility. Schizophrenia patients experience the majority of their clinical deterioration within the first 5 years ensuing onset, following which the progression of the disorder tends to level off (Lieberman et al., 1992). McGlashan (1988) reported that the majority of deterioration actually takes place within the first year of illness following the first psychotic episode.

Wyatt (1991) found that early treatment lessened the length of the initial psychotic episode, reduced relapse rates and correlated with more favourable short- and long-term outcomes. In addition, it has been hypothesized that early intervention may ameliorate the course of the disorder (Larsen, McGlashan, & Moe, 1996; Wyatt, 1991; Wyatt, 1995). Conversely, some studies have noted that the longer the illness initially remains untreated the poorer the predicted outcome (Loebel et al., 1992; Ram, Bromet, Eaton, Pato, & Schwartz, 1992). Untreated illness has been found to be the strongest predictor of relapse, even when maintenance medications were later prescribed (Birchwood, McGorry, & Jackson, 1997).

Seeman (1993, p. 1093) speculated that there exist in the brain undiscovered "schizophreno-genic" regions that "drive and kindle" other areas of the brain and that the longer psychotic symptoms remain untreated, the longer the brain is subject to the abnormal influence of schizophreno-genic processes. He contends that the kindling process, when allowed to continue as in the case of untreated schizophrenia, serves to lengthen the amount of time required for antipsychotic medications to produce clinical improvement (Seeman, 1993; Szymanski et al., 1996).

This theory would explain why neuroleptic treatments produce results more quickly in patients treated soon after the onset of schizophrenia than in multi-episode patients or in patients who have experienced a significant duration of untreated psychosis (DUP). In addition, consistent adherence to a pharmacologic program may attenuate the morbid process in schizophrenia that may explain why early intervention with neuroleptics leads to better outcome (Szymanski et al., 1996).

In accordance with Seeman's (1993) theory, McGlashan & Johannessen (1996) hypothesized that, given the plasticity of the brain, schizophrenic

symptomatology may be a combination of neurodevelopmental/biological components and secondary reactive components within the brain. They noted that the perseverative neuronal activity associated with hallucinations and delusions, for example, could result in secondary disuse atrophy of the more complex functions of those neural networks. McGlashan & Johannessen (1996) went on to speculate that the negative symptoms of schizophrenia may represent secondary brain changes that serve to compensate for localized pockets of neuronal activity that are associated with positive symptoms. According to their theory, brain changes leading to compensatory negative symptoms are preventable by reducing positive symptoms (e.g., with pharmacotherapy) early in the course of the disorder (McGlashan & Johannessen, 1996). The exciting aspects of this theory are that it is supported by the observation that negative symptoms tend to develop after positive ones and to increase over time (McGlashan & Fenton, 1992) and that, if correct, its implications for early treatment are very promising.

Section Summary

According to the diathesis-stress model of schizophrenia, a biological vulnerability to the disorder provides the predisposition for its development once kindled by a form of environmental stress. Although it is generally accepted that neural factors predispose individuals to schizophrenia, the nature of the neural factors and manner in which they are acquired is a more contentious issue. Several primarily biological models have been developed to explain the pathogenesis of the disorder. Twin and adoption studies, for example, focus on genetic predisposition, demonstrated by higher rates of phenotypic development of the disorder in first-degree relatives of individuals with schizophrenia. The dopamine hypothesis, which has been a focus of much research due to the

success of neuroleptic medications, asserts the conviction that the disorder is the result of excess activity in dopaminergic pathways in the brain. In an effort to integrate both biological and environmental factors, the neurodevelopmental model emphasizes the interaction between structural brain changes and developmental and stress factors. Finally, the brain plasticity theory underscores the importance of the first few years following onset of the first psychotic episode as a time during which symptoms respond most quickly to pharmacologic interventions and during which schizophrenia patients experience the majority of their clinical deterioration.

Solely biological models have been unsuccessful, however, in fully explaining the pathogenesis of schizophrenia. Twin and family studies, for example, indicate that even when two individuals share the same genes – as in the case of MZ twins – 50% of those whose genotypic counterpart develops schizophrenia never develop the disorder themselves. In addition the majority of individuals who are diagnosed with schizophrenia are born to parents who do not demonstrate symptoms of the disorder. Even the credibility that the success of antipsychotic drugs has given to the dopamine theory is moderated by the observation that typical antipsychotic drugs are ineffective in approximately 7%-30% of the individuals to whom they are prescribed.

Finally, the neurodevelopmental model, which emphasizes the contribution of brain morphology, acknowledges that the brain lesion hypothesized to provide the diathesis for the disorder does not sufficiently explain the development of schizophrenia. Each of the models presented, however, provides observations that support the hypothesis of biologically mediated risk. This is in keeping with the neurodevelopmental and stress-diathesis models of schizophrenia in which the disorder develops following the interaction of biology and environment.

Environmental Models

Belief that environmental factors contribute to the pathogenesis of schizophrenia, combined with an awareness of the negative side effects of many neuroleptic medications has prompted researchers to test the efficacy of social, behavioural, and cognitive treatments for the disorder. Although environmental factors are generally accepted as contributing to the development and maintenance of the disorder, few modern theories would go so far as to contend that environmental factors cause schizophrenia in the absence of a biologically-based diathesis. Three such theories, the moral-behavioral model, the psychoanalytic model, and the social model, which assert that learning, traumatic early experiences, and sociofamilial pressures, respectively, manifest themselves as schizophrenia (Furnham & Bower, 1992; Kline, Becker, & Giese, 1992) are little discussed or accepted in the current literature.

Given the prevalence of schizophrenia in the general population, it is reasonable to assume that the majority of people are not predisposed to developing the disorder (Fowles, 1993). Without a predisposition, environmental factors and stressors generally are not considered sufficient for its development. Following the logic of the neurodevelopmental model, it is likely that a proportion of those who develop schizophrenia do so in the absence of any unusual or traumatic stressors, due to the interaction between vulnerability and the later development of neural systems such as the prefrontal cortex in early adulthood. The population of greatest interest, from an environmentalist's perspective, is that group of individuals that inherits or acquires a vulnerability that leads to the development of schizophrenia only when triggered by environmental factors. The speculation that a 'trigger' may be necessary opens a forum for discussion of

the importance of early diagnosis and treatment, as well as methods by which to mitigate proven stressors.

Independent Life Events

An issue central to the discussion of environmental precipitators in the etiology of schizophrenia is whether stressful life events are independent of the schizophrenia patient's behaviour or whether they are a manifestation of the disorder itself (Fowles, 1993). If found to be manifestations, the life events would be considered secondary effects of schizophrenic vulnerability, possibly resulting from a 'stress-prone pattern of living' (Zubin & Spring, 1977).

In a study conducted by Brown and Birley (1968), 46% of a sample of 50 schizophrenia patients who had experienced a clear onset of symptoms within a three month period, had also experienced a life event rated as independent (defined as those not brought on by 'unusual' behaviour on the part of the patient; Lukoff et al., 1984) in the three weeks prior to the onset of their symptoms. Only 14% of nonpatient controls experienced independent life events in the three weeks leading up to their interview. When the events in the Brown and Birley study were rated on a four-point scale of severity of threatening implications, three times as many schizophrenia patients experienced markedly threatening events in the 12 weeks before onset of their symptoms than did the controls (Lukoff et al., 1984).

That these individuals experienced a clear and sudden onset of schizophrenia is key to these findings and to their generalizability. Other studies of rapid onset schizophrenia have found it to be associated with a reaction to a precipitating life event and with a positive prognosis (e.g. Day et al., as cited in Fowles, 1993). In addition, studies have found that relapses among patients taking maintenance medications were more likely to be precipitated by

independent life events than were relapses among patients taking placebos (e.g., Leff, Hirsch, Gaiend, Rohde, & Stevens, 1973). This may possibly indicate that antipsychotic drugs act as a protective factor against environmental stress, conceivably by raising the stress 'threshold': the amount of stress required to induce symptomatology.

Expressed Emotion

A potential environmental trigger that has been the focus of much research is the concept of high expressed emotion (EE) families. EE is a term used to describe "the affective attitudes and behaviors of relatives toward a family member with a psychiatric illness (Kazarian, 1992, p. 51). Families that are identified as expressing high EE are characterized by the presence of at least one important relative (e.g., a parent) who expresses criticism and hostility toward and is emotionally overinvolved with the schizophrenia patient (Fowles, 1993). It has been hypothesized that the stress that occurs as a result of living within a high EE family may be sufficient to trigger schizophrenia or to contribute to a patient's relapse (Lukoff et al., 1984). Although this hypothesis has received some support (e.g., Lukoff et al., 1984), patient symptomatology has not yet been clearly linked to differing levels of EE (Glynn et al., 1990).

Vaughn and Leff (1981) outlined four factors that they found to be common to high EE families. First, high EE family members tended to react to the psychiatric patient's illness with anger or expressions of acute distress. In addition, they tended to question the legitimacy of the patient's illness and often blamed the patient for the symptoms he or she was experiencing. High EE family members also tended to be intolerant of symptom behaviour and of the patient's poor general performance. Finally, members of high EE families tend to be overinvolved and intrusive in the patient's life. Each of these factors alone or

in combination may be reasonably expected to serve to increase the amount of stress experienced by the identified patient in a high EE family. Although as yet unproven, the stress experienced as a result of living within a high EE family (and, theoretically, as a result of other life events) is hypothesized to contribute to relapse by increasing physiological arousal, thereby precipitating a return of schizophrenia symptoms (Lukoff et al., 1984).

Lukoff et al. (1984) had some success in demonstrating that living in a high EE family contributes to patient relapse and perhaps even to the development of the disorder. Although it is clear that living in a high EE family would necessarily contribute to the amount of stress experienced by patients with schizophrenia, it would be difficult to say with any certainty that high EE acts as an independent stressor responsible for the development of the disorder. Indeed, high EE may prove to be a coping response that a family develops in response to psychiatric illness and that may not have been evident previous to the family member becoming ill. Therefore, the most enlightening component of these studies is that they bolster the argument that stress can contribute to the development of the disorder and to relapse, regardless of whether it is independent or a secondary effect of schizophrenia. The knowledge that stress, something that is conceivably preventable or at least amenable to reduction, contributes to the expression of this amorphous disorder has provided an opportunity for researchers to develop programs specifically designed to help schizophrenia patients to learn to cope with stressors in their lives.

Impaired Social Functioning

Social functioning deficits and the deterioration of interpersonal relationships are defining characteristics of schizophrenia and have been hypothesized to represent impairments that are both primary and secondary to

the disorder (Bellack et al., 1994). Social functioning, as defined by Birchwood et al. (1990) comprises seven domains, including social engagement/withdrawal, interpersonal behaviour, pro-social activities, recreation, independence-competence, independence-performance, and employment. Other researchers have included a measure of social problem-solving ability as a component of social competence (e.g., Donahoe et al., 1990; Mueser et al., 1991) since an ability to understand and solve interpersonal problems contributes to an individual's ability to engage socially with others.

Deficits in interpersonal functioning have been found to predate the onset of the first psychotic episode (Wallace, 1984), and lower levels of premorbid social functioning have been determined to be predictive of poorer outcome (Stern, Kahn, & Davidson, 1993). Most schizophrenia patients have been identified as having lower levels of social competence and as having particular difficulties with social skills and with relating to other people (Dobson, McDougall, Busheikin, & Aldous, 1995). Specific social skills in which deficits are common to schizophrenia include (i) patterns of gaze; (ii) latency and duration of verbal responses; (iii) use of illustrative gestures and social reinforcers; (iv) the ability to generate effective verbal content in conversations and conflict situations; (v) the ability to accurately decode facial and vocal expressions of affect; and (vi) social problem-solving skills (Bellack et al., 1994). These skills have been divided into a tripartite hierarchy of receiving, processing, and sending skills (Wallace, 1984).

The type and extent of skills deficit, however, varies among individuals. Negative symptoms, for example, have been found to correlate with social skills deficits and inappropriate interpersonal behaviour (Jackson et al., 1989), whereas positive symptoms have not (Jackson et al., 1989). These factors may account for some of the heterogeneity of outcome found in social skills training

studies that examine individuals with different types and difficulties in functioning as a single group (Jackson et al., 1989).

The results of a meta-analysis of six recent social skills training studies indicates that the particular skills that can be taught to individuals with schizophrenia range from simple behaviours such as appropriate eye contact, to more complex abilities such as assertiveness and conversational skills (Penn & Mueser, 1996). Unfortunately, for social skills training to be most effective, it needs to be provided over an extended period of time, generally in excess of one year (Hogarty et al., 1991) as participants in social skills training programs often appear to have difficulty maintaining the skills they have learned (Dobson, 1996). In addition, many schizophrenia patients are socially isolated and so often do not have an opportunity to practice acquired skills outside of the training milieu (Dobson, 1996; Wallace, 1984; Wallace et al., 1980).

The effectiveness of social skills training may be evaluated in a variety of ways. Common measures of effectiveness include determining if schizophrenia patients are able to use skills they have been taught to achieve personal goals in a range of social situations and measuring how other individuals respond to the patients' behaviour (Wallace et al., 1980). Social skills training has been shown to reduce both positive and negative symptomatology (Dobson et al., 1995) and to increase social adjustment (Penn & Mueser, 1996). Although there has been speculation that social skills training can contribute to preventing relapse among schizophrenia patients, particularly when combined with pharmacotherapy (Gold & Harvey, 1993; Vaccaro, Young, & Glynn, 1993), a recent meta-analysis of controlled studies concluded that training was not successful in doing so (Penn & Mueser, 1996).

Section Summary

Environmental factors that have been hypothesized to provide the stress component of the diathesis-stress model include independent life events, high levels of EE in the patient's family, and difficulties functioning in the social environment. Although the research on independent life events indicates that stressful life events have been found to precede the onset of psychosis and relapse in some patients, the research into high levels of EE has not yet proven that it constitutes a stressor capable of instigating either psychosis or relapse. Similarly, although deficits in social skills and social functioning clearly act as stressors in schizophrenia patients' lives, it has yet to be proven that they are an impetus for relapse.

What is First-Episode Schizophrenia? Clarifying Definitions of Course

Recent studies and review articles focusing on first-episode schizophrenia have emphasized the need to clarify the natural course of the disorder in order to improve the methodology and generalizability of first-episode research (e.g., Keshavan & Schooler, 1992; Larsen, McGlashan, & Moe, 1996). Several stages are thought to comprise the course of schizophrenia, including the premorbid phase, prodromal symptoms, psychotic symptoms, first treatment, and residual symptoms (Larsen, McGlashan, & Moe, 1996).

The onset of schizophrenia may be insidious and gradual or it may be abrupt; in either case, subtle forms of dysfunction may emerge long before the onset of the first psychotic episode (Haas & Sweeney, 1992). The first stage in the course of schizophrenia is the premorbid phase. Although the term 'premorbid' is suggestive of an absence of illness, it is not uncommon for individuals who eventually develop schizophrenia to display mild behavioural problems during this time, including deficits in cognitive, emotional, neuromotor,

scholastic, or social functioning patterns (McGlashan & Johannessen, 1996). These behavioural problems may be part of a set of 'vulnerability markers', which also include premorbid signs of atypical motor, neuropsychological, perceptual, environmental, and chemical factors (McGlashan & Johannessen, 1996). A link between poor premorbid functioning and negative symptoms has been well established in the literature (Addington & Addington, 1993) and it has been suggested that poor premorbid functioning may be an early manifestation of the disorder (Neuchterlein & Dawson, 1984).

The prodromal phase is characterized by the onset of observable changes in behaviour, thinking, and feelings that are not severe enough to warrant a diagnosis of schizophrenia (Vaglum, 1996). Although some individuals may present for treatment at this time, symptoms in others may go relatively unnoticed or may be compensated for by the individual and his or her family so that treatment may be delayed (Haas & Sweeney, 1992). The prodrome is a retrospective concept, diagnosed only after development of definitive signs and symptoms (Yung et al., 1996). The length of the prodromal phase and the severity of the symptoms experienced during this time varies among individuals and, among those for whom the onset of schizophrenia is abrupt, may not even last long enough to be retrospectively identifiable (Vaglum, 1996).

The date of onset of the first-episode is a contentious issue as it is often unclear whether it should be dated from the time at which the first observable symptoms appear or from the date that criteria for the full syndrome are met (Keshavan & Schooler, 1992). Following an analysis of first-episode studies, Keshavan and Schooler (1992) concluded that the 'first-episode' should be defined as beginning with the onset of the positive, psychotic features of schizophrenia, such as delusions, hallucinations, thought disorder, or inappropriate or bizarre behaviour (Larsen, McGlashan, & Moe, 1996). The

'episode' is a period of time that lasts for as long as the individual manifests the specified number of symptoms (Keshavan & Schooler, 1992) and ends when these criteria are no longer met, often following therapeutic intervention (Larsen, McGlashan, & Moe, 1996). Residual positive and negative symptoms of psychosis may remain following the end of the first episode.

Why Study First-Episode Schizophrenia?

Increasing attention has been paid to the study of 'first-episode' schizophrenia in recent years. One of the main reasons for distinguishing this group of individuals from their multi-episode counterparts is the speculation that with early identification and treatment of schizophrenia will come a more favourable outcome (Lieberman et al., 1992; McGlashan, 1996a). Studies of this hypothesis have indicated that there is reason to be optimistic that early intervention may indeed correlate with more favourable short- and long-term outcomes and may even ameliorate the natural course of the disorder (e.g., Wyatt, 1991). Whether more positive outcomes are due to the success of early treatment or to the characteristics of the individuals who are more likely to seek treatment earlier in the course of the disorder, however, has yet to be established (Larsen, McGlashan, Johannessen, & Vibe-Hansen, 1996; McGlashan, 1996b).

Reviews of those studies that examined first-episode schizophrenia prior to 1992, such as those conducted by Keshavan and Schooler (1992) and by Ram, Bromet, Eaton, Pato, and Schwartz (1992), provide clues to the reasons for the variability of findings in the literature. Specifically, early first-episode studies were plagued by methodological short-comings, including (i) inadequate

definitions of course parameters (e.g., 'episode', 'onset', 'prodrome', etc.) and the sample of interest; (ii) small samples with inadequate statistical power; (iii) inadequate description of premorbid and prodromal experiences (e.g., mode of onset, early observable features, attempts at treatment, etc.); and (iv) failure to examine first-episode patients separately from multi-episode patients (Keshavan & Schooler, 1992; Ram et al., 1992).

There is also a natural complicating factor inherent to the study of first-episode schizophrenia that may contribute to the variability seen in research findings. Early diagnosis of individuals who are experiencing their first psychotic episode may be difficult and eventually requires reevaluation that may result in a change of diagnosis (Ganguli & Brar, 1992; Keshavan & Schooler, 1992; Ram et al., 1992). Early diagnosis is made difficult by its reliance on retrospective information and by the fact that the schizophrenia syndrome may evolve over a period of several months (Ram et al., 1992). Diagnoses of schizophrenia, and particularly diagnoses of schizophreniform disorder, made at baseline can be expected to include a number of false positives and false negatives (Ram et al., 1992). Despite concern in the literature regarding conducting research on a group of individuals whose diagnoses may be unstable, investigations conducted in this area tend to conclude that only a minority of diagnoses are eventually changed from schizophrenia to something else (Ganguli & Brar, 1992; Ram et al., 1992). A relatively recent study that examined this issue determined that 13% of a sample of 77 individuals diagnosed with schizophrenia using DSM-III-R criteria eventually had their diagnoses changed. It is of interest to note, however,

that the DSM-III-R criteria for schizophrenia require an individual to display only one week of active phase symptoms where the DSM-IV requires one month.

It would be reasonable to conclude that the instability of even a small number of initial diagnoses may complicate first-episode research and possibly limit its generalizability. Multi-episode schizophrenia, however, is also marked by a heterogeneity of symptoms that may contribute to variability in results and make it difficult to compare across studies (Keshavan & Schooler, 1992; Shtasel et al., 1992). The generalizability of studies of multi-episode schizophrenia is further limited by their inclusion not only of individuals with heterogeneous symptoms and prognoses but also with varying degrees of chronicity and at varying stages of treatment (Keshavan & Schooler, 1992). Distinguishing first-episode schizophrenia patients from their multi-episode counterparts has been proposed as a way of reducing some of the variability in the research by concentrating on a particular subsection of individuals who share similarities in their stage of treatment and their level of chronicity. It is also anticipated that studying first-episode schizophrenia will assist in uncovering which characteristics are intrinsic (primary) to the disorder as opposed to those which arise from its effects, progression, or treatment (secondary; Carpenter, Heinrichs, & Wagman, 1988; Haas & Sweeney, 1992; Tohen et al., 1992).

Comparing First- and Multi-Episode Schizophrenia Patients

Studying first-episode schizophrenia may also help to determine if specific processes (e.g., social functioning) are subject to the effects of deterioration over

time (Sweeney et al., 1992). Thus far, little attention has been paid to distinguishing deficits that are inherent to schizophrenia from those that reflect a deterioration of previously acquired abilities (Bilder et al., 1992). If first-episode patients are found to show evidence of impairment that is as severe as that found in multi-episode patients, it would suggest that the deterioration of functioning precedes or occurs near the time of onset of psychotic symptoms (Bilder et al., 1992). Conversely, if first-episode schizophrenia patients are found to demonstrate a lesser degree of impairment than do their multi-episode counterparts, it would suggest that functioning deteriorates over time or is a result of secondary processes (e.g., drug effects). A body of research has recently emerged, comparing first- and multi-episode patients along several dimensions (e.g., cognitive, affective, and social functioning) in an effort to determine whether these processes deteriorate over time. In addition to providing further information about the nature of schizophrenia, determining the onset and progression of the deterioration of specific processes inherent to the disorder may assist in the development of progressively more effective treatments and bolster the argument in favour of early intervention.

Cognitive Functioning

Although cognitive dysfunction is considered to be an 'associated feature' rather than a diagnostic marker of schizophrenia (DSM-IV), some degree of cognitive dysfunction is observed in the majority of individuals with the disorder (Green, 1993; Hyde et al., 1994; McGlashan & Johannessen, 1996). In addition,

cognitive deficits are considered reliable features of schizophrenia (Gold & Harvey, 1993). Schizophrenia patients demonstrate a diffuse pattern of cognitive impairment, which, on the basis of performance on neuropsychological tests, is similar to and often indistinguishable from that observed in brain-injured patients (Gold & Harvey, 1993; Hoff, Riordan, O'Donnell, Morris, & DeLisi, 1992). The impairment has been referred to as a 'generalized deficit' because individuals with schizophrenia tend to perform at lower levels than do normal controls across a wide variety of cognitive tests (Gold & Harvey, 1993; Green, 1996). In addition, cognitive impairments are subserved by different anatomically localized systems areas in the brain (Gold & Harvey, 1993; Green, 1996).

There does not appear to be a single, uniform pattern of cognitive dysfunction that might provide clues either to the neuropsychological concomitants of cognitive deficits (Gold & Harvey, 1993) or to a single, underlying deficit responsible for all cognitive difficulties (Carson & Sanislow, 1993). Different models of cognitive impairment have been presented in an effort to explain the diversity of processing deficits. One such model views deficits in attention as the basis for all other cognitive difficulties, arguing that poor attention and encoding of information skews subsequent higher order processing capabilities by preventing accurate processing at the levels of decision-making and response selection (Brenner et al., 1992). A competing model views the deficit as manifesting itself within a higher order process, specifically as an inability to master complex conceptual processes; this in turn decreases the ability to encode and consolidate simpler information (Brenner et al., 1992).

Brenner et al. (1992) suggest that these two competing models may act together to form a 'vicious circle' in which deficits in simpler cognitive processes diminish higher-order functions that, in turn, affect the ability to perform the lower level processes. In addition, they propose that cognitive deficits may prevent the acquisition of coping skills without which, schizophrenia patients are exposed to a greater degree of stress. When stressed, arousal is heightened and cognitive ability is compromised so that cognitive deficits worsen further (Brenner et al., 1992). Brenner et al. (1992) proposed that this model might be used to understand the onset of symptoms, the decrease in appropriate social functioning, and the manner in which deficits are maintained, even in the absence of observable causes.

Green (1993) proposed that cognitive deficits could be divided into two types: those that are primary to the disorder and those that are secondary, resulting from the psychotic episode or side effects of pharmacological treatments. The vast majority of cognitive deficits appear, however, to be primary and directly linked to compromised structures in the brain. Moreover, cognitive deficits are present in premorbid functioning (Bilder et al., 1992) and a pattern of neuropsychological impairment has been established among a sample of first-episode, neuroleptic naive patients (Saykin et al., 1994).

Cognitive deficits that are primary to schizophrenia and that may provide clues to the neurobiology of the disorder include attention, vigilance, memory, abstraction, problem-solving, and drawing conclusions from available information (Brenner, Hodel, Roder, & Corrigan, 1992; Gold & Harvey, 1993; Saykin et al., 1994; Van Den Bosch, Van Asma, Rombouts, & Louwerens, 1992). The cognitive deficits manifested in schizophrenia patients go beyond those typically seen in patients with frontal lobe lesions, implicating the thalamic, frontal, and temporal lobe regions (Gold & Harvey, 1993). Deficits in both verbal

and visual memory and in abstract reasoning and problem solving have been linked specifically to anatomic changes in the medial temporal lobes and diencephalon and to abnormalities in regional cerebral blood flow (Gold & Harvey, 1993).

Specific attentional impairments in this population include difficulty in attending to relevant information while ignoring extraneous stimuli (i.e., selective attention), a reduced ability to maintain concentration in effort-demanding situations (i.e., sustained attention), and reductions in reaction time and cognitive processing speed (Gold & Harvey, 1993). Impairments in memory, abstract reasoning, and problem solving are among the most reliable cognitive deficits found in schizophrenia patients (Gold & Harvey, 1993). These patients demonstrate difficulty with encoding, retrieving, and recognizing both verbal and visual material; in addition, they benefit minimally from past experience and explicit instructions and tend to poorly plan and organize their time (Gold & Harvey, 1993).

Cognitive deficits are present throughout the course of the disorder and have been documented in the premorbid phase and between psychotic episodes among patients who have a remitting course (Addington & Addington, 1997b; Brenner et al, 1992; Gold & Harvey, 1993). When present during remission, poor cognitive performance has been linked to poor outcome (Addington & Addington, 1999c). The effects of cognitive deficits are far ranging because they interfere with adaptive behaviour, impede the acquisition of new information (Green, 1993), and may hinder the accumulation of appropriate coping skills during the premorbid phase of the disorder (Brenner et al., 1992).

Cognitive dysfunction that is first noted in the premorbid phase of schizophrenia may serve as a vulnerability marker for the disorder (McGlashan & Johannessen, 1996; Olin & Mednick, 1996). Attentional deficits, for example,

have been observed in the non-affected family members and children of schizophrenia patients (Gold and Harvey, 1993). Cornblatt and Erlenmeyer-Kimling (1985) reported that cognitive impairments noted in children as early as 12 years of age were predictive of development of schizophrenia several years later. In a study that examined cognitive impairment in both first- and multi-episode schizophrenia patients, the two groups did not differ on estimates of premorbid functioning but both groups performed more poorly than did normal controls on a measure of premorbid intellectual ability (Wechsler Adult Intelligence Scale - Revised; WAIS-R; Bilder et al., 1992).

Although cognitive impairment has been identified in both first- and multi-episode schizophrenia patients (e.g., Bilder et al., 1992; Hoff et al., 1992), the majority of intellectual decline has generally been noted to occur prior to onset or within the first few years of the disorder (Bilder et al., 1992; Gold & Harvey, 1993; Hyde et al., 1994; McGlashan & Johannessen, 1996). Beyond the first few years following onset, there is little evidence for a progressive decline in cognitive abilities with increasing duration of illness beyond that which would be expected with normal aging (Davidson et al., 1996; Hyde et al., 1994). This would appear to indicate that the as yet undetermined neurological pathology that may be responsible for cognitive deficits may be established by the time an individual presents with a first episode of psychosis (McGlashan & Johannessen, 1996) or very soon after.

Indeed, impairment in cognitive functioning is generally considered to be a stable feature of the disorder that does not grossly deteriorate over time (Gold & Harvey, 1993). Harvey et al. (1992) determined that there were no changes in cognitive impairment among schizophrenia patients ranging in age from 25 to 65 years. In addition, the lack of progressive decline of cognitive functioning has

been noted in patients who have had schizophrenia for up to 50 years (Hyde et al., 1994).

Cognitive impairment has even been found to improve with time (Bilder et al., 1992; Hyde et al., 1994; McGlashan & Johannessen, 1996), particularly once positive symptoms have ameliorated (Addington, Addington, & Maticka-Tyndale, 1991). Given the lack of deterioration of functioning over time and the presence of certain cognitive deficits in the premorbid phase and remitted periods of the disorder, it is reasonable to conclude that first- and multi-episode schizophrenia patients experience similar levels of cognitive dysfunction.

This hypothesis has been supported by studies specifically designed to compare the cognitive abilities of first- and multi-episode schizophrenia patients (e.g., Bilder et al., 1992; Hoff et al., 1992). The results of these studies have indicated that, although first-episode patients may show slightly better cognitive functioning in some areas (e.g., several WAIS-R subtests; Bilder et al., 1992), their overall level of cognitive and neuropsychological functioning is comparable to that observed in multi-episode patients (e.g., full-scale intelligence quotient; Bilder et al., 1992; Hoff et al., 1992).

The first-episode participant groups in both the Bilder et al. (1992) and Hoff et al. (1992) studies were well-defined. In each case, participants had received fewer than 6 months of treatment for a first-episode of psychosis prior to their inclusion in the research studies (Bilder et al., 1992; Hoff et al., 1992). The multi-episode (chronic) groups were also well differentiated from their first-episode counterparts. The mean duration of illness among the patients in the Hoff et al. (1992, p. 899) study's multi-episode group, defined as the length of time since the first hospitalization was 6.8 years (S.D.=7.6; range=2-31).

Section Summary

The cognitive deficits common to schizophrenia manifest themselves in various areas of patients' day to day functioning and compromise their abilities to live independently and to interact socially with others. Individuals with schizophrenia are likely to have difficulty focusing their attention on tasks, particularly when some form of distraction is present (Gold & Harvey, 1993). They tend to have difficulty acquiring and remembering new information and utilizing problem-solving skills when encountering novel situations. They do not tend to benefit from environmental cues or from feedback from others (Gold & Harvey, 1993). These deficits are likely to contribute to difficulties with social skills, including holding down a job and sustaining relationships. Unfortunately, these very deficits also make it difficult for schizophrenia patients to benefit from social skills training programs.

Cognitive impairment has been identified in both first- and multi-episode schizophrenia patients and comparisons between the two groups appear to have yielded minimal differences. Although the majority of intellectual decline has been noted to occur prior to onset or within the first few years of the disorder, impairment in cognitive functioning is generally considered to be a stable feature that does not grossly deteriorate over time. Studies designed to specifically compare the cognitive functioning of first- and multi-episode schizophrenia patients have demonstrated little or no difference between the two groups.

Affective Functioning

As a population, schizophrenia patients have high rates of depression and suicide, and are often overwhelmed by feelings of hopelessness and pessimism towards their futures. They must struggle to reconcile their 'new, disordered' selves with their 'old' selves, and they often retain levels of insight and memory

that allow them to be aware of the disturbances in their thought and emotion (Cutting & Dunne, 1989; Liddle, Barnes, Curson, & Patel, 1993). Retaining insight may cause affective changes in some of these individuals as they grieve for the loss of their previous goals and self-concepts. They may dread relapse and experience intense anxiety when faced with the unpredictable recurrence of positive symptoms; indeed, their self-esteem is often affected by their lack of ability to control or prevent psychotic relapse (Greenfeld, Strauss, Bowers, & Mandelkern, 1989). In addition, prevalence of substance abuse among schizophrenia patients is generally reported at 30%-40% (Brady, Killeen, & Jarrell, 1993).

Estroff (1989) noted that our culture uses the phrase 'we are not ourselves' when individuals are ill or injured, implying a rejection of the dysfunctional self produced through sickness. With chronic conditions such as schizophrenia, however, the 'dysfunctional self' persists and must be incorporated into concepts of identity, both by the individuals with schizophrenia and by those around them. Estroff (1989) argued that the schizophrenia patient's rejection of his or her diagnosis may be viewed as an effort to be recognized as one's 'old self' with the added features of cognitive and emotional disturbance, rather than being considered synonymous with the disorder itself. In addition, she noted the despair that individuals with schizophrenia must feel when significant others accept and grieve for the loss of the patient's 'old self', while the patient experiences that self as persisting.

First person accounts provide compelling evidence of feelings of loss, altered self-concept, and depression among schizophrenia patients, combined with an awareness of pathology that seems to contribute to feelings of hopelessness. Ruocchio (1991, p. 357), for example, wrote of her fear of her own mind, which she referred to as "the very matter that controls all that we are

and all that we do and feel." She spoke of an inability to communicate her opinions and feelings to other people due to "the limitations of inadequate words, (and) a brain that scrambles thoughts" and of the loneliness and progressive sense of hopelessness that accompanied each "uncommunicated experience" (Ruocchio, 1991, p. 358).

Depression is a frequent symptom among individuals with schizophrenia and has been found to affect men and women equally (Addington, Addington, & Patten, 1996; Hafner et al., 1994). Depression has been linked to earlier readmission (Geddes et al., 1994) and to both attempted and completed suicides (Addington, Addington, & Patten, 1996). Depression has also been identified as the psychopathological factor that most frequently distinguishes schizophrenia patients who attempt suicide from those who do not (Addington & Addington, 1992; Drake & Cotton, 1986; Siris, 1991). Although reported prevalence rates for depression among schizophrenia patients vary from 7%-70% (Koreen et al., 1993), depression has been found to be highest during periods of relapse when psychotic symptoms are at their highest (e.g., Addington & Addington, 1992; Drake & Cotton, 1986; Johnson, 1981; Koreen et al., 1993; Lysaker, Bell, Zito, & Bioty, 1995). Hopelessness, or having a negative outlook on one's future, is a feature that has been found to be common to both depression and suicidal ideation and behaviour (Drake & Cotton, 1986).

The suicide rate among schizophrenia patients has been established at approximately 10% (e.g., Drake & Cotton, 1986; Shuwall & Siris, 1994), while the rate for attempted suicide has been found to vary between 18% and 55% (Addington & Addington, 1992). Two-thirds of suicides take place within the first six years following onset (Birchwood, McGorry, & Jackson, 1997), paralleling the time during which the greatest amount of social and cognitive deterioration occurs. Although not specifically addressed in the literature, it would appear that

those most at risk for suicide are neither first-episode nor 'chronic' schizophrenia patients but rather, those who have lived with schizophrenia for only a few years yet have experienced more than one episode of psychosis.

This supposition is supported by Birchwood et al.'s (1997) hypothesis that relapse produces a sense of entrapment among schizophrenia patients and brings them to realize that they may never achieve some of the goals they had set for themselves. Birchwood et al. (1997) hypothesized that these components may underlie the specific risk factors that have been identified for suicides among schizophrenia patients, including: youth, male gender, unemployment, and higher educational aspirations.

Drake and Cotton (1986) also noted a common pattern of premorbid functioning and expectations for the future among the schizophrenia patients in their sample who committed suicide. Most of those individuals demonstrated high premorbid achievement, high self-expectations, and a high degree of awareness of their pathology. For example, 73% of those who committed suicide were college-educated, compared to 29% of those who did not (Drake & Cotton, 1986). Those who eventually committed suicide also tended to fear further deterioration of their mental abilities and developed progressive feelings of hopelessness concerning their futures (Drake & Cotton, 1986).

Individuals experiencing their first episode of psychosis tend to be at risk of experiencing depression and attempting suicide, since it is common for them to possess the risk factors outlined by Birchwood et al. (1997) and Drake and Cotton (1986). They tend to be young people who value their autonomy (Birchwood et al., 1997) and who have set goals for themselves in terms of education, social relationships, and employment. For these individuals, psychosis may be viewed as a life event that threatens previously held goals and concepts of self-identity (Birchwood et al., 1997). It is the disruption of previous

ambitions and the changes that that disruption and the disorder itself inflict upon self-identity that may be the most disheartening features of the disorder.

Schizophrenia, as a chronic disorder, necessarily becomes an integral part of self-concept, particularly when individuals view the disorder as representative of what they 'are', rather than as something that they 'have' (Estroff, 1989).

In a study examining depression in first-episode schizophrenia patients, Koreen et al. (1993) noted that depressive symptomatology occurs early in the disorder and at rates similar to those that have been reported for more chronic populations (22%-75%, depending on the stringency of the diagnostic criteria). They further demonstrated a correlation between depression and both the positive and negative symptoms of schizophrenia, suggesting that depressive symptoms are a core part of the disorder, and do not simply represent a secondary effect as has been suggested in theories of 'pharmacogenic', 'akinetic', and 'revealed' depressions.

The persistence of depressive symptomatology among schizophrenia patients does not appear to have been established. Not unlike research findings that indicate that other symptoms of schizophrenia worsen within the first few years of the disorder and then level off or even improve, House, Bostock, and Cooper (1987) reported a substantial reduction in depressive symptoms among their first-episode sample at one-year follow-up. Very few of their participants continued to display a clinical depression once the psychotic symptoms had abated and no new cases of depression developed among individuals who had not been depressed at first admission. Similarly, in a comparison between individuals experiencing first and multiple episodes of schizophrenia, Addington and Addington (1998) revealed that the first-episode participants experienced higher levels of depression. In addition, other researchers have noted that depressive symptoms increase during the acute phases of the disorder and

diminish as psychotic symptoms attenuate (e.g., Addington & Addington, 1992; Drake & Cotton, 1986; Johnson, 1981; Koreen et al., 1993).

In contrast, however, other researchers have noted that affective symptoms in general, and depression in particular, have been observed to have a tendency to increase as the psychotic symptoms diminish, a pattern that has been referred to as 'postpsychotic depression' (e.g., Shuwall & Siris, 1994). Harrow, Yonan, Sands, and Marengo (1984) also reported that schizophrenia patients were 'vulnerable to' major depression many years following the acute phase and that some individuals who were not depressed at onset later developed depressive symptomatology.

Section Summary

Prevalence rates for depression among schizophrenia patients vary from 7%-70% and have been found to be highest during periods of relapse when psychotic symptoms are at their highest. The suicide rate among schizophrenia patients is higher than that for the general population and the rate for attempted suicide is extremely high. Two-thirds of suicides have been noted to take place within the first six years following onset, during which time the greatest amount of social and cognitive deterioration occurs.

Depressive symptomatology occurs early in the disorder and at rates similar to those that have been reported for more chronic populations. Comparisons of affective symptoms between early and more chronic groups of schizophrenia patients, however, do not provide a clear pattern of similarities or differences, beyond the observation that depression and suicide are common to both groups. Although some research indicates that depression is at its worst during initial and subsequent psychotic episodes, other studies have noted a reduction of depressive symptomatology within the first few years; still others

have observed a post-psychotic depression that does not become evident until psychotic symptoms have diminished.

Social Functioning

The expectation that individuals with schizophrenia will demonstrate a diminished capacity for social interaction is so well accepted that a decline in a major area of functioning (e.g., social, occupational, self-care) is one of the primary diagnostic features of the disorder (DSM-IV; Davidson & Stayner, 1997). Indeed, deficits in social functioning are found in the majority of schizophrenia patients, even among those who are not overtly symptomatic (Bellack, Sayers, Mueser, & Bennett, 1994). Individuals with this disorder tend to be socially withdrawn and have difficulty fulfilling social roles (Bellack et al., 1994). They report having few friends, initiating few social interactions, and relying on family members as their primary source of social support (Allen, 1990; Davidson & Stayner, 1997; Wallace, 1984).

Although the presence of social functioning deficits in schizophrenia patients is well accepted, the origin of the deficits is more difficult to determine. Poor social skills and cognitive deficits, for example, may lead individuals to avoid social contact and subsequently to experience feelings of dysphoria and low self-esteem. Conversely, however, feelings of dysphoria, low self-esteem, and of being 'different' from others or even of being 'dysfunctional' due to being diagnosed with a psychiatric illness (Stravynski, 1995) may be what lead an individual to avoid social contact.

The ramifications of impaired social functioning can include deterioration of social relationships, increased stress and risk for relapse (Bellack et al., 1994), and social isolation and feelings of loneliness that may contribute to dysphoria and pervasive hopelessness. Social isolation in schizophrenia patients has been

found to be associated with manifestations of the disorder, including behaviours that provoke responses from others (e.g., speaking out loud to a hallucinatory image), pervasive social skills deficits, medication side effects, and the effects of institutionalization (Davidson & Stayner, 1997). These manifestations make schizophrenia patients less likely to initiate social interactions and they also provoke others -especially strangers - to avoid or shun them (Davidson & Stayner, 1997).

First person accounts of what it is like to live with schizophrenia are often filled with themes of loneliness and of a desire for close interpersonal relationships, even though that desire may not be apparent to others. Bouricius (1989, p. 202), for example, noted that distraught entries in her son's journal belied his flattened affect and uncommunicative nature: "I am a lonely nothing...My afflictions fill the place that was meant for sharing love. I am crying in despair". Ruocchio (1991) also wrote of the agony she felt in not being able to communicate her thoughts and feelings to other people. She spoke of feeling "abysmal loneliness...made worse by the physical closeness of someone with whom I am trying so desperately to connect" (Ruocchio, 1991, p. 358).

Ruocchio (1991) further described having feelings of 'interpersonal terror', which, for her, meant a fear of reaching out to others and of allowing others to get close to her. She indicated that, if her bizarre behaviours (e.g., manifestations of psychosis or hostile stares) were not enough to frighten others away, she would try to make herself 'disappear' by withdrawing. The use of withdrawal as a coping mechanism employed to escape uncomfortable or overwhelming social situations was also described in a first person account by Leete (1989) and has been noted to be prevalent among schizophrenia patients (Jeffries, 1995; Strauss, 1989).

Several factors make it particularly difficult for individuals with schizophrenia to reach out to others for social interaction and support, even when they desire to do so. For example, schizophrenia patients tend to identify stigmatizing attitudes on the part of mental health providers, loved ones, and strangers as a causal factor in their experiences of rejection and social isolation (Davidson & Stayner, 1997). Many first person accounts have indicated that it is a "dehumanizing experience" to be "seen by others primarily, if not solely, as a mental patient - and, to that extent, no longer as an individual like themselves" (Davidson & Stayner, 1997, p. 7). Factors such as unemployment and poverty also compound social isolation by taking away a part of the individual's identity and social resources.

A final barrier to socialization, often reported in first person accounts, is a hypersensitivity to affect and sensory stimulation. Individuals with schizophrenia report heightened sensitivity to the affect of others, particularly to emotions and experiences such as anger, hostility, criticism, disapproval, and rejection (Cramer, Bowen, & O'Neill, 1992; Davidson & Stayner, 1997). An inability to deal with those emotions may lead to breaking off relationships and avoiding social interaction altogether. Heightened sensitivity to external stimuli can cause schizophrenia patients to become preoccupied with their perceptual environment, causing them to ignore co-occurring social cues (Davidson & Stayner). At times, sensory stimulation may seem so intense that the individual purposefully numbs him-or herself or 'shuts down' in an effort at self-protection (Davidson & Stayner, 1997).

One of the most accepted hypotheses of social dysfunction is that it is a result of social skills deficits (Bellack et al., 1994). Schizophrenia patients tend to demonstrate a variety of skills deficits, including impairments in gaze patterns, latency and duration of verbal responses, use of illustrative gestures, social

problem solving, and social perception (Bellack et al., 1994). These deficits include "the ability to accurately perceive and decode facial and vocal expressions of affect and the ability to detect linguistic or logical errors in their own speech" (Bellack et al., 1994, p. 371).

Given that cognitive abilities are necessary to perform the constituent tasks (e.g., social skills) that compose social functioning, it would be reasonable to conclude that the successful acquisition and implementation of social skills would be affected by underlying cognitive impairment. Knowing that schizophrenia patients demonstrate cognitive impairment in acquiring and remembering new information, for example, it would be logical to expect that they would have difficulty learning and remembering social skills in skills training sessions. Indeed, it has been noted that schizophrenia patients tend to have difficulty maintaining acquired gains in skills training (Dobson, 1996) and that gains do not tend to generalize across situations, unless long-term training and follow-up is undertaken (Dobson et al., 1995; Penn & Mueser, 1996).

Several researchers have established links between specific cognitive functions and aspects of social interaction. Bowen et al. (1994), for example, noted a relationship between cognitive functioning, social skills, and elemental skills training tasks. Specifically, they determined that level of vigilance was the cognitive function most related to performance in interpersonal role-plays and overall performance in skills training measures. Immediate recall memory was also significantly related to performance on the skills training measures, supporting a similar finding by Mueser, Bellack, Douglas, and Wade (1991). In addition, Addington and Addington (1999c) determined that social problem solving skill was predicted by verbal memory, verbal ability, and cognitive flexibility.

A review of studies conducted by Green (1996) revealed that specific cognitive factors were related to community functioning, social problem solving, and skills acquisition outcomes. Vigilance was related to both social problem solving and skills acquisition; card sorting ability (an indicator of executive functioning and cognitive flexibility) was found to be a consistent predictor of community functioning, and immediate verbal memory was related to skills acquisition. Secondary verbal memory (memory for lists of words or stories, generally evaluated after a time delay; Green, 1996) was the cognitive factor most strongly implicated in outcome. It was a consistent predictor of community outcome, social problem solving, and social skills acquisition and all of the seven studies that included measures of secondary verbal memory in Green's (1996) analysis showed an association between that factor and differing measures of outcome.

The importance of specific cognitive functions such as verbal memory and vigilance to effective social functioning may be better understood when they are viewed as components of a sequential model of social behaviour. Wallace et al. (1980) presented a paradigm useful in conceptualizing the elements of social functioning and the effects of those elements on one another. They proposed that social behaviour is composed of receiving, processing, and sending skills and that dysfunction at any level would affect the following levels.

Difficulties with vigilance and verbal memory, for example, may make it difficult for schizophrenia patients to understand the content of messages or the subtler nonverbal cues expressed by other individuals. This represents a problem with receiving information. Without proper acquisition of information, the processing of that material and formation of a response (sending skills) would be necessarily impaired. Following the logic of this model, if receiving skills are impaired among schizophrenia patients, then no amount of intervention aimed

solely at a behavioural performance level (e.g., social skills training) would be expected to be effective with this population (Donahoe et al., 1990).

The deterioration of social functioning and increasing isolation are prominent as both premorbid and morbid markers of schizophrenia (Bellack et al., 1994; Corrigan, Davies-Farmer, & Stolley, 1990; DeLisi, 1992; Penn, Mueser, Spaulding, Hope, & Reed, 1995). Just as schizophrenia patients demonstrate a diffuse and pervasive pattern of cognitive impairment, so too do they present with "severe social skill deficits that pervade most areas of interpersonal functioning" (Corrigan, Wallace, & Green, 1992). The inability to function effectively in social situations is a central factor in the poor quality of life often seen in this population and contributes to relapse by increasing the amount of stress experienced by schizophrenia patients (Bellack, et al., 1994).

Social functioning deficits similar to those that have been noted in multi-episode schizophrenia samples have also been reported for a sample of first-episode schizophrenia patients (Erickson et al., 1989). Not unlike their multi-episode counterparts, individuals experiencing their first episode of schizophrenia have been noted to be socially withdrawn and have difficulty fulfilling social roles (Bellack et al., 1994; Erickson et al., 1989). In addition, they tend to have few friends, initiate few social interactions, and they also rely on family members as their primary source of social support (Allen, 1990; Davidson & Stayner, 1997; Erickson et al., 1989; Wallace, 1984).

Perhaps the reason that similar impairments in social functioning have been noted in both first- and multi-episode schizophrenia patients is that, just as the majority of cognitive decline has been observed to occur prior to onset or within the first few years of the disorder (Bilder et al., 1992; Gold & Harvey, 1993; Hyde et al., 1994; McGlashan & Johannessen, 1996), social functioning also tends to deteriorate only during the first few years following onset (McGlashan,

1988). Impairments in social functioning, including social withdrawal and the inability to fulfil social roles, are most prevalent during prodromal periods and during exacerbations of psychotic symptoms (Bellack et al., 1994) such as the first psychotic episode. However, as with cognitive impairments, deficits in social functioning are seen as enduring traits that persist into periods of remission (Bellack et al., 1994; Corrigan & Toomey, 1995).

Although primary social deficits may be due to cognitive or neurological factors, it is possible that some secondary social deficits arise as a result of 'stress-prone patterns of living' (Zubin & Spring, 1977) or poor coping skills, including an inability to recruit social support. Stress-prone patterns of living, as defined by Lukoff et al. (1984) occur when the symptoms (e.g., paranoia) and unusual behaviours (e.g., active withdrawal) characteristic of schizophrenia patients contribute to the occurrence of stressful life events.

Little research has been conducted comparing the overall social functioning capabilities of first- and multi-episode schizophrenia patients. In one such study, a subgroup of first-episode patients was noted to have slightly higher levels of social functioning than their multi-episode counterparts (Shtasel et al., 1992). This finding may indicate that some impairment in social functioning is primary to the disorder while some may be a secondary effect (Birchwood et al., 1990). This subgroup, separated from other first-episode patients by a cluster analysis, was characterized primarily by patients experiencing severe hallucinations (Shtasel et al., 1992). This group of patients alone - in contrast to two other groups, including those characterized primarily by prominent negative symptoms and or by thought disorder - was responsible for Shtasel et al.'s (1992) finding that first-episode patients were globally less impaired than were multi-episode patients.

Section Summary

The inability to function effectively in the social environment is critical to the study of schizophrenia since it is a significant source of stress that may predict poor quality of life and illness relapse (Falloon, Boyd, & McGill, 1984). In addition, poor social functioning has implications for almost all stages of the illness (Corrigan, Green, & Toomey, 1994) and for all areas of life, including family and intimate relationships, success in school and the workplace, and the ability to become involved in recreational and social activities.

Several facets that are primary to schizophrenia, including hypersensitivity to affect and stimuli, difficulties with vigilance and memory, and poor social skills, increase the likelihood that first-episode patients will experience a significant degree of impairment in their social lives. However, they may be less influenced by the secondary effects of the disorder than are multi-episode patients, simply because they have not lived with it for as long. Preexisting social support systems may not have deteriorated as much for first-episode patients, thereby providing them with more support and social interaction than their multi-episode counterparts. Overall, however, impairment in social functioning is prevalent in both groups and is a diagnostic marker for the disorder.

Study Summary: Rationale for Examining Social Functioning in First-Episode Schizophrenia

There is great value inherent in studying social functioning among schizophrenia patients. Previous research suggests that good social relationships are an important component in the maintenance of mental health (Erickson et al., 1989) and that poor social skills significantly compromise functioning (Lysaker, Bell, Zito, & Bioty, 1995). Individuals with schizophrenia

tend to be more isolated (Bellack et al., 1994; Wallace et al., 1980) and to have smaller social networks, the composition of which is often dominated by family members rather than by friends (Erickson et al., 1989). An awareness of the factors affecting the lives of individuals with schizophrenia can assist in understanding the impact of the disorder and its sequelae (e.g., increased isolation and poor quality of relationships). Such awareness may also help to determine which interventions may be capable of improving the quality of life of schizophrenia patients (Lehman, Ward, & Linn, 1982).

Two prominent hypotheses have been proposed regarding the nature of the pervasive social functioning deficits among individuals with schizophrenia. The first is that social dysfunction is a consequence of a large number of constituent skills deficits (Bellack et al., 1994; Green, 1996). These deficits may be due to errors in the performance of behavioural routines and cognitive operations (e.g., information processing) that are necessary for effective social interaction (Bellack et al., 1994) or they may represent lack of appropriate learning (Corrigan, Nelson, & Kommana, 1995).

The second hypothesis is that social impairments are epiphenomena that result from other symptoms of the disorder such as negative or deficit symptoms (Jackson et al., 1989). Negative symptoms, in particular, have been associated with poorer social skills (Jackson et al., 1989; Corrigan et al., 1994), although positive symptoms have not (Corrigan et al., 1994). Indeed, it may not be clear whether social skills deficits are the sequelae of negative symptoms or synonymous with them (Jackson et al., 1989). Although the nature of impaired social functioning among schizophrenia patients is undetermined (Cramer, Bowen, & O'Neill, 1992), these hypotheses would suggest that social functioning may deteriorate over time and that the deterioration may be preventable with early intervention in the form of pharmacotherapy and skills training.

This is in keeping with the stress-vulnerability model of schizophrenia, according to which, certain vulnerabilities (e.g., poor social problem-solving skills) contribute to the likelihood that an individual with schizophrenia will relapse following remission of the psychotic episode (Sullivan, Marder, Liberman, Donahoe, & Mintz, 1990). This implies that factors such as persistent social skills deficits have prognostic value and that interventions that successfully decrease vulnerability to relapse (e.g., social skills training) may ameliorate the course of the illness (Sullivan et al., 1990).

Just as it appears that the cognitive deficits common among schizophrenia patients would contribute to their impaired social functioning, it would also appear reasonable to conclude that impaired social interaction, combined with the subjective experience of 'being schizophrenic' contributes to feelings of depression and hopelessness in this population. The effects of these deficits culminate into a severe impairment in functioning and, as is observable in first person accounts, feelings of loneliness, isolation, dysphoria, and hopelessness.

Although it would seem logical that the progression of time would worsen these effects, such that they would be more pronounced in samples of multi-episode schizophrenia patients than in their first-episode counterparts, the clinical research - for the most part - does not support this hypothesis. However, the first few years following the onset of a first psychotic episode have been viewed as composing a 'critical period' during which time further deterioration may occur. Many studies that focused on 'early schizophrenia' concentrated on individuals during the first few years of the disorder; fewer studies focused solely on individuals experiencing their first episode of psychosis. Those studies that did specifically examine first-episode patients and compared them to their multi-episode counterparts, tended to uncover deficits in functioning that were similar, yet slightly less marked in the first-episode samples.

Also, given the heterogeneity of the disorder and of the population of people who have schizophrenia, individual differences in coping responses, support networks, and affective reactions can be expected to interact with various aspects of the disorder in a manner which is unpredictable. Therefore, although patterns and trends may be established for both first- and multi-episode schizophrenia patients, treatment plans will continue to need to be constructed on a very individualized basis.

This study seeks to determine the level of social functioning in first-episode and multi-episode schizophrenia outpatients and in a sample of normal controls. This will contribute to what is known about first episode schizophrenia and the time of onset and course of deterioration of social functioning among schizophrenia patients. Although it is accepted that social functioning deficits affect many facets of schizophrenia patients' lives and contribute to stress, poor quality of life, and illness relapse, social functioning has yet to be examined distinctly in a first-episode group of patients to determine whether deficits are present at the onset of illness or whether they develop over time. If, as this study predicts, social functioning deficits are poorer in the multi-episode group, the need for early intervention will be supported.

Method

Participants

Three participant groups were included in this study: first-episode schizophrenia patients, multi-episode schizophrenia patients, and a control group of non-psychiatrically ill individuals. Forty participants were included in each group in order to ensure a power level of .80, given an expected moderate effect size of .6 (Hassard, 1991). All of the participants in both schizophrenia samples were stable outpatients in a state of relative remission. The study was described verbally and in writing to each individual who participated in this investigation and written informed consent was obtained from each participant. The participant consent form that was signed by all individuals in the first- and multi-episode schizophrenia samples is presented in Appendix A. The Control participant consent form is presented in Appendix B.

The First-Episode (FE) Schizophrenia Sample

Patients in the FE sample were recruited through the Early Psychosis Treatment and Prevention Program at Foothills Medical Centre. The Early Psychosis Program (EPP) receives referrals from all city hospital emergency, inpatient, and outpatient departments, from mental health clinics, and from physicians and families. Referral criteria have been established to ensure that all individuals referred to the EPP have experienced only one episode of psychosis. Individuals who meet criteria for referral to the EPP include: (1) those currently experiencing a first episode of psychosis, (2) those currently hospitalized for a first episode of psychosis, (3) those who have had one hospitalization for psychosis within the past three months, and (4) those who have never been hospitalized for psychosis and who have received less than three months of treatment for psychosis. Individuals whose psychoses are secondary to organic

illnesses such as endocrine disorders and mental retardation are not accepted into the program.

Upon entry into the EPP, patients are assessed by a psychologist, a psychiatrist, and a psychiatric nurse. The comprehensive assessment focuses on onset characteristics, positive and negative symptoms of schizophrenia, tardive dyskinesia and extrapyramidal symptoms, premorbid adjustment, cognitive functioning, family history, social adjustment, substance use, and medications. Physiological analyses (e.g., CT scans) are also conducted upon entry into the program to ensure that the presenting psychosis is not secondary to a previously undetected organic illness. For the purposes of this study, only those EPP patients with a confirmed diagnosis of schizophrenia or schizophreniform disorder were included in the FE sample.

For the purposes of this study, FE schizophrenia patients were defined according to two criteria: psychiatric diagnosis and duration of previous treatment. First, participants were required to meet DSM-IV criteria for either schizophrenia or schizophreniform disorder. These two disorders share the same diagnostic criteria, including two or more of the following symptoms (or one, in the case of bizarre delusions or hallucinations): delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behaviour, and negative symptoms (i.e., affective flattening, alogia, or avolition), in addition to social/occupational dysfunction. In each case, prodromal, active-phase, and residual symptoms must have persisted for at least one month, or less if remission is due to successful treatment and possible alternative origins for psychosis (i.e., schizoaffective and mood disorders, substance use, general medical conditions, pervasive developmental disorders) have been ruled out. The disorders are differentiated only by their duration; a diagnosis of schizophrenia requires that the individual has experienced continuous signs of

disturbance for a minimum of six months, whereas schizophreniform disorder is diagnosed when symptoms have continued beyond one month but for fewer than six months.

The second criteria for inclusion in the FE sample was that patients had been receiving adequate treatment for less than one year following the occurrence of their first psychotic episode. In keeping with Larsen, McGlashan, and Moe's (1996, p. 254) description of the first episode, 'adequate' treatment of initial psychosis may or may not include hospitalization but will include administration of antipsychotic medication "in sufficient amount (e.g., haloperidol 5 mg/day) given for a sufficient period of time (e.g., 3 weeks) that would generally lead to a clinically significant response in nonchronic, non-treatment-resistant patients." According to this definition, individuals who only newly met DSM-IV criteria for schizophrenia or schizophreniform disorder but who had been receiving treatment (e.g., medication) for a period in excess of one year were not eligible for the study.

Descriptive demographic information for the FE sample is presented in Table 1. The sample was composed of primarily single (87.5%), white (85%) individuals with a mean age of 25.28, of whom 65% were male and 62.5% were living with their parents. The majority of individuals in this sample completed high school (62.5%) and, of those who did so, 76% continued on to pursue college, university, or vocational training. Only 9/40 (22.5%) participants were working outside the home, 11 (27.5%) were students, and 17(42.5%) were receiving financial support, either from family, disability, or social assistance.

Additional descriptive information regarding admission and medication information, as well as stage of recruitment was collected. Ninety percent of the participants in the FE sample were taking neuroleptics. The mean dose in

Table 1

Demographic Measures by Group

Measure	First-Episode		Multi-Episode		Control	
	n	%	n	%	n	%
Gender						
Male	26	65.00	26	65.00	26	65.00
Female	14	35.00	14	35.00	14	35.00
Education						
None	0	0	0	0	0	0
Elementary	1	2.50	1	2.50	0	0
Junior High	2	5.00	3	7.50	0	0
Some High School	12	30.00	12	30.00	2	5.00
High School	6	15.00	12	30.00	11	27.50
Some Post-Sec. Or Vocational	16	40.00	8	20.00	8	20.00
Degree or Diploma	3	7.50	4	10.00	15	37.50
Post-Graduate	0	0	0	0	4	10.00
Marital Status						
Single	35	87.50	28	70.00	30	75.00
Married	3	7.50	5	12.50	7	17.50
Common-Law	0	0	1	2.50	1	2.50
Separated	2	5.00	4	10.00	0	0
Divorced	0	0	0	0	2	5.00
Widowed	0	0	2	5.00	0	0
Source of Income						
Employed - FT	6	15.00	0	0	17	42.50
Employed - PT	3	7.50	4	10.00	4	10.00
Self-Employed	1	2.50	8	20.00	0	0
Unemployed	12	30.00	28	70.00	3	7.50
Disability	1	2.50	0	0	0	0
Homemaker	2	5.00	0	0	2	5.00
Student	11	27.50	0	0	13	32.50
Social Assistance	4	10.00	0	0	0	0
AISH	0	0	0	0	1	2.50
Ethnicity						
White	34	85.00	38	95.00	36	90.00
Latino	1	2.50	0	0	0	0
Asian	4	10.00	1	2.50	1	2.50
Black	0	0	0	0	2	5.00
Other	1	2.50	1	2.50	1	2.50

Table 1, continued

Demographic Measures by Group

Measure	First-Episode		Multi-Episode		Control	
	n	%	n	%	n	%
Living Arrangement						
Alone	5	12.50	14	35.00	13	32.50
With Spouse	3	7.50	5	12.50	8	20.00
With Parents	25	62.50	8	20.00	14	35.00
With Relatives	3	7.50	0	0	0	0
With Non-Relatives	4	10.00	5	12.50	5	12.50
Group Home	0	0	8	20.00	0	0
Homeless	0	0	0	0	0	0

chlorpromazine equivalents was 372.92 mg/day (Davis, 1985). Fifty percent of the sample had been previously admitted to hospital. It is unknown, however, whether previous psychiatric hospitalizations for first-episode participants were all for psychosis. Individuals in the FE sample with previous psychiatric hospitalizations had been out of hospital for 1-3 months since their last admission. Fifteen percent of the FE participants were in hospital upon entry to the EPP but all participants were outpatients in a state of relative remission by the time they were assessed for inclusion in this study.

Data was collected from individuals in the FE sample at different time intervals throughout the first year following entry into the EPP. The stage at which each participant was assessed was recorded so that the performance of FE participants who were assessed immediately following entry into the program could be compared to that of individuals who were further into their treatment and, presumably, more recovered from active phase symptoms. The participants were assessed in approximately equal numbers at three different stages during the first year of active treatment: (i) at the initial assessment following entry into the EPP (30%), (ii) at assessments conducted within the year following entry (3-6 months following entry into EPP; 32.5%), and (iii) at the one-year assessment (37.5%).

The Multi-Episode (ME) Schizophrenia Sample

The ME sample was composed of chronic schizophrenia patients who were recruited from two general hospital outpatient programs for inclusion in a study that examined cognitive and social functioning in schizophrenia (Addington & Addington, 1999c). In order to qualify for inclusion in the current ME sample, patients were required to have experienced more than one episode of psychosis and their first psychotic episode must have occurred more than three years prior

to their participation in the study. Forty participants who met these criteria were extracted from the Addington & Addington (1999c) study for inclusion in the current study. They were matched to the FE participants according to gender only, with the first 26 males and 14 females selected in the order in which they were assessed.

ME schizophrenia patients were defined according to the same two criteria used to delimit the FE sample: psychiatric diagnosis and duration of treatment (i.e., the first episode must have occurred at least three years prior to inclusion in the study). First, participants were required to meet DSM-III-R criteria for schizophrenia. The diagnostic criteria for DSM-III-R and DSM-IV schizophrenia essentially share the same diagnostic criteria, including two or more of the following (or one, if bizarre): delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behaviour, and negative symptoms (i.e., affective flattening, alogia, or avolition), and social/occupational dysfunction. Both versions also require that possible alternative origins for psychosis (i.e., schizoaffective and mood disorders, substance use, general medical conditions, pervasive developmental disorders) be ruled out. The primary difference between the two sets of diagnostic criteria is that the DSM-IV requires that an individual experience active-phase symptoms for a minimum of one month (or less, if successfully treated) where the DSM-III-R required that the active-phase symptoms be present for only one week (or less, if successfully treated). The DSM-IV criteria also appear slightly more inclusive. For example, both grossly disorganized and catatonic behaviour are included as DSM-IV criteria where only catatonic behaviour is listed in the DSM-III-R; in addition, the DSM-IV makes provision for several negative symptoms (e.g., alogia, avolition) where the DSM-III-R mentions only flat or grossly inappropriate affect.

Descriptive demographic information for the ME sample is presented in Table 1. The sample was primarily composed of single (70%), white (95%) individuals with a mean age of 35.65 years. The ME group was significantly older than the FE group [$t(78) = -5.14, p < .001$], with the mean age of the ME participants 10.48 years greater than that of the FE participants. Sixty-five percent of the participants were male and more were living on their own (35%) than in any other living arrangement. Twenty percent of ME participants were living in group homes and none were homeless, with another 20% living with their parents, and 12.5% with spouses. Twenty-four (60%) of the individuals in this sample completed high school, with 50% of those who did so later pursuing college, university, or vocational training. Only 4 participants (10%) were working outside the home, all of whom were working part-time, and 8 (20%) indicated that they were self-employed. None were students, and 28 (70%) were receiving financial support, either from family, disability, or social assistance. All were taking neuroleptics. The mean dose in chlorpromazine equivalents was 384.65 mg/day (Davis, 1985), which was not significantly different from the mean dose taken by participants in the FE group.

All individuals in the ME sample had been previously hospitalized for an episode of psychosis. Participants in the ME sample had an average of 4.43 psychiatric admissions to hospital and had been out of hospital for 38.93 months (3.24 years) since their last admission. The mean age at first admission among ME participants was 25.13, which was not significantly different from the mean age of previously hospitalized FE participants at first admission.

The Non-Psychiatrically Ill Sample

Non-psychiatric control participants were recruited from the community via advertisements placed in publications that target volunteers and signs posted on

community and school bulletin boards. The non-psychiatric control participants were matched to the FE participants on the variables of age (i.e., year of birth) and gender. Since the comparisons of interest to this study will be between the FE group and the ME group and between the FE and age-matched control groups, no control group was established for the individuals with ME schizophrenia. None of the control participants had a psychiatric illness or history of psychiatric hospitalization, nor were they receiving psychiatric care or taking psychotropic medication. These factors were assessed with screening questions, the majority of which were culled from the SCID-I, administered to potential control group participants over the telephone. The screening questions are presented in Appendix C.

Descriptive demographic information for the control group is presented in Table 1. The sample was composed of primarily single (75%), white (90%) individuals with a mean age of 25.90, approximately equal to the mean age of the FE participants. Sixty-five percent of the participants were male. The living arrangements most common to members of this sample were living alone (32.5%) and living with parents (35%). More participants in this group than in the other two lived with spouses (20%) and none were homeless. Almost all of these participants completed high school (87.5%), with 77% of those who did so later pursuing college, university, or vocational training. Nineteen (47.5%) had earned degrees or diplomas. The majority of participants in this group were working outside of the home (52.5%) and most of those working were doing so full-time. Four participants (10%) were receiving financial support, either from family, disability, or social assistance and 32.5% of the sample were students.

Exclusion Criteria

Participants were excluded from participation in this study if they met any of the following criteria: (i) evidence of an organic central nervous system disorder (e.g., epilepsy, traumatic brain injury, infectious or toxic cerebrovascular disease), (ii) mental retardation, (iii) age less than 16 years or greater than 60 years, or (iv) evidence of moderate, severe, or extremely severe substance abuse in the past year as determined by the Case Manager Rating Scale for Substance Use Disorder.

Diagnostic and Descriptive Measures

Demographic Measures

The following demographic measures were collected from all of the participants in this study and used descriptively in this research: age, gender, marital status, source of income, and living arrangements. Additional demographic information was collected from those individuals in the first- and ME schizophrenia samples, including: age at onset of illness, age at first psychiatric hospitalization, number of previous psychiatric hospitalizations, current medications, and the calculated chlorpromazine equivalents of the current medications (Davis, 1985).

The Case Manager Rating Scale for Substance Use Disorder

Severity of alcohol use was assessed by case managers for every participant included in this study by the Case Manager Rating Scale. The information provided by this measure was not incorporated into the statistical analyses but rather served to exclude from the study those individuals who provided evidence of significant substance use. This 5-point checklist was

developed by Drake et al. (1990) for use by clinical case managers to assess the extent of alcohol-related problems in their psychiatrically ill patients. Ratings are anchored descriptively on the basis of the severity of alcohol related difficulties and include: (1) None, (2) Mild, (3) Moderate, (4) Severe, and (5) Extremely Severe. Each rating is qualified by a list of diagnostic criteria; for example, to meet the first of two sets of criteria for a rating of Severe, two of the following statements must be true of the patient: (1) There is evidence of persistent or recurrent social, occupational, psychological, or physical problems related to use (e.g., recurrent substance abuse leads to disruptive behaviour and housing problems), (2) There is evidence of recurrent dangerous use, and (3) Use was at least once a week for a month or more.

Both current and lifetime ratings are assigned, based on patients' alcohol use during the previous year and over their lifetimes, respectively.

A rating of Mild is indicative of non-problematic drinking, while a rating of Moderate corresponds to DSM-III-R alcohol abuse, and ratings of Severe, and Extremely Severe correspond to DSM-III-R alcohol dependence. Only those individuals in each of the three participant groups in this study who met criteria for a rating of None or Mild were included in this study.

This checklist was designed to be administered by case managers following research by Drake et al. (1990) that indicated that case managers were able to make both reliable and valid assessments of alcohol use. In addition, this research noted that case managers' diagnoses tended to be more sensitive and at least as specific as those attained with structured clinical interviews (Drake et al., 1990). The sensitivity of case managers' ratings in the Drake et al. (1990) study was 94.7% for diagnoses of current alcohol use and 84.2% for lifetime alcohol use; specificity was 100% for both current and lifetime alcohol use.

The Structured Clinical Interview for DSM-IV (SCID-I)

FE participants were diagnosed according to the American Psychiatric Association's (1994) Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) criteria, using the Structured Clinical Interview for DSM-IV (SCID-I, version 2; First, Gibbon, Spitzer, & Williams, 1996). ME participants were diagnosed according to the American Psychiatric Association's (1987) Diagnostic and Statistical Manual of Mental Disorders, third edition, revised (DSM-III-R) criteria, using the Structured Clinical Interview for DSM-III-R (SCID-I; Spitzer, Williams, Gibbon, & First, 1990). The two versions of the SCID-I differ in that their diagnostic questions are aligned to different versions of the DSM: however, in the case of schizophrenia, the diagnostic criteria are essentially the same in both the DSM-III-R and the DSM-IV. Screening questions used to determine that control participants did not have psychiatric backgrounds were culled from the SCID-I, version 2 (First et al., 1996).

The SCID was originally developed by Spitzer, Williams, Gibbon, and First (1990, 1992) as a semi-structured interview for making the major DSM-III Axis I diagnoses. It is designed for use with those ages 18 and over but it may be used with adolescents and its language should be understandable to anyone with an eighth-grade education. The SCID-I is administered by a clinician or trained mental health professional who is familiar with DSM-IV classification and diagnostic criteria and generally requires a single 60 to 90 minute interview session (First et al., 1996). Although it is composed of a series of structured questions, in a semi-structured format, administration of the SCID-I allows for paraphrasing of questions and ultimately relies on the clinical judgment of the interviewer to determine whether any given criterion is met. The SCID-I determines lifetime prevalence of Axis I diagnoses and whether the patient meets criteria for diagnosis of a current episode. The authors of the SCID-I recommend

using one month as the time period for defining a current episode (i.e., full criteria for the disorder have been met at any time during the current month) but allow clinicians to make their own judgments concerning what constitutes a current episode (First et al., 1996).

The SCID-I is conducted in two parts: (1) an open-ended overview of the presenting concerns and of past episodes of psychopathology and (2) a sequence of structured questions designed to approximate the differential diagnosis process. While many of the diagnostic questions on the SCID-I can be answered with a simple 'yes' or 'no' response (e.g. "Did you ever hear things that other people couldn't hear, such as noises, or the voices of people whispering or talking?") further elaboration or more detailed responses are often required to determine whether a criterion is met (e.g., "How many voices did you hear? Were they talking to each other?"). The interviewer is expected to query the patient and, where necessary, to utilize other information sources (e.g., patient records, family members) in order to be satisfied that a criterion is met before assigning a positive rating.

Each criterion is coded as either a ?, 1, 2, or 3. A rating of ? (Inadequate Information) indicates that not enough information was available for a more definitive diagnosis. A score of 1 indicates that the criterion is clearly Absent or False (e.g., the patient meets 1 of 5 required symptoms). A rating of 2 (Subthreshold) indicates that the patient's symptoms are just below the threshold for the criterion to be met. Finally, a rating of 3 indicates that the threshold for the criterion is met; if it is just met, the rating is referred to as Threshold; if it is clearly met, it is referred to as True. Upon completion of the interview, diagnoses are recorded on a Summary Score Sheet that includes the following ratings: (1) whether an Axis I disorder has ever been present during the participant's lifetime and whether criteria for the disorder are currently met, (2) the presence of

specifiers and subtypes, (3) the principal diagnosis, (4) DSM-IV Psychosocial and Environmental Problems (Axis IV), and (5) the Global Assessment of Functioning Scale (Axis V).

Assessment of the SCID's reliability (Williams, Gibbon, First, & Spitzer, 1992) produced kappas for Axis I among those reported for other diagnostic instruments (First et al., 1996), such as the NIMH Diagnostic Interview Schedule (Robins, Helzer, Croughan, & Ratcliff, 1981) and the Schedule for Affective Disorders and Schizophrenia (Endicott & Spitzer, 1978). Recent studies have reported kappas of .65 to 1.00 (First et al., 1996).

Assessment of Social Functioning

Defining and measuring social functioning is not an easy task. In a review of the content, format, and psychometric properties of eighteen instruments designed to measure functional living skills, Wallace concluded that "no one of them is wholly adequate" (Wallace, 1986, p. 619). This study, therefore, utilized a combination of three social functioning scales and one measure of premorbid functioning in an effort to provide a thorough assessment of a range of behaviour, from social and vocational role functioning to social interactions and social skills. The measure of premorbid functioning was included to determine levels of social functioning prior to the onset of psychotic symptoms. These scales were administered once to all participants in the FE and ME groups. Participants in the control group completed all of these measures with the exception of the premorbid functioning scale since it was designed for use only with individuals who have experienced a psychotic episode.

The Cannon-Spoor Premorbid Adjustment Scale (PAS)

The PAS was developed as a combination of original, adopted, and modified items from three older social functioning scales: the Phillips Scale, the Premorbid Adjustment Scales, and the Elgin Scale. It was developed to correct problems with the older scales, which included: (i) outdated anchor points that no longer reflected cultural norms; (ii) a failure to include evaluation of functioning at several periods of life (Cannon-Spoor, Potkin, & Wyatt, 1982), and (iii) the contamination of the premorbid period by psychotic symptoms since a period of time between premorbid functioning and the first psychotic episode was not established (Larsen et al., 1996).

The PAS is presented in Appendix D. It is a 36 item rating scale that describes levels of premorbid functioning in four major areas: (i) social accessibility-isolation; (ii) peer relationships; (iii) ability to function outside the nuclear family; and (iv) capacity to form intimate sociosexual ties. These abilities are described during four different developmental periods: (i) Childhood (up to 11 years); (ii) Early Adolescence (12-15 years); (iii) Late Adolescence (16-18 years); and (iv) Adulthood (19 years and beyond). Only those life periods that are premorbid (i.e., occur at least six months prior to the onset of the first episode) are rated for each participant. The wording and inclusion of items varies according to what is appropriate for each developmental period. The scale also contains a general section, in which items estimate the highest level of functioning prior to illness, the mode of onset, and functional demography such as the level of education achieved. Ratings are conducted by the examiner and are based on interviews with the patients, hospital records, and, where appropriate, interviews with family members.

Each item is anchored with descriptive phrases and is scored on a continuum between 0 and 6 where 0 denotes the 'healthiest' end of the

adjustment range and the 6 denotes the least healthy end. The ratings for each item in each section are summed and expressed as a total score divided by the possible score.

The PAS has good reliability and validity. Interrater reliability was established with an intraclass correlation of $r=.85$ ($p=.0001$) for two raters and the scale significantly differentiated normal participants from mentally ill participants ($p<.01$) on every subscale and on the average score (Cannon-Spoor, et al., 1982).

The Social Functioning Scale (SFS)

The SFS was developed specifically for use with schizophrenic populations since other social functioning scales had limitations for use with this group (Birchwood, Smith, Cochrane, Wetton, & Copestake, 1990). For example, individuals with schizophrenia may not be functioning in the roles assessed by general social functioning scales, such as current work and parental roles (Birchwood et al., 1990). The SFS is presented in Appendix E. It was designed to provide a detailed assessment of strengths and weakness and it provides measures of adjustment for 8 individual scales that assess the following three areas of functioning: (i) independence to perform daily living skills (e.g., "Do you do your own shopping?"), (ii) social engagement/withdrawal (e.g., "How many friends do you have?"), and (iii) recreation. Basic skills and social behaviours are recorded by informants as either present or absent so that evaluative decisions are avoided.

The SFS has been shown to be a reliable, valid, and sensitive measure of social functioning. The SFS's alpha coefficients are uniformly high: .85, .72, and .69 for the independence, engagement/withdrawal, and recreation subscales, respectively (Birchwood et al., 1990). Item total correlations (e.g., .53, .49, and

.30) for the three scales indicate a high level of internal consistency with the recreation scale being somewhat weaker due to the fact that it is measuring a compendium of activities rather than an assessment of traits (Birchwood et al., 1990). The SFS was also able to distinguish two criterion groups (schizophrenic and community control) to a highly significant degree across all subscales (Birchwood et al., 1990).

The Quality of Life Scale (QLS)

The QLS was designed to measure the deficit symptoms of schizophrenic psychopathology and was focused on patients outside of institutions (Heinrichs, Hanlon, & Carpenter, Jr., 1984). It is presented in Appendix F. The QLS is a 21-item scale rated from a semistructured interview that provides information on symptoms and functioning (including role functioning and interpersonal relationships) during the preceding four weeks. Each item is rated on a 7-point scale and in all but two cases requires a judgment by the clinician/interviewer. Each item is composed of three parts: (i) a brief descriptive statement; (ii) a set of suggested probes; and (iii) the seven point scale with descriptive anchors at every other point. The high end of the scales (e.g., scores greater than 5) reflect normal or unimpaired functioning and the lower end (e.g., scores of one and zero) reflect severe impairment of the function being assessed. The QLS measures adjustment on four subscales: (i) interpersonal relations; (ii) instrumental role functioning; (iii) intrapsychic foundations (e.g., motivation); and (iv) common objects and activities (e.g., owning a car).

A principal component factor analysis with varimax rotation performed on 111 cases provided support for the four factor structure of the QLS for the total sample and for the male and female components of the sample analyzed independently (Heinrichs et al., 1984). The QLS is also a reliable and valid

measure. Interrater reliability was determined with uniformly high intraclass correlations for each of the categories and for the total score: Intrapsychic foundations = .91; Interpersonal Relations = .94; Instrumental Role = .97; Common Objects and Activities = .94; and Total Score = .94 (Heinrichs et al., 1984).

Assessment of Interpersonal Problem Solving Skills (AIPSS)

The AIPSS was designed to measure three aspects of social skills, as originally described by Wallace (Wallace et al., 1980): (i) receiving skills; (ii) processing skills; and (iii) sending skills. It is a video-tape based test that measures a participant's ability to describe an interpersonal social problem, to derive a solution to the problem, and to enact a solution in a role-played simulation test (Donahoe et al., 1990). Following Wallace's (1980) model, the constructs measured by the instrument are operationally defined by Donahoe et al. (1990) as Receiving-Processing-Sending (RPS) skills. The AIPSS has six scales: (i) identification (receiving skills); (ii) description (receiving skills); (iii) processing skills; (iv) content (sending skills); (v) performance (sending skills); and (vi) overall score.

The design of the AIPSS is intended to represent a problem-solving model of social skills. For example, problem identification requires the ability to recognize the existence of a problem. Problem description requires the ability to articulate the desired goal and the obstacle impeding achievement of that goal. Together, problem identification and problem description compose receiving skills, the first component of Wallace's (1980) tripartite model of social skills. Processing skills are demonstrated through the ability to identify various courses of action, to consider the consequences of those actions, and to choose the best alternative. Finally, sending skills comprise what Donahoe et al. (1990) referred

to as content and performance skills. Content and performance skills are intertwined aspects of a participant's ability to enact the solution to the problem. Content skills reflect the appropriateness and perceived effectiveness of a verbal solution and performance skills reflect the participant's ability to present the verbal solution, including its nonverbal component, effectively.

The AIPSS consists of 13 short videotaped interactions. Ten of the interactions are problems defined as one person preventing another from obtaining a desired goal (e.g., a waitress writes down an order incorrectly) and three of the interactions are not problems (e.g., two friends are shown enjoying a card game). Participants watch each interaction and are instructed to identify with a specific actor in the vignette. After each vignette, participants are asked a series of questions concerning the scene taken from the perspective of the actor with whom they have identified. Questions include: "Is there a problem in the scene? What is the problem?" (Receiving skills); and "What would you do about the problem?" (Processing skills). Responses are recorded by the examiner and subsequently scored using a manual of correct responses (Donahoe, Carter, Bloem, & Leff, 1987).

Participants are then asked to role-play their response to the problem situation (sending skills). Each role-play is scored for: (i) content - does the content of the response solve the problem?; (ii) performance - regardless of content, was the volume, pitch, tone, eye contact, and body posture appropriate?; and (iii) overall quality - considering both content and performance, would the response solve the problem adequately? Participants are familiarized with the AIPSS during a practice scene in which questions and role-play are demonstrated. Scores from the demonstration scene are not included in the final scores.

Responses are recorded by the examiner and subsequently scored using a manual of correct responses (Donahoe et al., 1987). For receiving skills, participants receive one point for identifying the goal of the principal character in the scene and one point for identifying the obstacle that prevents the character from obtaining the goal. Possible scores for receiving skills are 0, 1, or 2. Processing skills are scored according to how likely the described solutions would solve the problem without negative consequences. Possible scores are 0, 1, or 2. Three scales are scored for sending skills: content, performance, and an overall score. Content is scored according to how effective the verbal content of the subject's response is in terms of its likelihood of solving the problem while minimizing negative consequences. Content scores are made on a 0.0 - 2.0 scale with 0.5 increments. Performance is scored according to how socially polished is the performed response, taking nonverbal aspects of the response into consideration. The performance scores are also made on a 0.0 - 2.0 scale with 0.5 increments. Finally, an overall score is calculated, also on a 0.0 - 2.0 scale with 0.5 increments. The overall score is a numerical determination of the effectiveness of the response, taking both content and performance into consideration. The overall score is used in data analyses as the measure of sending skills.

The AIPSS has adequate psychometric properties (Donahoe et al., 1990). T-tests conducted to determine test-retest reliability and interrater reliability, indicated no significant differences between test and retest occasions ($p > .05$) or between two independent raters ($p > .05$) (Donahoe et al., 1990, p. 333).

Procedure

Individuals who met criteria for participation in any of the three participant groups were informed of the nature and purpose of this study and then invited to participate. Participation was on a volunteer basis.

Once formal consent was obtained using the consent forms presented in Appendix B (for first episode sample) and in Appendix C (for control sample), the assessment was completed in two parts: (i) diagnosis with the SCID, and (ii) administration of the social functioning scales and the AIPSS. All parts were completed in sessions of length suitable to the participants' abilities and all participants received the assessments in the following order: SCID-I, PAS, QLS, SFS, and AIPSS. A summary of the measures administered to each group is presented in Table 2.

Reliability of Measurement

Every effort was made to ensure a consistent and professional level of reliability of measurement across participants in this study. All measures were administered by individuals adequately trained to do so: the principal investigators, a senior psychiatrist, a clinical research nurse, and a senior clinical nurse. Adequate reliability was maintained on each of the instruments with routine reliability checks.

Structured Clinical Interview for DSM-III-R and DSM-IV (SCID-I)

Diagnoses made using the SCID-I and SCID-II for each of the schizophrenia participant groups were conducted by Dr. Jean Addington (JA) and Dr. Don Addington (DA). JA is a psychologist with 12 years clinical and research

Table 2

Measures Administered to Each of the Groups of Interest

Measure	First-Episode	Multi-Episode	Control
SCID-I	x	x	*
PAS	x	x	N/A
QLS	x	x	x
SFS	x	x	x
AIPSS	x	x	x
Case Manager Rating Scale	x	x	x

Note. x indicates that the measure was administered to this group; * indicates that only certain parts (e.g., screening questions) of this measure were administered; N/A indicates that the measure is not applicable to this group and was not administered.

experience and DA is a senior psychiatrist with 25 years clinical and research experience. Interrater reliability for the ME group was determined in a separate sample of 10 participants by 100% agreement on the diagnosis and at least 80% agreement for symptom presence. For the FE sample, ongoing reliability was maintained at the same standard (i.e., 100% agreement on the diagnosis and at least 80% agreement on symptom presence) by annual reviews of raters' reliability on audiotaped interviews. Diagnoses were made using a consensus diagnosis which is achieved when both raters reach the same diagnosis, either initially or subsequent to review and discussion of clinical and research records following initial disagreement.

Premorbid Adjustment Scale (PAS)

The PAS was administered to the FE and ME groups by JA. Interrater reliability was determined in a separate sample of 5 participants. Criteria for reliability were that the scoring of each symptom was within one point and there was at least 80% agreement on each of the five subscales: Childhood, Early Adolescence, Late Adolescence, Adulthood, General Premorbid Functioning.

Social Functioning Scale (SFS)

The SFS questionnaire can be filled in by the participant. In the ME sample, all questions were asked by an interviewer (clinical research nurse) who completed the form. The SFS was completed by the author (CG) for the first episode and control groups, in the same manner.

Quality of Life Scale (QLS)

Interrater reliability for the first- and ME groups was determined in a separate sample of five participants. Criteria for reliability were that the scoring

of each item was within one point and there was at least 80% agreement on the total score for the QLS. Agreement was defined as scoring each item within one point. This instrument was administered to the ME group by the senior clinical nurse and to the FE group by both the senior clinical nurse and by CG who was trained in its administration by the experienced clinical research nurse trained by JA. CG also administered the QLS to the control group. The same criteria were used to maintain reliability between the clinical research nurse, the senior clinical nurse and CG.

Assessment of Interpersonal Problem Solving Skills (AIPSS)

The AIPSS was administered to the ME group by an experienced clinical research nurse who had been trained in its administration by JA. Interrater reliability was determined in a separate sample of five participants. Criteria for reliability were that there was at least 80% agreement on each of the scale scores. Agreement was defined as being met when no more than 2 out of each of the 10 items for each of the three subscales varied by more than one point; therefore, no more than 6 of the 30 items varied by more than one point. In this study, the raters did not vary on more than 3 of the 30 items, indicating 90% agreement. Reliability was checked every twentieth assessment and agreement remained at a minimum of 90%. CG was trained on this instrument by the experienced clinical research nurse trained by JA to the same criteria as above. CG administered this instrument to the FE and control groups.

Data Analysis

Differences across groups on the demographic variables of interest were examined using Pearson Chi-Square analyses. This provided descriptive information and indicated which variables should be treated as covariates in

further analyses. Without controlling for possible covariates, significant differences between groups on the dependent variables of interest, specifically, the total QLS and SFS scores as well as the Receiving, Processing, and Sending scores of the AIPSS, could be due in part to a strong relationship with a background variable.

Pearson correlational analyses were used to determine the relationships between the social functioning measures in each of the three participant groups.

Analyses of covariance, multivariate analyses of covariance (MANCOVA), and appropriate post-hoc analyses were conducted in order to compare the three participant groups on the social functioning measures. Further ANCOVAs and post hoc tests were also conducted in an effort to explore possible differences between groups at the subscale level.

Ethical Considerations

Recruitment and Consent Procedures

Permission to invite participants who were appropriate for inclusion in this study was obtained from their clinicians (e.g., psychologist, nurse therapist, or attending psychiatrist) and permission was asked only of those participants whom the principal investigators judged to be able to give informed consent. Each participant's ability to give informed consent was determined on the basis of an interview. Consent forms outlining the various ethical considerations pertinent to this study are presented in Appendix B and Appendix C for the psychiatric and non-psychiatric participants, respectively.

Potential Risks

There were no enduring risks to the participants. All participants were outpatients at the time of the assessment and were informed of their right to

decline to participate or to withdraw their participation at any time. Had they experienced distress, however, testing would have been terminated and participants would have been referred back to their clinicians. Participants then would have been given the opportunity to withdraw from the research or to complete the testing at a later date.

Confidentiality

Confidentiality was assured by assigning a code number to each participant at the time of the initial assessment. Forms and questionnaires were identified only by those code numbers. Responses to the AIPSS, which were audiotaped, were labeled only with code numbers and were stored in a locked filing cabinet until they were scored. Once scoring was complete, the audiotapes were erased. Only one list containing the names and code numbers of participants was maintained; it was kept in a locked file separate from the numbered data files. The data files were also stored in a locked filing cabinet. No record on which a participant's identity is identifiable was or will be used for teaching or any other scientific purpose.

Results

Group Characteristics: Testing for Possible Covariates

Although an effort was made to match all three samples according to gender, and to match the first-episode (FE) and control samples according to age as well, doing so did not ensure that the groups would be equal in regard to other background characteristics. Pearson Chi-Square analyses were conducted on all demographic variables across the three groups to determine whether differences that could potentially affect subsequent analyses existed. The Pearson Chi-Square was selected for analysis of the demographic variables due to the nominal nature of those variables. The Pearson Chi-Square is a nonparametric test that requires only that the data to be analyzed were collected randomly (Norusis/SPSS Inc., 1990). The results are presented in Table 3. There were no significant differences between the groups on the variables of marital status and ethnicity. The variables that did prove to be significantly different across groups were level of education [$\chi^2 (14, N = 120) = 40.72, p < .001$], living arrangements [$\chi^2 (10, N = 120) = 38.57, p < .001$], and source of income [$\chi^2 (16, N = 120) = 80.86, p < .001$].

Follow-up Chi-Square analyses were conducted in an effort to determine which groups accounted for these differences. The analyses indicated that the Control group differed significantly from both the FE and multi-episode (ME) groups on each of these three variables. In regard to education, the Control group appeared to have an advanced level of education relative to both of the

Table 3

Differences Between Groups on Demographic Measures

Measure	First-Episode		Multi-Episode		Control		χ^2
	n	%	n	%	n	%	
Gender							
Male	26	65.00	26	65.00	26	65.00	0.00
Female	14	35.00	14	35.00	14	35.00	
Education							
None	0	0	0	0	0	0	40.72***
Elementary	1	2.50	1	2.50	0	0	
Junior High	2	5.00	3	7.50	0	0	
Some High School	12	30.00	12	30.00	2	5.00	
High School	6	15.00	12	30.00	11	27.50	
Some Post-Sec.	16	40.00	8	20.00	8	20.00	
Or Vocational							
Degree or Diploma	3	7.50	4	10.00	15	37.50	
Post-Graduate	0	0	0	0	4	10.00	
Marital Status							
Single	35	87.50	28	70.00	30	75.00	15.44
Married	3	7.50	5	12.50	7	17.50	
Common-Law	0	0	1	2.50	1	2.50	
Separated	2	5.00	4	10.00	0	0	
Divorced	0	0	0	0	2	5.00	
Widowed	0	0	2	5.00	0	0	
Source of Income							
Employed - FT	6	15.00	0	0	17	42.50	80.86***
Employed - PT	3	7.50	4	10.00	4	10.00	
Self-Employed	1	2.50	8	20.00	0	0	
Unemployed	12	30.00	28	70.00	3	7.50	
Disability	1	2.50	0	0	0	0	
Homemaker	2	5.00	0	0	2	5.00	
Student	11	27.50	0	0	13	32.50	
Social Assistance	4	10.00	0	0	0	0	
AISH	0	0	0	0	1	2.50	
Ethnicity							
White	34	85.00	38	95.00	36	90.00	9.82
Latino	1	2.50	0	0	0	0	
Asian	4	10.00	1	2.50	1	2.50	
Black	0	0	0	0	2	5.00	
Other	1	2.50	1	2.50	1	2.50	

Table 3, continued

Differences Between Groups on Demographic Measures

Measure	First-Episode		Multi-Episode		Control		χ^2
	n	%	n	%	n	%	
Living Arrangement							38.57***
Alone	5	12.50	14	35.00	13	32.50	
With Spouse	3	7.50	5	12.50	8	20.00	
With Parents	25	62.50	8	20.00	14	35.00	
With Relatives	3	7.50	0	0	0	0	
With Non-Relatives	4	10.00	5	12.50	5	12.50	
Group Homes	0	0	8	20.00	0	0	
Homeless	0	0	0	0	0	0	

*** $p < 0.001$.

schizophrenia samples. Level of education proved significantly different between the Control group and both the FE [$\chi^2(6, N = 80) = 26.28, p < .001$] and ME [$\chi^2(6, N = 80) = 21.55, p < .01$]. The difference in level of education achieved between FE and ME samples was not significant.

Although it is possible to indicate between which groups the differences on the living arrangements and source of income variables existed, it is more difficult to interpret the meaning of those differences. As illustrated in Table 3, both of these two variables are composed of a number of distinct levels of response, where the numbers assigned each level are not mathematically meaningful. The source of income variable, for example, is composed of 9 possible sources, and does not make a clear-cut distinction between those individuals who worked for compensation (e.g., full-time), those who did not work for financial compensation and did not receive formal financial assistance (e.g., students), and those who were unemployed (e.g., receiving disability payments). As a result, the outcome of the follow-up Chi-Square analyses on these variables will be reported without speculation on their meaning.

In regard to living arrangements, the difference between the three groups was again produced by differences between the Control group and the FE [$\chi^2(4, N = 80) = 12.04, p < .05$] and ME [$\chi^2(4, N = 80) = 10.37, p < .05$] groups. The difference across the FE and ME groups was not statistically significant. On the source of income variable, statistically significant differences existed between the Control group and the FE [$\chi^2(4, N = 80) = 12.04, p < .05$] and ME [$\chi^2(4, N = 80)$]

= 10.37, $p < .05$] groups as well as between the FE and ME groups [χ^2 (4, $N = 80$) = 12.04, $p < .05$].

As a more meaningful means of comparison, two of the social functioning measures (QLS and SFS) that assess aspects of employment (which is essentially what the source of income variable describes) were examined. These measures were also more comprehensive in their assessment of this variable. When these employment-related subscales were compared across groups, the results indicated that there was a difference between groups on both the "Job" subscale of the SFS ($F = 15.69$, $p < .001$) and the "Instrumental Role" subscale of the QLS ($F = 21.73$, $p < .001$). Follow-up Tukey HSD tests indicated that the Control group achieved higher scores than both the FE and ME groups, and that the FE group achieved higher scores (although only significant on the SFS) than the ME group. This would appear to indicate that those in the Control group were most likely to be receiving their income from active employment and those in the ME group were least likely to be employed.

Another variable of interest to this study was the performance of the FE and ME groups on the Premorbid Adjustment Scale (PAS; Cannon-Spoor et al., 1982), a measure of functioning prior to the onset of schizophrenia. The two groups were compared on each of the subscales of this measure, as well as on their total scores, using independent t-tests. No significant differences between groups were found on any of these measures. The means and standard deviations for the ME and FE groups on the PAS, as well as the results of the t-tests, are presented in Table 4.

Table 4

Differences Between First- and Multi-Episode Groups: The PremorbidAdjustment Scale (PAS) Subscales and Total

Measure	First-Episode Mean (SD) (n=40)	Multi-Episode Mean (SD) (n=40)	t-value
Childhood (up to 11 years)	0.26 (0.12)	0.23 (0.17)	1.03
Early Adolescence (12-15 years)	0.33 (0.16)	0.31 (0.18)	0.54
Late Adolescence (16-18 years)	0.40 (0.18)	0.37 (0.18)	0.86
Adulthood (19 years and beyond)	0.45 (0.21)	0.36 (0.17)	1.77
General Overall	0.34 (0.18)	0.33 (0.16)	0.17
Overall Total	0.35 (0.14)	0.31 (0.13)	1.27

As a result of the highly significant differences between groups on the variables of age and level of education, and due to the potential for these variables to obscure significant findings on the dependent variables of interest, these two variables were treated as covariates in later analyses. Source of income and living arrangements were not treated as covariates due to the difficulty in determining whether differences between groups truly existed on this variable.

Reliability Analyses of the Social Functioning Measures

Cronbach's alpha was calculated for each of the three social functioning measures. It is a measure of internal consistency that is performed on additive scales (Norusis/SPSS Inc., 1990). It is based on the average covariance among items on a scale if the items are not standardized to a standard deviation of 1 (Norusis/SPSS Inc., 1990), as is the case with this study's social functioning measures. Cronbach's alpha can be interpreted as a correlation coefficient and, as such, its ranges in value from 0 to 1 (Norusis/SPSS Inc., 1990). Negative values occur when items are not positively correlated among themselves. When a negative value occurs, the reliability model is violated because it is assumed that the items on a scale are positively correlated because they are measuring a common entity (Norusis/SPSS Inc., 1990). The reliability coefficients for the social functioning measures in this study all indicated positive relationships between scale items. The Cronbach's alpha for each of the measures are: (1) $\alpha = .77$ for the QLS, (2) $\alpha = .68$ for the SFS, and (3) $\alpha = .91$ for the AIPSS.

Correlational Analyses

Relationships Between Dependent Variables

There were five variables of primary interest in this study: the total scores on the SFS and the QLS, as well as the Receiving, Processing, and Sending scores on the AIPSS. Pearson product-moment correlational analyses were run on these variables to determine whether there existed a relationship between them. The correlation coefficients are presented in Table 5. The results of these analyses indicated that the subscales that measured the three component skills of the AIPSS (Receiving, Sending, and Processing) were highly correlated with one another in all three participant groups. This was expected given that these three variables are component parts of a larger construct: interpersonal problem-solving skills. The Receiving, Processing, and Sending variables were the only measures that were correlated across all samples.

The correlational analyses also revealed what appeared to be a moderate relationship between the total score on the SFS and the total score on the QLS for the FE ($r = .59$, $p < .001$) and ME ($r = .37$, $p < .05$) groups only. It is unlikely, however, that the correlation in the ME and FE groups is indicative of a true relationship between these tests; rather, it likely reflects a generalized deficit in the schizophrenia samples. While the SFS and QLS are both measures of social functioning, the SFS was designed to primarily assess functional abilities in schizophrenia populations (Birchwood et al., 1990) where the QLS was designed to measure deficit symptoms (Heinrichs et al., 1984). Furthermore, the three

Table 5

Correlations Between Dependent Variables for First-Episode, Multi-Episode, and Control Groups

	Total SFS Score	Total QLS Score	Receiving Skills (AIPSS)	Processing Skills (AIPSS)	Sending Skills (AIPSS)
Total SFS					
(First-Episode)	N/A	.59***	.17	.09	.07
(Multi-Episode)	N/A	.37*	-.09	.16	.07
(Control)	N/A	.31	-.03	.29	.29
Total QLS					
(First-Episode)	.59**	N/A	.34*	.29	.32*
(Multi-Episode)	.37*	N/A	.23	.27	.26
(Control)	.31	N/A	.25	.30	.36*
Receiving					
(First-Episode)	.17	.34*	N/A	.59***	.63***
(Multi-Episode)	-.09	.23	N/A	.65***	.72***
(Control)	-.03	.25	N/A	.58***	.60***
Processing					
(First-Episode)	.09	.29	.59***	N/A	.91**
(Multi-Episode)	.16	.27	.65***	N/A	.83**
(Control)	.29	.30	.58***	N/A	.98**

Table 5, continued

Correlations Between Dependent Variables for First-Episode, Multi-Episode, and Control Groups

	Total SFS Score	Total QLS Score	Receiving Skills (AIPSS)	Processing Skills (AIPSS)	Sending Skills (AIPSS)
Sending					
(First-Episode)	.07	.32*	.63***	.91***	N/A
(Multi-Episode)	.07	.26	.72***	.83***	N/A
(Control)	.29	.36*	.60***	.98***	N/A

Note. SFS = Social Functioning Scale, QLS = Quality of Life Scale, AIPSS = Assessment of Interpersonal Problem-Solving Skills.

* $p < .05$. *** $p < .001$.

components of the AIPSS, which also measure social functioning, were not found to be correlated with the SFS in any of the samples. There were moderate correlations between the QLS and components of the AIPSS for two of the groups but a consistent relationship between these two measures also did not emerge. Specifically, the QLS and the Sending Skills component of the AIPSS were correlated in both the FE ($r = .32, p < .05$) and Control ($r = .36, p < .05$) groups and the QLS and Receiving Skills variable were correlated for the FE ($r = .34, p < .05$) group only.

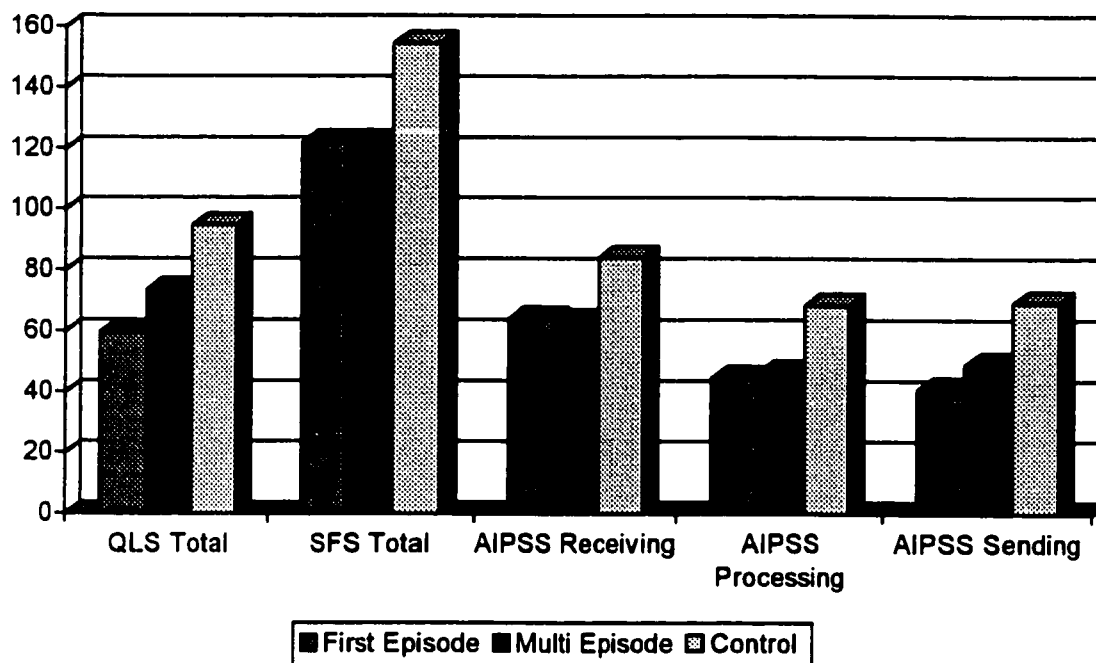
As a result of these analyses, the three component variables of the AIPSS were grouped together as a single dependent variable in the MANCOVA analysis but the SFS and QLS total scores were treated as separate dependent variables in ANCOVA analyses.

Differences Between Groups: MANCOVA, ANCOVA, and Follow-up Tests

Two ANCOVA and one MANCOVA analyses were completed to determine whether there were significant differences between groups on the dependent variables of interest: the QLS total score, the SFS total score, and the Receiving, Processing, and Sending scores of the AIPSS. The mean scores on these variables for each participant group are presented visually in Figure 1. The two ANCOVA analyses used the total scores from the QLS and the SFS as dependent variables. The MANCOVA joined the three components of the AIPSS together as a single dependent variable, in accordance with the finding that these three scales were highly correlated among all participant groups. Age and level

Figure 1

Group Means on Measures of Social Functioning



Note. Scores are not comparable across measures, only within measures, across participant groups. Each of these measures is scored according to a different scale. Sending = Sending Variable of AIPSS, Receiving = Receiving Variable of AIPSS, Processing = Processing Variable of AIPSS.

of education were entered into all of these analyses as covariates, since significant differences between participant groups were found to exist on these variables. The analyses explored differences in performance on the measures of social functioning between the three treatment groups.

The Quality of Life Scale

The means and standard deviations for the three participant groups on the QLS Total score, as well as on all QLS subscale scores, are presented in Table 6. The ANCOVA analysis conducted on this measure revealed a difference between the three participant groups on the total QLS score, $F = 24.85$, $p < .001$.

Post-hoc testing was performed using the Tukey Honestly Significant Difference (HSD) Procedure, a multiple comparison design that controls the Type I error rate, to determine which particular groups were responsible for the significant difference in performance. The Tukey HSD Procedure was chosen because it is a conservative test for pairwise comparison of means. It requires a larger difference between means for significance than do many other multiple comparison procedures, meaning that the difference between two sample means must be larger to be identified as a true difference (Howell, 1992; Norusis/SPSS, 1990). The results of the Post Hoc analyses on the QLS total score are presented in Table 7. These analyses indicated that all three groups were significantly different from one another. As expected, the Control group outperformed both the ME and FE groups on the QLS. A more surprising result was that the ME group performed better on this measure than did the FE group.

Table 6

Differences Between Groups: The Quality of Life Scale (QLS)

Measure	First-Episode Mean (SD)	Multi-Episode Mean (SD)	Control Mean (SD)	F
Interpersonal Relations	23.23 (10.83)	30.03 (9.39)	37.20 (7.93)	19.04***
Instrumental Role	7.78 (0.94)	6.18 (4.91)	13.90 (5.70)	7.03***
Intrapsychic Foundations	21.38 (7.16)	28.00 (5.33)	33.95 (4.96)	35.85***
Common Objects & Activities	7.53 (2.21)	8.40 (1.74)	9.70 (1.45)	9.56***
Total QLS Score	59.78 (22.30)	73.55 (16.35)	94.75 (16.48)	24.85***

*** $p < 0.001$.

Table 7

Differences Between Groups on The Quality of Life Scale: Tukey's
Honestly Significant Difference Post-Hoc Analyses

Dependent Variable	Group	Comparison Group	Difference between Group Means
Interpersonal Relations	Control	First-Episode	13.97*
	Control	Multi-Episode	7.17*
	First-Episode	Multi-Episode	-6.80*
Instrumental Role	Control	First-Episode	6.12*
	Control	Multi-Episode	7.72*
	First-Episode	Multi-Episode	1.60
Intrapsychic Foundations	Control	First-Episode	12.57*
	Control	Multi-Episode	5.95*
	First-Episode	Multi-Episode	-6.62*
Common Objects & Activities	Control	First-Episode	2.17*
	Control	Multi-Episode	1.30*
	First-Episode	Multi-Episode	-0.87
Total Score	Control	First-Episode	34.98*
	Control	Multi-Episode	21.20*
	First-Episode	Multi-Episode	-13.77*

* $p < .05$.

Further analyses were conducted on the QLS in an effort to determine where the significant differences between the FE and ME groups existed at the subscale level. The results of these analyses are also presented in Tables 6 and 7. ANCOVAS conducted on the subscales indicated that there were significant differences between the three groups on all of the scales. Post hoc analyses indicated that the Control group's mean scores on all subscales were significantly higher than those of the FE and ME groups. In regard to the performance of the FE and ME groups, the analysis revealed that significant differences on measures of Interpersonal Relations and Intrapsychic Foundations were responsible for the higher overall ME score. There were no significant differences between the two groups on measures of Instrumental Role functioning and Common Objects and Activities.

The Social Functioning Scale

The means and standard deviations for the three participant groups on the SFS Total score, as well as on all SFS subscale scores, are presented in Table 8. The ANCOVA analysis conducted on this measure revealed a difference between the three participant groups on the total SFS score, $F = 16.43$, $p < .001$.

Post-hoc analyses on the total SFS score, as displayed in Table 9, determined that the Control group performed better than both the ME and FE groups on this measure. The FE and ME groups, however, did not differ in their performance on this measure, as evidenced by their identical mean SFS total scores.

Table 8

Differences Between Groups: The Social Functioning Scale (SFS)

Measure	First-Episode Mean (SD)	Multi-Episode Mean (SD)	Control Mean (SD)	F
Social Engagement/ Withdrawal	11.12 (2.51)	9.30 (2.02)	14.10 (2.36)	24.35***
Interpersonal Communication	5.80 (2.30)	6.80 (1.64)	8.30 (1.18)	11.78***
Independence - Performance	25.40 (6.72)	29.03 (5.09)	32.30 (4.13)	12.13***
Recreation	20.38 (7.30)	21.68 (5.23)	24.08 (5.94)	2.98
Prosocial	17.73 (11.39)	19.15 (8.20)	28.53 (9.67)	7.84***
Independence - Competence	35.20 (6.72)	34.40 (3.78)	37.98 (2.46)	4.68*
Occupation/ Employment	6.68 (6.09)	4.23 (2.96)	9.23 (1.42)	3.97*
Total SFS Score	122.25 (22.59)	122.25 (23.78)	154.65 (17.78)	16.43***

* $p < 0.05$, *** $p < 0.001$.

Table 9

Differences Between Groups on The Social Functioning Scale: Tukey's
Honestly Significant Difference Post-Hoc Analyses

Dependent Variable	Group	Comparison Group	Difference between Group Means
Social Engagement/ Withdrawal	Control	First-Episode	2.92*
	Control	Multi-Episode	4.80*
	First-Episode	Multi-Episode	1.88*
Interpersonal Communication	Control	First-Episode	2.50*
	Control	Multi-Episode	1.50*
	First-Episode	Multi-Episode	-1.00*
Independence-Performance	Control	First-Episode	6.90*
	Control	Multi-Episode	3.27*
	First-Episode	Multi-Episode	-3.63*
Recreation	Control	First-Episode	3.70*
	Control	Multi-Episode	2.40
	First-Episode	Multi-Episode	-1.30
Prosocial	Control	First-Episode	10.80*
	Control	Multi-Episode	9.38*
	First-Episode	Multi-Episode	-1.42

Table 9, continued

Differences Between Groups on The Social Functioning Scale: Tukey'sHonestly Significant Difference Post-Hoc Analyses

Dependent Variable	Group	Comparison Group	Difference between Group Means
Independence-Competence	Control	First-Episode	2.78*
	Control	Multi-Episode	3.58*
	First-Episode	Multi-Episode	0.80
Occupation/Employment	Control	First-Episode	2.55*
	Control	Multi-Episode	5.00*
	First-Episode	Multi-Episode	2.45*
Total Score	Control	First-Episode	32.40*
	Control	Multi-Episode	32.40*
	First-Episode	Multi-Episode	0.00

* $p < .05$.

Further analyses were also conducted on the SFS in order to examine possible differences between the FE and ME groups at the subscale level. The results of these analyses are also presented in Tables 8 and 9. ANCOVAs conducted on these measures indicated that there were significant differences between the three participant groups on all subscales, with the exception of Recreation. Post hoc analyses revealed that the Control group again outperformed the FE and ME groups on every subscale except Recreation. Results indicating the performance of the FE and ME groups were less consistent. The FE group performed significantly better than the ME group on measures of Social Engagement/Withdrawal and Occupation/Employment. However, they performed more poorly than the ME group on measures of Interpersonal Communication and Independence-Performance. The two groups did not differ significantly across the Recreation, Independence-Competence, or Prosocial subscales.

The Assessment of Interpersonal Problem-Solving Skills

The means and standard deviations for the three participant groups on each of the Receiving, Processing, and Sending Skills scores of the AIPSS are presented in Table 10. The MANCOVA analysis was conducted on all three AIPSS scores combined as a single dependent variable since combining moderately correlated measures tends to provide greater power in testing for differences between groups. The analysis revealed a difference between the three participant groups on the combined AIPSS dependent variable, $F = 5.53$, p

< .001. A follow-up ANCOVA was conducted to determine whether differences existed between groups on each of the AIPSS measures individually. Indeed, there were significant differences across groups for Receiving, $F = 9.84$, $p < .001$, Processing, $F = 13.60$, $p < .001$, and Sending, $F = 16.16$, $p < .001$, Skills scores.

Post-hoc analyses, as displayed in Table 11, determined that the Control group outperformed the ME and FE groups on all three components of the AIPSS. The FE and ME groups, however, did not differ significantly in their performance on this measure.

Summary of Results

This study's first hypothesis, that the Control group would perform significantly better on all measures of social functioning than would the ME and FE groups, was supported by its results. The second hypothesis, that the FE group would perform better on measures of social functioning than would the ME group, however, was not supported. The two schizophrenia groups achieved virtually identical overall scores on the SFS and did not differ in their performance on the three component parts of the AIPSS. In the case of overall performance on the QLS, the ME group actually outperformed the FE group due to superior scores on the Interpersonal Relations and Intrapsychic Foundations subscales.

Although significant differences did exist between the FE and ME groups on background measures of age and number of previous admissions, these were

Table 10

Differences Between Groups: The Assessment of Interpersonal Problem Solving Skills (AIPSS)

Measure	First-Episode Mean (SD)	Multi-Episode Mean (SD)	Control Mean (SD)	F
Receiving Skills	64.13 (19.80)	63.25 (22.00)	84.00 (13.41)	9.84***
Processing Skills	44.75 (20.78)	46.75 (22.00)	68.50 (19.02)	13.60***
Sending Skills	40.95 (21.18)	49.18 (21.57)	69.30 (20.16)	16.16***

*** $p < 0.001$.

Table 11

Differences Between Groups on The Assessment of Interpersonal Problem-Solving Skills: Tukey's Honestly Significant Difference Post-Hoc Analyses

Dependent Variable	Group	Comparison Group	Difference between Group Means
Receiving Skills (AIPSS)	Control	First-Episode	19.88*
	Control	Multi-Episode	20.75*
	First-Episode	Multi-Episode	0.88
Processing Skills (AIPSS)	Control	First-Episode	23.75*
	Control	Multi-Episode	21.75*
	First-Episode	Multi-Episode	-2.00
Sending Skills (AIPSS)	Control	First-Episode	28.35*
	Control	Multi-Episode	20.13*
	First-Episode	Multi-Episode	-8.22

* $p < .05$.

expected given the criteria for inclusion in the study. In addition, analyses determined that those members of the FE group who had been hospitalized for psychosis had been out of hospital only 4 months since their last psychiatric admission, compared with the ME participants who had been out of hospital for an average of 3.36 years prior to assessment. The ME and FE groups were not found to differ on a measure of premorbid functioning (PAS), their age at first admission, or the amount of medication they were receiving at the time of assessment. Neither did they differ on background variables such as gender, ethnicity, level of education, marital status, or living arrangements.

Correlations conducted across groups on demographic variables revealed a significant difference between groups on level of education that was explained by the advanced level of education of Control group members. A significant difference in age was also found to exist between groups and it was explained by the older mean age of participants in the ME group. These two variables were treated as covariates in subsequent analyses of variance. Relationships between demographic and dependent variables were also explored but did not reveal any significant relationships that were consistent across groups. Similarly, correlations between dependent measures indicated a relationship between the QLS and SFS total scores, but for the ME and FE groups only. As a result, only the three components of the AIPSS were joined together as a single dependent variable in further analyses since their relationship to one another was consistent across all participant groups.

Finally, analyses of covariance and appropriate post hoc tests were conducted in order to compare the three groups on the social functioning measures. The results indicated that the Control group was superior across all measures but that the only significant difference between the FE and ME groups was on the QLS total score, on which the ME group's performance was superior. Follow-up ANCOVAs and post hoc measures were helpful in elucidating the source of this difference between the two groups, revealing the ME group's superior performance on the subscales of Interpersonal Relations and Intrapsychic Foundations.

Discussion

This study utilized a variety of screening and social functioning measures to successfully demonstrate that deficits in social functioning are present near the onset and throughout the course of schizophrenia. A second hypothesis, that social functioning abilities would exist on a continuum, was explored but not substantiated. It was anticipated that Control participants would perform at the more functional end of a social functioning continuum, the Multi-Episode (ME) participants at the least functional end, and the newly ill First-Episode (FE) participants somewhere between them. This hypothesis was based on research that supported the concept of pervasive impairments in social functioning among schizophrenia patients in general (e.g., Corrigan, Wallace, & Green, 1992; Wallace, 1984) as well as on research demonstrating an initial decline in functioning within the first several years of the disorder (e.g., McGlashan, 1988).

Although research directly comparing the social functioning of first- and multi-episode schizophrenia patients is rare, it is generally accepted in the literature that social functioning deficits exist premorbidly and are present throughout the course of the disorder (Bellack et al., 1994; Corrigan, Davies-Farmer, & Stolley, 1990; DeLisi, 1992; Erickson et al., 1989; Penn, Mueser, Spaulding, Hope, & Reed, 1995). Impairments in social functioning have been found to be most prominent during prodromal periods and during exacerbations of psychotic symptoms (Bellack et al., 1994). As with cognitive impairments, social functioning deficits are generally viewed as enduring traits that also persist

into periods of remission (Bellack et al., 1994; Corrigan & Toomey, 1995). It is in keeping with this research that even those individuals experiencing a first episode of psychosis have been found to be socially withdrawn and to have difficulty fulfilling social roles (Bellack et al., 1994; Erickson et al., 1989). Similar to their multi-episode counterparts, they have few friends, initiate few social interactions, and rely on family members as their primary source of social support (Allen, 1990; Davidson & Stayner, 1997; Erickson et al., 1989; Wallace, 1984).

What this study sought to demonstrate beyond the existence of social functioning deficits early in the course of the disorder was that a further decline in social functioning occurs following onset of the illness in a manner similar to that which has been demonstrated to occur, for example, in cognitive functioning. Specifically, deficits in cognitive functioning have also been found to exist premorbidly and several studies have demonstrated that the majority of cognitive decline occurs prior to onset or within the first few years of the disorder (Bilder et al., 1992; Gold & Harvey, 1993; Hyde et al., 1994; McGlashan & Johannessen, 1996). In this manner, it was expected that if a decline in social functioning occurred within the first few years following the onset of schizophrenia, those whose social functioning was assessed near the onset of their disorder would outperform those assessed after many years of living with schizophrenia.

This hypothesis was supported by the results of a study by Shtasel et al. (1992) who determined that FE participants performed slightly better on measures of social functioning than did their ME counterparts. It is of interest to note, however, that the modestly superior performance of the FE group in the

Shtasel et al. (1992) study was accounted for by one symptomatically distinct FE subgroup, characterized primarily by patients experiencing severe positive symptoms. An attempt at investigating whether a similar result occurred in the current study was not possible, however, since the participants in this study were not subgrouped according to symptomatology.

Finally, it was anticipated that the ME sample would perform more poorly than the FE sample on measures assessing social functioning simply because they had lived with schizophrenia for an average of ten years, increasing their risk for having experienced a greater number of secondary social functioning deficits. Social deficits secondary to schizophrenia may arise due to pervasive social isolation (Bellack et al., 1994; Corrigan, Davies-Farmer, & Stolley, 1990; DeLisi, 1992; Penn, Mueser, Spaulding, Hope, & Reed, 1995), poor coping skills and decreased functional ability, 'stress-prone patterns of living' (Zubin & Spring, 1977; Lukoff et al., 1984), and the social stigmatization that can accompany repeated episodes of illness and hospitalization (Davidson & Stayner, 1997). The experience of living an isolated lifestyle for an extended period of time could naturally have limited ME participants' opportunities for socialization and, subsequently, their use of social skills (Dobson, 1996; Wallace, 1984; Wallace et al., 1980) and social problem-solving abilities. Conversely, the FE participants were expected to have been less socially isolated and less stigmatized by their disorder and may have better retained some degree of their premorbid social functioning abilities.

Although the results of this study did support the concept of a pervasive impairment in social functioning among individuals with schizophrenia as compared to age and gender matched non-psychiatrically ill controls, overall it did not reveal consistent significant differences in the social functioning of FE and ME participants. Indeed, where differences in performance on the social functioning measures were discovered, they tended to favour the ME participants at least as often as the FE participants. The following discussion will focus on the areas in which the FE and ME participants were found to differ and not to differ, both in terms of performance and in terms of sample composition.

Various factors may have contributed to the essential lack of difference between the FE and ME groups on the social functioning measures. Emphasis will be placed on the fact that the longer length of illness experienced by ME patients, which was anticipated to contribute to lower scores on the social functioning measures, may indeed have been a source of an advantage over the FE patients. Although research indicates that ME participants may accumulate a number of secondary social deficits during their many years spent living with schizophrenia, it also stands to reason that they would be better adjusted to having a mental illness than would individuals just recently diagnosed with schizophrenia. It will be proposed that FE participants' performance, particularly on measures of community functioning (SFS and QLS), was negatively influenced by less complete recovery from the active phase of their illness, during which time impairments in social functioning have been found to be most prominent (Bellack et al., 1994). In addition, it is proposed that the performance

of FE participants was also influenced by poorer adaptation to their disorder and its effects on socialization and lifestyle than may have been attained by participants in the ME sample. This may help to explain why the two groups were essentially equal on the SFS and why the ME group outperformed the FE group on the QLS.

In regard to the equality of performance on the AIPSS across schizophrenia participant groups, the results of this study appear to contribute to a relatively new area of research comparing the performance of FE and ME individuals on measures of social and neurocognitive functioning (e.g., Addington & Addington, 1997a; 1999c). This research has demonstrated that social problem solving measures such as the AIPSS are related to neurocognitive functioning (Addington & Addington, 1997a; 1999c). As such, the lack of difference in performance between the FE and ME groups in this study is in accordance with research that has found no difference in neurocognitive functioning in comparisons of FE and ME groups (Addington & Addington, 1999b). It would be, therefore, reasonable to expect that social functioning deficits in schizophrenia also do not change significantly over time.

Group Composition

McGlashan (1988, p. 528) noted in his review of follow-up studies of schizophrenia that much of the heterogeneity in the long-term course of the disorder can be "linked to sample characteristics and/or differences." In order to appreciate the differences, and lack of differences, found in performance on the

social functioning measures across groups, it is necessary to have an understanding of group composition and the ways in which that composition may have affected this study's results. In general, there were few statistically significant differences between the FE, ME, and Control groups on shared demographic variables. There were no differences between groups on measures of ethnicity, marital status, or living arrangements, and gender was controlled such that all three groups had the same number of male and female participants. There was a significant difference in age between the ME group and the other two, but that was the natural result of comparing individuals who were experiencing different stages of schizophrenia. There was a significant difference in level of education between the Control group and the two schizophrenia participant groups, which was controlled for in the ensuing analyses. Finally, there was a significant difference between the FE and ME groups on the Source of Income variable but it is not expected that this affected the subsequent analyses. Rather, this difference likely reflects illness characteristics, such as an inability to work, which are addressed within the social functioning measures.

Premorbid Functioning

The composition of the FE and ME groups specifically, and their suitability for comparison, is central to this study. Of particular importance is the issue of the equality of the nature and progression of schizophrenia in participants across the two groups. Deficits in social functioning variables such as community

functioning and interpersonal functioning are common in schizophrenia and interpersonal functioning deficits have been found to predate the onset of schizophrenia (Penn et al., 1995; Wallace, 1984). Research suggests that premorbid social competence strongly predicts functioning in schizophrenia, including impairments in social skills, community adjustment, and the quality of interpersonal relationships (Penn et al., 1995; Wallace, 1984). It is reasonable to expect, then, that premorbid social competence would have had an effect on participants' performances on this study's social functioning measures.

This study contained one measure that addressed participants' premorbid social competence. The Premorbid Adjustment Scale (PAS; Cannon-Spoor et al., 1982) provided the opportunity to assess and compare the FE and ME groups on their functional abilities prior to their first psychotic episode. Poorer preexisting interpersonal functioning would generally produce lower scores on the PAS, as it assesses areas of life profoundly affected by this variable, including: social accessibility-isolation, peer relationships, and the capacity to form sociosexual ties (Cannon-Spoor et al., 1982). Indeed, lower levels of premorbid functioning have been found to be predictive of poorer outcome in general (Stern, Kahn, & Davidson, 1993).

Had differences existed between the ME and FE groups on this measure, they may have been indicative of a tendency for the lower-scoring group to perform more poorly on measures of social functioning due to differences in premorbid social competence. In addition, if differences favouring the FE sample did exist, they may have indicated the presence of a group of individuals in the

FE sample who were higher functioning in general. It is reasonable to expect that in any FE sample there may be several individuals who do not require long-term treatment and so may not be equally represented in a sample of ME participants. Since significant differences were not found between the two groups on this measure, however, premorbid functioning was not considered to be a contributing factor to the differences and similarities found between groups on this study's social functioning measures. In addition, this result indicates that, even if there did exist a group of higher functioning individuals within the FE sample, they did not cause the FE participants to differ significantly from the ME participants in terms of premorbid and social functioning.

Antipsychotic Medications

In regard to another variable that had the potential to be reflective of differences between groups on aspects of the disorder and on treatment received, statistically significant differences were not found on the amount of antipsychotic medication participants in these groups were taking at the time of assessment. All of the participants in the FE group who were taking neuroleptic medications (90%) and approximately 50% of the participants in the ME group were taking novel (e.g., Risperidone, Olanzapine, etc.) antipsychotics. The average doses of antipsychotic medication, determined by calculating Chlorpromazine equivalents (Davis, 1985), did not differ significantly between groups.

Length of Illness Variables

Perhaps the most consequential differences between the FE and ME groups in regard to group composition existed on those variables that addressed components of the length of time for which participants had been living with their illness and their relative state of remission from their most recent acute episode. This information was reflected in participants' mean ages, age at first psychiatric admission to hospital, and number of months since their last admission. It is important to note, in examining these variables, that the fact that not all of the participants in the FE sample had been hospitalized for psychosis is not indicative of a lesser severity of illness. Indeed, many of the patients admitted to the Early Psychosis Program (EPP) were experiencing active phase symptoms at the time of their initial assessment but were not admitted to hospital for treatment. Rather, outpatient programs such as the EPP have been developed with the aim of managing individuals with schizophrenia on an outpatient basis in mind.

Since relatively few of the FE participants had been hospitalized for psychosis, the number of months since their entry into the EPP may be a better indicator of the length of time since their most recent acute episode than is the number of months since their last hospitalization. It is apparent, according to these variables, that the ME participants had been living with their illness for an average of approximately ten years, while those in the FE sample had been diagnosed and receiving treatment for one year or less.

Although all participants included in this study were outpatients in a state of relative remission when their social functioning abilities were assessed, it appears that those in the ME group likely would have been further into recovery, more stable, and more accustomed to coping with their symptoms. One possible explanation for why the ME participants performed as well as or better than the FE participants in this study is that the ME participants may have benefited from being well accustomed to living with their illness. The benefits provided by a relatively superior adaptation to schizophrenia may have outweighed the detriment of secondary social functioning deficits ME individuals may have incurred due to pervasive social isolation, stress-prone patterns of living, and social stigmatization (e.g., Davidson & Stayner, 1997; Lukoff et al., 1984; Penn et al., 1995). It is impossible, however, to rule out the possibility that FE participants were also experiencing secondary social functioning deficits since the duration of untreated psychosis (DUP) was not examined in this study. Indeed, since it is reasonable to expect that both the FE and ME groups had some degree of secondary social functioning deficits, it may have been the case that the ME group's longer length of illness served primarily to provide an advantage in terms of better recovery and social adjustment.

In addition to potentially being less recovered than ME participants, individuals in the FE group would have been experiencing the effects of a disruptive life event at or just previous to the time of their assessment. One significant effect of being recently diagnosed with schizophrenia may include a necessary change in focus from previous pursuits, such as school, work, and

social activity, to learning how to deal with mental illness. Those in the ME group, conversely, would be more likely to be settled into a way of life adapted to their functional abilities and they may also have developed the support of a community or a professional therapeutic network.

The implications of this difference in length of illness may be significant in terms of relative state of recovery and its effect on social functioning. The McLean First-Episode Psychosis Project, conducted by Tohen et al. (1992) examined rate of recovery in a small group of individuals with diagnoses of first-episode schizophrenia over the course of the first six months following discharge from hospital. They defined two distinct types of recovery, syndromic and functional, and determined that syndromic recovery tends to precede functional recovery. At six months, 80% of their participants exhibited syndromic recovery while only 55% exhibited functional recovery. They also noted that men were less likely to recover functionally by the six-month mark. They concluded that there may be a less favourable short-term outcome in many male patients following an initial, non-affective psychotic episode (Tohen et al., 1992).

Although recovery was not measured in the current study, the fact that all of the FE participants had been receiving treatment for less than one year, with many participants only recently released from hospital, may indicate of a lack of functional and/or syndromic recovery among members of that group. Members of the ME sample, conversely, had been living with their illness for an average of ten years and had been out of hospital for 3.24 years prior to assessment and so may have been more fully recovered.

The difference between groups on length of illness variables may have other ramifications as well. Depressed mood, for example, frequently occurs following the experience of the first psychotic episode (House et al., 1987) and has been found to be highest during periods when psychotic symptoms are at their highest (e.g., Addington & Addington, 1992; Drake & Cotton, 1986; Johnson, 1981; Koreen et al., 1993; Lysaker, Bell, Zito, & Bioty, 1995). Although depressive symptomatology was not measured in this study, it is of interest to speculate that participants in the FE sample may have been at greater risk for depression due to the possibility that they were not as recovered as those in the ME sample. If that was the case, their performance on the social functioning measures may have been adversely affected by depressive symptomatology, including difficulties with concentration and decision-making.

In accordance with research that indicates that other symptoms of schizophrenia worsen within the first few years of the disorder and then level off or even improve, House, Bostock, and Cooper (1987) reported a substantial reduction in depressive symptoms among their first-episode sample at one-year follow-up. Although some researchers have noted that depressive symptoms occur at approximately equal rates in FE and ME samples (e.g., Koreen et al., 1993), others have reported that the FE participants experienced higher levels of depression (e.g., Addington, Addington, & Patten, 1998). Addington and Addington (1999a) noted that the incidence of depression tends to increase among FE participants during the first three months following initial assessment but that no significant improvement in the level of depression occurs until one

year following the initial assessment. This may be due, in part, to the unique challenges that face individuals at the onset of schizophrenia, at which time psychosis may be viewed as a disruptive life event that threatens their goals and concepts of self-identity (Birchwood et al., 1997).

A final consideration that should be addressed given the difference in the length of illness between the FE and ME groups is that of differences in the amount of treatment each group had received. Aside from current levels of neuroleptics being administered, no information regarding length of treatment was collected. What is known, however, is that FE participants had been receiving pharmacological treatment for one year or less at the time of their assessment and it is reasonable to assume that the majority of the ME participants had been taking antipsychotics for a longer period of time. In addition, ME participants would have had more opportunity, by virtue of a longer period of exposure to mental health services, to be introduced to psychoeducational interventions such as social skills training groups.

Although there is enormous heterogeneity in individual response to pharmacological treatment (Kane & Marder, 1993), antipsychotics tend to produce the most therapeutic gain, including improvements in cognitive functioning and decreases in positive symptoms, within the first six weeks (Davis, 1985). Further gains are made during the subsequent 3 - 6 months (Davis, 1985; Szymanski et al., 1996) and symptoms do not tend to further improve after 6 months (Szymanski et al., 1996). Stabilization, then, is thought to occur after the first six months of treatment (McGlashan & Fenton, 1992; Stern et al., 1993;

Szymanski et al., 1996). It is impossible to know what proportion of the FE sample had attained 'stabilization.' Still, it is interesting to speculate on the possibility that fewer participants in this group had received the full benefits of pharmacological treatment than had those in the ME group due to the relatively short period of time for which they had been treated.

Section Summary

Overall, the differences between groups on the background variables that were common to all participants were minimal. Differences in level of education were controlled for in statistical analyses that revealed that education did not have a significant impact on participants' performances on the social functioning measures. Although the FE and ME groups were similar on variables of age at first admission, premorbid functioning, and current levels of antipsychotic medications, a difference did exist between them that had the potential to significantly influence participants' performance. Specifically, the length of illness and the amount of time that had passed since ME participants were last admitted to hospital and FE participants were admitted to the EPP. This may have potentially affected the results since FE participants, who had been diagnosed and receiving treatment for less than one year, may have been less fully recovered from active phase symptoms than were ME participants whose last admission to hospital, on average, occurred 3.24 years previous to assessment. In addition, FE participants may have been experiencing more depressive symptomatology and may have been less likely to have achieved stabilization from pharmacotherapy.

Group Comparisons - The Social Functioning Measures

As hypothesized, the Control group performed better on all of these measures than did the FE and ME groups. This occurred both at the overall level and at the subscale level, where the Control group outperformed the other two in almost every instance, with the exception of the Recreation category of the SFS. These results are in accordance with previous research that suggests that impairment in social functioning relative to controls is common among individuals with schizophrenia (e.g., Wallace, 1984).

The second hypothesis, however, that the FE group would perform significantly better on these measures than would the ME group, was not borne out. This hypothesis was based on research that has examined both social functioning and cognitive functioning in individuals with schizophrenia. Deterioration in both social and cognitive functioning has been demonstrated to occur prior to or within the first few years following onset (Addington, 1999; Bilder et al., 1992; Gold & Harvey, 1993; Hyde et al., 1994; McGlashan, 1988; McGlashan & Johannessen, 1996). Following this research, it stands to reason that individuals whose disorder is near the onset would be experiencing social and cognitive functioning deficits but that they would not equal those of individuals who had lived with the disorder for many years. In addition, studies that have compared the cognitive functioning of first- and multi-episode schizophrenia patients have demonstrated slightly better performance by first-episode participants (e.g., Bilder et al., 1992). Given that aspects of cognitive

functioning, such as vigilance and memory, appear necessary for appropriate social functioning, it seemed reasonable to assume that a similar pattern of decline would be demonstrable in regard to social functioning.

What was not taken into account in the assumption that FE participants would have fewer social functioning deficits than would ME participants, however, was the relatively new concept of the DUP in the FE group. As a point of reference, a previously published study placed the average DUP at 114 weeks, with almost half of its sample having a mean DUP of one year or longer (Larsen, McGlashan, & Moe, 1996). Data collected on the first 135 schizophrenia patients admitted to the EPP indicated that the average DUP for patients entering the program was 53 weeks. Although the average DUP was not recorded in the current study, it is likely that individuals in the FE group had been experiencing the effects of their illness for a significant period of time prior to their entry into the EPP and the assessment of their social functioning abilities.

Research has demonstrated a better prognosis among schizophrenia patients with a shorter DUP (e.g., Loebel et al., 1992; Lieberman et al., 1993), suggesting a causal relationship between earlier treatment and better prognosis (Larsen et al., 1996). What may also be reflected in an improved prognosis following a shorter DUP is that many of the declines in functioning (i.e., social and cognitive) associated with schizophrenia occur soon after onset, in a period of time now recognized as composing the DUP for many schizophrenia patients. The implication, then, is that the FE participants included in this study may not have been as "newly ill" as was intended. FE participants, recruited in an effort

to establish the social functioning capabilities of the newly ill, likely had been ill for a significant period by the time they presented for treatment, and may have already experienced the initial decline in social functioning that this study sought to examine.

The Social Functioning Scale (SFS)

Designed to assess areas of functioning essential to the community maintenance of individuals with schizophrenia, the SFS avoids "evaluative" and "normative" decisions, "which may prove unreliable," by "enumerating" basic skills and social behaviours (Birchwood et al., 1990, p. 854). It examines some of the areas of functioning tapped by the QLS, including withdrawal, interpersonal behaviour, activities, and employment, without requiring the examiner to supplement questions with probes or to make "complex judgements" (Heinrichs et al., 1984). When these areas of functioning were examined with the SFS, there was not a significant difference in performance between the ME and FE groups, which attained identical mean scores on this measure. Since the SFS is a measure of social interaction and the number of activities in which an individual is engaged, it is reasonable to expect that FE participants' lower-than-anticipated performance on this instrument was affected by poorer relative adaptation to their illness.

Examined at the subscale level, each group demonstrated particular strengths and weaknesses, most of which do not appear to be particularly revealing. The two groups did not differ significantly on measures of Recreation (e.g., watching television, exercising) and Prosocial Activities (e.g., attending

movies, visiting friends). The FE group attained a higher mean score on the Social Engagement/Withdrawal category, a subscale that examines how often participants initiate conversations, how much time they tend to spend alone each day, and how they react to the presence of strangers. Conversely, however, they performed more poorly in the area of Interpersonal Communication, a category that examines how many friends participants have, whether they are involved in a relationship, and how they perceive the quality of their communication. The FE group also achieved a superior mean score on the Occupation/ Employment subscale which queries whether participants are employed and, if not, whether they feel capable of working and whether they are looking for employment.

Perhaps the most interesting differences between groups on the SFS were on the Independence-Performance and Independence-Competence subscales. The ability to perform activities necessary for independent living, such as washing clothes, doing the food shopping, and taking care of personal appearance, is the focus of the Independence-Performance subscale, on which ME participants outperformed FE participants. Given the younger mean age of the participants in the FE group and the fact that a substantial proportion of them were students, one possible explanation for their poorer performance on this subscale may be that some of them were not required to shop, cook, clean or budget for themselves. Conversely, they may not have been engaging in these activities during the time since their relatively recent first psychotic episode. Interestingly, there was not a significant difference between the FE and ME groups on the Independence-Competence category, which queries whether

participants judge themselves able to perform the tasks listed in the Independence-Performance category.

In summary, the FE and ME groups achieved virtually identical scores on the self-report SFS. Analyses conducted at the subscale level revealed that FE participants tended to spend less time alone and to initiate conversations more frequently but that ME participants were likely to have more friends and to perceive the quality of their communication more favourably. In addition, FE participants were found to be engaging in activities necessary for independent living, less frequently than were ME participants, yet judged themselves equally capable of performing such activities. Reasons for this discrepancy are discussed, including the presence of a large number of students in the FE sample. Overall, however, it is argued that the result of no difference between FE and ME participants on the SFS may be due to length of illness variables such as poorer recovery and illness adaptation.

The Quality of Life Scale (QLS)

Of the three social functioning measures included in this study, the QLS likely would be the most sensitive to poor illness recovery and adaptation since it examines participants' functioning during the four weeks prior to assessment (Heinrichs et al., 1984). In addition, performance on the QLS has been found to be related to symptomatology (Addington & Addington, 1999c) and symptoms may be expected to fluctuate more among the less fully recovered. The result that the FE participants performed more poorly on the QLS than did the ME participants was not expected. Nonetheless, this result is in keeping with the

argument that the performance of the FE participants on the social functioning measures was significantly influenced by a disruptive life event and by their relatively early stage of recovery and lack of adaptation to their illness.

Analyses were conducted in an effort to determine if there was another reason why the FE group did more poorly overall on the QLS than did the ME group. Analyses conducted at the subscale level revealed that the difference between groups was accounted for by higher mean ME scores on two of the four QLS subscales, Interpersonal Relations and Intrapsychic Foundations. The Interpersonal Relations subscale of the QLS contains items that assess aspects of interpersonal and social experience (Heinrichs et al., 1984). Specifically, items focus on relationships within the home, with family and friends, as well as on social networks, social activity, withdrawal, and sociosexual functioning. The poorer performance of FE participants on this subscale, as on the Interpersonal Communication scale of the SFS, may indicate a lack of close relationships with others. Isolation and difficulties initiating social interaction, components measured by the Social Engagement/Withdrawal scale of the SFS, may prove less problematic for FE participants, who outperformed ME participants on that scale.

Factor analysis of the QLS revealed that items on the Intrapsychic Foundations subscale ostensibly tap into the dimensions of cognition, conation, and affectivity, which Heinrichs et al. (1984, p. 390) noted are "often seen as near the core of the schizophrenic deficit." Specific capacities assessed by this

subscale are: sense of purpose, motivation, curiosity, empathy, ability to experience pleasure, and emotional interaction.

Examined more closely, each of the items in the Intrapsychic Foundations category assesses characteristics that have the potential to be significantly affected by a disruptive life event, such as a first psychotic break. Components of the curiosity item, for example, examine whether participants have been keeping themselves abreast of current events. The anhedonia item focuses on whether participants feel as if they have been enjoying their lives in the past four weeks. The empathy item explores how well participants have been able to focus on the feelings of others in the recent past and the emotional interaction item is a subjective, global judgement made by the examiner in an effort to quantify how engaged was the participant in the interview.

No significant differences were found between the FE and ME groups on either the Instrumental Role or Common Objects and Activities subscales. These categories assess aspects of functional activity, as reflected in employment and achievement, as well as in possession of common objects and participation in a range of "regular" activities (Heinrichs et al., 1984, p. 390). This indicates that participants in the two groups were essentially equal in their ability to work or to engage in other functional activities (e.g., being a student or homemaker). They were also equal in regard to the number of common objects (e.g., a driver's license, a watch) they possessed and regular activities (e.g., paying bills, shopping for food) in which they engaged.

What this indicates is that participants in the FE group, many of whom had recently experienced the unsettling event of a first psychotic break, appeared essentially as functional as those in the ME group, most of whom had been relatively stable outpatients for years. It is difficult to determine the significance of this apparent equality between groups, as it may actually reflect an inequality mitigated by some other factor. One possibility, for example, is that the disruptive effect of the first psychotic episode alone brought the functional level of FE group participants down to where it met that of the ME participants.

In an effort to explore the possibility that a recent disruptive life event, in combination with less symptom remission, could explain why the FE group performed more poorly on the QLS, analyses were conducted that separated FE participants into groups according to the time at which they completed the social functioning measures. Two analyses were completed, the first of which compared QLS scores for three groups of FE participants: those who were assessed upon entry into the EPP, those assessed at one year, and all those assessed in the time between entry to the EPP and their one year assessment. No significant differences in performance on any of the QLS subscales or on the total score were found in this design. Another design was implemented, in which the QLS scores of those assessed at entry were compared to the scores of all participants assessed at any other time. Although the results of these analyses also proved not to be significant statistically, a pattern did emerge in which those assessed at entry consistently scored lower overall on all aspects of the QLS than did those assessed later.

In sum, although it was not anticipated that FE participants would perform more poorly on the QLS than would ME individuals, this result is in keeping with the argument that a disruptive life event, in combination with less symptom remission, may have served to impair FE participants' performance. This contention is supported by the fact that the QLS has been found to be related to symptomatology and by the fact that it is the most sensitive of the three social functioning measures to recent life changes. In addition, analyses revealed a non-significant trend for individuals newly admitted to the EPP at the time of their assessment to perform more poorly on all aspects of the QLS.

The Assessment of Interpersonal Problem-Solving Skills (AIPSS)

The three primary components assessed by the AIPSS are participants' abilities to "read" a social situation, "think about" what kind of response they might make, and then to "perform" that response (Donahoe et al., 1990, p. 329). The direct observation of these component parts distinguishes the AIPSS from the QLS and SFS, which are only able to assess the quality of social interactions and social problem-solving skills in an indirect manner (Addington & Addington, 1997a).

As with the SFS, the FE and ME groups did not attain significantly different overall scores on this measure, nor, in this case, were there any differences between groups on the component parts of the AIPSS, indicating that they demonstrated similar levels of Receiving, Processing, and Sending skills. Unlike the SFS and QLS, the AIPSS is not a measure of community functioning; rather, it assesses the tripartite skills required to receive, process, and send

information (Wallace, 1984). Indeed, Corrigan and Toomey (1995) noted that measures of social problem solving, such as the AIPSS, could be conceived of as social information processing tasks. As such, the AIPSS would be more similar to neurocognitive tasks than to measures of community functioning (Addington & Addington, 1999c).

Recent research conducted by Addington and Addington (1999c) has demonstrated a relationship between social and cognitive functioning in schizophrenia that appears to be stable over time (Addington & Addington, 1997a). This area of research has revealed that deficits in neurocognition predict poor social functioning in individuals with schizophrenia (Addington, McCleary, & Munroe-Blum, 1998; Addington & Addington, 1999c). Furthermore, a study in which the neurocognitive and social functioning abilities of individuals with schizophrenia were examined in a two and a half year follow-up, revealed a cross-temporal consistency in associations between neurocognition and social problem-solving, but not between neurocognition and community functioning (Addington & Addington, 1997a).

In addition, recent studies by Addington and Addington (1999b; 1999c) demonstrated that the cognitive functioning of first-episode patients did not differ significantly from that of multi-episode patients. The authors concluded that cognitive functioning is a stable trait of schizophrenia that does not appear to be related to the passage of time. Given this recent development in the literature, it would now be reasonable to expect that social functioning deficits in schizophrenia also do not change significantly over time, due to their

demonstrated relationship with cognitive deficits. The implication of this research, therefore, is that performance on measures of social problem solving, such as the AIPSS, would not be expected to change significantly over the course of schizophrenia (Addington & Addington, 1997a).

Since deficits in neurocognition have demonstrated stability over time (Addington & Addington, 1999b; 1999c), it follows that participants' abilities to solve social problems would also remain stable over time. The fact that the FE and ME groups did not differ in their achievement on the AIPSS supports Addington and Addington's (1997a) recent study in which a cross-temporal consistency was found between neurocognition and social problem solving.

In summary, the AIPSS is distinguishable from the SFS and QLS by virtue of its relationship to neurocognitive functioning. Given recent developments in the study of the cross-temporal consistency of neurocognitive and social problem solving abilities, it is not surprising that the FE and ME groups did not differ significantly in their performance on this measure. Indeed, this result supports a growing area of research that has found evidence for no difference between FE and ME individuals on measures of neurocognition and social problem solving.

Section Summary

As anticipated, the control group performed better on all of the social functioning measures than did the FE and ME groups. There were no significant differences between the FE and ME groups on the overall scores of the AIPSS and SFS, however, and the ME group actually outperformed the FE group on the overall QLS score. Analyses of the social functioning measures that were

conducted at the subscale level provided the most interesting information about the relative strengths and weakness of the participants in the FE and ME groups. Exploring beyond the identical score that the two groups achieved on the SFS, it was revealed that the FE group scored higher on a measure of occupational functioning. In terms of performing activities necessary for independent living, it was revealed that the ME group was more likely to engage in these activities, although participants in both groups were equal in their belief that they were able to perform these activities. The discrepancy between the FE group's perceived ability to perform these activities and the number of times they actually engaged in them during the four weeks prior to assessment may have been due to the group's relatively young mean age (i.e., activities such as cooking were done for them) or to recent active phase illness.

No significant differences between the FE and ME groups existed on the three components of the AIPSS. This result is in keeping with an area of research that has recently examined the relationship of social problem solving to neurocognition. Neurocognitive functioning, including elements such as verbal ability, verbal memory, and cognitive flexibility, has been found to be related to the three scales of the AIPSS (Addington & Addington, 1999c). This research has demonstrated that there is no difference between FE and ME participants on cognitive functioning and that the relationship between poor social functioning and poor cognitive functioning is stable over time (Addington & Addington, 1997a). Therefore, while not expected, it is not surprising that the FE and ME participants did not achieve significantly different scores on the AIPSS.

The most perplexing result in this study was the ME group's superior overall performance on the QLS. It was explained at the subscale level by higher scores in the ME group on the Intrapsychic Foundations and Interpersonal Relations subscales. It was postulated that the FE group's poorer performance on this measure may have been due to the influence of their recent first psychotic break, possibly including negative and depressive symptoms, on items such as empathy, anhedonia, emotional interaction, and curiosity in the four weeks previous to their assessment. Analyses that compared the performance of those assessed upon entry to the EPP to those assessed further into their recovery revealed a non-significant trend for those assessed at entry to perform more poorly than those assessed later. This provides some support for the hypothesis that one of the primary reasons why the FE group did not outperform the ME group as expected on social functioning measures may have been due to a less complete recovery from the active phase of schizophrenia and poorer adjustment to their illness. Since the QLS examines only the four weeks previous to assessment, it may be the measure most sensitive to symptoms and functional disabilities associated with incomplete recovery.

Limitations of the Study

A significant limitation of this study was that the DUP was not measured in a FE sample assessed for a decline suspected to occur quite early in the disorder. Neither was the importance of recovery from active phase symptoms, perhaps best reflected in length of illness variables, taken into account. Similarly,

this study did not foresee the possible confound inherent in comparing individuals who had yet to fully adjust to the demands placed on them by their disorder with those who had been stabilized and accustomed to their new lifestyle for a number of years. It is possible that the combination of a recent disruptive life event and an incomplete recovery from active phase symptoms may have worked together to cloud the relationship between length of illness and social functioning that this study sought to establish.

The analyses herein also may have provided more information about the differences between FE and ME samples if symptomatic status had been taken into account. The relationship between symptoms and social functioning, however, has not clearly been established. Some researchers have found a link between positive and/or negative symptoms and social functioning (e.g., Addington & Addington, 1999b & 1999c; Bellack et al., 1990a; Bellack et al., 1990b) although others have concluded that social functioning is a clinical domain independent of positive and negative symptoms (Lenzenweger, Dworkin, & Wetherington, 1991). Dworkin et al. (1991) concluded that the symptoms of schizophrenia alone, therefore, could not explain the prominent impairments in social competence. In addition, symptoms have not been found to affect neurocognitive functioning so it is likely that they would not have affected performance on the AIPSS (Addington & Addington, 1999c).

A related limitation in this study is that FE participants were assessed at several points throughout their first year of treatment. The results demonstrated a non-significant tendency for the stage at which FE participants were assessed

to have an impact on their scores on the QLS. Given that participants' performance on various measures will undoubtedly be affected by variables such as rate of recovery and stabilization on medications during their first year of treatment, clearer results may have been obtained by assessing all FE participants at the same stage of treatment.

Finally, in the course of examining the scores on the social functioning measures, a large difference was found between the scores of participants in this study and the established norms for the SFS (Birchwood et al., 1990), in favour of this study's control and schizophrenia participants. Similar differences were not found to exist between Heinrichs et al.'s (1984) normative sample's scores on the QLS and this study's FE sample's QLS scores. Once again, however, higher scores were found in this study's sample in the comparison between the ME group and Heinrichs et al.'s (1984, p. 390) sample of 111 schizophrenia patients, 85% of whom were described as "chronic" or "subchronic".

This raises some concern that examiner bias may have contributed to inflating scores on the social functioning measures. However, the fact that higher scores were found on the self-report SFS detracts from this argument. Another possible explanation is that the participants in this study were of higher socioeconomic status than those in the normative samples, given that the vast majority were caucasian, many were relatively well educated, and none were homeless. The relatively superior performance of individuals in this study, therefore, may have been due to ceiling effects, such that the social functioning measures were not sensitive enough to detect differences in performance among

individuals who were higher functioning relative to those included in the normative sample.

Future Directions

Although this study was unsuccessful in establishing a relationship between length of illness and social functioning in schizophrenia, its results support the growing body of research that indicates that social functioning is impaired in individuals with schizophrenia, even among those who are relatively newly ill. The importance of this knowledge extends beyond awareness of the impaired quality of social interactions and the increased level of isolation among individuals with schizophrenia. Indeed, poor social competence has been found to make individuals with schizophrenia vulnerable to symptom relapses and poorer outcome (Penn et al., 1995).

This study succeeded in its goal of bolstering the already accepted argument that early treatment is essential in schizophrenia by demonstrating that social functioning deficits exist near the onset of the disorder. This study also appears to have supported the need for early intervention through its inability to demonstrate that social functioning is more impaired in individuals with multi-episode schizophrenia than in those considered to be "newly ill." Since many of the deficits in social and cognitive functioning associated with schizophrenia are hypothesized to occur very soon after the onset of the disorder, examining FE individuals following a lengthy or unknown DUP makes comparisons between FE and ME samples less meaningful. Indeed FE samples, such as the one included

in this study, may not differ from ME samples on measures of social functioning simply due to the fact that a majority of functional decline occurs during the DUP. What DUP research illustrates is the unfortunate fact that participants in many FE samples are not as "newly ill" as once thought. Future research in this area may be more successful in elucidating a relationship between social functioning deficits and length of illness, if one exists, if FE participants with a relatively short DUP could be assessed. At the very least, it would be helpful to record the DUP for each FE individual and to treat it as a comparison variable and possible covariate in statistical analyses.

Future research may also benefit by striving to examine FE and ME groups that are comparable on the amount of time that has elapsed since the most recent acute phase of their illness. This may help to partial out the effects of differing stages of recovery from active phase illness on social functioning abilities and to establish a relationship between symptomatic recovery and social functioning. A variable that may continue to affect the results of comparisons between FE and ME groups, and one that is hypothesized to have been a factor in this study's results, is the benefit that may be conferred by the increased number of years ME participants have spent living with schizophrenia. This study has proposed that the effects of a disruptive life event, such as a first psychotic episode, on social functioning may be significant. In addition, an increased number of years spent living with schizophrenia may provide ME individuals with an opportunity to come to terms with their illness and to adapt their lifestyle accordingly.

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Appendix A

Participant Consent Form

Research Project

Social functioning in psychiatric outpatients.

Investigators and Contact Numbers

Dr. J. Addington (670-4836) and C. Grant, M.Sc. (220-3769).

This consent form, a copy of which has been given to you, is only part of the process of informed consent. It should give you a basic understanding of what the research project is about and what your participation will involve. If you would like more details about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Purpose of the Research

The purpose of this project is to increase our understanding of the level of social functioning in individuals who are experiencing their first episode of psychosis. Social functioning includes: how people interact with other people, how they function in the community or with their friends, and whether they work.

Procedures

I understand that the study will involve:

- (i) An interview to determine what symptoms I may have or have had in the past. This will take approximately 60 minutes.
- (ii) A second interview to talk about how I spend my time at work, at home, with my friends or acquaintances, and what I do in my leisure time. This will take approximately 45 minutes.
- (iii) A task where I will be asked to watch a short video of people involved in social interactions. I will have to say what I think they are doing and then say what my response will be. I understand that my response will be audiotaped so that it can be scored. I understand that the tape will be erased as soon as it is scored and only the marker will hear the tape. This task will take approximately 30 minutes.

This assessment will be done in two sessions. However, you can have breaks in the sessions as you prefer. The appointments will be made at a time suitable to you. None of the tasks can be considered part of your normal treatment.

Design of the Study

The design of the study will involve comparing your performance on the social functioning tasks with scores obtained from other psychiatric outpatients and from individuals who have not experienced psychosis on the same tasks.

Risks

There are no risks to you from participating in this research. If you feel fatigued or stressed by the demands of the tasks you may take a break, postpone the tasks to another time, or refuse to continue in the research project.

Benefits

There are no direct benefits to you from participating in this research. Your participation will help to increase our knowledge of the social functioning of psychiatric outpatients.

Alternatives

You may choose not to participate in this research. If you choose to participate, you may later withdraw from the study at any time. Just as there are no risks or benefits to participating, there are no risks or benefits to not participating. Neither participating nor refusing will affect any decisions about your treatment or your involvement in your treatment program.

Access to Information

The following steps will be taken to ensure that the information obtained from the research is kept confidential:

- (a) You will be interviewed in a private office.
- (b) Your records will be identified only by a number and not by your name.
- (c) Your records will be kept in a locked filing cabinet in a locked office.
- (d) No information concerning your identity will be used in any published reports.
- (e) The audiotapes will be erased as soon as they have been scored.

Costs

There are no costs associated with participation in this study.

Your signature on this form indicates that you have understood to your satisfaction the information regarding your participation in the research project and that you agree to participate as a participant. In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal or professional responsibilities. You are free to withdraw from the study at any time without jeopardizing your health care. Your continued participation should be as informed as the initial consent, so you should feel free to ask for clarification or new information throughout your participation. If you have further questions concerning matters related to this research, please contact the investigators listed above.

A copy of this consent form has been given to you. If you have any questions concerning your rights as a possible participant in this research, please contact the Office of Medical Bioethics, Faculty of Medicine, The University of Calgary at 220-7990.

Name of Participant

Name of Witness

Signature of Participant

Signature of Witness

Principal Investigator

Signature of Principal Investigator

Date

Appendix B

Participant Consent Form

Research Project

Social functioning in psychiatric outpatients.

Investigators and Contact Numbers

Dr. J. Addington (670-4836) and C. Grant, M.Sc. (220-3769).

This consent form, a copy of which has been given to you, is only part of the process of informed consent. It should give you a basic understanding of what the research project is about and what your participation will involve. If you would like more details about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Purpose of the Research

The purpose of this project is to increase our understanding of the level of social functioning in individuals who are experiencing their first episode of psychosis. Social functioning includes: how people interact with other people, how they function in the community or with their friends, and whether they work.

Procedures

I understand that the study will involve:

(i) An interview to talk about how I spend my time at work, at home, with my friends or acquaintances, and what I do in my leisure time. This will take approximately 45 minutes.

(iii) A task where I will be asked to watch a short video of people involved in social interactions. I will have to say what I think they are doing and then say what my response will be. I understand that my response will be audiotaped so that it can be scored. I understand that the tape will be erased as soon as it is scored and only the marker will hear the tape. This task will take approximately 30 minutes.

This assessment will be done in one session. However, you can have breaks in the sessions as you prefer. The appointments will be made at a time suitable to you.

Design of the Study

The design of the study will involve comparing your performance on the social functioning tasks with scores obtained from psychiatric outpatients on the same tasks.

Risks

There are no risks to you from participating in this research. If you feel fatigued or stressed by the demands of the tasks you may take a break, postpone the tasks to another time, or refuse to continue in the research project.

Benefits

There are no direct benefits to you from participating in this research. Your participation will help to increase our knowledge of the social functioning of psychiatric outpatients.

Alternatives

You may choose not to participate in this research. If you choose to participate, you may later withdraw from the study at any time. Just as there are no risks or benefits to participating, there are no risks or benefits to not participating.

Access to Information

The following steps will be taken to ensure that the information obtained from the research is kept confidential:

- (a) You will be interviewed in a private office.
- (b) Your records will be identified only by a number and not by your name.
- (c) Your records will be kept in a locked filing cabinet in a locked office.
- (d) No information concerning your identity will be used in any published reports.
- (e) The audiotapes will be erased as soon as they have been scored.

Costs

There are no costs associated with participation in this study.

Your signature on this form indicates that you have understood to your satisfaction the information regarding your participation in the research project and that you agree to participate as a participant. In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal or professional responsibilities. You are free to withdraw from the study at any time without jeopardizing your health care. Your continued participation should be as informed as the initial consent, so you should feel free to ask for clarification or new information throughout your participation. If you have further questions concerning matters related to this research, please contact the investigators listed above.

A copy of this consent form has been given to you. If you have any questions concerning your rights as a possible participant in this research, please contact the Office of Medical Bioethics, Faculty of Medicine, The University of Calgary at 220-7990.

_____	_____
Name of Participant	Name of Witness

_____	_____
Signature of Participant	Signature of Witness

_____	_____
Principal Investigator	Signature of Principal Investigator

Date

Appendix C

Screening Questions for Control Group Participants

General Questions

1. Have you ever seen a psychiatrist, psychologist, social worker, psychiatric nurse, or counsellor?

IF YES: Why were you seeing the counsellor?

2. Have you ever been diagnosed with a psychiatric or mental condition such as depression, anxiety, or psychosis or seen anyone for these problems?

IF YES: What was the diagnosis?

3. Have you ever been prescribed psychiatric medications such as antidepressants, antipsychotics, or anxiolytics?

IF YES: What medications were you prescribed?

4. Have you ever been hospitalized for a psychiatric condition such as depression, anxiety, panic attacks, psychosis, or suicidal thoughts?

IF YES: What were you hospitalized for?

Psychotic and Associated Symptoms

Now I'd like to ask you about unusual experiences that people sometimes have.

1. Has it ever seemed like people were talking about you or taking special notice of you?

IF YES: Were you convinced they were talking about you or did you think it might have been your imagination?

2. Has it ever seemed like you were able to receive special messages from the T.V., radio, or newspaper, or from the way things were arranged around you?

3. Has it ever seemed like someone has gone out of his or her way to give you a hard time, or to try to hurt you?

4. Have you ever felt that you were especially important in some way or that you had special powers to do things that other people couldn't do?

5. Did you ever feel that something was very wrong with you physically even though your doctor said nothing was wrong...like you had cancer or some other terrible disease?
6. Have you ever been convinced that something was very wrong with the way a part or parts of your body looked?
7. Did you ever feel that something strange was happening to parts of your body?
8. Did you ever have any unusual religious experiences?
9. Did you ever feel that you had committed a crime or done something terrible for which you should be punished?
10. Did you ever hear things that other people couldn't hear, such as noises, or the voices of people whispering or talking? (Were you awake at the time?)

IF YES: Describe.

11. Did you ever have visions or see things that other people couldn't see? (Were you awake at the time?)

NOTE: DISTINGUISH FROM AN ILLUSION, I.E., A MISPERCEPTION OF A REAL EXTERNAL STIMULUS.

12. Have you ever felt strange sensations in your body or on your skin?

IF YES: Describe.

13. Have you ever smelled or tasted things that other people couldn't smell or taste?

IF YES: Describe.

General Questions

1. How old are you?
2. How many years of education have you completed?
3. What is your marital status?
4. What is your primary source of income?

Appendix D

The Cannon-Spoor Premorbid Adjustment Scale (PAS)

INSTRUCTIONS

This scale is designed to measure only **PREMORBID FUNCTIONING**

PREMORBID is defined as the period ending 6 MONTHS before

1. the first psychiatric hospitalization or
2. first psychiatric contact or
3. 6 months before evidence of characteristic florid psychotic symptomatology.

Only those life periods that are **PREMORBID** by this definition should be rated on this scale, regardless of the present age of the subject. (e.g. a 39 year old who had his first break at 17 would not be rated on the adult section - 19 and older but would be rated on all other sections including general section.)

Items are rated from 0 - 6. If it is impossible to rate an item it should be marked as NA (not available) on the scoring sheet.

Scoring

The possible score indicates the highest score obtainable by adding the maximum score for all items **completed**. e.g. if a subject receives ratings of 2, 3, 3, and 2 for the four items in the childhood section, the total score is 10. The possible score is $6+6+6+6=24$. The total score divided by the possible score is .42. The score for any one section is expressed as a total score divided by possible score for the items rated. If only three items could be rated then the possible score would be 18 ($6+6+6$), the total score would be $8(2+3+3)$, and the section score .44.

The overall score is obtained by averaging all the subscale scores.

PREMORBID ADJUSTMENT SCALE

I. CHILDHOOD (up through Age 11)

1. Sociability and withdrawal.

- 0 Not withdrawn, actively and frequently seeks out social contacts.
- 1
- 2 Mild withdrawal, enjoys socialization when involved, occasionally seeks opportunities to socialize.
- 3
- 4 Moderately withdrawn, given to daydreaming and excessive fantasy, may passively allow self to be drawn into contact with others, but does not seek it.
- 5
- 6 Unrelated to others, withdrawn and isolated, avoids contacts.

2. Peer relationships

- 0 Many friends, close relationships with several
- 1
- 2 Close relationships with a few friends (one or two), casual friendships with others.
- 3
- 4 Deviant friendship patterns: friendly with children younger or older only, or relatives only, or casual relationships only.
- 5
- 6 Social isolate, no friends, not even superficial relationships.

3. Scholastic performance

- 0 Excellent student.
- 1
- 2 Good student.
- 3
- 4 Fair student.
- 5
- 6 Failing all classes.

4. Adaptation to school

- 0 Good adaptation, enjoys school, no or rare discipline problems, has friends at school, likes most teachers.
- 1
- 2 Fair adaptation, occasional discipline problems, not very interested in school, but no truancy or rare. Has friends in school, but does not often take part in extracurricular activities.
- 3
- 4 Poor adaptation, dislikes school, frequent truancy, frequent discipline problem.
- 5
- 6 Refuses to have anything to do with school - delinquency or vandalism directed against school.

II. ADOLESCENCE (early, ages 12-15)**1. Sociability and withdrawal**

- 0 Not withdrawn.
- 1
- 2 Mild withdrawal, enjoys socialization when involved, occasionally seeks opportunities to socialize.
- 3
- 4 Moderately withdrawn, given to daydreaming and excessive fantasy, may passively allow self to be drawn into contact with others, but does not seek it.
- 5
- 6 Unrelated to others, withdrawn and isolated, avoids contact.

2. Peer relationships

- 0 Many friends, close relationships with several.
- 1
- 2 Close relationships with a few friends (one or two), casual friendships with others.
- 3
- 4 Deviant friendship patterns: friendly with children younger or older only, or relations only, or casual relationships only.
- 5
- 6 Social isolate, no friends, not even superficial relationships.

3. Scholastic performance

0 Excellent student.

1

2 Good student.

3

4 Fair student

5

6 Failing all classes.

4. Adaptation to school

0 Good adaptation, enjoys school, no or rare discipline problems, has friends at school, likes most teachers.

1

2 Fair adaptation, occasional discipline problems, not very interested in school, but no truancy or rare. Has friends in school, but does not often take part in extracurricular activities.

3

4 Poor adaptation, dislikes school, frequent truancy, frequent discipline problem.

5

6 Refuses to have anything to do with school - delinquency or vandalism directed against school.

5. Social-sexual aspects of life during early adolescence

0 Started dating, showed a "healthy interest" in the opposite sex may have gone "steady", may include some sexual activity.

1

Attachment and interest in others, may be same-sex attachments, may be a member of a group, interested in the opposite sex, although may not have close, emotional relationship with someone of the opposite sex, "crushes" and flirtations.

2 Consistent deep interest in same-sex attachments with restricted or no interest in the opposite sex.

3 Casual same-sex attachments with inadequate attempts at relationships with the opposite sex. Casual contacts with both sexes.

4 Casual contacts with the same sex, no interest in the opposite sex.

5 A loner, no or rare contacts with either boys or girls.

6 Antisocial, avoids and avoided by peers (differs from above in that an active avoidance of others rather than a passive withdrawal is implied).

III. ADOLESCENCE (Late, ages 16-18)

1. Sociability and withdrawal

0 Not withdrawn.

1

2 Mild withdrawal, enjoys socialization when involved, occasionally seeks opportunities to socialize.

3

4 Moderately withdrawn, given to daydreaming and excessive fantasy, may passively allow self to be drawn into contact with others, but does not seek it.

5

6 Unrelated to others, withdrawn and isolated, avoids contact.

2. Peer relationships

0 Many friends, close relationships with several

1

2 Close relationships with a few friends (one or two), casual friendships with others.

3

4 Deviant friendship patterns: friendly with children younger or older only, or relations only, or casual relationships only.

5

6 Social isolate, no friends, not even superficial relationships.

3. Scholastic performance

0 Excellent student.

1

2 Good student.

3

4 Fair student

5

6 Failing all classes.

4. Adaptation to school

- 0 Good adaptation, enjoys school, no or rare discipline problems, has friends at school, likes most teachers.
- 1
- 2 Fair adaptation, occasional discipline problems, not very interested in school, but no truancy or rare. Has friends in school, but does not often take part in extracurricular activities.
- 3
- 4 Poor adaptation, dislikes school, frequent truancy, frequent discipline problem.
- 5
- 6 Refuses to have anything to do with school - delinquency or vandalism directed against school.

5. Social-sexual aspects of life during early adolescence

- 0 Always showed a "healthy interest" in the opposite sex, dating, has gone "steady", has engaged in some sexual activity (not necessarily intercourse).
- 1 Dated regularly. Had only one friend of the opposite sex with whom the subject went "steady" for a long time. (Includes sexual aspects of a relationship, although not necessarily intercourse; implies a twosome, pairing off into couples as distinguished from below).
- 2 Always mixed closely with boys and girls. (Involves membership in a crowd, interest in and attachment to others, no couples).
- 3 Consistent deep interest in same-sex attachments with restricted or no interest in the opposite sex.
- 4 Casual same-sex attachments with inadequate attempts at adjustment to going out with the opposite sex. Casual contacts with both sexes.
- 5 Casual contacts with the same sex, with a lack of interest in the opposite sex. Occasional contacts with the opposite sex.
- 6 No desire to be with boys and girls, never went out with the opposite sex.

IV. ADULTHOOD (Age 19 and above)

1. Sociability and withdrawal

- 0 Not withdrawn, actively and frequently seeks out social contact.
- 1
- 2 Mild withdrawal, enjoys socialization when involved, occasionally seeks opportunities to socialize.
- 3
- 4 Moderately withdrawn, given to daydreaming and excessive fantasy, may passively allow self to be drawn into contact with others, but does not seek it.
- 5
- 6 Unrelated to others, withdrawn and isolated, avoids contact.

2. Peer relationships

- 0 Many friends, close relationships with several.
- 1
- 2 Close relationships with a few friends (one or two), casual friendships with others.
- 3
- 4 Deviant friendship patterns: friendly with children younger or older only, or relations only, or casual relationships only.
- 5
- 6 Social isolate, no friends, not even superficial relationships.

3. Aspects of adult social-sexual life

A. Married presently or formerly:

- 0 Married, only one marriage (or remarried as a result of death of spouse), living as a unit, adequate sexual relations.
- 1 Currently married with a history of low sexual drive, periods of difficult sexual relations, or extramarital affair.
- 1 Married more than one time, currently remarried. Adequate sexual relations during at least one marriage.
- 2 Married, or divorced and remarried, with chronically inadequate sex life.
- 2 Married and apparently permanently separated or divorced without remarriage, but maintained a home in one marriage for at least 3 years.

- 3 Same as above, but divorce occurred over 3 years ago and while married, maintained a home for less than 3 years.

B. Never married, over 30:

- 2 Has been engaged one or more times or has had a long-term relationship (at least 2 years) involving heterosexual or homosexual relations, or apparent evidence of a love affair with one person, but unable to achieve a long-term commitment such as marriage.
- 3 Long-term heterosexual or homosexual relationship lasting over 6 months, but less than 2 years. (If stable, long-lasting homosexual relationship, over 2 years, score as "3".)
- 4 Brief or short-term dating experiences (heterosexual or homosexual) with one or more partners, but no long lasting sexual experience with a single partner.
- 5 Sexual and/or social relationships rare or infrequent.
- 6 Minimal sexual or social interest in either men or women, isolated.

C. Never married, age 20-29:

- 0 Has had at least one long-term love affair (minimum 6 months) or engagement, even though religious or other prohibitions or inhibitions may have prevented actual sexual union. May have lived together.
- 1 Has dated actively, had several "boyfriends" or "girlfriends". Some relationships have lasted a few months, but no long-term relationships. Relationships may have been serious but a long-term commitment such as marriage was not understood to be an eventuality.
- 3 Brief or short-term dating experiences or affairs with one or more partners, but no long lasting sexual experience with a single partner.
- 4 Casual sexual or social relationships with persons of either sex with no deep emotional bonds.
- 5 Sexual and/or social relationships rare or infrequent.
- 6 Minimal sexual or social interest in either men or women, isolated.

GENERAL**1. Education**

- 0 Completed college and/or graduate school or professional school (law for example).
- 1 Completed high school and some college or vocational training or business school.
- 2 Completed high school.
- 3
- 4 Completed grade 8.
- 5
- 6 Did not get beyond grade 5.

2. During a period of 3 years up to 6 months before first hospitalization or onset of first episode, patient was employed for pay or functioning in school.

- 0 All the time.
- 1
- 2 Half the time.
- 3
- 4 Briefly, about 25% of the time.
- 5
- 6 Never.

3. Within a period of 1 year up to 6 months before first hospitalization or onset of first episode, change in work or school performance occurred.

- 0 Abruptly.
- 1
- 2 Within 3 months.
- 3
- 4 Within 6 months.
- 5
- 6 Imperceptibly, difficult or not possible to determine onset of deterioration.

4. During a period of 3 years up to 6 months before first hospitalization or onset of first episode, frequency of job change, if working, or interruption of school attendance was

0 Same job held or remained in school.

1

2 Job change or school interruption occurred 2-3 times.

3

4 Kept the same job more than 8 months, but less than 1 year or remained in school continuously for the same period.

5

6 Less than 2 weeks at a job or in school.

5. Establishment of independence

0 Successfully established residence away from family home, financially independent of parents.

1

2 Made unsuccessful attempts to establish independent residence, lives in parents' home but pays room and board, otherwise financially independent.

3

4 Lives in parents' home, receives an allowance from parents which subject budgets to pay for entertainment, clothes etc.

5

6 Made no attempt to leave home or be financially independent.

6. Global assessment of highest level of functioning achieved in subject's life

0 Fully able to function successfully in and take pleasure from (1) school or job; (2) friends; (3) intimate sexual relationships; (4) church, hobbies etc. Enjoys life and copes with it well.

1

2 Able to function well and enjoys some spheres of life, but has a definite lack of success in at least one area.

3

4 Minimum success and pleasure in 3 areas of life.

5

6 Unable to function in or enjoy any aspect of life.

7. Social-personal adjustment

0 A leader or officer in formally designated groups, clubs, organizations, or athletic teams in senior high school, vocational school, college or young adulthood. Involved in intimate close relationships with others.

- 1 An active and interested participant but did not play a leading role in groups or friends, clubs, organizations or athletic teams, but was involved in close relationships with others also.
- 2 A nominal member but had no involvement in or commitment to groups of friends, clubs, organizations etc. Had close relationships with a few friends.
- 3 From adolescence through early adulthood had a few casual friends.
- 4 From adolescence through early adulthood had no real friends, only superficial relationships.
- 5 From adolescence through early adulthood, quiet, seclusive, preferred to be by self, minimal efforts to maintain any contact at all with others.
- 6 No desire to be with peers or others. Either asocial or antisocial.

8. Degree of interest in life

- 0 Keen, ambitious interest in some of the following: home, family, friends, work, sports, art, pets, gardening, social activities, music and drama.
- 1
- 2 Moderate degree of interest in several activities including social gatherings, sports, music, and the opposite sex.
- 3
- 4 Mild interest in few things such as job, family, quiet social gatherings. The interest is barely sustaining.
- 5
- 6 Withdrawn and indifferent toward life interests of average individual. No deep interests of any sort.

9. Energy level

- 0 Strong drive, keen, active, alert, interest in life. Liked life and had enough energy to enjoy it. Outgoing and adequate in meeting life.
- 1
- 2 Moderately adequate drive, energy, interest as described above.
- 3
- 4 Moderately inadequate energy level. Tended toward submissive passive reactions. Showed some potential to face life's problems, but would rather avoid them than expend the necessary energy.
- 5
- 6 Submissive, inadequate, passive reactions. Weak grasp on life, does not go out to meet life's problems, does not participate actively, but passively accepts his lot without having the energy to help self.

Note. From "Measurement of premorbid adjustment in chronic schizophrenia," by H.E. Cannon-Spoor, S.G. Potkin, and R.J. Wyatt, 1982, Schizophrenia Bulletin, 8, 470-484.

Appendix E

The Social Functioning Scale (SFS)

NAME: _____

This questionnaire helps us to learn how you have getting on since you became ill.

This questionnaire takes about 20 minutes to complete - before starting could you please answer the following:

1 Where do you live?

Answer: _____

2 Who do you live with?

Answer: _____

SOCIAL ENGAGEMENT \ WITHDRAWAL

1 What time do you get up each day?

Average weekday		Before 9am	-3
		9 – 11am	-2
Average weekend		11am – 1pm	-1
(if different)		AFTER 1pm	-0

2 How many hours of the day do you spend alone?

e.g. alone in a room.
walking out alone.
listening to radio or watching TV alone etc.

Hours Spent Alone

0 – 3	Very little time spent alone		3
3 – 6	Some of the time		2
6 – 9	Quite a lot of the time		1
9 – 12	A great deal of time		0
12	Practically all the time		0

3 How often will you start a conversation at home?

Almost never	Rarely	Sometimes	Often
0	1	2	3

4 How often do you leave the house (for any reason)?

0	1	2	3

5 How do you react to the presence of strangers?

Avoid them		0
Feel nervous		1
Accept them		2
Like them		3

INTERPERSONAL COMMUNICATION

- 1 How many friends do you have at the moment?
(people who you see regularly, do activities with, etc.)

- 2 Do you have a boy \ girlfriend? (if not married)

Yes \ No
3 \ 0

Total of 1 & 2

0 = 0

1 = 1

2 = 2

3+ = 3

- 3 How often are you able to carry out a sensible or rational conversation?
Please tick one.

Almost never _____ 0

Rarely _____ 1

Sometimes _____ 2

Often _____ 3

- 4 How easy or difficult do you find it talking to people at the moment?

Very easy _____ 3

Quite easy _____ 3

Average _____ 2

Quite difficult _____ 1

Very difficult _____ 0

MAXIMUM SCORE = 9

MINIMUM SCORE = 0

INDEPENDENCE - PERFORMANCE

Please place a tick against each item to show how often you have done the following over the past 3 months.

	0 Never	1 Rarely	2 Sometimes	3 Often
Buying items from shops (without help).				
Washing pots, tidying up, etc.				
Regular washing, bathing, etc.				
Washing own clothes.				
Looking for a job (if unemployed).				
Doing the food shopping.				
Prepare and cook a meal.				
Leaving the house alone.				
Using buses, trains, etc.				
Using money.				
Budgeting.				
Choosing and buying clothes for self.				
Take care of personal appearance.				

RECREATION

Please place a tick in the appropriate column to indicate how often you have done any of the following activities over the past 3 months.

	0 Never	1 Rarely	2 Sometimes	3 Often
Playing musical instruments.				
Sewing, knitting.				
Gardening.				
Reading things.				
Watching television.				
Listening to records or radio.				
Cooking.				
Do it yourself activities.				
Fixing things (car, bike, household, etc.).				
Walking, rambling.				
Driving \ cycling (as a recreation).				
Swimming.				
Hobby (e.g., collecting things).				
Shopping.				
Artistic Activity (painting, crafts, etc.)				

PROSOCIAL

Please place a tick in the appropriate column to show how often you have participated in any of the following activities over the past 3 months.

	0 Never	1 Rarely	2 Sometimes	3 Often
Cinema.				
Theatre \ Concert.				
Watching an indoor sport (squash, table tennis).				
Watching an outdoor sport (football, rugby).				
Art gallery \ museum.				
Exhibition.				
Visiting places of interest.				
Meetings, talks, etc.				
Evening class.				
Visiting relatives in their homes.				
Being visited by relatives.				
Visiting friends (including boy \ girlfriends).				

continued overleaf

PROSOCIAL CON'T.

	0 Never	1 Rarely	2 Sometimes	3 Often
Parties.				
Formal occasions.				
Disco, etc.				
Night club \ social club.				
Playing an indoor sport.				
Playing an outdoor sport.				
Club \ society.				
Pub.				
Eating out.				
Church activity.				

INDEPENDENCE - COMPETENCE

Please place a tick against each item to show how able you are at doing or using the following.

	3 Adequately	2 Needs help	1 Unable	0 Not known
Public transport.				
Handling money.				
Budgeting.				
Cooking for self.				
Weekly shopping.				
Looking for a job.				
Washing own clothes.				
Personal hygiene.				
Washing, tidying, etc.				
Purchasing from shops.				
Leaving the house alone.				
Choosing and buying clothes.				
Caring for personal appearance.				

OCCUPATION \ EMPLOYMENT

MAXIMUM = 10

MINIMUM = 0

Are you in regular employment?

(This includes industrial therapy, rehabilitation or retraining courses).

YES \ NO (please underline)

1 IF YES

What sort of job? _____

How many hours do you work each week?

How long have you had this job?

2 IF NO

When were you last in employment?

What sort of job was it?

How many hours per week?

Are you registered disabled?

YES \ NO (please underline)

Do you attend hospital as a
day patient?

YES \ NO (please underline)

Do you think you are capable of some sort of employment?

*

3
Definitely
Yes2
Would have
Difficulty0
Definitely
No

(please underline)

OCCUPATION \ EMPLOYMENT, CON'T.

How often do you make attempts to find a new job?
(e.g., go to the Job Centre, look in the newspaper)

*	0	1	2	3
	Almost Never	Rarely	Sometimes	Often

(please underline)

Score 10 – Full time earnings or full time student.

Score 9 – Part time earnings or housewife or mother.

Score 8 – Employed until recently e.g., in the last 6 months, and actively pursuing work e.g., redundancy.

Score 7 – Industrial therapy or rehabilitation

If none of above, add together * scales for scores 0 - 6

THE SOCIAL FUNCTIONING SCALE (SFS)

Guidelines for Use

The SFS is a reliable measure designed to enable assessment of social functioning, relevant to the needs and impairments of individuals with schizophrenia, and also is of use to researchers and the clinicians concerned with this variable in family or other psychosocial interventions. It is divided into seven sections:

1	Withdrawal\social engagement	-	W
2	Interpersonal communication	-	Inter
3	Independence - performance	-	Ip
4	Independence - competence	-	Ic
5	Recreation	-	R
6	Prosocial	-	P
7	Employment\occupation	-	E\O

The questionnaire should be completed by the person to whom it applies, and a relative or someone in everyday contact with that person, preferably on separate occasions to ensure privacy and unprompted replies. Ideally, a person familiar with the questionnaire should be present to go through the items with both the informant and self-report versions, to ensure the questions are understood and perhaps clarify any misunderstood items.

The first page of the summary sheet enables the scores to be entered in the boxes below and translated to raw scores for interpretation using Table 1 at the back of the scoring key. It also enables the production of a social functioning profile for that person in the form of a bar chart, where problem areas can be quickly identified.

Social engagement\withdrawal

There are five items with a possible maximum score of three per item and minimum of 0, making the total maximum 15 and minimum 0.

Interpersonal communication

There are four items in this section but items 1 and 2 are summed. (no more than three can be scored for these combined items).

The maximum score for this section = 9

The minimum score for this section = 0

For the remaining sections follow the scoring key and score as instructed.

Ip - maximum score = 39
minimum score = 0

R - maximum score = 45
minimum score = 0

Ic - maximum score = 39
minimum score = 0

P - maximum score = 69
minimum score = 0

Employment\Occupation

If the two items in this section do not apply, e.g., the person does not work full or part-time, is not a student\housewife\mother, or has not been recently employed, (in the past six months) or undergoing rehabilitation, or industrial therapy, then go on to the asterisked items where there is a possibility of a score up to 6, if they feel they are capable of some sort of job and are making frequent attempts to find a job.

If sections 1 or 2 do apply, ignore the asterisked items.

Note. From "The Social Functioning Scale: The development and validation of a new scale of social adjustment for use in family intervention programmes with schizophrenic patients," by M. Birchwood, J. Smith, R. Cochrane, S. Wetton, and S. Copestake, 1990, British Journal of Psychiatry, 157, 853-859.

Appendix F

The Quality of Life Scale (QLS)

QUALITY OF LIFE SCALE

This instrument is designed to evaluate the current functioning of non-hospitalized schizophrenic persons apart from the presence of florid psychotic symptomatology or need for hospitalization. It assesses the richness of their personal experience, the quality of their interpersonal relations, and their productivity in occupational roles.

It is intended to be administered as a semistructured interview. Each item consists of three parts. First a brief statement is provided to help the interviewer understand and focus on the parameter to be assessed. Second, a number of suggested questions are provided that may help the interviewer begin his exploration with the subject. Finally, a seven point scale is provided for each item, with a brief description at four points to help the interviewer make his judgment and unlabelled points.

The questions provided are just suggestions. They are to be altered or supplemented as needed. Each item should be explored as much as required to allow the rater to make a good clinical judgment. The intent of the schedule is to assess limitations due to psychopathology or personality deficits. Adjustments should be made by the rater when extraneous factors are clearly and unambiguously involved (e.g. decreased social contact due to serious physical illness).

All items should be rated. Circle the appropriate number on each scale.

1. RATE INTIMATE RELATIONSHIPS WITH HOUSEHOLD MEMBERS

This item is to rate close relationships with significant mutual caring and sharing with immediate family or members of the subject's current household.

Suggested Questions

Are you especially close with any of the people you currently live with or your immediate family?	0	-	Virtually no intimacy.
	1	-	
Can you discuss personal matters with them?	2	-	Only sparse and intermittent intimate interactions.
How much have you talked with them?	3	-	
What are these relationships like?	4	-	Some consistent intimate interaction but reduced in extent or intensity; or intimacy only present erratically.
Can they discuss personal matters with you?	5	-	
What sorts of things have you done together?	6	-	Adequate involvement in intimate relations with household members or immediate family.
When at home, have you spent much time around your family or were you generally alone?			
	9	-	<hr/> Score here if lives alone and no immediate family nearby.

2. RATE INTIMATE RELATIONSHIPS

This item is to rate close relationships with significant mutual caring and sharing, with people other than immediate family or household members. Exclude relationships with mental health workers.

Suggested Questions

Do you have friends with whom you are especially close other than your immediate family or the people you live with?	0	-	Virtually absent.
	1	-	
Can you discuss personal matters with them?	2	-	Only sparse intermittent relations.
	3	-	
How many friends do you have?	4	-	Some consistent intimate relations but reduced in number or intensity; or intimacy only present erratically.
How often have you spoken with them recently, in person or by phone?			
What have these relationships been like?	5	-	
Can they discuss personal matters with you?	6	-	Adequate involvement with intimate relationships with more than one other person.

3. RATE ACTIVE ACQUAINTANCES

This item is to rate relationships with people based on liking one another and sharing common activities or interests but without the intimate emotional investment of the above item. Exclude relationships with mental health workers and other household members.

Suggested Questions

Apart from close personal friends, are there people you know with whom you have enjoyed doing things?	0	-	Virtually absent.
	1	-	
How many?	2	-	Few active acquaintances and only infrequent contact.
How often have you gotten together?	3	-	
Have you been with people as a part of clubs or organized activities?	4	-	Some ongoing active acquaintances but reduced contact and limited shared activity.
Have you had extra social contact with co-workers, such as going out to lunch together or going out after work?	5	-	
	6	-	Adequate involvement with active acquaintances.

4. RATE LEVEL OF SOCIAL ACTIVITY

This item is to rate involvement in activities with other people done for enjoyment. Exclude social activity that is primarily instrumental for other goals, for example, work and school. Exclude psychotherapy.

Suggested Questions

How often have you done things for enjoyment that involve other people?	0	-	Virtually absent.
	1	-	
What sort of things?	2	-	Occasional social activity but lack of regular pattern of such activity, or limited only to activity with immediate family or members of household.
Have you participated in clubs or other organized social groups?	3	-	
	4	-	Some regular activity but reduced in frequency or diversity.
	5	-	
	6	-	Adequate level of regular social activity.

5. RATE INVOLVED SOCIAL NETWORK

This item is to rate the extent to which other people concern themselves with the person, care about his fortunes or know about his activities. Exclude mental health workers.

Suggested Questions

Are there people who have been concerned about your happiness and well being?	0	-	Virtually absent.
How many?	1	-	
How did they show it?	2	-	Minimal in number or degree of involvement, and/or limited to immediate family.
If some important and exciting thing happened to you, who would you contact or inform?	3	-	
	4	-	Presence of some involved social network but reduced in number or degree of involvement.
Are there people who often provided you emotional support or help in day-to-day matters such as food, transportation, and practical advice?	5	-	
Are there people you could turn to or depend on for help if anything happened?	6	-	Adequate involved social network in both extent and in degree of involvement.

6. RATE SOCIAL INITIATIVES

This item is to rate the degree to which the person is active in directing his social interactions—what, how much, and with whom.

Suggested Questions

Have you often asked people to do something with you, or have you usually waited for others to ask you?	0	-	Social activity almost completely dependent on initiatives of others.
	1	-	
When you have had an idea for a good time, have you sometimes missed out because it's hard to ask others to participate?	2	-	Occasional social initiative, but social life significantly impoverished due to his pattern of social passivity, or initiative limited to immediate family.
Have you contacted people by phone?			
Have you tended to seek people out?	3	-	
Have you usually done things alone or with other people?	4	-	Evidence of some reduction of social initiative, but with only minimal adverse consequences on his social activity.
	5	-	
	6	-	Adequate social initiative.

7. RATE SOCIAL WITHDRAWAL

This item is to rate the degree to which the person actively avoids social interaction due to his discomfort or disinterest.

Suggested Questions

Have you felt uncomfortable with people?	0	-	Active avoidance of virtually all social contact.
Have you turned down offers to do things with other people? Would you if you were asked?	1	-	
Have you done this even when you have had nothing to do?	2	-	Tolerates the social contact required for meeting other needs, but very little social contact for its own sake, or lack of withdrawal only with immediate family.
Have you avoided answering the phone?			
How has this interfered with you life?	3	-	
Have you dealt with people only when it's necessary to accomplish something you want?	4	-	Some satisfying and enjoyable social engagement, but reduced due to avoidance.
Have you stayed to yourself at home?	5	-	
Have you preferred to be alone?	6	-	No evidence of significant social withdrawal.

8. RATE SOCIOSEXUAL RELATIONS

This item is to rate the capacity for mature intimate relations with members of the opposite sex and satisfying sexual activity. The wording assumes a heterosexual preference. In clear cases of consistent homosexual preference, re-word accordingly and rate these same capacities.

Suggested Questions if Single

Have your social activities involved women (men)?	0	-	No interest in opposite sex or active avoidance.
Have you avoided them or found it too uncomfortable to deal with them?	1	-	
Have you dated?	2	-	Some limited contact with opposite sex but superficial with avoidance of intimacy; or sexual activity as just physical release without emotional involvement; or relationships marked by severe and chronic disruption, dissatisfaction or affective chaos.
Did you have one or more girlfriends (boyfriends)?			
Have the relationships been satisfying?			
How emotionally involved were you?			
Were you in love?	3	-	
Were you having sexual activity?	4	-	Relationships with some intimacy and emotional investment, predominantly satisfying, and perhaps some sexual expression or physical signs of affection.
Was it satisfying?			
Did you show physical signs of affection, such as hugging and kissing?			

Suggested Questions if married or living with someone

Were you happy in your relationship with your partner?	5	-	
	6	-	Usually has satisfying relationships, emotionally rich and intimate and appropriate sexual expression and physical signs of expression.

Have you done many things together? Did you talk together much?

Did you discuss personal thoughts and feelings?

Did you fight much?

Has your sex life been satisfying?

Did you show physical signs of affection such as hugging and kissing?

Did you feel close to her (him)?

9. RATE OF EXTENT OF OCCUPATIONAL ROLE FUNCTIONING

This item is to rate the amount of role functioning the person is attempting, not how well nor how completely he is succeeding. For homemakers, consider whether for a person with normal efficiency the responsibilities would represent a full time job or some fraction thereof. If unemployed, consider time spent in appropriate job seeking activity.

Suggested Questions

Have you had a job? 0 - Virtually no role functioning.

How many hours a week did you work? 1 -

Were you also responsible for caring for children or housekeeping in addition to work? 2 - Less than half-time.

3 -

Suggested Questions

What sort of education program were you pursuing? 4 - Half-time or more, but less than full-time.

5 -

How many classes were you taking? 6 - Full-time or more.

How much time did school take per week?

Were you also working, caring for children or responsible for housekeeping?

Suggested Questions for

Homemakers

How much was involved in taking care of your home and family?

Were you raising children?

What were your responsibilities in the home?

How much did other people help with these responsibilities?

10. RATE LEVEL OF ACCOMPLISHMENT

This item is to rate the level of success and achievement in fulfilling the particular role the person has chosen to attempt.

<p>Question the subject regarding salary and raises, the challenge and responsibility of the job, praise or reprimands from employer, adequacy of interaction with co-workers, absenteeism, promotions or demotions. For <u>students</u>, question regarding grades, the difficulty of the curriculum, praise or criticism from teachers, adequacy of interaction with other classmates, class attendance, completion of assigned work, and extra-curricular activities. For <u>homemakers</u> question regarding the adequate performance of required tasks such as cooking, shopping, washing dishes, cleaning, dusting, laundry, management of household budget, physical care of children and meeting the emotional needs of children. Question further regarding praise or criticism by family members about either housekeeping or child raising.</p>	0	-	Attempting no role function or performing at level so poor as to imminently threaten the ability to continue in that role.
	1	-	
	2	-	Functioning just well enough to keep position with very low level of accomplishment.
	3	-	
	4	-	Generally adequate functioning.
	5	-	
	6	-	Very good functioning with evidence of new or progressive accomplishments and/or very good functioning in some areas.

11. RATE DEGREE OF UNDEREMPLOYMENT

This item to rate the degree to which the existing extent of and accomplishment in occupational role functioning reflects full utilization of the potentiality and opportunities available to the person. Consider innate abilities, physical handicaps, education, economic and social culture factors. Obviously, limitations directly reflecting any mental illness or personality disorder should not be considered in estimating the person's potential.

Suggested Questions

This item requires a complex judgment.	0	-	Almost complete failure to actualize potentials.
Ask any further questions needed to clarify the abilities and opportunities of this individual.	1	-	
	2	-	Significant underemployment of abilities or unemployed but looking for work actively.
	3	-	
	4	-	Somewhat below the person's capacity.
	5	-	
	6	-	Role functioning commensurate with person's abilities and opportunities.

12. RATE SATISFACTION WITH OCCUPATIONAL ROLE FUNCTIONING

This item is to rate the extent to which the person is comfortable with his choice of role, the performance of it, and the situation in which he performs it. It also is to rate the extent to which it provides a sense of satisfaction, pleasure, and fulfillment to him.

Suggested Questions

Did you like your work or schooling?	0	-	Pervasive unhappiness and dissatisfaction with occupational role.
Would you have preferred to be doing something else.	1	-	
Do you plan a change? Why?	2	-	Little or no definite evidence of unhappiness or dissatisfaction, but role does not provide any positive pleasure or fulfillment. Perhaps boredom is evident.
Did you get good feelings from doing your work -- pleasure, fulfillment, etc.?			
Did your work or school make you feel good about yourself?	3	-	
Are you enthusiastic about your job?	4	-	Little or no discontent and some limited pleasure in work.
Do you look forward to going to work?	5	-	
	6	-	Rather consistent sense of fulfillment and satisfaction, perhaps in spite of some limited complaints.
	9	-	Not applicable if patient not involved in any occupational role functioning, i.e. a score of 2 or less on item 9, extent of occupational role functioning.

13. RATE SENSE OF PURPOSE

This item is to rate the degree to which the person posits realistic, integrated goals for his life. If the person's current life reflects such goals, it is not necessary that he/she be planning a change in order to be judged to have a good sense of purpose.

Suggested Questions

What makes life worth living for you?	0	-	No plans, or plans are bizarre, delusional or grossly unrealistic.
Do you think much about the future?	1	-	
Have you set any goals for yourself?	2	-	Has plans, but they are vague, somewhat unrealistic, poorly integrated with one another, or of little consequence to the person's life.
What do you anticipate your living and working situation to be in a few months from now?			
What plans do you have for your life over the next year or so – personal as well as job related ones.	3	-	
	4	-	Realistic and concise plans for next year or so, but little integration into long range life plan.
	5	-	
	6	-	Realistic, concise and integrated plans, both short and long range.

14. RATE DEGREE OF MOTIVATION

This item is to rate the extent to which the person is unable to initiate or sustain goal-directed activity due to inadequate drive.

Suggested Questions

How have you been going about accomplishing your goals?	0	-	Lack of motivation significantly interferes with basic routine.
What other things have you worked on or accomplished recently?	1	-	
Have there been tasks in any area that you wanted to do but didn't because you somehow didn't get around to it?	2	-	Able to meet basic maintenance demands of life, but lack of motivation significantly impairs any progress or new accomplishments.
Has this experience of just not getting around to it interfered with your regular daily activities	3	-	
How motivated have you been?	4	-	Able to meet routine demands of life and some new accomplishments, but lack of motivation results in significant under achievement in some areas.
Have you had much enthusiasm, energy and drive?	5	-	
Have you tended to get into a rut?	6	-	No evidence of significant lack of motivation.
Have you tended to put things off?			

15. RATE CURIOSITY

This item is to rate the degree to which the person is interested in his surroundings and questions those things he doesn't understand. Exclude interest in hallucinations or delusions or other psychotic products. However, pathological preoccupation with psychotic products or other themes may limit curiosity or interest in other things.

Suggested Questions

How often have you seen or heard about something that you wanted to know more about or understand better?	0	-	Very little curiosity or interest in new topics or events.
What sort of things?	1	-	
Have you done anything to learn more about them? Please specify.	2	-	Some sporadic curiosity, but not pursued in thought or action.
Have you read the newspapers or listened to the news on TV or radio?	3	-	
Were you interested in any issues in current events or sports?	4	-	Some curiosity and time spent thinking about topics of interest and some actual effort to learn more about them.
How curious about things have you been?	5	-	
	6	-	Curiosity about a number of topics and some effort to learn more about some of them such as reading, asking questions and planned observation.

16. RATE ANHEDONIA

This item is to rate the person's capacity to experience pleasure and humor. Do not rate anhedonia that presents as the result of a clear and observable depressive syndrome, e.g. agitation, crying, marked feelings of wickedness and worthlessness, etc. However, anhedonia accompanied by apathy and withdrawal from which depression may be inferred should be rated. Ask any questions necessary to determine the presence of depression and its effect on hedonic capacity. This is to be distinguished from the capacity to display affect, which is not rated here.

Suggested Questions

Have you been able to enjoy yourself?	0	-	Nearly complete inability to experience pleasure or humor.
How often have you really enjoyed or gotten satisfaction from something you were doing?	1	-	
How often did you choose to do something that struck you as amusing or made you feel like laughing?	2	-	Some sporadic and limited experience of pleasure or humor but a predominant lacking of these capacities.
Did you have trouble getting enjoyment from things that seemed like they should be fun? Do other people seem to get more enjoyment in things than you do?	4	-	Some regular experiences of pleasure and humor but reduced in extent and intensity.
Did you often spend the better part of the day bored or disinterested in things?	5	-	
	6	-	No evidence of anhedonia or can be experienced completely by concurrent depression or anxiety.

17. RATE TIME UTILIZATION

This item is to rate the amount of time passed in aimless inactivity -- sleeping during the day, lying in bed, sitting around doing nothing or in front of the TV or radio when not particularly interested.

Suggested Questions

Did you spend much time doing nothing -- just sitting around or in bed?	0	-	Spends the vast majority of his day in aimless activity.
Did you spend much time watching TV or listening to music -- were you really interested or just had nothing better to do?	1	-	
	2	-	Spends about half of his days in aimless activity.
Did you sleep much during the day?	3	-	
How much of your days were spent in these ways?	4	-	Some excessive aimless inactivity but less than half his day.
How have you utilized your time?	5	-	
Did you tend to waste time?	6	-	No excessive aimless inactivity beyond the normal amount required for relaxation.

18. RATE COMMONPLACE OBJECTS

This item assumes that basic participation in living in this culture nearly always requires a person to possess certain objects.

Suggested Questions

For this question, inquire about each of the 12 items listed below.	0	-	Absence of nearly all commonplace objects (0 items).
Are you wearing or carrying the following?	1	-	
• a wallet or purse	2	-	Major deficit of commonplace objects (3-4 items).
• keys			
• a drivers license	3	-	
• a watch			
• a credit card	4	-	Moderate deficit (7-8 items).
• a Social Security or Medical Assistance card			
	5	-	
Do you have with you at your place of residence the following?			
• a map of the city or area	6	-	Little or no deficit (11-12 items).
• your own alarm clock			
• a comb or hair brush			
• an overnight bag			
• a library card			
• postage stamps			

19. RATE COMMONPLACE ACTIVITIES

This item assumes that basic participation in living in this culture nearly always requires a person to engage in certain activities.

Suggested Questions

For this item inquire about each of the 12 items listed below. Which of the following have you done in the past two weeks?	0	-	Absence of nearly all activities (0 items).
1. Read a newspaper.	1	-	
2. Paid a bill.	2	-	Major deficit (3-4 items).
3. Wrote a letter.	3	-	
4. Gone to a movie or play.	4	-	Moderate deficit (7-8 items).
5. Driven a car or ridden public transportation alone.	5	-	
6. Shopped for food.	6	-	
7. Shopped for other than food.			
8. Eaten in a restaurant.			
9. Taken a book or record out of the library.			
10. Participated in a public gathering.			
11. Attended a sporting event.			
12. Visited a public park or other recreational facility.			

20. RATE CAPACITY FOR EMPATHY

This item is to rate the persons capacity to regard and appreciate the other person's situation as different from his own -- to appreciate different perspectives, affective states and points of view. It is reflected in the person's description of interactions with other people and how he views such interactions. Specific probing to elicit the person's description and assessment of relevant situations can be done at this time if sufficient data has not emerged thus far in the interview.

Suggested Questions

Consider someone you are close to or spend a lot of time with. What about them irritates or annoys you?	0	-	Shows no capacity to consider the views and feelings of others.
What about you irritates or annoys them? What thing do they like? What thing that you do pleases them? If they appear upset, how do you usually react? If you have an argument or difference of opinion with them, how do you handle it?	1	-	
	2	-	Shows little capacity to consider the views and feelings of others.
Are you usually sensitive to the feelings of others?	3	-	
Are you affected very much by how other people feel?	4	-	He can consider other people's views and feelings but tends to be caught up in his own world.
	5	-	
	6	-	He spontaneously considers the other person's situation in most instances, can intuit the other person's affective responses and uses this knowledge to adjust his own responses.

21. RATE CAPACITY FOR ENGAGEMENT AND EMOTIONAL INTERACTION WITH INTERVIEWER

This item is to rate the person's ability to engage the interviewer, to make him feel affectively in touch and acknowledge him as a participant individual in the encounter, and to react in a give and take way.

This is a global judgment based on the entire interview.

0	-	Interviewer feels virtually ignored with essentially no sense of engagement, with very little reactivity.
1	-	
2	-	Very limited engagement.
3	-	
4	-	Engagement somewhat limited or present erratically.
5	-	
6	-	Consistently good engagement and reactivity.

Note. From "The Quality of Life Scale: An instrument for rating the schizophrenic deficit syndrome," by D.W. Heinrichs, T.E. Harlon, and W.T. Carpenter, Jr., 1984, Schizophrenia Bulletin, 10, 388-398.