UNIVERSITY OF CALGARY

The Association between Social Anxiety and Social Functioning
In First Episode Psychosis

by

Marcia A. Voges

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES IN PARTIAL
FULFILMENT
OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF PSYCHOLOGY

CALGARY, ALBERTA

June, 2004

©Marcia A. Voges 2004
The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled “The Association between Social Anxiety and Social Functioning in First Episode Psychosis” submitted by Marcia A. Voges in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Dr. Jean Addington, Supervisor, Departments of Psychiatry and Psychology

Dr. David Hodgins, Co-Supervisor, Department of Psychology

Dr. Candace Konnert, Department of Psychology

Dr. Deborah Dobson, Department of Psychology

Dr. Rajamannar Ramasubbu, Department of Psychiatry

Date: Dec 8, 2003
ABSTRACT

The purpose of the present study was to examine the relationship between social anxiety and social functioning in first episode psychosis and to determine whether those with psychosis have any maladaptive or irrational beliefs regarding social evaluative situations. A sample of 60 first episode patients, 41 males and 19 females participated in the present study. The presence of social phobia was determined using the Structured Clinical Interview for DSM-IV (SCID-I). The Social Phobia & Anxiety Inventory (SPAI) was utilized as a self-report measure of social anxiety. Social functioning was assessed using the Social Functioning Scale (SFS) and the Quality of Life Scale (QLS). Negative self-statements were assessed with the Social Interaction Self-Statement Test (SISST). The main findings of the study were that 32% of the sample met SCID-I criteria for social phobia and participants were experiencing elevated levels of social anxiety according to the SPAI ($\bar{x} = 69.57$, $SD = 27.42$). Higher levels of social anxiety were related to poorer social functioning and a higher frequency of negative self-statements: $r (-.32)$, $p = .0001$ and $r (.74)$, $p = .0001$, respectively. Findings also indicated that higher levels of negative self-statements were related to poorer social functioning, $r (-.35)$, $p = .0001$. A hierarchical regression analysis indicated that negative symptoms and negative self-statements were significant predictors of social functioning. The results of the present study suggest that social anxiety and negative self-statements related to social situations are valid concerns in first episode psychosis that warrants clinical attention and treatment such as cognitive-behavioural therapy to help reduce social fears and increase social interaction.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approval page</td>
<td>i</td>
</tr>
<tr>
<td>Abstract</td>
<td>ii</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>iii</td>
</tr>
<tr>
<td>List of Tables</td>
<td>v</td>
</tr>
<tr>
<td><strong>CHAPTER 1: INTRODUCTION</strong></td>
<td>1</td>
</tr>
<tr>
<td>Literature Review</td>
<td>3</td>
</tr>
<tr>
<td>Social Anxiety</td>
<td>5</td>
</tr>
<tr>
<td>Overview of Social Anxiety</td>
<td>5</td>
</tr>
<tr>
<td>Social Anxiety and Functional Impairment</td>
<td>5</td>
</tr>
<tr>
<td>Schizophrenia and Functional Impairment</td>
<td>8</td>
</tr>
<tr>
<td>Impaired Social Functioning</td>
<td>8</td>
</tr>
<tr>
<td>Social Skills Training</td>
<td>9</td>
</tr>
<tr>
<td>Social Functioning and Neurocognition</td>
<td>12</td>
</tr>
<tr>
<td>Social Functioning and Symptoms</td>
<td>14</td>
</tr>
<tr>
<td>Schizophrenia and Social Anxiety</td>
<td>16</td>
</tr>
<tr>
<td>Maladaptive and Irrational Beliefs</td>
<td>19</td>
</tr>
<tr>
<td><strong>Rationale for the Study</strong></td>
<td>20</td>
</tr>
<tr>
<td>Why Study First Episode Psychosis?</td>
<td>21</td>
</tr>
<tr>
<td>Why Study Social Anxiety?</td>
<td>22</td>
</tr>
<tr>
<td><strong>Hypotheses</strong></td>
<td>23</td>
</tr>
<tr>
<td><strong>CHAPTER 2: METHOD</strong></td>
<td>25</td>
</tr>
<tr>
<td>Participants</td>
<td>25</td>
</tr>
<tr>
<td>Measures</td>
<td>26</td>
</tr>
<tr>
<td>Procedures</td>
<td>33</td>
</tr>
<tr>
<td>Ethical Considerations</td>
<td>35</td>
</tr>
<tr>
<td>Recruitment and Consent Procedures</td>
<td>35</td>
</tr>
<tr>
<td>Confidentiality</td>
<td>35</td>
</tr>
<tr>
<td><strong>CHAPTER 3: RESULTS</strong></td>
<td>36</td>
</tr>
<tr>
<td>Description of Patient Population</td>
<td>36</td>
</tr>
<tr>
<td>Description of Measures</td>
<td>36</td>
</tr>
<tr>
<td>Correlations between Measures</td>
<td>38</td>
</tr>
<tr>
<td>Hypotheses 1 &amp; 2</td>
<td>39</td>
</tr>
<tr>
<td>Hypotheses 3 &amp; 4</td>
<td>39</td>
</tr>
<tr>
<td>Regression Analysis</td>
<td>40</td>
</tr>
<tr>
<td>Exploratory Analyses of the SSEAS</td>
<td>40</td>
</tr>
<tr>
<td>Content Analysis</td>
<td>41</td>
</tr>
<tr>
<td><strong>CHAPTER 4: DISCUSSION</strong></td>
<td>43</td>
</tr>
<tr>
<td>Interpretation of Measures</td>
<td>43</td>
</tr>
<tr>
<td>Hypothesis 1</td>
<td>47</td>
</tr>
<tr>
<td>Hypothesis 2</td>
<td>49</td>
</tr>
<tr>
<td>Hypothesis 3</td>
<td>50</td>
</tr>
<tr>
<td>Hypothesis 4</td>
<td>51</td>
</tr>
<tr>
<td>Regression Analysis</td>
<td>52</td>
</tr>
<tr>
<td>Exploratory Analyses of the SSEAS</td>
<td>53</td>
</tr>
<tr>
<td>Content Analysis</td>
<td>54</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table 1  Description of Patient Population
Table 2  Description of Outcome Measures
Table 3  The Association between Gender and the Outcome Measures
Table 4  Correlations Between Measures
Table 5  Correlations Between the SPAI and the Subscales of the SFS
Table 6  Hierarchical Regression Model for Predictors of the SFS
Table 7  Content Analysis for Open-Ended Question
CHAPTER 1
Introduction

Social interaction is a fundamental aspect of human nature. Disturbances in social interaction are often devastating and frequently result in estrangement from society and poor quality of life (Heinssen & Glass, 1990; Wittchen, Fuetsch, Sonntag, Muller, & Liebowitz, 2000). It is well established that individuals who experience social phobia have impaired social functioning and withdraw from human relationships (Ballenger et al., 1998). Similarly, those with schizophrenia also experience impairments in social functioning and withdraw from social relationships (Dickerson, Boronow, Ringel, & Parente, 1999; Harding & Keller, 1998; Mueser & Bellack, 1998). An understanding of the social impairments observed in those with psychosis is complex and it has been suggested that the social dysfunction observed in schizophrenia is likely heterogeneous in nature (Liberman et al., 1992; Heinssen & Glass, 1990). That is, there may be multiple pathways leading to the poor social functioning observed in this population.

At least four suggested reasons for the social dysfunction exhibited in people with a psychotic disorder have been presented: 1) they may have a lack of prior social learning; 2) previously learned skills may have been lost due to a lack of practice and a deficient environment; 3) they may have neurocognitive deficits; 4) and finally, they may experience excessive anxiety in social situations (Liberman, 1982; Heinssen & Glass, 1990; Morrison & Bellack, 1987).

Much of the research on social dysfunction in schizophrenia has focused on two predominant models outlined by Heinssen & Glass (1990). First, the topographic model
Social Anxiety and Psychosis 2

assumes that there are a multitude of verbal (e.g., initiating conversations, tone of voice, pace of speech) and nonverbal (e.g., facial expressions, eye contact) skills that influence successful social interaction (Liberman, 1982; Morrison & Bellack, 1987). Thus, according to this model, deficits or excesses in implementing these topographical skills result in poor social functioning. Second, the cognitive-information processing model assumes that cognitive deficits in areas such as attention, memory, affect recognition, and perceptual skills account for the deficits in social functioning of those with psychosis (Green, Kern, Braff, & Mintz, 2000; Dickerson et al., 1999; Holthausen, et al., 2002).

Unlike the topographic and cognitive-information processing models, the influence of social anxiety has not received much attention in the study of social functioning in schizophrenia (Heinssen & Glass, 1990; Glynn, 1998; Liberman, 1982; Morrison & Bellack, 1987; Penn, Hope, Spaulding, & Kucera, 1994). Although researchers such as Liberman (1982) have stated that the assessment of social anxiety should be routine in any study of social functioning in schizophrenia, very few researchers have heeded this advice. Heinssen and Glass (1990) contended that this lack of interest in social anxiety may be imprudent as clinical observation suggests that social anxiety is prevalent among those with schizophrenia and may account for the interpersonal withdrawal observed in a subset of this population. In addition, social anxiety may play a role in the inconsistent treatment gains observed in social skills training and cognitive remediation cited in the literature (Pilling et al., 2002). Research aimed at investigating social anxiety in schizophrenia may illuminate a proportion of individuals for whom social anxiety plays a significant role in the poor social functioning observed in this population.
Literature Review

The purpose of this review is to examine the literature that pertains to social anxiety and schizophrenia and how that may impact social functioning. First, relevant literature on social anxiety and the impact of social anxiety on functioning in general will be presented. Second, functional impairment in schizophrenia including both social functioning and social skills will be addressed. Literature pertaining to the relationship of symptoms of schizophrenia and functioning and neurocognition and functioning will also be reviewed. Finally, the literature concerning social anxiety in schizophrenia will be reviewed.

Social Anxiety

Overview of social anxiety. Social anxiety refers to feelings of self-consciousness, apprehension, and fear in response to actual or anticipated social evaluative situations where scrutiny or negative evaluation by others is anticipated to occur (Ballenger et al., 1998; Neal & Edelmann, 2003). An individual with social anxiety fears that he or she will act in a way that will be embarrassing or that others will view them as inadequate. Thus, those with social anxiety often avoid social situations where negative evaluation is possible (Ballenger et al., 1998). A diagnosis of social phobia (social anxiety disorder) is warranted when a person experiences extreme fear and/or avoidance of socially evaluative situations, recognizes that the fear is excessive and experiences impairment in normal daily functioning (American Psychiatric Association, Diagnostic and Statistical Manual, Fourth Edition, DSM-IV, 1994).
Most people have experienced social anxiety to some degree at least once during their lifetime in response to an embarrassing or performance situation such as giving a speech or asking someone out on a date (Leitenberg, 1990). There are many common everyday situations where the possibility for negative evaluation abounds and discomfort in these social situations appears to be common, as approximately 40% of people in the United States labeled themselves as shy (Turner, Beidel, & Townsley, 1990). The literature is replete with numerous terms such as shyness, social inhibition, social phobia, social withdrawal, and public speaking anxiety which all examine the apprehension and concerns of negative evaluation that individuals feel when exposed to social situations. As Leitenberg (1990) noted, all of these terms and more “fall under the umbrella of social anxiety.” Thus, it is generally believed that social anxiety lies on a continuum of severity, with social phobia at the more severe end of the spectrum, and shyness and fears of public speaking falling at the beginning of the spectrum (Trower, Gilbert, & Sherling, 1990).

The lifetime prevalence of social phobia has been reported to range from 3% to 13% (DSM-IV, 1994). Data from the Epidemiologic Catchment Area (ECA) study indicated that the lifetime prevalence of social phobia is 2.4% with a higher prevalence of the disorder in females (3.1%) than males (2.0%) (Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992). The National Comorbidity Survey (NCS) also found a higher prevalence rate for social anxiety in women (15%) compared to men (11.1%), for an overall prevalence rate of 13.3% (Kessler, McGonagle, Zhao, Neslon, Hughes, Eshleman, Wittchen, & Kendler, 1994). The different prevalence rates found in these two studies are thought to be influenced by the use of different diagnostic criteria. The ECA study utilized the DSM-III criteria and the NCS used DSM-III-R criteria, which permitted patients with a generalized
avoidance of social situations to be included in the diagnosis of social phobia. In the DSM-III, these patients were classified as having avoidant personality disorder and were excluded from a diagnosis of social phobia (Weinstock, 1999). Although studies indicate that social phobia is more common in women, there is an equal or slightly higher preponderance of men who seek treatment for the disorder (Turk et al., 1998; Weinstock, 1999). It is theorized that differences in gender roles and social expectations regarding shyness results in men with social anxiety symptoms to suffer more than women in social and occupational areas (Weinstock, 1999). Thus, studies overall seem to indicate that social anxiety is more common in women, however men may be more likely to seek treatment for the disorder.

**Social anxiety and functional impairment.** Depending on the severity of social anxiety, moderate to severe functional impairment in the areas of education, employment, family relations, romantic relationships, and friendships can significantly impact an individual's life (Ballenger et al., 1998; Bech & Angst, 1996; Weiller, Bisserbe, Boyer, Lepine, & Lecrubier, 1996). That is, the more social anxiety one experiences, the greater the functional impairment in social and occupational functioning.

For example, Stein, Yin, and Kean (2000), examined the range of disability and quality of life in a community sample of people with social phobia. The lifetime prevalence of social phobia in the community was 13.0%. A diagnosis of social phobia was associated with a significantly greater likelihood of reporting dysfunction in the areas of work or school performance. Those with social phobia were more likely to report being unable to perform their usual daily activities and they were more likely to report dissatisfaction with family life, friends, leisure activities, and income. Interestingly, even when these analyses were adjusted statistically for the presence of major depression, which
was associated with greater functional impairment, social phobia was still associated with significant disability and poor quality of life. The authors concluded that social phobia is a serious debilitating disorder that can lead to a reduced quality of life, even in the absence of comorbid major depression.

Stein, Laine, Torgrud, and Walker (2000), examined functional impairment in a survey of 750 and 1206 respondents from Manitoba and Alberta respectively. The results of the study indicated that the 12-month prevalence of social phobia in the community sample was 7.2%. A significant proportion of those with social phobia reported that their anxiety in social situations interfered “a lot” with their education. Approximately 1 in 2 people reported dropping a class because of their social anxiety and 1 in 5 persons reported significant impairment in job performance due to social fears. It is also interesting to note that 13.2% of the 281 participants with subthreshold social anxiety reported substantial interference with at least one of the functional domains (i.e., education, occupational life, personal life). The authors concluded that social phobia seems to be on a continuum of severity with those reporting a greater number of social fears experiencing greater disability.

Functional deficits in a sample of people with social phobia and normal controls were explored by Schneier et al. (1994) who found that more than half of the participants reported at minimum, moderate levels of impairment as a result of their social phobia in the areas of work, education, and interpersonal relationships. Participants were less likely to report impairment in completing the activities of daily living (e.g., hygiene, shopping). Furthermore, the results also indicated that although participants who were currently being treated for social phobia were able to work, they did so at a level that was below their abilities. In addition, these participants experienced impairments in dating and marital
relationships had some friends but fewer than they would like, and were able to participate
in non-work related activities (e.g., sports, hobbies), but nonetheless avoided some
activities due to social anxiety. The authors concluded that those with social phobia
experience substantial disability in most areas of functioning.

In a recent study, Wittchen et al. (2000) compared quality of life and functional
impairment in a sample of individuals who met DSM-IV (1994) criteria for social phobia as
well as comorbid (predominantly depression and substance abuse) and subthreshold cases
of social phobia with a control group of participants diagnosed with herpes. The findings
suggested that in comparison with the control group, those who met full criteria for social
phobia, those with comorbid social phobia and subthreshold social phobia obtained
significantly lower scores on the general health, role limitations, social functioning, general
mental health, and vitality subscales of the measure assessing quality of life. Participants
with subthreshold and comorbid social phobia obtained either similar or lower quality of
life scores than those who met the full criteria for social phobia. Finally, compared to the
control group, social phobia was associated with significant impairments in the areas of
education, career, work productivity, and interpersonal relationships. The presence of
comorbid disorders increased the functional impairment of those with social phobia, and
the subthreshold group exhibited only slightly less overall impairment when compared to
those who met full criteria for the disorder. The authors concluded that social phobia
including comorbid and subthreshold cases of the disorder results in reduced quality of life
and significant impairments in employment and social relationships.

Thus, although interest in examining the effect of social anxiety on the lives of
those who suffer from this disorder has been slow to develop (Weiller et al., 1996); the
research suggests that people with social anxiety experience significant impairments. The
literature reveals that people with social phobia experience difficulties in interpersonal relations and occupational functioning, and report a reduced quality of life.

Schizophrenia and Functional Impairment

Impaired social functioning. People with schizophrenia experience functional impairment in many areas of living. The impairments in social relationships of those with schizophrenia ultimately affect their educational and occupational functioning and overall quality of life (Beiser et al., 1994; Browne et al., 2000; Dickerson et al., 1999; Helgason, 1990; Lenior et al., 2001; Oosthuizen & Emsley, 2001; Racenstein et al., 2002; Scott & Lehman, 1998). For example, Melle, Friis, Hauff, and Vaglum (2000) found that 47% of their sample of patients with schizophrenia was socially isolated and 94% was unemployed seven years after being discharged from a psychiatric hospital. Priebe et al. (2000) reported findings of a reduced quality of life and impairments in the areas of employment and social relationships in a sample of first episode, inpatient and outpatient participants with a psychotic disorder. Likewise, Gorna and Rybakowski (1996) investigated the social functioning of patients with schizophrenia approximately 15 years after their first psychiatric hospitalization. The results indicated that most of the participants were single and had no children; they had low levels of education, and did not work. Men's functioning was more impaired in the areas of social contacts, participation in family life and housework compared to women. The authors concluded that after more than 10 years, those with schizophrenia still experienced significant impairments in various life domains.

Grant, Addington, Addington, and Konnert (2001) compared the social functioning (e.g., interpersonal relationships and withdrawal, employment, independence, and the ability to recognize and solve interpersonal problems) of people experiencing their first-episode of schizophrenia with a group of people who had experienced multiple episodes of
schizophrenia, and a control group of healthy participants. The results of the study indicated that the control group performed better on all of the social functioning measures than the first and multiple episode patients. Grant et al. concluded that these findings support the contention that people with schizophrenia suffer social impairments in a multitude of areas compared to healthy controls and that deficits in social functioning are evident at the onset of the disorder and warrant clinical attention.

In summary, the literature suggests that people with schizophrenia and other psychotic disorders experience impairments in many areas of living. Disturbances in quality of life, occupational functioning, and social relationships are significant problems for people with a psychotic disorder. In addition to the diagnosis of schizophrenia, people with psychotic disorders also suffer high rates of comorbidity such as anxiety and depression, which compound their social difficulties (Glynn, 1998). The disturbance in social functioning that can encompass social anxiety or social phobia may be a critical factor in the poor social functioning of a significant proportion of people with schizophrenia. Thus, the relationship between other nonpsychotic forms of psychopathology such as social anxiety to social functioning in schizophrenia warrants further investigation (Glynn, 1998).

**Social skills training.** Deficits in social skills have often been implicated in the social difficulties experienced by people with schizophrenia (Heinssen, Liberman, & Kepelowicz, 2000; Liberman, 1985; Mueser & Bellack, 1998; Pilling et al., 2002). Much effort has focused on social skills training where people with schizophrenia are taught appropriate topographical skills such as eye contact, facial expressions, and speech volume in order to improve social interaction (Mueser & Bellack, 1998). Both single-subject and group studies examining the efficacy of social skills training have revealed that this
treatment approach is generally effective in improving the topographical aspects of social interaction (Hayes, Halford, & Varghese, 1995; Heinssen et al., 2000; Monti, Curran, Corriveau, DeLancey, & Hagerman, 1980; Morrison & Bellack, 1987; Mueser, Levine, Bellack, Douglas, & Brady, 1990). Other studies have attempted to improve social skill by teaching patients techniques to increase their conversational ability, assertiveness, and conflict resolution skills (Bellack Turner, Hersen & Luber, 1984; Halford, Harrison, Kalyansundaram, Moutrey, & Simpson, 1995; Mueser et al., 1990). Teaching methods vary considerably but often include instruction, role-playing, modeling, feedback, and homework in order to facilitate the acquisition of skills (Heinssen et al., 2000). For example, Mueser et al. (1990) examined the effect of conducting social skills training on the social functioning of a group of inpatients with schizophrenia. The results indicated that through role-playing, patients exhibited improvements in several social skills (i.e., resolving interpersonal conflicts, compromise and negotiation, and expression of negative feelings). Comparably, Bellack et al. (1984) found that those individuals with schizophrenia who obtained social skills training rated themselves as significantly more assertive and were determined by trained raters to display greater acquisition of social skill than those participants receiving day hospital treatment only. However, the authors highlighted an important finding in their results, noting that not all of the participants in the social skills training group responded equally well to the treatment. Bellack et al. observed that the social skills group was composed of two types of participants: those who were aware and distressed by their skill deficits and were motivated to learn new skills; and those who seemed to have little interest in improving their social skills. The authors suggested that future researchers should attempt to identify individual differences that may predict treatment outcome. Social anxiety may be an important predictor of treatment outcome.
Perhaps those participants who were aware and distressed by their social difficulties were experiencing some social anxiety and thus were more motivated to improve their social skills compared to those who were less motivated.

More recently, Halford et al. (1995) and Liberman et al. (1998) demonstrated that people with schizophrenia can also benefit from treatment aimed at teaching patients conversational and community living skills. Dobson (1996) found that providing regular opportunities to practice previously learned social skills as part of a long-term support group for individuals with schizophrenia resulted in fewer hospital admissions than controls who did not participate in the support group.

Despite the evidence of the effectiveness of social skills training in improving certain aspects of social interaction, Wallace et al. (1980) noted that, “these changes do not often result in substantial differences in patients' quality of life” (p. 60). There has been renewed attention on the extent to which the newly acquired skills generalize to the participant’s natural environment (Heinssen, Liberman, & Kopelowicz, 2000; Pilling et al., 2002). The data that exists on the issue of skill generalization reveals that the social skills acquired do not generalize well outside the training situations that are not similar to those presented during training (Curran, Monti, & Corriveau, 1982; Hayes et al., 1995; Heinssen, Liberman, & Kopelowicz, 2000; Pilling et al., 2002; Wong et al., 1993).

A recent meta-analysis of only controlled trials of social skills training revealed that there was no reliable benefit of social skills training in the areas of reducing relapse, improving global adjustment, social functioning, or quality of life (Pilling et al., 2002). Many of the studies examining social skills training have been non-randomized control trials and the authors concluded that empirical evidence to date in support of the efficacy of social skills training is unconvincing (Pilling et al., 2002).
In summary, the general consensus seems to be that social skills training is generally effective in improving some aspects of social functioning. However, generalization of newly acquired social skills seems to be limited and short-lived and not all patients benefit from social skills training (Bellack et al., 1984; Heinssen, Liberman, & Kopelowicz, 2000). In addition, recent evidence is challenging the overall efficacy of social skills training.

**Social functioning and neurocognition.** According to the cognitive model, effective interpersonal interactions require the successful integration of receiving and processing information, and an appropriate behavioural response (Liberman, 1982). Those who espouse this model contend that the social impairments characteristic of those with schizophrenia are influenced by cognitive deficits in areas such as attention, memory, and problem-solving skills (Dickerson et al., 1999; Holthausen et al., 2002; Liberman, 1982).

There has been a surge of interest in the area of cognition and schizophrenia that has resulted in findings which clearly indicate that individuals with schizophrenia have impaired neurocognitive functioning (Addington & Addington, 1999). Several studies have examined the relationship between different aspects of social and neurocognitive functioning. In a review of this topic, Green (1996) divided the literature into three areas of social functioning or outcome: community outcome, social problem solving, and skill acquisition.

Results of the first group of studies suggested that secondary verbal memory and card sorting (a measure of executive functioning and cognitive flexibility) were consistently significant predictors of community functioning (Jaeger & Douglas, 1992; Goldman et al., 1993; Buchanan, Holstein, & Breier, 1994; Lysaker, Bell, & Beam-Gaudet, 1995a). Verbal memory, vigilance and early visual processing were found to be significant predictors of
social problem solving (Bellack, Sayers, Mueser, & Bennett, 1994; Bowen et al., 1994; Corrigan, Green, & Toomey, 1994a; Penn, Mueser, Spaulding, Hope, & Reed; 1995). Studies examining the relationship of cognitive functioning to the ability to acquire psychosocial skills found that verbal memory, vigilance, and card sorting was consistently associated with skill acquisition (Mueser, Bellack, Douglas, & Wade, 1991; Kern, Green, & Satz, 1992; Bowen et al., 1994; Corrigan, Wallace, Schade, & Green 1994b; Lyasaker, Bell, Zito, & Bioty, 1995b).

Despite the differences in methods, the limited statistical power of many of the studies, and the huge variability in the selection of measures, there were some consistent results with respect to the association between neurocognitive functioning and social functioning (Green, 1996): verbal memory predicted social functioning in the community, problem-solving skills and skill acquisition. Card sorting was consistently associated with performance on measures of community outcome, and vigilance was a reliable predictor of social problem solving and skill acquisition (Green, 1996; Green et al., 2000).

Addington and Addington (1999) conducted a study to examine social functioning and neurocognitive functioning in a sample of outpatients with schizophrenia that was designed to overcome many of the methodological limitations reported by Green (1996). The study had adequate power, used a range of neurocognitive measures, and assessed both community functioning and social problem solving. The results indicated that social problem solving was associated with verbal ability, verbal memory, conceptual flexibility and vigilance. However, neurocognitive functioning was not associated with community functioning or quality of life. Similarly, Addington, McCleary, and Munroe-Blum (1998) assessed whether cognitive functioning was related to social functioning and social-problem-solving ability and found that cognitive functioning was not significantly
associated with a measure of social impairment, but was associated with a measure of problem-solving. The results of these studies are inconsistent with other studies that have found associations between measures of community functioning and neurocognition.

A more detailed examination of the literature regarding the relationship between neurocognition and social functioning reveals that cognitive deficits accounts for anywhere between 4% to 32% of the variance in social functioning (Addington & Addington, 2000; Addington et al., 1998; Dickerson et al., 1999; Green et al., 2000). For example, Green et al. conducted meta-analyses summarizing the results of 64 studies examining the relationship between four neurocognitive constructs (secondary verbal memory, immediate verbal memory, card sorting, and vigilance) and social outcome. The results indicated that immediate verbal memory accounted for the most variance in social outcome (16%); followed by secondary verbal memory (8%), card sorting (5%), and vigilance (4%). Thus, these results further support that there is indeed a relationship between cognitive deficits and poor social functioning. However, it is clear that cognitive deficits are not the sole contributor of poor social functioning in schizophrenia.

Social functioning and symptoms. 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. 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, 1994). Negative symptoms, however, tend to be more difficult to evaluate as they are thought to occur on a continuum with normality and may be the result of a host of other factors such as medication side effects, environmental understimulation, or demoralization (DSM-IV, 1994).
The first cluster of diagnostic features is what has been referred to as 'positive' symptoms because they represent behaviours or attributes that are in excess of normal functioning. Examples of positive symptoms include hallucinations, delusions, and grossly disorganized behaviour or speech. Hallucinations are the perception of a stimulus in the absence of any external stimulus, and may occur in any of the five sensory modalities (DSM-IV, 1994). Delusions, which are erroneous beliefs based on a misinterpretation of perceptions, tend 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., organizing meals) to catatonic motor behaviours or inappropriate behavioural reactions (e.g., unpredictable agitation) (DSM-IV, 1994). 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, 1994).

The second cluster of diagnostic symptoms is termed 'negative' because it reflects a loss of normal functioning. The three negative symptoms included in the definition of schizophrenia include affective flattening, alogia and avolition. Affective flattening is characterized by diminished emotional expressiveness (e.g., facial unresponsiveness and reduced eye contact). Alogia or poverty of speech is manifested by a decrease in speech fluency and productivity. Finally, avolition is characterized by difficulties in initiating and completing goal-directed activities. Such individuals may show little interest in participating in work or social activities (DSM-IV, 1994).

Many researchers have attempted to determine the relationship between social functioning and the positive and negative symptoms of psychosis (Glynn, 1998). Some believe that the positive symptoms of schizophrenia alienate people, while some think that
it is the negative symptoms that account for the social isolation observed in this population (Hamilton, Ponzoha, Cutler, & Weigel, 1989). Negative symptoms are generally thought to be associated with poor outcome in schizophrenia (Pogue-Geile & Harrow, 1984). For example, Pogue-Geile and Harrow (1984) found that the presence of negative symptoms in those with schizophrenia was associated with poorer social and occupational functioning. Interestingly, positive symptoms were associated with poor occupational functioning, but unlike negative symptoms, they were not correlated with social functioning. Similarly, Addington and Addington (2000) found that higher levels of negative symptoms were associated with lower social functioning and quality of life scores in a sample of 80 patients with schizophrenia. This relationship between the negative symptoms of schizophrenia and poor functioning has been replicated in many studies (Hwu, Tan, Chen, & Yeh, 1995; Hamilton et al., 1989; Parnas, Jorgensen, Teasdale, Schulsinger, & Mednick, 1988; Van Der Does, Dingemans, Linszen, Nugter, & Scholte, 1993, 1996; Wieselgren, Lindstrom, & Lindstrom, 1996). In fact, it appears that negative symptoms account for approximately 15 to 20% of the variance in social functioning (Glynn, 1998). In summary, it appears that the negative symptoms of schizophrenia have the strongest relationship to social functioning affecting areas such as occupational functioning and quality of life, while the positive symptoms of schizophrenia seem to impact social functioning to a lesser degree.

**Schizophrenia and Social Anxiety**

In 1990, Heinssen and Glass noted that no studies had examined the incidence of social anxiety in schizophrenia, and therefore the precise prevalence rate was unknown. Since that time, few studies have examined this issue. Cosoff and Hafner (1998) examined the prevalence of anxiety disorders in a sample of 60 inpatients with schizophrenia and found that 17% of the patients met DSM-III-R criteria for social phobia. Similarly,
Cassano, Pini, Saettoni, Rucci, and Dell'Osso (1998) found that 16% of their sample of inpatients with schizophrenia (n = 31) met DSM-III-R criteria for social phobia. Pilkonis, Feldman, Himmelhoch, & Cornes (1980) in their investigation of the relationship between social anxiety and psychiatric diagnoses found that 54% of those in the schizophrenia group rated themselves as shy. Blanchard, Mueser, and Bellack (1998), who investigated the relationship between anhedonia, positive and negative affect, and social functioning in a sample of individuals with schizophrenia found that those with schizophrenia reported greater social anxiety than did controls across assessments. Goodwin et al. (2002) examined the co-morbidity of anxiety disorders and substance use in a sample of patients with schizophrenia and found that 8.2% of the sample met DSM-III-R criteria for social phobia. Noordsy et al. (1991) investigated the subjective experiences of alcohol use in a sample of individuals with schizophrenia and discovered that the number one reason patients reported that they used alcohol was in order to reduce social anxiety (69.7%).

Other studies have indicated that those with schizophrenia appear more anxious during social encounters than control participants (Heinsen & Glass, 1990). Monti and Fingeret (1987) examined the performance of patients with and without schizophrenia on standardized measures of social perception and social skill. Judges rated the participants’ degree of anxiety and social skill during several role played interpersonal interactions and concluded that those with schizophrenia were less skilled and more anxious than the control group. Likewise, Fingeret, Monti, and Paxson, (1985) examined social performance in a sample of patients with and without schizophrenia and found that those with schizophrenia were rated as exhibiting higher levels of anxiety than the nonschizophrenia group while role-playing interpersonal scenarios.

Only one study to date has specifically focused on examining social anxiety in
schizophrenia. Penn et al. (1994) investigated the relationship between social anxiety and the positive and negative symptoms of schizophrenia. It was hypothesized that social anxiety would be positively correlated with negative symptoms and be unrelated to positive symptoms. Thirty-eight inpatients participated in an unstructured role play where the patients had three minutes to get to know a research assistant who pretended to be a new volunteer on the ward. The role-plays were videotaped and two research assistants rated how anxious the participants appeared. Participants then completed the brief Fear of Negative Evaluation Scale, the Fear Questionnaire, and a 6-item scale developed by the researchers to assess social anxiety in situations that an inpatient is likely to encounter.

In order to assess the level of social anxiety in the sample, the mean social anxiety score on the social phobia subscale of the Fear Questionnaire (FQ) was compared to means that were previously reported in social phobia samples. The results indicated that the participants were experiencing an elevated level of social anxiety. Negative symptoms were related to behavioural ratings of social anxiety (e.g., slower speech rate, less fluent speech during the role-play). Positive symptoms of schizophrenia were related to two self-report measures of anxiety: the agoraphobia and blood injury subscales of the FQ; and a measure developed by the authors to assess social phobia. The authors suggested that the high rate of reported social and agoraphobic fears in those patients experiencing positive symptomatology may have been related to paranoid delusions.

Although the results suggest that the elevated levels of social anxiety found in the sample may simply reflect the positive symptoms of the disorder such as paranoid delusions, it is important to emphasize that inpatients were utilized in this study. Therefore, it possible that the same relationship would not be found in a sample of outpatients whose positive symptoms would potentially be under better control than those patients in extended
care facilities. Thus, social anxiety in this population may not necessarily reflect an artifact of the positive symptoms of the disorder.

Only one study examined the relationship between social anxiety and social functioning in schizophrenia. Blanchard et al., (1998) found that poor social functioning in a sample of individuals with schizophrenia was positively correlated with a measure of social anxiety. However, as the relationship between social anxiety and social functioning was not the main focus of the study, it was simply reported as a secondary finding and was not further explored or elaborated upon.

**Maladaptive and irrational beliefs.** In recent years the role of cognition in social anxiety has received increasing attention (Glass & Furlong, 1990; Hofmann, 2000; Woody & Rodriguez, 2000). According to Beck, Emery, and Greenberg (1985) individuals with anxiety disorders tend to overestimate the probability of a negative outcome and underestimate their ability to cope. For those with social anxiety, such distorted thoughts might center on the anticipation of rejection, disapproval, or embarrassment. Patterns of maladaptive or irrational self-statements or internal dialogue have been the most frequently studied cognitive variable in social anxiety (Dodge, et al., 1988; Glass & Furlong, 1990). For example, it has been demonstrated that high socially anxious individuals endorsed more negative and fewer positive thoughts than less anxious individuals in response to imagining themselves interacting in a social situation (Beidel, Turner, & Dancu, 1985; Zweig & Brown, 1985). Such negative internal dialogue has been implicated as a maintaining factor of social anxiety by facilitating negative emotional reactions and inhibiting performance in social situations (Dodge, et al., 1988; Stopa & Clark, 1993; Spurr & Stopa, 2002).

There is very limited information on the influence of non-psychotic dysfunctional beliefs on the social functioning of those with schizophrenia (Heinssen & Glass, 1990).
Monti, Zwick, and Warzak (1986) found that in a heterogeneous psychiatric sample, 37% of which were diagnosed with schizophrenia, patients exhibited irrational beliefs in many life areas to a greater extent than a sample of previously studied undergraduates. Additionally, irrational beliefs regarding dependency issues were found to be significantly related to judges' behavioural ratings of social anxiety and social skill during role-play assessments. No known studies to date have examined whether those with schizophrenia have any maladaptive or irrational beliefs regarding social evaluative situations and the possible relationship between these cognitions, social anxiety and social functioning.

Rationale for the Study

Why Study First Episode Psychosis?

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 those with a more chronic course is the speculation that early identification and treatment of schizophrenia will produce a more favorable outcome (Liberman et al., 1992; McGlashan & Johannessen, 1996; McGorry & Yung, 2003). In fact, there are studies that suggest that longer periods of untreated psychosis are associated with poorer outcome (Larsen, Moe, Vibe-Hansen, & Johannessen, 2000; McGlashan, 1998).

The literature suggests that most of the deterioration observed in schizophrenia occurs early in the course of the illness and stabilizes between two to five years (Birchwood, Todd, & Jackson, 1998). Like their multi-episode counterparts, individuals who are experiencing their first episode of psychosis also experience deficits in social functioning and quality of life (Birchwood, Todd, & Jackson, 1998; Brown et al., 2000; Hafner, Hambrecht, & an der Heiden, 1999). In fact, the deficits in social functioning
observed in first-episode psychosis have been found to be similar to those patients who have experienced a more chronic course of schizophrenia (Grant et al., 2001; Priebe et al., 2000). Addington, Young, and Addington (2003) found that individuals experiencing their first episode of psychosis had poorer quality of life one year after being in an early psychosis treatment program compared to nonpsychiatric controls. In addition, 40% of the sample was unemployed. At the two-year follow-up, those with psychosis still had poorer quality of life than the control participants (Voges, Addington, Young, & Addington, 2003). Similar results were found by Ho, Nopoulos, Flaum, Arndt, and Andreasen (1998), who found a reduced quality of life in their sample of first-episode patients two-years after being diagnosed with schizophrenia. The majority of the sample (60%) was unemployed and had few social contacts and did not engage in many social activities.

Thus, it is evident that people experiencing their first-episode of psychosis suffer significant social impairment that is comparable to the deficits experienced by those who have experienced multiple episodes and a more chronic course. The findings that most of the deterioration observed in schizophrenia occurs early in the course of the illness and that longer periods of untreated psychosis are thought to lead to a worsening of outcome suggests that first-episode psychosis may be an especially important period for reducing the impairments that accompany this illness (Birchwood et al., 1998). As such, studies utilizing first-episode patients are important and warranted given their implications for secondary prevention (Birchwood et al., 1998; Hafner et al., 1999; Larsen et al., 2000).

Why Study Social Anxiety?

With the development of increasingly effective antipsychotic medications to control the positive symptoms of schizophrenia such as hallucinations and delusions, researchers are beginning to focus on the residual effects of the illness, namely the impact on social and
vocational functioning (Glynn, 1998). A review of the literature suggests that deficits in social skills and cognitive impairment account for the poor social functioning observed in schizophrenia. However, as reviewed, recent evidence is challenging the overall efficacy of social skills training, implicating that individual differences may mediate outcome (Bellack et al., 1984). For example, perhaps social anxiety is an individual difference that contributes to the inconsistent treatment gains observed in the social skills treatment literature, as it is possible that some participants may exhibit social deficits due to distress caused by social anxiety rather than a lack of social skill. Although there seems to be consensus in the literature regarding the relationship between neurocognitive deficits and poor social outcome, research suggests that social functioning is determined by a host of factors (Green et al., 2000). Cognitive deficits have been shown to account for approximately 4 to 32% of the variance in social outcome (Addington & Addington, 2000; Addington et al., 1998; Dickerson et al., 1999; Green et al., 2000), suggesting that there are other influential factors accounting for the observed deficits in social functioning. Taken together, these findings suggest that social skill deficits and cognitive impairment are related to the poor social functioning observed in many individuals with schizophrenia. However, the research also suggests that this relationship is not perfect, eluding that there may be other explanations for the poor social functioning observed in this population. Perhaps social anxiety is an influential factor impacting social functioning in first-episode psychosis.

Very little research has assessed the potential impact that social anxiety might have on the social functioning of those with schizophrenia. In addition, no known studies to date have examined whether those with schizophrenia have any maladaptive or irrational beliefs regarding social situations. Thus, the investigation of the role of social anxiety on the
social functioning in individuals with a psychotic disorder warrants further investigation.
The purpose of the present study was to investigate the relationship between social anxiety and social functioning in first-episode psychosis.

**Hypotheses**

In a group of outpatients with first episode psychosis, it was hypothesized that:

1) Social anxiety as measured by the Social Phobia and Anxiety Inventory (SPAI; Turner, Beidel, & Dancu, 1996) would be negatively associated with social functioning as measured by the Social Functioning Scale (SFS; Birchwood, Smith, Cochrane, Wetton, & Copestake, 1990). In other words, higher scores on the SPAI would be significantly associated with poorer social functioning. Specifically, it was hypothesized that social anxiety would be negatively associated with the social engagement/withdrawal, interpersonal communication, recreation, prosocial, and occupation/employment subscales of the Social Functioning Scale.

2) Social anxiety as measured by the SPAI would be negatively associated with quality of life as measured by the Quality of Life Scale (QLS; Heinrichs, Hanlon, & Carpenter, 1984). That is, higher scores on the SPAI would be associated with poorer quality of life. Specifically, it was hypothesized that social anxiety would be negatively associated with the interpersonal relations and instrumental role functioning subscales of the Quality of Life Scale.

3) Social anxiety as measured by the SPAI would be positively associated with negative self-statements and negatively associated with positive self-statements as measured by the Social Interaction Self-Statement Test (SISST; Glass, Merluzzi, Biever, & Larsen, 1982). Stated differently, higher scores on the SPAI would be significantly
associated with higher levels of negative self-statements and lower levels of positive self-statements.

4) The negative self-statements subscale of the SISST would be negatively associated with social functioning as measured by the SFS and QLS. That is, higher levels of negative self-statements would be significantly associated with poorer social functioning and quality of life.

In addition to testing these hypotheses, a hierarchical regression analysis was conducted utilizing those variables that were significantly correlated with the SFS in order to determine the predictors of social functioning. Finally, descriptive statistics were obtained for a self-report measure devised by the present writer to examine the potential association between social anxiety and the social and occupational functioning in first episode psychosis.
CHAPTER 2

Method

Participants

The participants were a sample of 60 outpatients experiencing their first episode of psychosis. These participants were patients who were admitted to the Calgary Early Psychosis Program (EPP). The EPP is a comprehensive treatment program for individuals experiencing their first episode of psychosis. It is predicted that 80-90% of all new cases in Calgary (pop. 930,000) are being referred to this specialized program (Addington & Addington, 2001). Patients admitted to the program are defined as those who meet DSM-IV (1994) criteria for a schizophrenia spectrum disorder and who had received adequate treatment for less than three months 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., three weeks) that would generally lead to a clinically significant response in nonchronic, non-treatment-resistant patients.”

All of the participants were registered in the EPP and were in a state of relative remission and under the care of a psychiatrist and case manager. Patients who had been in the program from 3 to 36 months were recruited for the present study. The participants were over the age of 16 as no individuals younger than 16 years of age are admitted to the EPP program. All of the participants met DSM-IV (1994) criteria for schizophrenia or other schizophrenia spectrum disorders (e.g., schizoaffective disorder, schizophreniform disorder, delusional disorder, psychosis not otherwise diagnosed), using the Structured
Clinical Interview for DSM-IV (SCID-I; First, Gibbon, Spitzer, & Williams, 1996). Diagnoses were conducted at the initial assessment and confirmed at one year. For a large effect size, $f = .35$, at $\alpha = .01$, it was estimated that 60 participants were needed for the present study (Cohen, 1992). There are no previous studies that would allow for a reasonable estimate of effect size for the present study. Thus, given that the maximum sample size we anticipated being able to recruit for the present study was approximately 60 participants, a large effect size was assumed for purely pragmatic purposes.

Measures

The primary measure of interest used to assess social anxiety was the Social Phobia and Anxiety Inventory. The Structured Clinical Interview for DSM-IV (SCID-I) was also utilized to assess social anxiety for the purpose of increasing our confidence in the assessment of social anxiety as measured by the SPAI as this measure had never been used with a sample of individuals with schizophrenia. The SCID-I was also used to assess the presence of panic disorder, agoraphobia, and generalized anxiety disorder. The Social Interaction Self-Statement Test was used to assess self-statements regarding a social interaction and the Schizophrenia Social and Employment Avoidance Scale was used to assess the impact of social anxiety on social and vocational functioning. Social functioning was assessed with the Social Functioning Scale and the Quality of Life Scale and the symptoms of schizophrenia were assessed utilizing the Positive and Negative Syndrome Scale. Finally, depression was assessed using the Calgary Depression Scale for Schizophrenia.

The Structured Clinical Interview for DSM-IV (SCID-I; First et al., 1996) The SCID-I is a semi-structured interview for making DSM-IV Axis I Disorders designed
for use with individuals ages 18 and over. Its language should be understandable to anyone with an eighth-grade education. Assessment of the SCID's reliability (First et al., 1996; Williams, Gibbon, First, & Spitzer, 1992) produced kappas for Axis I disorders among those reported for other diagnostic instruments, such as the NIMH Diagnostic Interview Schedule (Robins, Helzer, Croughan, & Ratcliff, 1981) and the Schedule for Affective Disorders and Schizophrenia (Endicott & Spitzer, 1978). More recent studies have reported kappas of .65 to 1.00 (First et al., 1996).

The SCID-I was used to assess psychotic disorders and to assess social phobia, panic disorder, agoraphobia, and generalized anxiety disorder. Exclusionary rules of the SCID-I were strictly followed in the present study requiring full diagnostic criteria be met as defined in the SCID-I.

Social Phobia & Anxiety Inventory (SPAI; Turner, Beidel, & Dancu, 1996)

The SPAI is a 45-item self-report inventory that assesses social anxiety. The SPAI assesses the somatic, cognitive and behavioural aspects of social phobia across a wide range of social situations and settings (e.g., “I feel anxious when entering social situations where there is a small group” and “I attempt to avoid social situations where there are: strangers, authority figures, members of the opposite sex”). Each item is rated on a 7-point scale ranging from never to always, requires a grade 6 reading level, and takes no more than 20 to 30 minutes to complete. The SPAI was administered in interview format. The SPAI has a social phobia subscale, an agoraphobia subscale that was included to better differentiate between panic disorder with agoraphobia and social phobia, and also provides a difference score. The difference score is obtained by subtracting the agoraphobia score from the social phobia score. Analyses of the SPAI in the present study were done using the difference score as Turner, Beidel, and Dancu recommend using this subscale as it is
thought to provide a more precise measure of social phobia as the potential influence of panic disorder with agoraphobia is excluded from the score.

The two-week test-retest reliability correlation for the total score was .86. In a sample of socially phobic college students, the test-retest reliability correlations for the social phobia and agoraphobia subscales were .85 and .74 respectively. Internal consistency coefficients (alpha) for the SPAI were .96 for the social phobia subscale, and .85 for the agoraphobia subscale, thus demonstrating a high degree of internal consistency. Additionally, the SPAI has been shown to discriminate between socially anxious and non-anxious college students (Turner, Beidel, Dancu, & Stanley, 1989) and between individuals with social phobia, panic disorder, and obsessive-compulsive disorder (Beidel, Borden, Turner, & Jacob, 1989). Convergent validity has been demonstrated for the SPAI as studies have shown that it correlates well with other measures of social anxiety (Turner, Beidel, & Dancu, 1996). This measure was chosen for the present study as it assesses social anxiety in various settings and situations, provides a severity score, and assesses cognitive, behavioural, and somatic aspects of social anxiety. Higher scores on this measure equals greater social anxiety.

The Social Interaction Self-Statement Test (SISST: Glass et al., 1982)

There are no studies to date that have attempted to assess the influence of maladaptive thoughts on social evaluative interpersonal interactions in individuals with a psychotic disorder. As such, there are no measures that assess cognitions in social evaluative situations that have been standardized with a first-episode sample. The SISST is the most frequently used self-statement measure in the social anxiety literature (Elting & Hope, 1995). The SISST is a 30-item questionnaire that assesses the frequency of positive (facilitative) and negative (inhibitory) self-statements in social situations. The SISST
contains 15 positive and 15 negative statements and each item is rated on a 5-point scale in Likert format anchored by 1 (“hardly ever”) and 5 (“very often”) (refer to Appendix A). Following the procedures of Osman, Markway, and Osman (1992) and Zweig and Brown (1985), participants completed the SISST after reading a description of a social situation while imagining participating in it. The social situation involved initiating a conversation at a party and all references to a particular gender (e.g., an attractive man or woman) were changed to an “attractive person” in an effort to avoid heterosexism (refer to Appendix A).

At the initial testing, reliability estimates for this procedure were high (e.g., alpha = .85 for positive items and alpha = .91 for negative items). Test-retest reliabilities produced coefficient alphas of .76 for positive items and .89 for negative items over a 3-week interval (Zweig & Brown, 1985). A test of discriminant validity revealed that high-anxious participants obtained significantly lower positive self-statement scores and significantly higher negative self-statement scores than did low-anxious participants. With respect to concurrent validity, the SISST was found to correlate in expected directions with the Fear of Negative Evaluation Scale, the Social Avoidance and Distress Scale and the Irrational Beliefs Test (Zweig & Brown, 1985). Osman et al. (1992) analyzed the psychometric properties of the SISST and found support for the two-factor solution, the internal consistency of the subscales (i.e., .89 for positive items and .91 for negative items), and for the concurrent validity of the measure (i.e., the Social Avoidance and Distress Scale, the MMPI-2-Si, and the Anxious Self-Statements Questionnaire).

The Schizophrenia Social and Employment Avoidance Scale (SSEAS)

The SSEAS was used to determine the potential association between social anxiety on the social and occupational functioning of people with a psychotic disorder. As there are no measures that directly assess this issue, a small pilot study was conducted on 8
participants from the EPP where this writer spoke with each patient and inquired about any social anxiety they might experience and whether the patients felt that this anxiety was impeding their social and/or occupational functioning. From these discussions, the SSEAS was devised as a self-report measure of examining the potential influence of social anxiety on social and occupational functioning (refer to Appendix B). Information from these questions was used descriptively, and as such no attempts were made to validate this measure.

The Social Functioning Scale (SFS; Birchwood et al., 1990)

The SFS is a 79-item self-report questionnaire developed for outpatients with schizophrenia that inquires about the patient's social functioning abilities and the frequency of the patient's participation in daily and social activities. In the present study, the SFS was administered in interview format. The SFS uses a 4-point rating scale of frequency or ability. The SFS consists of seven subscales: social engagement/withdrawal (e.g., “How often do you leave the house?”); interpersonal behaviour (e.g., “How many friends do you have at the moment?”); independence-performance (e.g., frequency of going food shopping); recreation activities (i.e., frequency of engaging in a variety of hobbies); prosocial activities (e.g., frequency of visiting friends); independence-competence (e.g., ability to wash one's clothes or handle money); employment/occupation (e.g., engagement in employment). This measure was chosen for the present study due to the comprehensive nature of the scale, the availability of normative data for a population with a comparable age, sex and (un)employment structure, and the ability to yield considerable information in a short period of time (Birchwood et al., 1990).

The internal reliability coefficient for the full scale was .80. Reliability coefficients for the individual subscales ranged from .69 to .87. 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). Higher scores on this measure equal better social functioning.

The Quality of Life Scale (QLS; Heinrichs, Hanlon, & Carpenter, 1984)

The QLS is a 21-item semi-structured interview that is designed to assess the functioning of outpatients with schizophrenia. Each item is rated on a 7-point scale and provides ratings on four dimensions: intrapsychic foundations, which assesses cognitive, affective, and motivational functioning; interpersonal relations, which evaluates the frequency of social contact, avoidance, and withdrawal; instrumental role, which judges functioning in the student, worker, or housekeeper/parent roles; and common objects and activities which assesses possession and participation in the areas of daily living (e.g., shopping, possession of a wallet, keys, etc.). Higher scores on this measure equals better quality of life.

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). A principal component factor analysis 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). This measure was chosen for the present study in order to obtain more detailed information on the interpersonal aspects of social functioning in individuals with psychosis.

The Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987)

The PANSS was used to determine levels of positive and negative symptoms of psychosis so that an examination of the relationship between the symptoms of schizophrenia and social anxiety could be investigated. The PANSS is a 30-item semi-
structured interview scale that is medication-sensitive and provides balanced representation of positive and negative symptoms and gauges their relationship to one another and to global psychopathology. It consists of seven rating points, which represent increasing levels of psychopathology: 1 = absent, 2 = minimal, 3 = mild, 4 = moderate, 5 = moderate-severe, 6 = severe, 7 = extreme.

Internal consistency of the PANSS, using coefficient alpha, ranges from .64 to .84 (Kay et al., 1987). Test-retest reliability correlations for the Positive, Negative, Composite, and General Psychopathology scales, respectively, were .80, .68, .66, and .60. A modest relationship between the Positive and Negative scales (r = .27) provides evidence for construct validity. Additionally, the discriminant and convergent validity of the PANSS was supported by its correlations with a series of clinical, genealogical, psychometric, and historical assessments (Kay, Fiszbein, & Opler, 1986).

**Calgary Depression Scale for Schizophrenia (CDSS; Addington, Addington, Maticka-Tyndale, & Joyce, 1992)**

The lifetime prevalence of comorbid depression in patients with social phobia is between 40% and 50% (Ballenger et al., 1998). Given the high rate of comorbidity between these disorders, depression was assessed in order to rule out the potential confounding influence of depression on social functioning. The CDSS is a 9-item structured interview scale that was designed specifically to assess depressive symptoms in individuals with schizophrenia.

The CDSS is a reliable and valid measure of depression for individuals with psychotic disorders. Internal consistency, as measured by Cronbach's alpha, is .78 in inpatients and .71 in outpatients (Addington et al., 1992). Evidence of concurrent validity is demonstrated with the CDSS being correlated with the presence of a major depressive
episode (Addington et al., 1992). The CDSS is specific to the assessment of depression in schizophrenia, as it not related to the presence of negative symptoms (Addington et al., 1994). Construct validity is indicated by the confirmation of a single factor, which accounts for a significant portion of the variance and covariance of the nine items in both in- and outpatients (Addington et al., 1992). The CDSS is also able to discriminate between the presence and absence of a major depressive episode.

Procedures

Patients from the EPP were first asked by their clinician if they were interested in learning more about this study. Clinicians only asked this permission of participants whom they judged to be able to give informed consent. If they said yes, their names were given to the investigator (MV). Those patients who were interested were given an oral description of the study. The consent form was explained in detail to them and they were asked to sign the form. Participants who chose to participate in the study were informed of their right to withdraw their participation at any time and the confidential nature of the information gathered. Any questions asked by participants were answered in full at the time of obtaining consent or prior to each part of the assessment. Data was collected at the EPP at a time convenient for the participant.

Patients in the EPP are routinely assessed initially at 3, 6, 12, 24, and 36 months as part of an ongoing program evaluation. Diagnosis occurs at the initial assessment according to DSM-IV (1994) criteria for psychotic disorders using the Structured Clinical Interview for DSM-IV (SCID-I; Spitzer et al., 1992). The SCID-I was conducted with trained raters (e.g., psychiatrists and psychologists) who maintained their reliability at regular intervals. Acceptable reliability is reached when raters agree on 80% of items and
on the diagnosis. The PANSS, CDSS, and the QLS were completed by one of the clinical research nurses responsible for these assessments as part of the program evaluation. These clinical research nurses are experienced research clinicians who routinely used all of these measures and who demonstrated adequate reliability at routine reliability checks as part of the ongoing Early Psychosis Program evaluation. Criteria for reliability are that the scoring of each item on the PANSS, QLS and CDSS is within one point and there is at least 80% agreement on total scores and subscale scores for all measures. Agreement is calculated as the number of ratings within one point divided by the total number of ratings.

The SFS, SPAI, SISST, and the SSEAS are all self-report measures that were administered by the investigator (MV). MV also administered parts of the anxiety module of the SCID-I. Training for this semi-structured interview involved reviewing the SCID-I instructional tapes and conducting 3 practice assessments. Reliability checks were conducted for the anxiety module assessed by the SCID-I. Confirmation of reliability was conducted by a chartered psychologist who reviewed three interviews and ratings of audiotapes. Acceptable reliability was reached when there was 100% agreement on the diagnosis and 80% agreement for symptom presence. The SCID-I diagnoses may be limited by the fact that only three reliability checks were conducted. However, the SCID anxiety module was not the major measure of anxiety in the present study. It was included as a means to support ratings of anxiety measured by the SPAI. All assessments conducted by the present writer were administered within a five-day period from each of the participant’s routine program assessment.
Ethical Considerations

Recruitment and consent procedures. It was made clear to all participants that participation in this study was voluntary and that it was not related to their treatment. Permission to invite participants who may be appropriate for this study was obtained from the outpatients' clinicians. Clinicians only asked this permission of participants whom they judged to be able to give informed consent. All participants who chose to participate in the study were informed of their right to withdraw their participation at any time. Any questions asked by participants were answered in full at the time of obtaining consent or prior to each part of the assessment.

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 these code numbers. 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 identifiable records were used or will be used for teaching or other scientific purpose.
CHAPTER 3

Results

Description of Patient Population

A total of 60 participants, 41 males and 19 females participated in the present study. The mean age of the participants was 27.45 (SD = 8.28), with the youngest participant being 18 and the oldest 48. The majority of the sample was Caucasian (85%) and single (83%). The highest education levels achieved by participants in descending order were: high school diploma (37%); followed by some high school (20%); and some post-secondary or vocational training (20%). Diagnoses included schizophrenia, n = 32; psychosis NOS, n = 14; schizophreniform disorder, n = 13; and delusional disorder, n = 1. Patients had been in the EPP for an average of 24.80 months (SD = 11.29). Chi-square analyses and t-tests were conducted in order to assess any potential recruitment bias in the current sample. Since this sample was a subsample of the first 300 patients admitted to the EPP, the study sample (N = 60) was compared to the 240 on gender, race, education, marital status, positive and negative symptoms and the Quality of Life Scale. There were no differences between this sample and the total sample of the EPP on any of these variables. This indicates that the present sample was representative of patients seen at the EPP. See Table 1 for complete demographic information.

Table 1 Here

Description of Measures

The participant’s average SPAI difference score fell in the “possible social phobia range” with a mean score of 69.57 (SD = 27.42). The mean social phobia score on the SPAI was 93.78 (SD = 39.43). The mean agoraphobia score on the SPAI was 25.93 (SD =
suggesting that for the average participant, panic disorder was unlikely. A t-test indicated that those patients with a diagnosis of schizophrenia (n = 32) had significantly higher SPAI scores than patients meeting criteria for other schizophrenia spectrum disorders (n = 27) (e.g., schizophreniform disorder, delusional disorder, or psychosis nos): M = 77.10 (SD = 25.40) and M = 61.30 (SD = 28.17), respectively, t(58) = 2.32, p = .02.

On the positive subscale of the PANSS, 92% of the sample had a score of 21 or below indicating mild positive symptoms. The mean PANSS positive score was 12.23 (SD = 5.36). The participants were also experiencing mild negative symptoms with 93% of the sample obtaining a score of 21 or below. The mean PANSS negative score was 12.45 (SD = 5.42). The mean CDSS score was 1.52 (SD = 2.26). A total of 4 (6.7%) participants scored above 6 on this measure suggesting that they were depressed. The mean QLS score was 83.08 (SD = 25.05) and the mean SFS score was 125.82 (SD = 23.96). The average score on the positive subscale of the SISST was 44.48 (SD = 9.86) and the average score on the negative subscale was 42.87 (SD = 13.78) (see Table 2). The SCID-I indicated that none of the participants were experiencing panic disorder, agoraphobia or generalized anxiety disorder. However, 31.7% of the sample met SCID-I criteria for social phobia. A chi-square test indicated that those with schizophrenia were more likely to have a diagnosis of social phobia (23.3%) compared to other schizophrenia spectrum disorders (8.3%) (e.g., schizophreniform disorder, delusional disorder, and psychosis nos): χ²(1, N = 60) = 4.63, p = .03. A point bi-serial correlation indicated that the SPAI and the social phobia module of the SCID-I were significantly correlated: r = .53, p = .0001. Independent t-tests revealed that there were no gender differences on the SFS, QLS, CDSS, PANSS, SPAI, or the SISST (see Table 3). However, there was a trend for the women to score higher on the SPAI compared to the men: M = 74.00 (SD = 31.38), and M = 67.51 (SD = 25.54),
respectively. In addition, Pearson correlations indicated that there was no significant relationship between age and the SPAI (-.32), SFS (-.10), QLS (.07), CDSS (-.16), positive symptoms (-.14), negative symptoms (.05), or the SISST (+) (-.10), SISST (-) (-.03).

Finally, although sample sizes were limited, chi-square and ANOVA analyses indicated that there were no significant differences on any of the measures examined in the present study (e.g., SCID-I social phobia, SPAI, SFS, QLS, CDSS, PANSS, SPAI, or the SISST) in relation to the time period patients were assessed in this study (e.g., 3, 12, 24, or 36 months). Refer to Appendix E for mean scores on each measure according to time in the EPP.

Table 2 Here
Table 3 Here

Correlations between Measures

Prior to outlining the specific results of the hypotheses, several relevant correlations are first reported. In order to control for inflated Type 1 error due to multiple correlations, Bonferroni adjustments ($\alpha = .002$) were made for those correlations in which specific hypotheses were not made. Pearson product moment correlations were conducted in order to examine the relationship between the social functioning measures and the PANSS and CDSS. The relationship between social anxiety and the PANSS and CDSS was also determined.

The results indicated that the SFS was significantly associated with the PANSS. Specifically, high levels of negative symptoms were significantly related to low social functioning scores. Similarly, higher levels of negative symptoms were significantly associated with poorer quality of life scores. A higher level of depression was not significantly associated with poorer social functioning or quality of life. A higher level of
social anxiety as measured by the SPAI was found to be associated with higher levels of depression and negative symptoms, but these correlations were not significant after a Bonferroni correction. Social anxiety was not significantly associated with positive symptoms (refer to Appendix D for correlations between measures).

**Hypotheses 1 & 2**

Pearson product moment correlations were used to examine the relationship between the social functioning measures and the SPAI. As hypothesized, the results indicated that higher social anxiety scores were significantly associated with poorer social functioning as measured by the SFS, \( r = -0.32, p = 0.001 \). An examination of the relationship between the SPAI and the subscales of the SFS revealed that social anxiety was significantly related to poorer scores on the withdrawal, interpersonal, prosocial and employment subscales as hypothesized. However, social anxiety was not significantly associated with lower scores on the recreation subscale of the SFS. These results are presented in Table 4. The second hypothesis was not supported, as a higher level of social anxiety was not significantly associated with poorer quality of life, \( r = -0.18, p = 0.162 \). The SPAI was not significantly associated with the interpersonal or instrumental subscales of the QLS as hypothesized: \( r = -0.16, p = 0.213 \) and \( r = -0.13, p = 0.326 \), respectively.

Table 4 Here

**Hypotheses 3 & 4**

As hypothesized, a higher level of social anxiety was significantly associated with higher levels of negative self-statements, \( r = 0.74, p = 0.001 \). A lower level of social anxiety was significantly associated with higher levels of positive self-statements as hypothesized, \( r \)
The fourth hypothesis was supported as a higher level of negative self-statements on the SISST was related to poorer social functioning as measured by the SFS, $r = -0.37, p = 0.004$. However, negative self-statements were not significantly related to the QLS as hypothesized, $r = -0.08, p = 0.523$.

**Regression Analysis**

Due to the significant correlations between the SFS and negative symptoms, negative self-statements, and the SPAI, a hierarchical regression analysis was performed in order to investigate the predictors of social functioning. Negative symptoms were entered first, followed by negative self-statements, and finally the SPAI in order to determine the unique contribution of negative self-statements and social anxiety controlling for negative symptoms. According to Tabachnick and Fidell (2001) variables are entered into the equation based on the importance of each predictor, which is determined by the researcher according to logic or theory. As such, negative symptoms were entered first given that previous studies have demonstrated a highly significant relationship between negative symptoms and poorer social functioning at all phases of a psychotic illness. Negative self-statements were entered next because it was more highly correlated with the SFS than the SPAI and because it was of interest to determine whether the SPAI would be significant after the variance associated with negative cognitions was removed from the equation. The results indicated that negative symptoms and the negative self-statements subscale of the SISST were significant predictors of social functioning, making a unique contribution of 22% and 5% of the variance respectively (see Table 5).
Exploratory Analyses of the SSEAS

The results of the Schizophrenia Social and Employment Avoidance Scale (SSEAS) were analyzed descriptively. Possible responses ranged from “not at all characteristic of me” to “extremely characteristic of me”. In order to facilitate the reporting of these results, the categories of “moderately characteristic of me”, “very characteristic of me”, and “extremely characteristic of me” have been combined. Approximately half of the sample indicated that they avoid meeting new people and people they already know because they do not know how to explain their psychosis: 53% and 45%, respectively. Slightly less than half of the sample reported that they avoid meeting new people and those they already know because they feel embarrassed to explain their psychosis: 47% and 43%, respectively.

Over half of the sample (62%) indicated that they would socialize more if only they could feel more relaxed around other people; while 43% reported that they avoid romantic relationships due to feelings of nervousness in social situations. Feelings of nervousness in social situations also seemed to impact occupational status as 58% of the sample indicated that their nervousness in social situations stops them from getting the job/education that they would like. Furthermore, 48% reported that they avoid getting the job/education that they would like because they worry about having to talk and interact with new people. Half of the sample indicated that they have always felt anxious in social situations, and 62% indicated that they wish they had more friends. Finally, 67% of the sample reported that they felt they were not taking the right kind of courses or doing the kind of job they should be doing.

Content Analysis

A content analysis was conducted for the open-ended question on the SSEAS.
regarding what patients felt was stopping them from obtaining the job/education that they would like. The qualitative data presented in Table 6 illustrates that out of the 36 participants who responded to this question, issues related to debilitating symptoms of psychosis (19%) and lack of finances (19%) were the most common reasons given for what is stopping them from having the job or education that they would like. For example, in the symptoms category, one patient wrote that they do not have the job or education they would like because “my mental ability is poor and I have poor concentration and memory”. In the finances category, one patient wrote that “a lack of money to return to school” prevents him from getting the education/job that he would like. Other responses to this question centered on feelings of anxiety (14%), fear of failure (14%), not knowing what area to pursue (14%), unsure/nothing (14%), and other (6%). Sample responses from these categories included “anxiety of meeting new people”, “I’m afraid of failing again”, “I don’t know what discipline of studies I want to enter. Will it be right for me?” and in the other category, “I just moved to Calgary, looking for work, could use some help with this”.

Table 6 Here
CHAPTER 4

Discussion

Interpretation of Measures

The purpose of the present study was to investigate the relationship between social anxiety and social functioning in first-episode psychosis and to examine whether those with psychosis have any maladaptive or irrational beliefs regarding a social situation. The SPAI and the SISST have not previously been utilized with individuals with psychosis, therefore the results from these measures were interpreted based on informal comparisons with samples of non-clinical college students and people diagnosed with social phobia. Given the differences between studies in sample size, gender composition, and age, the following comparisons must be interpreted with caution. On average, the participants’ SPAI scores were lower than those reported in previous social phobia samples, however the scores were still within the clinical range reported in previous studies, and they were elevated compared to normal controls (Beidel, Turner, Stanley, & Dancu, 1989; Turner, Beidel, Long, Turner, & Townsley, 1993; Turner et al., 1989). Elevated levels of self-reported social anxiety has also been documented by Penn et al. (1994), who used measures of social anxiety other than the SPAI, but also found levels of social anxiety in a sample of schizophrenia and schizoaffective patients that was within the range reported by individuals with social phobia. Similarly, Blanchard et al. (1998) found higher levels of self-reported social anxiety in a sample of outpatients with schizophrenia compared to normal controls. The present study represents the first known examination to confirm elevated levels of social anxiety in a first-episode sample.

The average social functioning score was comparable to those found in other first-episode and more chronic samples (Dickerson et al., 1999; Addington & Addington, 1999;
Grant et al., 2001), and was below that of normal controls indicating that the sample had reduced social functioning (Grant et al., 2001). Although still within the range reported in previous studies, the participants in the present study had better quality of life scores compared to previous samples (Addington & Addington, 1999; Addington, Young, & Addington, 2003; Brown et al., 2000; Voges et al., 2003).

On average, the early-psychosis participants endorsed fewer positive self-statements and more negative self-statements in response to an imagined social interaction scenario compared to a sample of socially anxious college students (Zweig & Brown, 1985). However, participants in the present study endorsed more positive self-statements and fewer negative-self statements than previous social phobia samples, although scores were still within the range reported by those with social phobia (Becker, Namour, Zayfert, & Hegel, 2001; Dodge et al., 1988). Therefore, it appears that the present first-episode sample experienced negative social evaluative self-statements to a greater extent than non-clinical college students and at a level similar to people with social phobia.

According to the SCID-I, 32% of the sample met current diagnostic criteria for social phobia while none of the participants met criteria for panic disorder, agoraphobia, or generalized anxiety disorder. The rate of social phobia in the present study is within the range reported in previous studies, which have documented rates between 16%-40% (Argyle, 1990; Cassano et al., 1998; Cosoff & Hafner, 1998; Kendler, Gallagher, & Abelson, 1996). The absence of agoraphobia in the present sample is consistent with results found by Cassano et al. (1998). However, they are inconsistent with findings from Cosoff and Hafner who found that 5% of their sample met criteria for agoraphobia. The absence of panic disorder in the present study is inconsistent with previous studies, which have reported rates between 1.3% and 22% (Cassano et al., 1998; Craig, Hwang, & Bromet,
Finally, the absence of generalized anxiety disorder in the present sample is inconsistent with findings reported by Cosoff and Hafner (1998) who found 12% of their sample met criteria for this anxiety disorder.

The variability of these findings may be attributed to one of the many methodological differences between studies examining the prevalence of comorbid anxiety disorders in schizophrenia. For example, studies differ in the methods used to diagnose anxiety disorders, some using structured interviews such as the SCID, and others using unstructured methods (Craig, Hwang, & Bromet, 2002). Although many studies utilized the SCID to establish diagnoses, there is considerable variability in the versions of the SCID used (e.g., SCID for DSM-III-R, DSM-IV; clinician version, research version). In addition, some studies chose to follow the hierarchical system of diagnosis, strictly adhering to DSM diagnostic criteria, while others chose to violate the exclusion rules allowing for anxiety disorders to be diagnosed even if the anxiety symptoms were related to symptoms of psychosis, resulting in higher rates of comorbid disorders identified. Also adding to the variability of findings are differences in the patient samples utilized. Samples vary from including the entire spectrum of schizophrenia disorders to just including specific subtypes. This can be problematic as at least one study suggests that the prevalence of anxiety disorders may differ among subtypes of schizophrenia (Labbate, Young, & Arana, 1999). Indeed similar findings were highlighted in the present study as those with schizophrenia were more likely to meet criteria for social phobia and had higher SPAI score compared to other schizophrenia spectrum disorders. In addition, apart from the study by Craig, Hwang, and Bromet (2002), which examined first-episode patients, most studies have sampled those with chronic illness increasing the possibility of finding comorbid
disorders (Craig, Hwang, & Bromet, 2002). Thus, given these methodological differences in the literature, deciphering the findings regarding comorbid anxiety disorders in the present study is difficult. The inconsistent results regarding the absence of panic disorder, agoraphobia, and generalized anxiety disorder in the present study may reflect the fact that first-episode patients were utilized instead of more chronic patients. Indeed the rate of panic disorder and obsessive-compulsive disorder found in Craig, Hwang, & Bromet’s first-episode study was considerably lower than the rates found in more chronic samples (e.g., Baylé, Krebs, Epelbaum, Levy & Hardy, 2001; Cosoff & Hafner, 1998; Labbate et al., 1999). However, this does not explain the increased rate of social phobia found in the present study, as following the same logic, one might also expect a lower rate of this disorder in first-episode patients. As this investigation represents the first known study to examine the rate of social phobia and generalized anxiety disorder in a first-episode sample, more research utilizing large sample sizes is needed to clarify these inconsistent findings.

Nevertheless, the results of the SPAI and the SCID-I suggest that a significant proportion of first-episode patients are experiencing social anxiety which is unrelated to positive symptoms. The lack of a relationship between the SPAI and positive symptoms is in contrast to results reported by Penn et al. (1994) who found significant correlations between self-report measures of social anxiety and positive symptoms suggesting that self-reported social anxiety may be related to paranoid delusions. This inconsistency may reflect differences in self-report measures of social anxiety utilized or a more likely explanation is that the participants in this study had significantly less positive symptomatology than the inpatients utilized in the Penn study.
Hypothesis 1

As hypothesized, social anxiety was significantly associated with poorer social functioning as measured by the SFS. Specifically, social anxiety was negatively associated with the social engagement/withdrawal subscale suggesting that as social anxiety increased, the amount of time spent alone also increased, and the frequency in which participants initiated conversations with others decreased. Social anxiety was also negatively related to the interpersonal communication subscale suggesting that the participants had fewer friends and a reduced quality of communication with others as social anxiety increased. Social anxiety seemed to negatively impact the frequency in which participants engaged in a range of common social activities (e.g., visiting friends, going to parties or the movie theatre), as evidenced by the association between social anxiety and the prosocial activities subscale of the SFS. Social anxiety was not significantly associated with the recreation subscale as hypothesized. However, a closer examination of this subscale reveals that all of the activities listed are ones that do not necessarily require social interaction (e.g., reading things, watching television, gardening), thus the lack of association between social anxiety and this subscale seems reasonable. Finally, social anxiety was significantly associated with the occupation/employment subscale, suggesting that social anxiety had a negative impact on the likelihood of being employed or a full-time student. Although the SFS has not been used with a social phobia sample, these findings are similar to previous studies reporting fewer social relationships, limited participation in social activities, and impaired work and educational functioning in people with social phobia (Ballenger et al., 1998; Schneier et al., 1994; Stein, Yin, & Kean, 2000).

The finding of a negative relationship between social anxiety and social functioning in a schizophrenia population has also been reported by Blanchard et al. (1998) who
utilized a different measure of social functioning than the one used in the present study. However, as the relationship between social anxiety and social functioning was not the main purpose of the Blanchard et al. study, no further analyses were reported. No other known studies to date have examined the relationship between social anxiety and social functioning in a schizophrenia population, and the present study is the first to examine this relationship in a first-episode sample. The implication of these findings is that similar to social skill and cognitive deficits, social anxiety may also in part, be a valid contributor to the poor social functioning observed in a significant number of first-episode patients, and therefore warrants clinical attention.

An important consideration in the discussion of the relationship between social functioning and social anxiety is the role of negative symptoms. In the present study, poorer social functioning was significantly associated with the presence of negative symptoms. This finding is consistent with previous studies (Addington & Addington, 2000; Birchwood et al., 1990; Hwu, Tan, Chen, & Yeh, 1995; Van Der Does, Dingemans, Linszen, Nugter, & Scholte, 1993, 1996; Wieselgren, Lindstrom, & Lindstrom, 1996). Likewise, prior to a Bonferroni correction, social anxiety was found to be positively related to negative symptoms. Given the potential association between social anxiety and negative symptoms, the relationship between social anxiety and social functioning becomes less clear. The possible association between social anxiety and negative symptoms may be explained by the overlap in symptom presentation. For example, decreases in speech fluency and productivity, reduced eye contact, and social and occupational withdrawal, while characteristic of negative symptoms, has also been described in those with social phobia (DSM-IV, 1994; Glass & Arnkoff, 1989; & Penn et al., 1994). Although some negative symptoms of schizophrenia and social anxiety may look similar, the relevance is
different for treatment; therefore, the assessment of social anxiety may need to be adjusted in order to exclude the potentially confounding effects of negative symptoms. Interestingly, Penn et al. (1994) found a significant association between behavioural ratings of social anxiety (e.g., speech rate, speech fluency, and rocking) and negative symptoms, but in contrast to the present study, they did not find an association between self-report measures of social anxiety and negative symptoms. This discrepancy may be explained by the different measures used to assess social anxiety. In the present study, the SPAI was utilized. This measure contains items that may be more likely to be related to negative symptoms. For example, many of the items have to do with anxiety related to and consequences of having to speak with and in front of other people (e.g., “My voice leaves me or changes when I am talking in a social situation”). Also, many items assess the degree of social avoidance. This is in contrast to the measures used in Penn et al.’s study, which had more to do with fears of negative evaluation and the extent of nervousness in certain situations rather than fears of talking or social avoidance. Thus, these findings suggest that the assessment of social anxiety may need to account for the overlap with negative symptoms. Perhaps focusing more on the cognitions related to social anxiety instead of avoidance and fears related to talking with others may help discriminate between the two.

**Hypothesis 2**

It was hypothesized that social anxiety would be negatively associated with quality of life as assessed by the QLS. However, this hypothesis was not supported in the present study. This lack of association is somewhat surprising especially given the significant correlation between the QLS and the SFS. A closer examination of the QLS suggests that
perhaps some of the areas addressed in the assessment of the interpersonal relationships subscale may not be salient when examining the potential effects of social anxiety. For example, this particular subscale rates the degree of emotional closeness between the patient and immediate family members. One could hypothesize that people with social anxiety may have less social fears with family members with whom they have known all of their lives, and thus have less difficulty establishing close relationships with family members. The lack of association between social anxiety and the QLS may also reflect the fact that this measure was first devised to assess negative symptoms (Heinrichs, Hanlon & Carpenter, 1984; Brown et al., 2000) and may be a less precise measure of social functioning. No other known studies to date have examined the relationship between social anxiety and quality of life in a first-episode sample.

**Hypothesis 3**

As hypothesized, social anxiety was significantly associated with greater negative self-statements in response to the imagined social situation of the SISST. Lower scores on the SPAI were significantly correlated with higher levels of positive self-statements as hypothesized. Previous studies have also found a similar relationship between negative and positive self-statements and social anxiety utilizing other self-report measures (e.g., the Fear of Negative Evaluation Scale and the Social Avoidance and Distress Scale) in both samples of socially anxious college students and treatment seeking individuals diagnosed with social phobia (Beazley et al., 2001; Dodge et al., 1988; Hofmann, 2000; Stopa & Clark, 1993; Zweig & Brown, 1985).

The finding that social anxiety was significantly related to higher levels of negative self-statements is consistent with the cognitive theoretical models reported in literature.
suggesting that negative cognitions about oneself are related to the development and maintenance of social phobia (Beazley et al., 2001; Spurr & Stopa, 2002; Stopa & Clark, 1993). Furthermore, this relationship between social anxiety and negative self-statements in the present sample, suggests that negative self-statements may be equally salient in the development and maintenance of social anxiety in first-episode patients.

**Hypothesis 4**

The hypothesis that higher levels of negative self-statements would be significantly associated with poorer social functioning as measured by the SFS was supported. We know from the results of the present study and previous research that social anxiety and negative self-statements are significantly associated. The present study is the first known examination of the relationship between the SISST and social functioning in a schizophrenia population. However, researchers in the area of social phobia have suggested that negative self-statements or self-focused attention impairs the performance of individuals with social phobia in social situations (Spurr & Stopa, 2002). It is hypothesized that individuals with social phobia are preoccupied with negative self-statements, which generates negative affect and feelings of anxiety that interferes with their ability to focus on the content of the social interaction, which impedes their performance (Spurr & Stopa, 2002; Stopa & Clark, 1993). One study specifically focused on directly examining the relationship between negative self-statements and performance in a sample of people with social phobia. Beazley et al. (2001) found that higher levels of negative self-statements as measured by the SISST were associated with higher ratings of social anxiety and poorer performance in various role-play scenarios as judged by independent observers. Therefore, there is some support in the social phobia literature for the relationship between negative
self-statements and poor social functioning, and it appears that this relationship may also apply to those with first-episode psychosis.

The negative self-statements subscale of the SISST was not significantly associated with the QLS as hypothesized. At first glance it is somewhat puzzling to understand why negative self-statements would be associated with the SFS but not the QLS. However, a closer examination of the measures highlights the fact that the SFS assesses the frequency of participation in many more prosocial activities (e.g., going to parties, night clubs, visiting friends) which may be more likely to elicit negative self-statements as these situations would likely elicit greater feelings of social anxiety than the rather non-specific questions on the QLS.

**Regression Analysis**

Those variables that were significantly correlated with social functioning were entered into a hierarchical regression to determine whether social anxiety was predictive of social functioning if negative symptoms were controlled. Negative symptoms followed by negative self-statements from the SISST significantly predicted social functioning. The finding that negative symptoms predicted poor social functioning is consistent with previous studies that have found significant relationships between these two variables (Addington & Addington, 2000; Birchwood, et al., 1990; Van Der Does, Dingemans, Linszen, Nugter, & Scholte, 1993, 1996; Wieselgren, Lindstrom, & Lindstrom, 1996).

The fact that the negative self-statements subscale of the SISST significantly predicted poor social functioning lends further support for those cognitive theories which contend that negative self-statements impairs social functioning in people with social phobia. It is noteworthy that negative self-statements but not the measure of social anxiety
itself (i.e. the SPAI) was a significant predictor of social functioning. The failure of the SPAI to reach significance may reflect a lack of power in the present study. However, the SPAI was examined after variance attributed to negative self-statements was controlled, therefore, perhaps what is driving the relationship between social anxiety and social functioning is negative cognitions related to social situations, as opposed to other characteristics of social anxiety such as physical symptoms and social withdrawal.

**Exploratory Analyses of the SSEAS**

Responses to the SSEAS indicated that approximately half of the sample avoids meeting new people and those they already know due to uncertainty regarding how to explain their psychosis. This issue first came to light during the pilot study from which the questions on the SSEAS were developed. Patients in the pilot study indicated that they either did not know how to explain their psychosis or were uncomfortable doing so, indicating that it was difficult to explain to friends and employers reasons for frequent visits to the hospital and occurrences of odd behaviour. This finding suggests that perhaps patients would benefit from some assistance on deciding whom they would like to disclose personal information to regarding their illness and methods for keeping their own privacy while still being able to establish friendships. Similarly, slightly less than half of the sample reported that they avoid meeting new people and those they already know because they feel embarrassed by their psychosis. This suggests that perhaps patients could benefit from some cognitive restructuring surrounding potentially maladaptive beliefs regarding their illness.

Half of the sample indicated that they have always felt anxious in social situations. This anxiety apparently has had an impact on their social functioning as over half of the
sample reported that they avoid romantic relationships due to feelings of nervousness in social situations. In addition, over half of the sample reported that they would socialize more if only they could be more relaxed around other people, and over half of the patients indicated that they wished they had more friends. These findings of a desire for increased socialization suggest that at least for some patients, social withdrawal is not necessarily related to social avolition.

Feelings of social anxiety also seem to have an impact on occupational/educational functioning as over half of the sample indicated that nervousness in social situations prevents them from obtaining the job or education they would like. Similarly, approximately half of the sample revealed that they avoid getting the job or education they would like due to worries regarding talking and interacting with new people. Overall these results suggest that social anxiety is a concern in first-episode patients affecting their social and occupational and/or educational functioning. The significant association found between the SPAI and the SFS further supports these findings.

**Content Analysis**

Debilitating symptoms of psychosis and a lack of financial resources were sited as the most common reasons for what is stopping the patients in the present study from obtaining the job or education that they would like. The second most common reasons were related to feelings of anxiety, fear of failure, and uncertainty regarding which educational or employment areas to pursue. Although, it may be more difficult to control the impact that symptoms may have on occupational or educational functioning, therapeutic assistance such as cognitive-behavioural therapy to address anxiety, fears of failure, and vocational difficulties may help individuals with first-episode psychosis come closer to achieving personal and satisfying work related goals and thus potentially improve their
quality of life.

**Factors Associated with Social Functioning**

We know that recovery from psychotic symptoms is common after the first episode with 75% to 90% achieving remission from positive symptoms one year after treatment (Addington, Leriger, and Addington, 2003; Edwards et al, 1998; Lieberman et al, 1993). What is important in first episode treatment is that functional recovery (e.g. social, vocational, interpersonal) remains a major challenge since symptom improvement is not always matched with functional improvement (Addington et al., 2003; Tohen et al, 2000). Thus we need to improve our understanding of all that may contribute to this poor functioning. In the literature it is clear that many attempts to understand the poor social functioning observed in those with a psychotic disorder have been made with many variables being examined as potential contributors. First we see that the symptoms, particularly the negative symptoms and often the residual positive symptoms of psychosis are associated with social functioning. The last decade has seen a major focus on the impact of cognitive deficits on functional outcome. Although relationships exist between negative symptoms and cognitive deficits, negative symptoms only seem to account for a small proportion of the variance in cognitive impairment, approximately 10%. Thus it is likely that, although related to negative symptoms, cognition may be a distinct construct (Addington, 2000). A further variable that has oftentimes been examined is poor premorbid functioning. It generally seems well established that poor premorbid functioning is associated with poorer social functioning even in first episode samples (Addington, van Maastrigt, & Addington, 2003; Addington & Addington, 2004).

Finally, the present research suggested that social anxiety might also play a role in
the poor social functioning observed in a subset of those experiencing their first episode of psychosis. The investigation of social functioning in psychosis could benefit from studies that examine all of these potential influences on social functioning in tandem. This would allow for a more informative understanding of the amount of variance each of these variables contributes to social functioning, in addition to how each of these variables are potentially intercorrelated. A model such as the one presented below could provide a basis from which to further explore those variables influencing social functioning in psychosis. For example, the results of the present study and that of Penn et al. (1994) suggested that social anxiety and negative symptoms may be related, however this relationship has not been explored in depth. Furthermore, no studies to date have examined the potential relationship between social anxiety and cognitive deficits or between social anxiety and premorbid functioning in first episode psychosis.
Social Anxiety and Psychosis

Positive Symptoms

Negative Symptoms

Cognitive Deficits

Premorbid Functioning

Social Anxiety

Social Functioning

- Weaker Relationship
- Stronger Relationship
- Relationship not yet tested
Limitations

The findings from the present study should be interpreted with a few considerations in mind. First, a number of issues concerning the reliability and validity of the measures are relevant. Some of the self-report measures utilized in the present study were either developed and used descriptively (i.e., the SSEAS) or had never been administered to a schizophrenia population (i.e., the SPAI and the SISST). Therefore, the validity of these self-report measures of social anxiety and social cognitions may be questionable. However, this limitation reflects the state of the present research in that the investigation of social anxiety in psychosis is just beginning. Also, the SISST measures self-statements in response to a very specific social scenario and may not generalize to other social situations. Finally, although the SCID interviewers were trained to a high standard of reliability prior to the study, no interrater reliability of the interviewers was undertaken during this study.

A second potential limitation was that patients were assessed at different points in treatment suggesting the possibility that the present findings may vary depending on the amount of time spent in the EPP. Although a potential confound, participants also differed in the length of time they had been ill before first receiving treatment, a variable that is difficult to control. Nevertheless, although limited by sample size, the analyses indicated that the participants did not differ on the dependent variables as a function of time spent in the EPP. Third, the interpretations of the results should be tentative given that we had the minimum number of participants needed in order to achieve adequate power to detect significance. As a result, it is possible that many of the non-significant findings in the present investigation would be significant if a larger sample size were utilized. Finally, since the present study was correlational in nature, causal inferences are inappropriate.
Research Implications

Although this study is limited, it is a first step in considering the role of social anxiety in the poor functional outcome that continues for these young people. Thus, this study can serve as a springboard for what could be a whole program of research. First, an examination of the anxiety disorders as comorbid disorders in psychotic illness could be addressed. For example, comparisons across studies will be facilitated if: researchers use the same structured diagnostic tools to assess comorbid diagnoses (e.g., the SCID-I for DSM-IV); clearly delineate whether exclusion criteria were followed; and include self-report measures of anxiety. This line of research could also include the relationship of anxiety disorders to other comorbid conditions. Secondly, the validity of current measures of anxiety for a population with psychotic disorders can be examined. This may lead to the necessity to develop measures of anxiety specifically designed for psychosis that may avoid overlap with symptoms of psychosis. Like the assessment of depression in schizophrenia, the assessment of social anxiety is subject to a number of difficulties. In particular, the apparent relationship between social anxiety and negative symptoms complicate the assessment of social anxiety. Preliminary studies such as that conducted by Penn et al. (1994) suggest that negative symptoms and behavioural measures of social anxiety overlap, while the present investigation found evidence to suggest that self-report measures of social anxiety and negative symptoms may also be related. First, more studies examining the relationship between negative symptoms and social anxiety are needed in order to better understand the nature of the relationship. Specifically, is the relationship between these two constructs dependent on the method used to assess social anxiety?

This line of investigation would parallel the series of studies completed by Addington and Addington (1990), Addington, Addington, and Schissel (1990), and
Addington et al. (1992) that culminated in the development of a reliable and valid measure of depression for those with schizophrenia by eliminating items derived from established measures of depression that overlapped with negative symptoms. Future researchers could attempt to overcome the present difficulties in assessing social anxiety by devising a measure from existing self-report measures such as the SPAI and the Fear of Negative Evaluation Scale. Factor and reliability analyses could then be conducted in order to highlight test items that discriminate between negative symptoms and social anxiety. The next step after validation of assessment would be to examine a multifactorial model of what may contribute to poor social functioning that includes social anxiety. Given that negative cognitions are thought to be important causal and maintaining factors for social phobia, additional research aimed at validating existing measures of self-statements related to social scenarios such as the SISST are also warranted.

Finally, future studies could focus on interventions that may help individuals with comorbid anxiety. The growing interest in CBT for psychosis (Cormac, Jones, & Campbell, 2002; Lewis et al., 2002; Tarrier et al., 2000) is timely for this area. In the present study, it was demonstrated that negative self-statements are associated with increased social anxiety and poorer social functioning, suggesting that CBT may be beneficial in reducing social anxiety in this population.

Clinical Implications

The present study provides evidence to suggest that social anxiety is a significant concern for first-episode patients. This evidence comes from both formal diagnosis (e.g., the SCID-I) and self-report (e.g., SSEAS and the SPAI). The self-report findings suggest that patients have insight into their social anxiety which indicates that this condition is
likely amenable to change.

The overall results of the correlational analyses, SSEAS, and the hierarchical regression suggest that first-episode patients are also experiencing significant maladaptive and irrational beliefs related to social situations and these cognitions are associated with social anxiety and predict poor social functioning. Given that such negative internal dialogue has been implicated as a maintaining factor of social anxiety (Beazley et al., 2001; Spurr & Stopa, 2002), the implication is that these patients may benefit from treatment aimed at modifying these maladaptive beliefs. Previous studies have found that cognitive-behavioural therapy, which in part involves cognitive restructuring of maladaptive and irrational beliefs regarding social situations, has been successful in reducing social anxiety (Taylor, 1996). Two small studies to date have examined group-based cognitive-behavioural treatment for social phobia in patients with chronic schizophrenia. These studies found that patients with comorbid social anxiety showed significant improvement compared to wait-list controls on measures of social anxiety and quality of life post-treatment (Halperin, Nathan, Drummond, & Castle, 2000; Kingsep, Nathan, & Castle, 2003). Therefore, the major clinical implication is that social anxiety should be assessed in first-episode patients and treatment such as CBT ought to be considered for those who experience social anxiety.

Conclusions

This study represents the first attempt to understand how social anxiety may affect the social functioning of people experiencing their first-episode of psychosis. This study is also the first to examine socially anxious cognitions in this population. The results suggested that social anxiety is a valid concern for a significant proportion of first-episode
patients. Furthermore, the present sample experienced negative self-statements related to a social situation and these negative self-statements predicted poorer social functioning. In conclusion, the results suggest that social anxiety should be routinely assessed and considered when developing a treatment plan for first-episode patients. Psychosocial treatments such as CBT aimed at reducing the impact of social anxiety, focusing specifically on cognitive restructuring of negative self-statements should be considered during the early stages of psychotic illness for those patients who meet diagnostic criteria for social phobia.
References


functioning scale: The development and validation of a new scale of social
adjustment for use in family intervention programs with schizophrenic patients.


affect, and social functioning in schizophrenia. *Schizophrenia Bulletin, 24*, 413-424.

G. (1994). Schizophrenic individuals' cognitive functioning and performance in
interpersonal interactions and skills training procedures. *Journal of Psychiatric
Research, 28*, 289-301.

Determinants of quality of life at first presentation with schizophrenia. *British

Browne, S., Clarke, M., Gervin, M., Waddinton, J. L., Larkin, C., & O’Callaghan, E.
(2000). Determinants of quality of life at first presentation with schizophrenia.

Buchanan, R. W., Holstein, C., & Breier, A. (1994). The comparative efficacy and long-
term effect of clozapine treatment on neuropsychological test performance.
*Biological Psychiatry, 36*, 717-725.

clinical correlates of psychiatric comorbidity in patients with psychotic disorders.
*Journal of Clinical Psychiatry, 59*, 60-68.


Corrigan, P. W., Green, M. F., & Toomey, R. Cognitive correlates to social cue perception in schizophrenia. *Psychiatry Research, 53*, 141-151.


Therapy and Research, 12, 211-222.


Glynn, S. M. (1998). Psychopathology and social functioning in schizophrenia. In K. Mueser and N. Tarrier (Eds.), Handbook of social functioning in schizophrenia (pp. 66-78). Boston: Allyn and Bacon.


Green, M. F., Kern, R. S., Braff, D. L., & Mintz, J. (2000). Neurocognitive deficits and
functional outcome in schizophrenia: Are we measuring the “right stuff”?


Journal of Psychiatry, 181, s91-s97.


Review, 23, 761-786.


Pogue-Geile, M., & Harrow, M. (1984). Negative and positive symptoms in schizophrenia


Stein, M. B., & Kean, Y. M. (2000). Disability and quality of life in social phobia:


Appendix A

The Social Interaction Self-Statement Test

Directions
It is obvious that people think a variety of things when they are involved in different social situations. Please read the brief description below while imagining yourself in the situation.

One of your friends has invited you to come to a party. Think of a person that you know. You get to this person's house and you walk through the door. You're standing there now at the door just inside your friend's house. Look around you and you'll see a number of people—people whom you have not met before. And now your friend is walking over to you. Your friend says "hello" and takes your coat. Try to see your friend's face as vividly as you can. Your friend takes your coat, and goes to put it away. You're standing there by yourself, and when your friend comes back out, he/she walks over to some other people and starts talking to them. Then your friend calls you over and introduces you to an attractive person saying that both of you have a lot in common and should get to know each other. Then your friend goes to speak with others at the party and you are left to initiate a conversation with the person you were just introduced to. Try and imagine this situation. Just imagine how you would feel in this situation....

Below is a list of things which you may have thought to yourself during and after reading about and imagining yourself in the interaction outlined above. Read each item and decide how frequently you may have been thinking a similar thought during and after you read the above scenario. Utilize the following scale to indicate the nature of your thoughts:

1 = hardly ever had the thought
2 = rarely had the thought
3 = sometimes had the thought
4 = often had the thought
5 = very often had the thought

Please answer as honestly as possible.
1. When I can't think of anything to say I can feel myself getting very anxious
2. I can usually talk to men/women pretty well
3. I hope I don't make a fool of myself
4. I'm beginning to feel more at ease
5. I'm really afraid of what he/she will think of me
6. No worries, no fears, no anxieties
7. I'm scared to death
8. He/she probably won't be interested in me
9. Maybe I can put him/her at ease by starting things going
10. Instead of worrying I can figure out how best to get to know him/her
11. I'm not too comfortable meeting men/women so things are bound to go wrong
12. What the heck, the worst that can happen is that he/she won't go for me
13. He/she may want to talk to me as much as I want to talk to him/her
14. This will be a good opportunity
15. If I blow this conversation, I'll really lose my confidence
16. What I say will probably sound stupid
17. What do I have to lose? It's worth a try
1 = hardly ever had the thought
2 = rarely had the thought
3 = sometimes had the thought
4 = often had the thought
5 = very often had the thought

18. This is an awkward situation but I can handle it
19. Wow- I don't want to do this
20. It would crush me if he/she didn't respond to me
21. I've just got to make a good impression on him/her or I'll feel terrible
22. You're such an inhibited idiot
23. I'll probably “bomb out” anyway
24. I can handle anything
25. Even if things don't go well it's no catastrophe
26. I feel awkward and dumb; he's/she's bound to notice
27. We probably have a lot in common
28. Maybe we'll hit it off real well
29. I wish I could leave and avoid the whole situation
30. Ah! Throw caution to the wind
Appendix B

Schizophrenia Social and Employment Avoidance Scale (SSEAS)

ID#________

Please place a check mark in the appropriate box, or fill in the blank.

1. Male □ Female □

3. Please indicate the extent to which you identify with the following statements using the key below:

1= Not at all characteristic of me
2= Slightly characteristic of me
3= Moderately characteristic of me
4= Very characteristic of me
5= Extremely characteristic of me

a) I avoid meeting new people because I don't know how to explain my psychosis__

b) I avoid meeting new people because I feel embarrassed to explain my psychosis__

c) I avoid people I already know because I don't know how to explain my psychosis__

d) I avoid people I already know because I feel embarrassed to explain my psychosis__

e) I would get out more with people if only I could be more relaxed around others__

f) I avoid romantic relationships because of my nervousness in social situations__

g) I wish I had more friends__

h) My nervousness in social situations stops me from getting the job/education that I would like__

i) I avoid getting a job/education that I would like because I worry about having to talk and interact with new people__

j) I have always been anxious in social situations__

k) I feel that I am taking the right kind of courses/doing the kind of job that I should be doing. If you answered 1, 2, or 3, [above (l)], what is stopping you from taking the courses you should or doing the job that you would like__________________________________________
Appendix C

Consent Form

November, 2002

RESEARCH PROJECT: The Effect of Social Anxiety on Social Functioning in First Episode Psychosis

INVESTIGATORS: M. Voges, M.Sc., J. Addington, Ph.D., D. Addington MBBS

SPONSOR: The University of Calgary Research Grant

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 the basic idea of what the research is about and what your participation will involve. If you would like more detail 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.

1. PURPOSE OF THE RESEARCH:

The purpose of this study is to determine whether social anxiety is present in people who have experienced a psychotic illness and to explore the relationship between social anxiety and social functioning.

2. PROCEDURES:

If you agree to participate in this study, you will be asked to complete 5 measures which will take approximately 1.5-2 hours of your time.

3. DESIGN OF THE STUDY:

The design of the study is correlational in nature, meaning that we are interested in determining the relationship between a predetermined set of variables.

4. RISKS:

There are no direct risks to participating in this study. If you feel uncomfortable during the interview or at any other time, you may discuss it with the researchers, choose to continue the interview at a later time or to withdraw from the research project at any time without having to give an explanation.
5. PARTICIPANT INVOLVEMENT:

If you have been identified as a possible participant in this project, you will be invited to discuss the study and to sign a consent form to participate. If you agree to participate, you will be asked to answer questions that will include information about the extent to which you engage in social and occupational/school related activities, how you feel when you are in social situations, and any thoughts you might have about being in social situations.

Participation in this study is voluntary. You may refuse to participate or withdraw from the study at any time. Your refusal to participate or wish to withdraw before completion of the study will not influence your current or future health care.

6. BENEFITS:

There are no expected direct benefits to you from your participation in this project. Some people derive satisfaction from contributing to research projects. It is also possible that the results of this study may be helpful in the development of a new understanding about individuals like yourself.

7. ALTERNATIVES:

You may choose not to participate in this research. If you do not participate, you will remain eligible for all the health care resources usually available to you.

8. ACCESS TO INFORMATION:

Your name and the information obtained from the research will be kept confidential to the extent allowed by law. This will be ensured by a number of safeguards.
   a. Your records will be identified only by a number not by your name
   b. Your records will be kept in a locked file cupboard in a locked office
   c. No information concerning your identity will be used in any published reports

9. NEW INFORMATION:

You will be told of any changes in the way the study will be done and of any new information, which may affect your willingness to continue to participate in this study.

10. COSTS:

There are no costs to you to participate in this study. You will be reimbursed $15.00 to defray any expenses.
11. COMPENSATION:

In the event that you suffer injury as a result of participating in this research, no compensation will be provided for you by the University of Calgary, Calgary Health Region or the Investigators for any treatment for services your doctors recommend that is not covered by health care insurance (Alberta Health Care). You still have all your legal rights. Nothing said here about treatment or compensation in any way alters your right to recover damages.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and 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 your 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:

Marcia Voges: Graduate Student, Department of Psychology, University of Calgary, 282-2050

or

Dr. Donald Addington: Department of Psychiatry, University of Calgary, 944-1287

If you have any questions concerning your rights as a possible participant in this research, please contact Pat Evans, Associate Director, Internal Awards, Research Services, University of Calgary, at 220-3782.

Participant's Signature ___________________________ Date

Investigators and/or Delegate's Signature ___________________________ Date

Witness' Signature ___________________________ Date

A copy of this consent form has been given to you to keep for your records and reference.
# Appendix D

## Correlations between Measures (N = 60)

<table>
<thead>
<tr>
<th></th>
<th>SFS</th>
<th>QLS</th>
<th>SISST(+)</th>
<th>SISST(-)</th>
<th>SPAI(d)</th>
<th>SPAI(a)</th>
<th>SPAI(s)</th>
<th>CDSS</th>
<th>PANSS(+)</th>
<th>PANSS(-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QLS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SISST(+)</td>
<td>.56**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SISST(-)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPAI(d)</td>
<td>-.32**</td>
<td>-.18</td>
<td>-.37*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPAI(a)</td>
<td>-.28*</td>
<td>-.06</td>
<td>-.14</td>
<td>.56**</td>
<td>.41**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPAI(s)</td>
<td>-.37**</td>
<td>-.19</td>
<td>-.36**</td>
<td>.81**</td>
<td>.87**</td>
<td>.74**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDSS</td>
<td>-.23</td>
<td>-.19</td>
<td>-.27*</td>
<td>.36**</td>
<td>.29*</td>
<td>.57**</td>
<td>.46**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PANSS(+)</td>
<td>-.32*</td>
<td>-.34**</td>
<td>-.13</td>
<td>.21</td>
<td>.22</td>
<td>.38**</td>
<td>.36**</td>
<td>.38*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PANSS(-)</td>
<td>-.46**</td>
<td>-.62**</td>
<td>-.35**</td>
<td>.27*</td>
<td>.32*</td>
<td>.25</td>
<td>.57**</td>
<td>.25</td>
<td>.57**</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* SPAI(d) = Social Phobia and Anxiety Inventory (difference score); SPAI(a) = agoraphobia score; SPAI(s) = social phobia score; PANSS (+) = positive symptom subscale of the Positive and Negative Syndrome Scale; PANSS (-) = negative symptoms subscale of the PANSS; CDSS = Calgary Depression Scale for Schizophrenia; QLS = The Quality of Life Scale; SFS = The Social Functioning Scale; SISST (+) = positive self-statements subscale of the Social Interaction Self-Statement Test; SISST (-) = negative self-statements subscale of the SISST.

*p < .05. **p < .01.
### Appendix E

**Demographics for Timing of Assessment (N = 60)**

<table>
<thead>
<tr>
<th></th>
<th>3 months (n = 8)</th>
<th>12 months (n = 5)</th>
<th>24 months (n = 24)</th>
<th>36 months (n = 23)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>SPAI</td>
<td>65.63</td>
<td>32.04</td>
<td>46.00</td>
<td>11.60</td>
</tr>
<tr>
<td>SFS</td>
<td>109.38</td>
<td>31.78</td>
<td>129.60</td>
<td>32.21</td>
</tr>
<tr>
<td>QLS</td>
<td>72.63</td>
<td>17.44</td>
<td>78.00</td>
<td>30.96</td>
</tr>
<tr>
<td>SISST(+)</td>
<td>44.25</td>
<td>6.74</td>
<td>48.60</td>
<td>12.18</td>
</tr>
<tr>
<td>SISST(-)</td>
<td>42.13</td>
<td>14.64</td>
<td>37.40</td>
<td>9.87</td>
</tr>
<tr>
<td>PANSS(+)</td>
<td>9.50</td>
<td>2.14</td>
<td>10.80</td>
<td>3.90</td>
</tr>
<tr>
<td>PANSS(-)</td>
<td>13.13</td>
<td>5.67</td>
<td>13.00</td>
<td>5.43</td>
</tr>
<tr>
<td>CDSS</td>
<td>2.25</td>
<td>3.45</td>
<td>2.00</td>
<td>2.92</td>
</tr>
</tbody>
</table>

**Note.** SPAI = Social Phobia and Anxiety Inventory; SFS = The Social Functioning Scale; QLS = The Quality of Life Scale; SISST (+) = positive self-statements subscale of the Social Interaction Self-Statement Test; SISST (-) = negative self-statements subscale of the SISST; PANSS (+) = positive symptom subscale of the Positive and Negative Syndrome Scale; PANSS (-) = negative symptoms subscale of the PANSS; CDSS = Calgary Depression Scale for Schizophrenia.
Appendix F

2002-09-24
Dr. D.E.N. Addington
Department of Psychiatry
Foothills Medical Centre
Calgary, Alberta

Dear Dr. Addington:

RE: The Effect of Social Anxiety on social Functioning In First Episode Psychosis
Student: Ms. Marcia Vogue
Degree: PhD Psychology

Grant-ID: 16697

The above-noted thesis proposal, the Revised Consent Form (dated July 2002), the SPAI-The Social Phobia and Anxiety Inventory (dated August 8, 2002), and the Social Functioning Stain (dated, August 8, 2002) have been submitted for Committee review and found to be ethically acceptable. Please note that this approval is subject to the following conditions:

(1) a copy of the informed consent form must have been given to each research subject, if required for this study;
(2) a Progress Report must be submitted by 2003-09-24, containing the following information:
   (i) the number of subjects recruited;
   (ii) a description of any protocol modification;
   (iii) any unusual and/or serious complications, adverse events or unanticipated problems involving risks to subjects or others, withdrawal of subjects from the research, or complaints about the research;
   (iv) a summary of any recent literature, finding, or other relevant information, especially information about risks associated with the research;
   (v) a copy of the current informed consent form;
   (vi) the expected date of termination of this project;
(3) a Final Report must be submitted at the termination of the project.

Please note that you have been named as a principal collaborator on this study because students are not permitted to serve as principal investigators. Please accept the Board's best wishes for success in your research.

Yours sincerely,

Christopher J. Doig, MD, MSc, FRCPC
Chair, Conjoint Health Research Ethics Board
e.c. Adult Research Committee
   Ms. Marcia Vogue

3330 Hospital Drive N.W., Calgary, Alberta, Canada T2N 4N1 • www.ucalgary.ca
TOTAL P.81
Table 1

Description of Patient Population (N = 60)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>41</td>
<td>68.3</td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
<td>31.7</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>50</td>
<td>83.3</td>
</tr>
<tr>
<td>Married</td>
<td>5</td>
<td>8.3</td>
</tr>
<tr>
<td>Common-law</td>
<td>2</td>
<td>3.4</td>
</tr>
<tr>
<td>Divorced</td>
<td>2</td>
<td>3.3</td>
</tr>
<tr>
<td>Separated</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anglo</td>
<td>51</td>
<td>85.0</td>
</tr>
<tr>
<td>Asian</td>
<td>5</td>
<td>8.4</td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
<td>3.3</td>
</tr>
<tr>
<td>Latino</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Oriental</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Diploma</td>
<td>22</td>
<td>36.7</td>
</tr>
<tr>
<td>Some High School</td>
<td>12</td>
<td>20.0</td>
</tr>
<tr>
<td>Some Post-Secondary/Vocational Training</td>
<td>12</td>
<td>20.0</td>
</tr>
<tr>
<td>College/University Degree</td>
<td>8</td>
<td>13.4</td>
</tr>
<tr>
<td>Post-Graduate Degree</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td>Some Junior High</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part-Time Employed</td>
<td>18</td>
<td>30.0</td>
</tr>
<tr>
<td>Full-Time Employed</td>
<td>11</td>
<td>18.3</td>
</tr>
<tr>
<td>Unemployed</td>
<td>15</td>
<td>25.0</td>
</tr>
<tr>
<td>AISH</td>
<td>12</td>
<td>20.0</td>
</tr>
<tr>
<td>UIC</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Social Assistance</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Student</td>
<td>1</td>
<td>1.7</td>
</tr>
</tbody>
</table>
Table 2

Description of Outcome Measures (N = 60)

<table>
<thead>
<tr>
<th>Measures</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAI</td>
<td>69.57</td>
<td>27.42</td>
<td>20</td>
<td>142</td>
</tr>
<tr>
<td>PANSS (+)</td>
<td>12.23</td>
<td>5.36</td>
<td>7</td>
<td>28</td>
</tr>
<tr>
<td>PANSS (-)</td>
<td>12.45</td>
<td>5.42</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td>CDSS</td>
<td>1.52</td>
<td>2.27</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>QLS</td>
<td>83.08</td>
<td>25.05</td>
<td>21</td>
<td>117</td>
</tr>
<tr>
<td>SFS</td>
<td>125.82</td>
<td>23.96</td>
<td>78</td>
<td>184</td>
</tr>
<tr>
<td>SISST (+)</td>
<td>44.48</td>
<td>9.86</td>
<td>22</td>
<td>62</td>
</tr>
<tr>
<td>SISST (-)</td>
<td>42.87</td>
<td>13.78</td>
<td>16</td>
<td>71</td>
</tr>
</tbody>
</table>

Note. SPAI = Social Phobia and Anxiety Inventory; PANSS (+) = positive symptom subscale of the Positive and Negative Syndrome Scale; PANSS (-) = negative symptoms subscale of the Positive and Negative Syndrome Scale; CDSS = Calgary Depression Scale for Schizophrenia; QLS = The Quality of Life Scale; SFS = The Social Functioning Scale; SISST (+) = positive self-statements subscale of the Social Interaction Self-Statement Test; SISST (-) = negative self-statements of the Social Interaction Self-Statement Test.
### Table 3

The Association between Gender and the Outcome Measures (N = 60)

<table>
<thead>
<tr>
<th>Measures</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAI</td>
<td>67.51</td>
<td>25.54</td>
<td>74.00</td>
<td>31.34</td>
<td>-.85</td>
</tr>
<tr>
<td>SFS</td>
<td>126.56</td>
<td>23.87</td>
<td>124.21</td>
<td>24.74</td>
<td>.35</td>
</tr>
<tr>
<td>QLS</td>
<td>83.56</td>
<td>25.14</td>
<td>82.05</td>
<td>25.52</td>
<td>.22</td>
</tr>
<tr>
<td>CDSS</td>
<td>1.34</td>
<td>2.19</td>
<td>1.89</td>
<td>2.45</td>
<td>-.89</td>
</tr>
<tr>
<td>PANSS (+)</td>
<td>12.22</td>
<td>4.63</td>
<td>12.26</td>
<td>6.81</td>
<td>-.03</td>
</tr>
<tr>
<td>PANSS (-)</td>
<td>12.73</td>
<td>4.97</td>
<td>11.84</td>
<td>6.41</td>
<td>.59</td>
</tr>
<tr>
<td>SISST (+)</td>
<td>45.07</td>
<td>9.61</td>
<td>43.21</td>
<td>10.56</td>
<td>.69</td>
</tr>
<tr>
<td>SISST (-)</td>
<td>42.83</td>
<td>14.62</td>
<td>42.95</td>
<td>12.14</td>
<td>-.03</td>
</tr>
</tbody>
</table>

**Note.** SPAI = Social Phobia and Anxiety Inventory; PANSS (+) = positive symptom subscale of the Positive and Negative Syndrome Scale; PANSS (-) = negative symptoms subscale of the Positive and Negative Syndrome Scale; CDSS = Calgary Depression Scale for Schizophrenia; QLS = The Quality of Life Scale; SFS = The Social Functioning Scale; SISST (+) = positive self-statements subscale of the Social Interaction Self-Statement Test; SISST (-) = negative self-statements subscale of the Social Interaction Self-Statement Test.
Table 4

**Correlations Between the SPAI and the Subscales of the SFS (N = 60)**

<table>
<thead>
<tr>
<th>Subscale</th>
<th>SPAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social engagement/withdrawal</td>
<td>-.29*</td>
</tr>
<tr>
<td>Interpersonal behaviour</td>
<td>-.39*</td>
</tr>
<tr>
<td>Prosocial activities</td>
<td>-.33**</td>
</tr>
<tr>
<td>Recreation</td>
<td>-.20</td>
</tr>
<tr>
<td>Independence-competence</td>
<td>-.02</td>
</tr>
<tr>
<td>Independence-performance</td>
<td>-.13</td>
</tr>
<tr>
<td>Employment/occupation</td>
<td>-.27*</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01.*
Table 5

Hierarchical Regression Model for Predictors of the SFS (N = 60)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Model</th>
<th>R²</th>
<th>R² change</th>
<th>P-value of Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFS</td>
<td>Negative Symptoms (Neg.)</td>
<td>0.22</td>
<td>0.22**</td>
<td>0.0001</td>
</tr>
<tr>
<td></td>
<td>Negative Symptoms + SISST (-)</td>
<td>0.27</td>
<td>0.05*</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>Neg. + SISST (-) + SPAI</td>
<td>0.27</td>
<td>0.0001</td>
<td>0.89</td>
</tr>
</tbody>
</table>

Note. SPAI = Social Phobia and Anxiety Inventory; SFS = The Social Functioning Scale; SISST (-) = negative self-statements subscale of the Social Interaction Self-Statement Test. *p < .05. **p < .01.
Table 6

**Content Analysis for Open-Ended Question (N = 36)**

What is stopping you from taking the courses you should/or doing the job that you would like?

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>Lack of Finances</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>Anxiety</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Fear of Failure</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Unsure of Academic/Professional Interests</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Nothing/Don't Know</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>