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Ethnicity, Perceptions of Family Environment, and Schizophrenia Symptoms

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UNIVERSITY OF MIAMI

ETHNICITY, PERCEPTIONS OF FAMILY ENVIRONMENT, AND
SCHIZOPHRENIA SYMPTOMS

By

Kayla Krystal Gurak

A THESIS

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
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A thesis submitted in partial fulfillment of
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SCHIZOPHRENIA SYMPTOMS

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The family environment is an influential psychosocial factor that can either play a detrimental or a protective role in patient symptom severity. While previous studies have tended to examine family environmental constructs separately, the current study comprehensively examined both risk and protective factors of the family environment in a large, ethnically diverse sample of 221 patients with schizophrenia. Building upon prior research, we hypothesized that family environments characterized by high levels of expressed emotion, criticism, low warmth, and low family cohesion would predict greater symptom severity for the overall sample. We also assessed whether ethnicity moderated the hypothesized relationships between family environment and symptom severity. Finally, we assessed whether greater patient-caregiver discrepancies in perceptions of their family environment predicted greater symptom severity. Study hypotheses were partially supported. Results demonstrated that higher patient ratings of family cohesion and caregiver warmth were associated with lower symptom severity. However, once put into a hierarchical regression analysis, only patient ratings of family cohesion and patient education (a covariate) were significant predictors of symptom severity. Ethnicity was not a significant moderator of this relationship. Our second hypothesis was not supported as there was not a significant association between patient-caregiver discrepancies and

patient symptom severity. On an exploratory basis, we also stratified results by ethnicity, which revealed interesting patterns, particularly for African Americans. Study implications are discussed.

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Chapter 1: Introduction

Schizophrenia is a severe and chronic mental illness that affects approximately 1.4% to 4.6% of the population worldwide (Weisman, Duarte, Koneru, & Wasserman, 2006). The illness is characterized by a series of behavioral excesses (e.g., hallucinations) and behavioral deficits (e.g., flat affect, poor hygiene). Support for the diathesis-stress model of schizophrenia has been well established for many years (Fowles, 1992; Walker & Diforio, 1997; Jones & Fernyhough, 2007). According to this model, individuals have a genetic predisposition to schizophrenia which interacts with environmental stressors that can contribute to the onset of the illness or, once already developed, symptom exacerbation (Walker & Diforio, 1997; Hooley & Gotlib, 2000). While genetics play a large role in the onset of the illness, environmental factors such as family interactions can strongly influence the illness prognosis (Fowles, 1992).

Due to the chronicity of the illness and its potential to incapacitate the diagnosed individual, the majority of patients live with family members and rely on them for financial and emotional support, and help with daily living skills. Therefore, schizophrenia is a disorder that affects the entire family, with family members often becoming life-long caregivers for patients. Due to strong familial involvement in the care of the diagnosed individual, the family environment has been studied extensively as a potentially influential psychosocial factor that relates to prognosis. In fact, a poor quality family environment has been well established as a psychosocial risk factor known to contribute to worsening of patient symptomatology (Linszen et al., 1997; Van Humbeeck et al., 2004; Tompson et al., 1995; Cutting & Docherty, 2000; Scazufca & Kuipers, 2001; Weisman, Rosales, Kymalainen, & Armesto, 2005).

Due to the strong relationship between conflictual family environments and greater symptom severity, the majority of studies have focused on negative family attributes that have a detrimental impact on patients. However, positive family characteristics such as warmth and family cohesion, are also important to study, as these factors may have a protective effect that may aid in symptom recovery (González-Pinto et al., 2011; López et al., 2004). Scant literature has examined protective factors despite the value and insight they may offer. Furthermore, even fewer studies have comprehensively examined both positive factors and risk factors of the family environment using multiple measures of both within the same study.

In addition, many studies that have examined the family environment in schizophrenia rely on family member perceptions of the environment or an independent examiner's rating. Few studies have directly assessed patients' own perceptions of their family environment and even fewer studies have compared patient perspectives, perspectives of other family members, and an independent observer's ratings of the family all within one study (Kopelowicz et al., 2002; Bachmann, Bottmer, Jacob, & Schröder, 2006; Weisman et al., 2005). Obtaining patient and relative self-report views as well as clinical assessment ratings are imperative for a comprehensive understanding of the family environment (Vostanis & Nicholls, 1995; King & Dixon, 1995).

Previous studies have also typically examined family environmental constructs in small, ethnically homogenous samples that may limit the scope of findings (Wuerker, Long, Haas, & Bellack, 2002). Therefore, these results may not generalize to the population as a whole. Furthermore, non-English speaking patients are often excluded from research (Barrio & Yamada, 2010). Since Hispanics/Latinos make up 17 percent of

the U.S. population, this further limits generalizability of research findings (U.S. Census Bureau; 2013, June). The present study aims to examine multiple risk and protective factors of the family environment in a large, ethnically diverse sample of English and Spanish speaking patients with schizophrenia. The study will include a rating of both the patient's perspective and a family member's perspective of family environment along with an independent observer's perspective through use of a clinically validated assessment measure of Expressed Emotion.

Throughout this paper, the term Hispanic/Latino (H/L) will be used to refer to men and women who are originally from or have ancestral origins in Latin American countries (e.g., Mexico, Nicaragua). While both terms "Hispanic" and "Latino" each have their proponents and opponents, neither term is accepted by all groups and there are preferences for the terms based on country of origin and/or geographical location (Weisman, 2005). For example, Cuban-Americans in Miami tend to prefer the term "Hispanic" whereas individuals from Mexico and Central America living in California, tend to prefer "Latino" (Weisman, 2005). The term "H/L" is an attempt to acknowledge the heterogeneous preferences of these groups, by including both terms in this paper. When reporting results from previous studies, we will use the language used by the authors (e.g., Mexican-Americans).

In this thesis, I will begin with a literature review on Expressed Emotion which assesses the emotional climate of the family environment. I will then review the literature on patient perceptions of their family environment. Next, I will review the scant literature on protective factors found within the family environment which can contribute to decreased patient symptomatology. More specifically, I will review the literature on

Warmth and Family Cohesion. Next, I will review previous findings from the literature that have demonstrated differential findings when examining the relationships between the aforementioned constructs and patient symptom severity by ethnicity. I will also address how discrepancies in patient and family perspectives may contribute to psychological distress and therefore, exacerbation of symptoms. Study hypotheses and a statistical plan to evaluate them will be presented, followed by results and a discussion of the implications of the study findings.

Expressed Emotion

Expressed Emotion (EE) is a psychosocial construct that measures the emotional climate of the family environment. EE measures the extent to which family members make critical, hostile, or emotionally over-involved (EOI) statements when talking about the patient (Hooley, 2007; Kopelowicz et al., 2002). A critical comment is a statement that is indicative of discontent with some portion of the patient's behavior. For example, making a statement such as, "I get so irritated that John never cleans his room," would be a critical statement. Hostile statements are similar to critical statements in that they express discontentment with patient behaviors but also reflect a more generalized dislike of the patient as a person. For example, "John is so lazy, yelling is the only way I get him to do anything," would reflect hostility. Emotionally over-involved statements typically reflect excessive concern and self-sacrifice to a degree that may be overwhelming to patients. "I am constantly worrying about John. I call and check on him at least 5 times a day," is an example of an EOI statement. Despite expressing concern, these statements have an over-bearing and/or intrusive feel which are related to poorer patient outcomes (Breitborde, López, Chang, Kopelowicz, & Zarate, 2009).

The Camberwell Family Interview (CFI) has been established as the gold standard measure of EE due to its consistent demonstration of reliability, construct validity, and predictive validity (Van Humbeeck et al., 2004; Hooley & Parker 2006; Kymalainen & Weisman de Mamani, 2008). The CFI is a semi-structured interview conducted with a patient's key family member in which they are asked to discuss the patient, their symptoms, level of tension, and daily routine of the household (Hooley & Parker, 2006). Based on tone of voice and the number of EE statements that are made during the interview, family members are classified as either "high-EE" or "low-EE." While the categorical criteria cutoff score varies by disorder, for schizophrenia, family members who make 6 or more critical comments, make any hostile statements, or receive a 3 or higher on a 0-5 scale of EOI, qualify as "high-EE" (see Hooley, 2007; Leff & Vaughn, 1985, for more detailed descriptions of coding procedures).

The CFI does have some disadvantages in that it takes 1-2 hours to administer and then an additional 2-3 hours for coding. Furthermore, the training to be able to reliably code the CFI is time-consuming, costly, and difficult to obtain. Therefore, others have sought alternative measures of EE. One such measure is the Five-Minute Speech Sample (FMSS) (Magaña et al., 1986). While the CFI is the most widely used measure of EE, the FMSS is a close second; it has demonstrated concurrent validity with the CFI and predictive validity in schizophrenia (Hooley & Parker, 2006; Weisman de Mamani, Kymalainen, Rosales, & Armesto, 2007). The FMSS will be used in the current study and will be described in more detail in the Measures section.

The emotional climate of the family environment was first examined by Brown, Carstairs, and Topping (1958) when they observed differential patient outcomes based on

the types of family relationships that patients returned to after hospitalization.

Specifically, they noted that patients had better clinical outcomes when they went to live with siblings or in independent housing of their own; patients who went to live with their spouses or parents had worse outcomes. Brown, Birley, and Wing (1972) then went on to demonstrate the relationship between the newly coined “Expressed Emotion,” and higher rates of relapse in patients with schizophrenia who lived in high-EE homes.

Since the development of this construct, EE has been studied extensively. The relationship between EE and patient symptom relapse has been consistently demonstrated within the schizophrenia literature (Hooley, 2007; Hooley & Gotlib, 2000). Having high levels of EE in the family environment is widely recognized as a type of psychosocial environmental stressor and risk factor for exacerbation of the illness (Hooley & Gotlib, 2000; Cutting, Aakre, & Docherty, 2006; Linszen et al., 1997). For example, Arshad, Qaider, and Adil (2011) found that higher levels of EE in caregivers significantly predicted greater patient symptom severity, specifically higher levels of positive symptoms. In fact, for patients with schizophrenia that live in high-EE environments, their risk of relapse is more than double when compared to patients that live in low-EE homes (Hooley, 2007). Furthermore, not only has the relationship between EE and exacerbation of illness been strongly demonstrated within the schizophrenia literature, but this relationship has also been confirmed in other mentally ill populations such as, eating disorders, mood and anxiety disorders, and substance abuse (Hooley, 2007; Medina-Pradas, Navarro, López, Grau, & Obiols, 2011; Sullivan & Miklowitz, 2010).

Patient Perceptions of the Family Environment

While the relationship between clinical assessment ratings of the family environment by independent observers and exacerbation of schizophrenia symptoms has been very well established, less research has focused on how patients perceive family attitudes and how these perceptions influence patient outcomes such as symptom severity (Kopelowicz et al., 2002; Tompson et al., 1995; Cutting & Docherty, 2000; Onwumere et al., 2009; Weisman, Rosales, Kymalainen, & Armesto, 2006). Not only are there disadvantages associated with the traditional clinical assessments of the family environment such as the CFI or FMSS (i.e., time-consuming to administer and score), there is also evidence that patient ratings of these same constructs may actually be stronger predictors of patient symptom severity. In other words, it may be how patients subjectively experience interactions with their family members that have a greater impact on outcomes. For example, Hooley and Teasdale (1989) found that of three psychosocial variables (EE rated by the CFI, marital distress on the Dyadic Adjustment Scale, and one Likert-scale question gauging patient perceived criticism from their spouse), the strongest predictor by far was the single-item measure of patient perceptions of criticism, though all three were significantly associated with relapse rates in a sample of unipolar depression patients. Similarly, in a sample of patients with eating disorders, Medina-Pradas and colleagues (2011) found that none of the CFI indices were significantly related to eating disorder symptomatology while patient perceptions of their family members' EE were strongly correlated with symptomatology. Lebell and colleagues (1993) found that FMSS-EE ratings did not significantly predict patient outcomes but patient perceptions of higher levels of family member criticism predicted schizophrenia

symptom exacerbation. Tompson and colleagues (1995) similarly found when collapsing results across ethnic groups, patient perceptions of family members' criticalness significantly predicted psychotic symptom exacerbation but interestingly, family member EE ratings from the FMSS did not. However, it is important to note that Tompson et al. (1995) and others have found differential findings when examining results by ethnicity. Results by ethnicity from this study and others will be discussed in more detail in the Ethnicity and Family Environment section.

Furthermore, research suggests that independent clinical ratings of the family environment may not fully capture patient perceptions of the environment (Cutting et al., 2006; Miklowitz, Wisniewski, Miyahara, Otto, & Sachs, 2005). Therefore, some studies have elected to use self-report measures to obtain ratings of the family environment directly from the patient. These self-report measures offer advantages in ease of administration and scoring and provide researchers with the unique perspective of the patient. Patients' own perceptions of the family environment, in conjunction with other assessments of the environment, may contribute to more accurate predictions of symptom severity.

Despite the concern that patients suffering from psychosis may be poor historians or incapable of providing an accurate assessment of their environments due to well-documented deficits in areas such as the processing of emotional states of others (e.g., Kohler, Walker, Martin, Healey, & Moberg, 2010; Poole, Corwin, & Vinogradov, 1997; Cramer, Weegmann, & O'Neil, 1989) as well as social deficits in general (e.g., Ebisch et al., 2013), several studies have demonstrated the concurrent validity of patient ratings with traditional clinical assessment measures. For example, Kopelowicz et al. (2002)

found no significant differences between the predictive validity of the FMSS and patient and relative versions of the Level of Expressed Emotion (LEE) self-report scale.

Tompson et al. (1995) similarly found that patient perceptions and relatives' EE ratings from the FMSS were moderately correlated. Importantly, this relationship is not dependent on patient symptom severity level (Medina-Pradas et al., 2011; Scazufca & Kuipers, 2001). In other words, there is not a cut-off point or a point in which the patient is "too sick" to be able to accurately provide their perspective of their family environment. In fact, the previously reviewed studies demonstrate that when examining the predictive validity of clinical assessment measures versus self-report measures that obtain the patient's subjective experience, patient perspectives tend to carry more weight in terms of predicting patient outcomes (Medina-Pradas et al., 2011; Tompson et al., 1995).

Some research has found that professional, objective ratings of family environment do not always accurately depict the experiences of the family (Mueser, Webb, Pfeiffer, Gladis, & Levinson, 1996). Van Humbeeck et al. (2004) similarly found significant discrepancies in patient ratings of EE of their professional caregiver and the caregivers' ratings of their own EE. Obtaining the patient's perspective is crucial since their appraisals are thought to mediate treatment outcomes such as improvement in symptom severity and response to treatment (Balaji, Chatterjee, Brennan, Rangaswamy, Thornicroft et al., 2012; Cutting & Docherty, 2000; Cutting et al., 2006).

Burman, Mednick, Machón, Parnas, and Schulsinger (1987) conducted one of the first studies to examine family relationships solely from the patient's perspective. In a sample of children at high-risk for developing schizophrenia, this study found that high-

risk children who rated poorer or less satisfactory relationships with their mothers and fathers (as rated by the Perception of Relationship with Father and Perception of Relationship with Mother Scales) were more likely to develop schizophrenia later in life. Schiffman et al. (2002) then replicated the Burman et al. (1987) study in a larger sample of individuals at high-risk for developing schizophrenia. The authors also found that high-risk individuals were at greater risk of developing schizophrenia when they rated parental relationships as poor. Furthermore, especially among high-risk individuals with greater symptom severity, the quality of the family environment appeared to play a key role in psychiatric outcomes later in life. Baker, Kazarian, Helmes, Ruckman, and Tower (1987) conducted a study that is also consistent with the Burman et al. (1987) and Schiffman et al. (2002) findings which demonstrated differential outcomes for schizophrenia patients depending on how they had previously rated influential people in their lives. More specifically, when comparing patients who had been rehospitalized during the 9-month follow up period to those who had not been readmitted, there were no significant differences between the groups with the exception being that the readmitted patients had previously rated their influential person as being more critical and overprotective whereas the other patients had not (Baker et al., 1987).

The criticism component has been established as the most important part of the EE construct and is widely recognized as a risk factor that exacerbates the illness (Hooley & Parker, 2006; Weisman et al., 2006b). Hence, much of the extant literature examining patient perceptions of EE has focused on patient perceptions of criticism. How Perceived Criticism (PC) is measured varies from study to study, but all attempt to obtain the patient's perspective on the amount or severity of criticism they experience. The

relationship between PC and symptom severity has been demonstrated in schizophrenia and other mental disorders. Patients who report higher PC experience higher symptom severity in anxiety and depression (Steketee, Lam, Chambless, Rodebaugh, & McCullouch, 2007), bipolar disorder (Miklowitz et al., 2005), and eating disorders (Medina-Pradas et al., 2011).

In relation to symptom severity in schizophrenia, Barrowclough et al. (2003) found a significant relationship between patient ratings of more criticism from relatives and increased positive symptoms (mediated by a negative self-evaluation). Similarly, Onwumere et al. (2009) found that PC was associated with higher ratings on the general psychopathology subscale of the PANSS, independent of CFI ratings. Once again, these results indicate that patient perspectives may be better predictors of symptom severity when compared with scores on clinical assessment measures.

Collectively, these findings suggest that patient perceptions of their family environments, especially perceptions of negative attitudes from family members or poor quality of relationships, lead to poorer outcomes for patients such as increases in symptom severity, and ultimately, rehospitalization.

Protective Family Environmental Factors

The presence of positive family characteristics such as warmth of caregiver and family cohesion may act as a buffer against relapse by reducing patient stress and in turn, protecting against increases in symptom severity (Ventura, Nuechterlein, Subotnik, Green, & Gitlin, 2004; O'Brien et al., 2006; González-Pinto et al., 2011; Medina-Pradas et al., 2011). Unfortunately, aside from a few studies, little research has examined

warmth, or other positive family factors and how these constructs relate to patient outcomes (López, Nelson, Snyder, & Mintz, 1999). Furthermore, even fewer studies have examined patient perceptions of these protective factors as opposed to using independent ratings from clinical assessments.

Warmth

Previous studies have demonstrated that family members' warm and positive statements can act as significant protective factors from increases in symptom severity and subsequent relapses. Bertrando et al. (1992) found that in a sample of Italian patients with schizophrenia, relapse rates were lower when the patients came from families that were rated as higher on warmth. Interestingly, even if the family was rated as high-EE, high warmth still served as a protective factor against relapse. Similarly, Ivanović, Vuletić, and Bebbington (1994) found that both maternal and paternal warmth were associated with lower patient relapse rates. In a sample of adolescents at high risk of developing psychosis, O'Brien et al. (2006) found that parent positive and warm remarks were associated with reduced patient symptoms and better social functioning. In a sample of 21 patient-caregiver dyads, Medina-Pradas, Navarro, Pousa, Montero, and Obiols (2013) found that patients who experienced more warmth from their caregivers expressed less symptomatology. However, the authors note that this may be a reciprocal relationship. López et al. (2004) demonstrated that family member warmth may be an important protective factor against relapse, particularly for ethnic minority patients. However, more research needs to be conducted to examine specific protective factors, their mechanisms, and how they relate to symptom severity, especially in ethnic minority samples. Furthermore, to the best of our knowledge, patient perceptions of warmth have

not been examined. Instead, the previously reviewed studies have all used independent observer ratings of warmth from the CFI. Based on previous literature demonstrating the discrepancies between clinical assessment ratings and patient perceptions of their family environment, we may be missing valuable information by not obtaining the patient's perspective on the protective factor of warmth.

Family Cohesion

As previously mentioned, of the attempts that have been made to examine protective family environmental factors, they have typically involved ratings by independent observers (Spiegel & Wissler, 1983; Weisman et al., 2005). However, Family Cohesion (FC) is a family environmental construct which directly assesses patient perceptions of family unity through a self-report measure. Perceptions of low FC have been found to be a significant predictor of increased symptom severity across various disorders such as depression (Cumsille & Epstein, 1994; Herman, Ostrander, & Tucker, 2007; Lorenzo-Blanco, Unger, Baezconde-Garbanati, Ritt-Olson, & Soto, 2012), anxiety (Priest & Denton, 2012), substance abuse (Costantini, Wermuth, Sorensen, & Lyons, 1992), obsessive-compulsive disorder (Peris et al., 2012), and bipolar disorder (Sullivan, Judd, Axelson, & Miklowitz, 2012). The relationship between FC and symptom severity has also been demonstrated in schizophrenia. Spiegel and Wissler (1983) found that lower functioning patients (i.e., patients who had greater symptomatology and poorer social adjustment) consistently rated their family as less cohesive. Weisman et al. (2005) found that H/L and African-American patients who reported greater levels of family cohesion had fewer psychiatric symptoms and reported feeling less distress. González-

Pinto et al. (2011) similarly reported findings that suggest that patient perceptions of a negative family environment increased the risk for developing psychosis whereas higher levels of FC had a protective effect against psychosis. While a seemingly important protective factor for all patients, FC may be particularly important for ethnic minorities as some studies have demonstrated differential findings when examining results by ethnicity (these findings will be discussed in the following section).

Ethnicity and Family Environment

Little research has examined the role that ethnicity plays in family environmental constructs (López et al., 2004). In line with previous findings, Tompson and colleagues (1995) demonstrated that PC plus an increased amount of social contact with relatives (e.g., in-person interactions, communicating via telephone, etc.) significantly predicted a worsening of psychotic symptoms (FMSS ratings by independent observers did not significantly predict any patient outcomes). Interestingly, however, the authors note that when examining this relationship by ethnic group, the results differed in that PC predicted symptom exacerbation only in African-American patients and amount of social contact with relatives predicted symptom exacerbation only for Caucasian patients. Furthermore, the authors note that a quarter of the patient perception ratings were incongruent with FMSS-EE ratings and interestingly, all of the patients with incongruent ratings were ethnic minority patients (Tompson et al., 1995). Guada, Hoe, Floyd, Barbour, and Brekke (2011) similarly found that in a sample of African-American patients with schizophrenia, patient perceived criticism was the most salient predictor of poorer patient outcomes. These findings suggest that specific family environmental

constructs may play a more or less influential role in patient symptom severity, especially in ethnic minority patients. There may also be a cultural disconnect in how an “outsider” or an independent observer rates the behaviors they see whereas the patient perceptions of these interactions are more valuable in predicting patient outcomes (Tompson et al., 1995; Weisman et al., 2006b; Guada et al., 2011). Therefore, it may make more sense to examine family environmental constructs (both independent observer ratings and patient subjective ratings) in a cultural context.

López, et al. (1999) and López et al. (2004) found that for Caucasian patients, criticism was the key predictor of relapse while for Mexican-American patients, it was the lack of family warmth. Kopelowicz et al. (2002) found that having a high-EE relative predicted higher relapse rates in Caucasian patients. However, this relationship did not hold for their Mexican-American counterparts. Although the construct of warmth was not examined directly, the authors speculated that their results were in line with the López et al. (1999) results. These studies suggest that family warmth may act as a significant protective factor for H/L patients and may be particularly important for Mexican-American families.

Kopelowicz et al. (2002) found that Caucasian family members were more often rated as high-EE when compared with their Mexican-American counterparts. Weisman et al. (2007) similarly found that Caucasian family members were more likely to be rated as high-EE when compared to H/L family members, using both the CFI and the FMSS. In fact, EE rates are nearly 5 times higher in Caucasian families when compared to H/L families (Weisman et al., 2007). Lower rates of EE are seen in developing countries where interdependence and family orientation are of great importance (Weisman, 2005;

Weisman de Mamani et al., 2007). In fact, in traditional/developing countries such as Colombia and India, individuals with schizophrenia demonstrate less symptom severity and better functioning when compared to individuals from more developed nations such as the U.S. and England (Weisman et al., 2006a; Weisman, 1997). It is thought that in more traditional cultures, the emotional climate of the family environment tends to be less stressful and patients experience fewer instances of negatively emotionally charged statements. Many studies have demonstrated that family involvement and support is a value that is very important to traditional cultures. This construct is particularly important to H/L cultures and has been related to positive health outcomes in H/L individuals in a variety of areas ranging from schizophrenia to epilepsy (Barrio & Yamada, 2010; Mulvaney-Day, Alegria, & Sribney, 2007; Chong, Drake, Atkinson, Ouelette, & Labiner, 2012). In fact, some studies have found differential results by ethnicity demonstrating the importance of these constructs particularly for ethnic minority patients. For example, previous studies have demonstrated that family cohesion was significantly associated with less emotional distress for H/L and African-American patients with schizophrenia (Weisman et al., 2005). Interestingly, these results were not found in Caucasian patients. In a sample of adolescents with depression, Herman et al. (2007) similarly found that for African-American adolescents, low family cohesion was significantly associated with their depression symptomatology. However, in line with Weisman et al. (2005), this relationship was not significant for Caucasian adolescents.

Interestingly, Weisman et al. (2006b) found that when examining results stratified by ethnicity, Caucasian and H/L patients perceived relatives as more critical when they expressed a greater number of critical comments. However, this association

did not hold for the African-American patients. In fact, Rosenfarb, Bellack, and Aziz (2006) demonstrated that for African-American patients, more criticism and intrusive behaviors were actually associated with better patient outcomes. However, the opposite was true for Caucasian patients whereas when these behaviors were present, they were associated with poorer outcomes. While the reasons behind the differential patterns remain unknown, Rosenfarb et al. (2006) suggest that for African-American patients, critical and intrusive comments may be viewed as showing care and concern for the patient. This is in line with previous studies that suggest that African-Americans appreciate a confrontational style as it is demonstrative of honesty and openness (e.g., Rogan & Hammer, 1998). Therefore, it would seem there is reason to believe that family environmental constructs function differently or have different purposes in different cultural contexts (Rosenfarb et al., 2006).

Together, these findings highlight the importance of examining the family environment in a cultural context, especially since some of the constructs being examined may function differently or may be of more or less importance for individuals from different cultural backgrounds (Tompson et al., 1995; Kopelowicz et al., 2002; Rosenfarb et al., 2006). These findings once again demonstrate the importance of obtaining the patient's perspective as traditional measures of the family environment that rely on an independent observer's assessment may not accurately capture the patient's experience (Tompson et al., 1995; Weisman et al., 2006b).

Discrepancies in Perceptions of the Family Environment Within Families

The previously reviewed studies have demonstrated that it is important to take patient perspectives of the family environment into consideration, especially since patient perspectives can differ from independent observer ratings. However, the literature also demonstrates that patient viewpoints may differ from their family members. In fact, discrepancies in perceptions of the family environment between patients and their caregivers are quite common (King & Dixon, 1995). While family members and patients often hold differing views on things such as prioritizing treatment goals, it is important to note that both viewpoints contribute to the patient's adherence to treatment, perceptions of care being received, and ultimately, patient outcomes such as symptom severity (Balaji et al., 2012).

Several studies have demonstrated discrepancies in patient and family member perspectives of the family environment. For example, Spiegel and Wissler (1983) found that patient couples were significantly more dissimilar in their ratings of the family environment when compared to normative couples. Similarly, Cañivé et al. (1995) found that patient, father, and mother ratings on the Family Environment Scale were poorly correlated with each other. Additionally, Weisman et al. (2005) found that patient and family member ratings of the family environment (specifically family cohesion) did not correspond. In line with previous studies, Medina-Pradas et al. (2013) found no correlation between patient perceptions of caregiver criticism and caregiver EE ratings. Discrepant ratings of the family environment may contribute to a patient feeling out of sync with the rest of the family. Weisman et al. (2006b) point out that relational harmony and decreasing familial conflict may be especially important in traditional cultures and

therefore, may be particularly important to H/L patients. While it is known that a poorer quality of family environment can contribute to symptom exacerbation, the health psychology literature on chronic illness also demonstrates that diverging views on an illness can contribute to an increased amount of stress that the patient experiences and in turn, can influence patient symptomatology (Heijmans, De Ridder, & Bensing, 1999; Blazquez & Alegre, 2013; Merz et al., 2011). Thus, it is hypothesized that discrepancies in perceptions of the family environment within families could be a source of stress for patients and may be associated with greater symptom severity.

The Current Study

The current study examines the role of both risk and protective family environmental factors in predicting patient symptom severity. More specifically, an independent observer rating of the primary caregiver's EE, patient perceptions of primary caregiver's criticalness and primary caregiver's warmth, and both patient and primary caregiver's perceptions of overall family cohesion are examined. The current study also includes a discrepancy analysis examining differences in patient and relative perceptions of the family environment. Differential outcomes are also examined based on ethnicity.

The emotional climate of the family environment (as measured by Expressed Emotion) has been established as a psychosocial environmental stressor known to exacerbate the symptoms of schizophrenia (Cutting et al., 2006). However, the majority of studies have examined this construct from an independent observer's perspective through use of a clinical assessment tool. Few studies have examined this construct from the perspective of the patient, despite findings that suggest that patient perceptions may

actually be better predictors of patient outcomes, including symptom severity (Hooley & Teasdale, 1989; Medina-Pradas et al., 2011; Tompson et al., 1995; Lebell et al., 1993). Furthermore, even fewer studies have assessed the family environment with a combination of standardized objective assessment measures of EE and measures that take both family member and patient subjective experiences into account.

As negative attributes of family environments are associated with poorer patient outcomes, it is understandable that previous research has concentrated on studying these factors. Unfortunately, only a small proportion of the extant literature has examined protective family factors which may reduce the risk of developing psychosis and the risk of relapse in individuals already diagnosed with schizophrenia. It is particularly important to examine the function of protective factors in conjunction with risk factors as these variables do not occur in isolation.

The current study addresses previous study limitations by providing a more comprehensive view of the family environment. Ideally, with a more thorough assessment of both risk and protective factors, we will be better able to predict symptom severity in patients with schizophrenia. While some studies have examined both risk and protective factors such as criticism and warmth (e.g., López et al., 2004), these studies are limited by the use of independent observer ratings without comparison of patient and family member perceptions of the same constructs. Although Medina-Pradas et al. (2011) and Medina-Pradas et al. (2013) directly compared patient perceptions with independent observer ratings of caregiver EE, and examined both risk and protective factors, these studies did not compare family member perceptions, and did not examine family cohesion. These studies are also limited by the use of small ethnically

homogenous samples without the capability of being able to break results down by ethnicity.

Therefore, the current study addresses an additional limitation of previous studies in that the relationships between risk and protective factors and patient symptom severity have typically been tested in small, homogenous samples which limits generalizability (Wuerker et al., 2002; Barrio & Yamada, 2010). These constructs are examined in a large and ethnically diverse sample since previous studies have demonstrated that the aforementioned constructs may function differently in different ethnic groups (Rosenfarb et al., 2006; Onwumere et al., 2009; Weisman et al., 2005). We also examine whether discrepancies in perceptions of the family environment among family members are associated with greater symptom severity.

The current study has direct implications for patients and indirect implications for family members who are involved in the care of an individual with schizophrenia. The present study will provide a better understanding of how constructs that are typically studied separately, function together and collectively impact the patient's symptom severity. With a better understanding of these risk and protective factors, we will be able to tease apart the factors that have the greatest impact on symptomatology and work to reduce the risk factors while attempting to foster the protective factors. This knowledge has the potential to help guide researchers and clinicians alike and provide them with the opportunity to hone in on the areas of the family environment that will have the largest influence on improving the quality of life of the patient. Due to both time and financial constraints imposed by the healthcare system, patients are often given a limited number of days in the hospital or a certain number of therapy sessions. Therefore, knowing how

to aid patients in the most efficient and effective manner is essential for all parties involved. Furthermore, by better understanding the impact of these family environmental factors, not only can we aid the patient in a quicker recovery, but we can also indirectly aid family members by providing education, working to reduce tension in the home, attempting to foster positive familial attributes, and improving their quality of lives as well. Since this study examines these factors in a cultural context, we will have a better understanding of which constructs are more meaningful to which families. In other words, results could help clinicians modify treatments to better meet the needs of different ethnic groups.

In summary, the current study examines the quality of the family environment in a comprehensive manner that allows for the study of both risk and protective factors from independent observer ratings of EE as well as family member and patient perspectives of the family environment. It is hoped that findings from this study will offer a more complete picture of influential family environmental factors that play a role in patient symptom severity. The overall goal is to better predict factors that lead to increased symptom severity so that we may provide more effective treatment to patients by focusing our efforts on reducing risk factors within their homes and cultivating protective factors.

Hypotheses

Based on the research reviewed above, the current study tests the following two main sets of research questions:

1) The first set of analyses assesses family environmental risk and protective factors that may predict patient symptom severity. The role of ethnicity in moderating these relationships is also examined.

Specifically, in line with prior research, it is expected that higher ratings of caregiver EE, higher patient ratings of perceived criticism, lower patient perceptions of warmth, and lower ratings of family cohesion (from both the patient and the family member perspective) will be associated with more severe psychiatric symptoms (Arshad et al., 2011; Hooley & Teadale, 1989; Tompson et al., 1995; Lebell et al., 1993; Medina-Pradas et al., 2011; Medina-Pradas et al., 2013; López et al., 1999; López et al., 2004; Barrowclough et al., 2003; González-Pinto et al., 2011; Weisman et al., 2005).

In addition, drawing from and extending upon the findings of Tompson et al. (1995), López et al. (1999), López et al. (2004), Kopelowicz et al. (2002), Weisman et al. (2005), Herman et al. (2007), Rosenfarb et al. (2006), Weisman et al. (2006b), and Medina-Pradas et al. (2013), we also expect ethnicity to moderate the links between criticism, warmth, cohesion, and symptom severity. More specifically, we hypothesize that warmth and family cohesion will carry more weight for minorities than for Caucasians and criticism will carry more weight for Caucasians than for minorities. We also assess a more comprehensive model for predicting symptom severity that includes both protective and risk factors in the same analyses. To obtain a more parsimonious model, only variables that are found to have significant zero order relationships with symptom severity will be selected. This will allow us to assess each variable's unique role in predicting symptom severity, when other important, related variables are

controlled. Because this analysis is largely exploratory, no specific hypotheses will be offered.

2) The second set of analyses examines patient and family member discrepancies in perceptions of the family environment. It is hypothesized that greater discrepancies will be associated with increased patient symptom severity.

As noted above, prior research indicates that patients and family members do not always perceive their family environment similarly (Spiegel & Wissler, 1983; Cañivé et al., 1995; Weisman et al., 2005; Weisman et al., 2006b; Medina-Pradas et al., 2013).

Discrepant ratings could lead to patients feeling as if they are out of sync with the rest of the family and could increase distress and psychopathology (Weisman et al., 2006b; Heijmans, De Ridder, & Bensing, 1999; Blazquez & Alegre, 2013; Merz et al., 2011).

Thus, we hypothesize that greater patient-relative discrepancies in family cohesion will be associated with more severe patient psychiatric symptoms. We will also examine whether the direction of the discrepancy has an effect on patient symptom severity. In other words, does the relationship with symptom severity change depending on whether the patient or their caregiver has the higher cohesion rating?

Chapter 2: Methods

Sample

The current study is part of a larger treatment study examining a Culturally Informed Treatment for Schizophrenia (CIT-S) (see Weisman et al., 2005; 2006a, for a more detailed description of the larger project). However, only baseline data prior to any intervention was examined for the current study. The sample consists of 221 patients with schizophrenia or schizoaffective disorder (69.2% male, 30.8% female) with a mean age of 40.97 ($SD = 11.45$). Patients self-identified their ethnicity as either Caucasian (15.8%), African-American (41.2%), H/L (36.7%), or Other (2.3%). Nine patients had missing data for ethnicity (4.1%).

Participants were recruited for a schizophrenia family treatment intervention study from advertisements displayed in local hospitals, newspapers, and in the cars of Miami's above-ground rail system, the Metrorail. After completing an initial eligibility phone-screen, participants came into the University of Miami Psychological Services Center for their baseline assessment interview which lasted approximately 3 hours; patients and relatives were each paid \$25 for their time. Assessments were conducted separately and in the participant's preferred language (either English or Spanish). At this time, patient diagnosis of either schizophrenia or schizoaffective disorder was confirmed through use of the Structured Clinical Interview for DSM-IV, Patient Edition (SCID-I/P, Version 2.0), Psychotic Symptoms module (First, Spitzer, Gibbon, & Williams, 2002). For participants who had family members attend the family therapy option, primary caregiver status was determined by selecting the family member who spent the most time with the patient.

Measures

While participants were administered numerous paper and pencil measures as part of the assessment interview, only the measures relevant to the present study will be discussed below. Assessments were conducted by trained bilingual graduate students or undergraduate research assistants. Due to variability in reading fluency, all measures were administered in an interview format with the assessor recording responses for the participant.

Translation of Measures

As previously mentioned, participants indicated their preferred language and assessment interviews were then conducted according to their preference for either English or Spanish. All measures were translated from English to Spanish using an editorial review board approach consisting of members from diverse backgrounds including Cuba, Colombia, Nicaragua, Costa Rica, Mexico, and Puerto Rico. This approach is considered to be a more effective translation method when compared with translation-back translation as the editorial review board takes into consideration within-group language variations (Geisinger, 1994). The measures were first translated by a native Spanish speaker into Spanish. This translator then met with the editorial review board in which each member independently reviewed the Spanish version and compared it to the English version. Next, members of the board discussed any discrepancies and attempted to come to an agreement about the most generic and most easily understood wording. It was also important that the wording in Spanish continued to reflect the English meaning of the original constructs. The board then met a second time to once

again independently compare the English and Spanish versions of the measures and discuss any remaining discrepancies until a consensus was reached on all items.

Informed Consent: Participants read and signed an informed consent form prior to participating in the present study. The form indicated that participants could discontinue at any time with no penalty. Participants were compensated \$25.

Demographics: Participants completed a demographics questionnaire in which they provided information such as age, gender, race/ethnicity, years of education, and hours of social contact (i.e., in-person interactions, communication via telephone, email, etc.) between patient and relative/caregiver.

Eligibility for Current Study: The Structured Clinical Interview for DSM-IV, Patient Edition (SCID-I/P, Version 2.0), Psychotic Symptoms module (First et al., 2002) is a semi-structured interview that is used to determine if a patient meets criteria for a variety of specific mental disorders. The Psychotic Symptoms module was used to determine if a patient met lifetime criteria for a diagnosis of either schizophrenia or schizoaffective disorder. The SCID-I/P has demonstrated high inter-rater reliability for both symptoms and diagnoses (Ventura, Liberman, Green, Shaner, & Mintz, 1998). Inter-rater reliability for the current study was determined by having the Principal Investigator (Amy Weisman de Mamani) and all other interviewers watch six videotapes of SCID-I/P interviews and provide their independent determinations of patient diagnoses. Inter-rater agreement for the current study using Cohen's Kappa is 1.0.

Caregiver Expressed Emotion: An independent observer rating of caregiver EE was obtained from the Five-Minute Speech Sample (FMSS) (Magaña et al.,1986). The FMSS is similar to the CFI in that the primary family member speaks about the patient. However, the family member speaks in an unstructured manner, in their own words about the patient, and for only 5 minutes. During this time, they are to describe what kind of person the patient is and how they get along together. Similar to the CFI, the FMSS is audio-recorded for later coding. Family members are rated on criticism, EOI, and overall level of EE. However, unlike the CFI, there are no hostility or warmth ratings. In order for a family member to be rated as high-EE, they must make one or more critical or negative comments, or statements indicative of EOI such as excessive praise of the patient or explicit displays of emotion during administration of the FMSS such as crying. Caregiver EE is a dichotomous categorical variable that was dummy-coded with caregivers coded as either low-EE (“0”) or high-EE (“1”). Through use of the FMSS Training and Scoring Manual, coders for this study achieved reliability with already established training materials. Six coders first read the entire FMSS manual, reviewed scoring criteria, independently rated 10 training tapes, and then compared their ratings with the answers provided in the manual. Next, coders independently rated 10 additional videotapes. Two coders rated 12 additional tapes to demonstrate reliability. The kappa coefficient between the research assistants and the criteria training tapes ranged from .80 to 1.0 for rating high versus low EE, .86 to 1.0 for rating the critical component (high critical versus borderline or low critical), and .74 to 1.0 for rating the EOI component (high EOI versus borderline or low EOI). Previous studies have demonstrated that the

FMSS has good inter-rater reliability, concurrent validity with the CFI, and predictive validity in schizophrenia (Weisman de Mamani et al., 2007; Hooley & Parker, 2006). It should be noted that the FMSS has the tendency to under-detect high-EE relatives (Hooley, 2007; Weisman de Mamani et al., 2007). However, most studies that have used this measure have had small sample sizes.

Perceptions of EE (Primary Caregiver Warmth and Criticism): The Perceptions of EE Scale was designed by Weisman and colleagues and used in a previous study (see Weisman et al., 2006). This 2-item instrument includes the following two questions: 1) In describing your relative, would you say (relative's name) is not at all warm, somewhat warm, or very warm? 2) In describing your relative, would you say (relative's name) is not at all critical, somewhat critical, or very critical? Patients must choose one of the 3 options provided and are encouraged to choose the response that best describes their primary caregiver. These items were coded such that higher scores are indicative of more warmth and more criticism (answers ranging from 1 to 3).

Family Cohesion: Patient and caregiver perceptions of family unity were measured through the Cohesion subscale of the Family Environment Scale (FES) (Moos & Moos, 1981). This subscale consists of 9 true/false statements designed to assess the degree to which patients feel their family provides help, support, and commitment to each other (Weisman et al., 2005). For example, "Family members really help and support one another." The FES is an easy to administer and score self-report measure that obtains family members' perceptions of their family environment. Furthermore, the psychometric

properties of the FES have been demonstrated in English, Spanish, and Chinese and across ethnicities including Chinese, H/L, and African-Americans (Phillips, West, Shen, & Zheng, 1998; Weisman & López, 1996; McEachern & Kenny, 2002). A total score on the FES Cohesion subscale was calculated by summing the participants' scores on each T/F item. Since some of the items are reverse-coded, these items were reversed so that higher total scores were indicative of perceptions of more cohesion. This scale is reported to have demonstrated adequate to good internal reliability (Cronbach's alpha .63-.78) (Weisman et al., 2005; Moos & Moos, 1981). Internal reliability for the overall study sample (patients and caregivers combined), using Cronbach's alpha was .794. Patients only = .832 (English = .832; Spanish = .724). Caregivers only = .641 (English = .652; Spanish = .577).

Discrepancy Ratings of Family Environment within Families: Patient and caregiver scores on the Cohesion subscale of the FES were used to create discrepancy ratings in order to determine if larger discrepancies in perceptions of the family environment, specifically in perceptions of family cohesion, were associated with greater patient symptomatology. Discrepancy ratings consisted of difference scores in patient and relative FES total scores. The participant with the smaller score was subtracted from the larger score within each dyad to obtain the absolute value of discrepancy scores. Which family member had the higher or lower rating was also noted.

Symptom Severity: Current severity of patient symptomatology was measured through use of the Brief Psychiatric Rating Scale (BPRS) (Lukoff, Nuechterlein, & Ventura,

1986; Overall & Gorham, 1962). The BPRS is a 24-item, semi-structured interview which assesses the following eight areas: unusual thought content, hallucinations, conceptual disorganization, depression, suicidality, self-neglect, bizarre behavior, and hostility. Each of the 24 items is assessed using a 7-point anchor rating with 1 indicating “not present” to 7 indicating “extremely severe.” A total BPRS score was obtained by summing patient scores on all 24 items. Higher scores were indicative of greater symptom severity. The BPRS is reported to have good reliability and has been reported as having intraclass coefficients ranging from .74-1.00 on scale items (Weisman et al., 2005). The Principal Investigator (Amy Weisman de Mamani) has completed a UCLA BPRS training and quality assurance program and has demonstrated reliability with the scale’s creator, Dr. Joseph Ventura. Dr. Weisman de Mamani trained all graduate student interviewers. Interviewers then coded six training videotapes selected by Dr. Joseph Ventura. Intraclass correlations between interviewers and consensus ratings of Dr. Ventura ranged from .79 to .98 for total BPRS scores.

Chapter 3: Proposed Data Analytic Plan

Preliminary Analyses

All analyses were conducted using SPSS Statistics software, Version 21. Variables of interest were calculated such that higher scores were reflective of greater levels of the construct being measured (e.g., more warmth, more family cohesion, greater symptom severity). Caregiver EE ratings from the FMSS, a dichotomous categorical independent variable, was dummy-coded with caregivers coded as either low-EE (“0”) or high-EE (“1”). The categorical demographic variables of gender, ethnicity, and primary language were also dummy-coded. Normality was assessed and all variables were examined for any outliers. The relationships between primary study variables (Caregiver EE ratings from the FMSS, Patient Perceptions of Caregiver Warmth, Patient Perceptions of Caregiver Criticism, Patient Perceptions of Family Cohesion, and Caregiver Perceptions of Family Cohesion) and select demographic variables (age, gender, education, primary language, hours of social contact between patient and relative) were examined as potential covariates. If determined to be significant, covariates were controlled for in the primary analyses.

Primary Analyses

The first set of analyses were aimed at assessing family environmental risk and protective factors that may predict patient symptom severity. A series of zero-order correlations were conducted between all primary variables that were continuous and a correlation matrix was prepared. Results from this matrix allowed us to test whether higher patient ratings of perceived criticism, lower patient perceptions of warmth, and

lower ratings of family cohesion (from both the patient and the family member perspective) were associated with more severe psychiatric symptoms (when no other variables were being controlled). A *t*-test was also conducted between high and low EE groups to assess whether high-EE predicted greater symptom severity.

Results from the correlation matrix were used to identify significant predictors of symptom severity that could be further examined in a simultaneous regression analysis to evaluate a more comprehensive model of both risk and protective factors of symptom severity. All continuous independent variables were centered prior to regression analyses (Aiken & West, 1991; McClelland & Judd, 1993). We also used this matrix to assess for the possibility of excessively high levels of multicollinearity among predictor variables. If predictor variables had an absolute Pearson's *r* value of .7 or above, the variable with the higher correlation with patient symptom severity would be retained in the analyses and the other variable would be dropped. While thresholds used in previous studies range from a more restrictive .4 to a less restrictive .85, a cut off of .7 is the most commonly selected threshold (Dormann et al., 2013). If significant covariates were identified, hierarchical regression analyses were used and covariates were added in step 1 of the model and predictor variables in step 2. R^2 was first examined to determine the percent of symptom severity that could be accounted for by the linear combination of variables. Standardized beta weights of each predictor were also examined to evaluate the relative contribution of each predictor while partialling out the effects of the others.

Next, for any significant predictor of symptom type, we evaluated whether ethnicity moderated this relationship. A moderator is defined as a variable that affects the strength and/or direction of a relationship between a predictor variable and a dependent

variable (Baron & Kenny, 1986). All variables that were identified as significant predictors from the previous correlation analysis or the *t*-test (for EE) were examined further for moderation. According to the Baron and Kenny (1986) approach, the following steps were followed to test for moderation. All continuous independent variables were centered prior to analyses and the categorical variables of EE and ethnicity were dummy-coded. Next, interaction terms were created to represent the relationships between significant predictor variables and the moderator (ethnicity). The centered continuous variables were multiplied with dummy-coded ethnicity to create these product terms. Only participants who self-identified as Caucasian, H/L, or African-American were included in these analyses. Thus, there were three ethnicity categories resulting in two interaction terms that were multiplied by each retained predictor variable. Moderation was assessed through regression analyses where symptom severity was simultaneously regressed upon predictor variables, the moderator, and the interaction terms. Ethnicity would be supported as a moderator if the interaction terms were significant. If significant results were found, follow-up analyses would be conducted to determine the specific directions of these relationships.

To test our second hypothesis, a Pearson correlation was conducted between patient-caregiver discrepancy scores on the Cohesion subscale of the FES and patient symptom severity scores to determine if greater discrepancy ratings were associated with greater patient symptomatology. We also examined if the direction of the discrepancy (i.e., if the patient or caregiver had higher ratings of family cohesion) had an effect on the relationship with symptom severity by conducting two separate correlational analyses in

which one analysis examined this relationship when patients had higher scores and the other examined the aforementioned relationship when caregivers had higher scores.

Chapter 4: Results

Preliminary Analyses

Missing data

Missing data were present for all study variables but appeared to be missing at random with no indication of systematic response biases. Little's Missing Completely At Random (MCAR) test was non-significant and supports the presence of MCAR data, $X^2(151) = 169.650, p = .142$. A listwise deletion approach was used for all analyses conducted. All analyses were also re-run using mean imputation. However, this did not change results of any analyses. Thus, only results using listwise deletion are presented below.

Study Variables

All variables were assessed for normality and outliers. According to Curran, West, and Finch (1996), non-normality issues arise when univariate values are 2.0 or larger for skewness and 7.0 or larger for kurtosis. All study variables' skewness and kurtosis values were within normal limits and no transformations were required. In fact, most values were within a conservative -1 to +1 range (see Table 1 for specific values).

Demographic Variables

Frequency information for all demographic variables such as gender, ethnicity, education, caregiver relationship to patient, primary language, and amount of weekly social contact between caregiver and patient, are listed in Table 2 for patient information and Table 3 for caregiver information. A correlation matrix was created to assess the

relationships between continuous variables and identify any potential covariates (see Table 4). Education was found to be significantly correlated with BPRS scores such that patients with lower education were found to have higher BPRS scores indicating greater symptom severity ($r = .163, p = .019$). It should be noted that the education variable was coded in a manner such that a higher score was indicative of a lower education which is why the correlation coefficient is positive. Significant relationships were also found between non-demographic study variables which will be discussed in the primary analyses section.

Independent sample *t*-tests were conducted to examine the relationships between dichotomous categorical variables (gender of patient, gender of caregiver, caregiver EE, primary language) and continuous study variables. It was found that patients whose primary language was Spanish, had significantly higher family cohesion FES scores ($M = 16.14, SD = 2.03$) when compared to patients whose primary language was English ($M = 14.26, SD = 2.87$), equal variances not assumed, $t(17.162) = -3.226, p = .005$. Patients with a primary language of Spanish, also had significantly lower levels of education ($M = 4.78, SD = 1.31$), as compared to English-speaking patients, ($M = 3.70, SD = 1.13$), $t(212) = -3.823, p < .001$. Once again, it should be noted that the education variable was coded in a manner in which a larger number was indicative of a lower education. Patient language and level of education were both considered significant covariates and were controlled for in subsequent primary analyses.

Primary Analyses

Aim 1: Examine family environmental risk and protective factors that may predict patient symptom severity and assess whether ethnicity moderates these relationships.

Results from Correlation Matrix

Our first study hypothesis predicted that higher patient ratings of perceived criticism, lower patient perceptions of warmth, and lower ratings of family cohesion (from both the patient and the family member perspective) would be associated with more severe psychiatric symptoms. Results from a series of zero-order correlations partially supported this hypothesis as lower patient ratings of perceived caregiver warmth were associated with greater patient symptom severity scores on the BPRS ($r = -.149, p = .042$) and lower patient ratings of family cohesion were also associated with higher BPRS scores ($r = -.297, p < .001$). Patient perceived caregiver criticism and lower ratings of family cohesion (from the family member perspective) were not significantly associated with symptom severity.

Several additional significant relationships were also found between other study variables: higher patient ratings of perceived caregiver warmth were associated with higher patient ratings of family cohesion ($r = .395, p < .001$) as well as significantly lower patient ratings of perceived caregiver criticism ($r = -.342, p < .001$). Patients who had higher ratings of family cohesion had significantly lower perceived caregiver criticism ratings ($r = -.191, p = .010$). Higher patient family cohesion scores were also significantly associated with higher caregiver family cohesion scores ($r = .256, p = .012$). Please see table 4 for correlation matrix.

Caregiver EE t-test Results

A *t*-test was conducted between 106 caregivers that had a FMSS available and were classified as either high EE (n= 26) or low EE (n= 80) to assess whether high-EE predicts greater symptom severity. There were no significant differences in patient symptom severity depending on level of caregiver EE, $t(99) = .532, p = .596$. It should be noted that removing the EOI components and rerunning the analyses did not affect the non-significant results. Thus, this portion of our first hypothesis was unsupported by *t*-test results and caregiver EE was determined to be a non-significant predictor of symptoms severity (see table 5 for EE frequency information for overall sample as well as stratified by ethnicity).

Regression Analysis with significant predictors from correlation matrix

Multicollinearity among predictor variables was assessed and determined to not be problematic as the largest correlation was .395. Therefore, no variables were dropped from the analysis. Since significant covariates were identified, hierarchical regression was used for this analysis. In order to determine how well symptom severity was predicted by primary study variables over and above the covariates, patient education and patient primary language were added in block 1 of the model and the centered predictor variables were added in block 2 (patient ratings of caregiver warmth and patient family cohesion scores). Results indicated that the covariates of patient education and language accounted for approximately 6.4% of the variability in patient symptom severity, $R^2 = .064, F(2,173) = 5.936, p = .003$. Only the partial correlation between symptom severity and education was significant, $t(2,173) = 3.409, \beta = .253, \text{partial } r = .251, p = .001$. The

linear combination of the predictor variables and the relationship with symptom severity was significant over and above the covariates, and explained an additional 9.0% of the variability in patient symptom severity, $R^2 = .154$, R^2 change = .090, $F(2,171) = 9.100$, $p < .001$. Education was once again significant, $t(4,171) = 3.264$, $\beta = .232$, partial $r = .242$, $p = .001$. Patient family cohesion scores were also a significant predictor, $t(4,171) = -3.669$, $\beta = -.285$, partial $r = -.270$, $p = .001$. Since patient ratings of family cohesion was found to be a significant predictor of symptom severity, our first study hypothesis was partially supported by hierarchical regression results.

Ethnicity as a Moderator

To test whether study findings were moderated by ethnicity, a hierarchical regression analysis was conducted. Only participants who self-identified as Caucasian, H/L, or African-American were included in this analysis. Patient education and language (covariates) were entered into block 1. In block 2, symptom severity was simultaneously regressed upon the predictor variables that had significant associations with symptom severity in the correlation matrix (patient ratings of caregiver warmth and patient family cohesion scores), the moderator (ethnicity), and the interaction terms. Results indicated that the covariates of patient education and language accounted for approximately 6.5% of the variability in patient symptom severity, $R^2 = .065$, $F(2,165) = 5.756$, $p = .004$. Once again, only the partial correlation between symptom severity and education was significant, $t(2, 165) = 3.355$, $\beta = .254$, partial $r = .253$, $p = .001$. The linear combination of the predictor variables and the relationship with symptom severity was significant over and above the covariates, and explained an additional 10.7% of the variability in patient

symptom severity, $R^2 = .172$, R^2 change = .107, $F(10, 157) = 3.272$, $p = .012$. Interestingly, patient education was the only significant predictor, $t(10, 157) = 3.096$, $\beta = .233$, partial $r = .2420$, $p = .002$. Neither ethnicity main effects nor interaction terms were significant. Thus, contrary to our expectations, ethnicity was not supported as a moderator.

Aim 2: Examine the relationship between patient-caregiver discrepancies in perceptions of family environment and patient symptom severity.

We hypothesized that greater discrepancies would be associated with greater patient symptom severity. Contrary to expectations, results from a bivariate correlational analysis (patient-caregiver discrepancy scores on the Cohesion subscale of the FES and patient BPRS scores) were in the expected direction but were not significant ($r = -.177$, $p = .089$). We also examined whether the direction of the discrepancy had an impact on this relationship by conducting 2 separate correlational analyses. Patient-caregiver dyads who had identical scores were not included in these analyses ($n = 20$). Of the 76 cases in which patient-caregiver discrepancy scores were present, caregivers had higher family cohesion scores in 44 cases and patients had higher family cohesion scores in 32 cases. Results were non-significant and similar regardless of whether caregivers ($r = -.169$, $p = .274$) or patients ($r = -.189$, $p = .318$) had higher scores.

Results Stratified by Ethnicity

Because the literature reviewed above indicated that the link between family environment and symptom severity may vary by ethnicity, we re-ran significant results stratified by ethnicity. Only Caucasian, African-American, and H/L were included in the

analyses. The majority of results were the same. However, some differential findings were also observed. Summary tables of major findings by ethnicity will accompany this section and will be compared to the results found in the overall sample. The means and standard deviations for all continuous study variables are presented in tables 6 through 11. Overall sample mean and standard deviation is listed followed by results stratified by ethnicity.

H/L Patients (n=81)

The following significant associations that were seen in the overall sample results remained significant for the subsample of H/L patients: higher patient ratings of perceived caregiver warmth and higher patient ratings of family cohesion; higher patient ratings of perceived caregiver warmth and lower patient ratings of perceived caregiver criticism; higher patient ratings of family cohesion and lower BPRS scores (see table 12 for specific r values). Two additional relationships were seen solely in the H/L subsample: caregiver age was significantly associated with both patient ratings of caregiver warmth and criticism such that older caregivers had lower warmth ratings ($r = -.329, p = .031$) and higher criticism ratings ($r = .403, p = .007$) (see table 13). The same significant t -test results (patients with Spanish as their primary language had lower levels of education and higher FES scores) from the overall sample remained significant in the H/L subsample (see table 14). It is not surprising that these language-related findings are consistent with the results in the overall sample because all Spanish speaking participants identified as H/L. A hierarchical regression analysis was conducted in which the significant covariates from the correlation matrix (patient education, patient

primary language, and caregiver age) were added in block 1 of the model and predictor variables were added in block 2 (patient family cohesion scores), in order to determine how well symptom severity is predicted by these variables over and above the covariates. However, neither the linear combination of block 1 nor block 2 were found to significantly predict symptom severity.

African-American Patients (n=91)

For African Americans, some of the significant associations that were seen in the overall sample remained significant (higher patient ratings of perceived caregiver warmth and higher patient ratings of family cohesion; higher patient ratings of perceived caregiver warmth and lower patient ratings of perceived caregiver criticism; higher patient ratings of family cohesion and lower ratings of caregiver criticism; higher patient ratings of family cohesion and lower BPRS scores) (see table 12 for specific r values). Two additional relationships were seen solely in the African-American subsample: patient age was significantly associated with both patient ratings of caregiver warmth and patient education such that older patients provided lower warmth ratings to their caregivers ($r = -.296, p = .007$) and had lower levels of education ($r = .210, p = .047$) (see table 13). Additionally, the caregiver EE t -test revealed a pattern of results unique to the African-American sample. Interestingly, it was found that there were significant differences in BPRS depending on caregiver EE. Specifically, for African-American patients, having a low-EE caregiver was associated with significantly higher BPRS scores (see table 14). A hierarchical regression analysis was then conducted in which the significant covariates (patient education and patient age) were added in block 1 of the

model and predictor variables added in block 2 (patient family cohesion scores and caregiver EE), in order to determine how well symptom severity is predicted by these variables over and above the covariates. However, neither the linear combination of block 1 nor block 2 were found to significantly predict symptom severity.

Caucasian Patients (n =35)

The following significant associations that were seen in the overall sample results remained significant for the subsample of Caucasian patients: higher patient ratings of perceived caregiver warmth and higher patient ratings of family cohesion; higher patient ratings of perceived caregiver warmth and lower patient ratings of perceived caregiver criticism; higher patient ratings of family cohesion and lower ratings of caregiver criticism; higher patient ratings of family cohesion and higher caregiver ratings of family cohesion (see table 12 for specific r values). Two additional relationships were seen solely in the Caucasian subsample: patient ratings of caregiver warmth were significantly associated with higher caregiver ratings of family cohesion ($r = .807, p < .001$). It was also found that older Caucasian patients were found to have higher levels of education ($r = -.359, p = .034$) (see table 13). Interestingly, this relationship was reversed in African-American patients. Significant relationships were also found with patient gender and caregiver gender such that primary caregivers spent more hours per week with female Caucasian patients ($t(19) = -3.556, p = .004$). Female caregivers tended to both rate their families as more cohesive ($t(19) = -2.420, p = .026$) and Caucasian patients were also more likely to rate their families as more cohesive when they had a female primary caregiver ($t(20) = -2.676, p = .015$) (see table 14). While the aforementioned significant relationships

would have been controlled for as covariates, none of the primary study variables were significantly associated with patient symptom severity. Therefore, no regression analyses were conducted.

Chapter 5: Discussion

Prior studies have examined risk and protective factors from independent observer ratings, from patient perspectives, and from family perspectives. However, these constructs have typically been examined separately and in small, ethnically homogenous samples. The overarching objective of the current study was to comprehensively examine risk and protective factors utilizing a combination of independent observer ratings from clinical assessment measures, and patient and caregiver perspectives. Because the variables examined do not act in isolation, the current study aimed to determine which variables have the most impact on patient symptom severity when examined collectively. This information will aid in creating more efficient and effective treatments. In this section, study results and clinical implications are discussed, followed by study limitations and suggestions for future directions.

The first aim of the present study was to comprehensively examine family environmental risk and protective factors and their relationships to patient symptom severity. We also examined whether any ethnic patterns emerged in these relationships. Our first study hypothesis was partially supported. Patient perceptions of greater caregiver warmth and patient perceptions of higher levels of family cohesion were associated with lower levels of patient symptom severity. However, contrary to expectations, the constructs of patient perceived caregiver criticism, caregiver EE ratings from the FMSS, and caregiver perceptions of family cohesion, were not significantly associated with patient symptom severity. Contrary to expectations, ethnicity did not appear to moderate any relationships between primary study variables and patient symptom severity.

Results from our first set of analyses seem to suggest that the presence of protective factors in the home may have a greater impact on patient symptom severity than the presence (or perception) of risk factors. Alternatively, even if risk factors are present in the family environment, protective factors may buffer against their detrimental influence. Our findings are in line with previous studies which demonstrate that protective factors such as family warmth and positive statements are associated with lower symptom severity, better social functioning, and lower relapse rates (Bertrando et al., 1992; Ivanović et al., 1994; O'Brien et al., 2006; Medina-Pradas et al., 2013; López et al., 2004). In previous studies, family warmth has typically been extracted from clinical assessment measures such as the CFI. The current study utilized patient perceptions of caregiver warmth as well as patient perceptions of family cohesion. Findings from the current study illustrate the weight that patient perception measures may carry when compared to clinical assessment tools or even other family member perspectives. In fact, study results demonstrate that patient perceptions were the only variables that were significantly associated with symptom severity. Furthermore, patient perceptions of the family environment were significantly associated with caregiver ratings of the family environment indicating that patients' views were generally on the same page with their relatives' views.

Thus, our findings indicate that while assessing all family members' perspectives may be important, seeking the patient perspective may be most useful in terms of predicting patient symptom severity. This finding is also supported by previous studies which highlight the importance of obtaining the patient perspective and its capability to

predict patient outcomes (Hooley & Teasdale, 1989; Tompson et al., 1995; Medina-Pradas et al., 2011; Lebell et al., 1993; Cutting & Docherty, 2000; Weisman et al., 2006).

Though largely intuitive, results also demonstrated some additional associations between primary study variables. Specifically, patient ratings of greater caregiver warmth were associated with higher patient ratings of family cohesion as well as lower levels of caregiver criticism. In other words, patients who rate family environments as more cohesive, also tend to rate caregivers as more warm and less critical.

Our second aim was to determine if discrepancies in patient-caregiver perceptions of the family environment would be associated with greater symptom severity. However, study hypotheses were not supported as patient-caregiver discrepancies (regardless of the direction of the discrepancy) were not significantly associated with symptom severity. While results were contrary to expectations for our second aim, results were in the expected direction. This may suggest that a subtle effect exists but a larger sample size would be necessary to detect it.

When results were broken down by ethnicity, a few interesting patterns emerged. For example, while many of the relationships seen in the overall sample remained significant, H/L patients were likely to rate older caregivers as less warm and more critical. However, neither of these constructs were found to be significantly associated with patient symptom severity.

In African-American patients, a unique relationship was observed in that low caregiver EE ratings from the FMSS were found to be associated with *more* symptom severity. While this finding may seem contradictory, previous studies have found that for African-Americans, when relatives demonstrate high-EE behaviors, it is interpreted as

expressing care, concern, and love for the person (Rosenfarb et al., 2006; Rogan & Hammer, 1998). Therefore, in light of the current study's findings as well as previously cited literature, it seems that certain family environmental constructs may serve a different function depending on one's ethnic background.

Despite having a comparatively smaller Caucasian subsample (see limitations), some unique associations were found. Interestingly, none of the primary study variables were associated with symptom severity. Given that the majority of our sample was comprised of H/L and African-American patients, this could indicate that ethnic minority patients may have driven the majority of findings. It is also possible that these constructs are important for Caucasian patients but may instead take an indirect path as opposed to having a direct influence on symptom severity. In terms of differential findings for Caucasians, patient perceptions of more caregiver warmth were associated with higher caregiver family cohesion ratings. Also, some unique patterns related to gender were observed that were not seen in either the overall sample or the minority subgroups. Specifically, it was found that caregivers spent more time with female patients, female caregivers were more likely to rate their families as more cohesive, and patients were more likely to rate their families as more cohesive when they had a primary caregiver who was female. While these findings seem to reflect more traditional gender roles, we are unsure as to why these gender differences would be observed in the Caucasian subsample only. It was also observed that Caucasian patients who were older tended to have higher levels of education whereas this finding was reversed for African-American patients. This may speak to the educational history of the U.S. and how younger African-Americans may have had more of an opportunity to receive higher education as a result

of education reform and increased availability of financial aid over the past two decades (St. John, Paulsen, & Carter, 2005).

Limitations, Future Directions, Conclusion

There were a number of limitations in the present study. First, this sample was comprised of cross-sectional data. Therefore, we are unable to speak to any longitudinal influences or directions of the associations that were observed. Secondly, our sample was comprised primarily of ethnic minority patients (~83%) with a comparatively smaller sub-sample of Caucasian patients. Lastly, although we offered assessments in participants' preferred language of either English or Spanish, we had a small subset of individuals who actually participated in Spanish (8.1% of patients and 22.8% of caregivers). In this sample, patients whose primary language was Spanish were found to have lower levels of education. Furthermore, for caregivers who completed the FES in Spanish, alpha levels were unexpectedly low (Cronbach's $\alpha = .577$). This may reflect the low number of Spanish-speaking caregivers that were a part of this sample and could also reflect lower levels of education and difficulty understanding some of the concepts presented in the Family Environment Scale. Therefore, it may be beneficial to seek out an equal number of both Spanish and English speakers and attempt to obtain a more heterogeneous sample of H/L participants with varying levels of education to assist with generalizability of findings.

In the future, information from the present study could be used to tailor assessments and treatments for patients with schizophrenia. For instance, though a few researchers have expressed concerns that patients may not be able to provide accurate assessments (e.g., Kohler et al., 2010; Poole et al., 1997), utilizing self-report measures to

obtain the patient's perspective on their family environment could offer valuable information regarding the likelihood of current and future relapses. Knowing that patients hold conflicting perceptions of family environment could raise an early red flag for clinicians, given its association with symptomatology. Thus, when patient perceptions indicate that something is amiss, clinicians may choose to directly target familial functioning and perceptions of family cohesion prior to addressing other issues (e.g., education about the illness, social skills). Fortunately, the measures used in this study to assess patient perceptions are quick and easy to use, require minimal training, and can offer crucial insight into the family environment.

While the overall goal of the current study was to comprehensively examine both risk and protective factors, findings highlight how tailoring assessments and treatment to address the presence or absence of the protective factors of caregiver warmth and family cohesion can greatly impact patient symptom severity. Results also demonstrate how patient perceptual measures can be an efficient and effective tool to direct treatment focus. Study results also reveal some unique findings based on patient ethnicity which are important considerations when working with individuals from various cultural backgrounds. Taken together, the findings from this study can be used to tailor our current assessment and treatment procedures in order to create more efficient and effective treatments that are beneficial at the individual, family, and health-care system level.

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Tables

Table 1: Descriptive Statistic for continuous variables

Variable	N	Mean	Standard Deviation	Skewness	Kurtosis	Possible Range	Observed Range
Patient age	216	40.97	11.45	-.167	-.872	18-100+	18-65
Caregiver age	112	48.70	13.47	-.141	-.320	14-100+	16-81
IP FES	200	14.40	2.855	-.454	-1.166	9-18	9-18
CG FES	107	15.26	2.065	-.548	-.483	9-18	10-18
FES discrepancy	96	2.15	2.08	1.209	.879	0-9	0-8
IP WARM	192	2.55	.6202	-1.064	.085	1-3	1-3
IP CRIT	192	2.03	.7755	-.045	-1.331	1-3	1-3
BPRS	211	55.57	13.15	-.233	.267	24-168	24-87

IPfes= patient FES total score; CGfes= caregiver FES total score; FES discrepancy = discrepancy between patient and caregiver FES scores; IPwarm= patient perception of caregiver warmth; IPcrit= patient perception of caregiver criticism; BPRS = patient total BPRS scores

Table 2: Patient demographic variables (n= 221)

Category	Frequency	Percentage
Gender	Male = 153 Female= 68	69.2% 30.8%
Ethnicity	Caucasian= 35 African-Amer= 91 H/L= 81 Other= 2 Missing =9	15.8% 41.2% 36.7% 2.3% 4.1%
Primary Language	English= 203 Spanish= 18	91.9% 8.1%
Education	Advanced deg.= 3 College degree= 18 Some college= 77 H.S.= 59 Some H.S.= 44 Grade 8= 6 Below grade 8= 7 Missing= 7	1.4% 8.1% 34.8% 26.7% 19.9% 2.7% 3.2% 3.2%

Table 3: Caregiver demographic variables (n= 114)

Category	Frequency	Percentage
Gender	Male = 50 Female= 64	43.9% 56.1%
Ethnicity	Caucasian= 24 African-Amer= 36 H/L= 53 Other= 1	21.1% 31.6% 46.5% .9%
Primary Language	English = 88 Spanish = 26	77.2% 22.8%
Relationship to IP	Mother= 33 Father= 10 S.O.= 34 Sister= 5 Brother= 6 Daughter= 4 Son= 4 Friend= 12 Uncle= 1 Niece= 1 Grandmother= 1 Cousin= 3	28.9% 8.8% 29.8% 4.4% 5.3% 3.5% 3.5% 10.5% .9% .9% .9% 2.6%
Amount of weekly social contact with IP	0-2 hours= 1 3-5 hours= 2 6-10 hours= 5 11-15 hours= 6 16-20 hours= 3 20-50 hours= 12 50-100 hours= 8 100+ hours or lives with IP= 39 Missing= 39	.9% 1.8% 4.4% 5.3% 2.6% 10.5% 7.0% 34.2% 33.3%

Table 4: Correlation matrix between study variables

Variable	1	2	3	4	5	6	7	8	9
1. IPwarm	1								
2. IPcrit	-.342**	1							
3. IPfes	.395**	-.191**	1						
4. CGfes	.059	.005	.256*	1					
5. IPage	-.010	-.029	-.070	-.078	1				
6. CGage	-.170	.199	.047	.048	-.048	1			
7. IPedu	.085	.012	-.074	.023	.072	-.058	1		
8. Hours	.173	.078	-.103	.022	-.133	-.041	.193	1	
9. BPRS	-.149*	.096	-.297**	-.101	.096	-.017	.163*	.051	1

IPwarm= patient perception of caregiver warmth; IPcrit= patient perception of caregiver criticism; IPfes= patient FES total score; CGfes= caregiver FES total score; IPage= patient age; CGage= caregiver age; IPedu= patient education; Hours= weekly number of hours of social contact between patient and caregiver; BPRS = patient total BPRS scores

* $p < .05$

** $p < .01$

Table 5: Caregiver EE

EE category (overall)	Low EE= 82 High EE= 26 Missing= 6	71.9% 22.8% 5.3%
EE category (by ethnicity)	Cauc Low= 16 Cauc High= 6 AA Low= 31 AA High= 5 H/L Low= 34 H/L High= 15	72.7% 27.2% 86% 13.9% 69.4% 30.6%

Table 6: Means of FES Family Cohesion subscale total scores (patients only n= 200)

	M	SD
Overall sample	14.40	2.86
By ethnicity		
Caucasian (n=34)	14.68	2.67
African-American (n=84)	14.24	2.94
H/L (n=73)	14.48	2.85

Table 7: Means of FES Family Cohesion subscale total scores (caregivers only n= 107)

	M	SD
Overall sample	15.26	2.07
By ethnicity		
Caucasian (n=23)	15.35	1.85
African-American (n=36)	14.97	2.14
H/L (n=52)	15.37	2.11

Table 8: Means of patient perceived warmth of caregiver (n=192)

	M	SD
Overall sample	2.55	.620
By ethnicity		
Caucasian (n=32)	2.44	.564
African-American (n=83)	2.65	.614
H/L (n=69)	2.51	.633

Table 9: Means of patient perceived criticism of caregiver (n=192)

	M	SD
Overall sample	2.03	.7755
By ethnicity		
Caucasian (n=32)	1.81	.780
African-American (n=84)	2.00	.760
H/L (n=69)	2.13	.803

Table 10: Means of patient total BPRS scores (n=211)

	M	SD
Overall sample	55.57	13.15
By ethnicity		
Caucasian (n=33)	55.18	12.48
African-American (n=89)	56.16	11.98
H/L (n=78)	54.40	14.42

Table 11: Means of FES discrepancy scores by patient ethnicity (n= 96)

	M	SD
Overall sample	2.15	2.08
By ethnicity		
Caucasian (n=21)	1.48	1.75
African-American (n=27)	2.89	2.03
H/L (n=43)	1.86	1.20

Table 12: Summary table comparing overall study results and results stratified by ethnicity (significant correlations from original analyses)

	IPcrit & IPwarm	IPfes & IPwarm	IPfes & IPcrit	IPfes & CGfes	BPRS & IPwarm	BPRS & IPfes	BPRS & IPedu
Overall sample	-.342**	.395**	-.191**	.256*	-.149*	-.297**	.163*
Caucasians	-.540**	.440*	-.440*	.557**	ns	ns	ns
African-Americans	-.377**	.434**	-.243**	ns	ns	-.330*	ns
H/Ls	-.277*	.312*	ns	ns	ns	-.331*	ns

IPwarm= patient perception of caregiver warmth; IPcrit= patient perception of caregiver criticism; IPfes= patient FES total score; CGfes= caregiver FES total score; IPedu= patient education; BPRS = patient total BPRS scores

* $p < .05$

** $p < .01$

Table 13: Summary table comparing overall study results and results stratified by ethnicity (new significant correlations from stratified results)

	CGage & IPwarm	CGage & IPcrit	IPage & IPwarm	IPage & IPedu	BPRS & IPwarm	IPwarm & CGfes
Overall sample	ns	ns	ns	ns	ns	ns
Caucasians	ns	ns	ns	-.359*	ns	.807**
African-Americans	ns	ns	-.296*	.210*	ns	ns
H/Ls	-.329*	.403*	ns	ns	ns	ns

CGage= age of caregiver; IPwarm= patient perception of caregiver warmth; IPcrit= patient perception of caregiver criticism; IPage = age of patient; CGfes= caregiver FES total score; IPedu= patient education; BPRS = patient total BPRS scores

* $p < .05$

** $p < .01$

Table 14: Significant *t*-test findings (overall and stratified by ethnicity)

Group	Finding	t-test results	Mean Differences
Overall sample and H/Ls	IPs who spoke Spanish had higher FES scores	Overall: $t(17.162) = -3.226, p = .005$ H/L: $t(27.071) = -3.114, p = .004$	Spanish: $M = 16.14, SD = 2.03$ English: $M = 14.26, SD = 2.87$ Spanish: $M = 16.14, SD = 2.03$ English: $M = 14.08, SD = 2.89$
Overall sample and H/Ls	IPs who spoke Spanish had lower education	Overall: $t(212) = -3.823, p < .001$ H/L: $t(79) = -3.975, p < .001$	Spanish: $M = 4.78, SD = 1.31$ English: $M = 3.70, SD = 1.13$ Spanish: $M = 4.78, SD = 1.31$ English: $M = 3.50, SD = 1.16$
African-Americans	Having a High-EE caregiver was associated with Lower BPRS scores	$t(28) = 2.396, p = .023$	Low EE: $M = 58.27, SD = 9.61$ High EE: $M = 45.25, SD = 13.60$
Caucasians	Caregivers spend more time (hours per week) with female IPs	$t(13) = -3.556, p = .004$	Male IP: $M = 4.00, SD = 2.14$ Female IP: $M = 7.29, SD = 1.25$
Caucasians	Female caregivers had higher IP FES scores	$t(20) = -2.676, p = .015$	Male Caregiver: $M = 13.72, SD = 2.65$ Female Caregiver: $M = 16.36, SD = 1.91$
Caucasians	Female caregivers had higher FAM FES scores	$t(19) = -2.420, p = .026$	Male Caregiver: $M = 14.64, SD = 2.11$ Female Caregiver: $M = 16.50, SD = 1.26$

Appendices

Five – Minute Speech Sample (Wynne-Gift version)

Do a five minute speech sample with the patient regarding the relative they spend the most time with and is participating in the study. For family members, do the speech sample about the patient.

(TURN ON TAPE RECORDER)

A LITTLE LATER I’M GOING TO BE ASKING YOU SOME QUESTIONS ABOUT (relative’s first name), BUT FIRST I’D LIKE TO HEAR YOUR THOUGHTS ABOUT (him/her), IN YOUR OWN WORDS, AND WITHOUT MY INTERRUPTING YOU WITH QUESTIONS OR COMMENTS. WHEN I ASK YOU TO BEGIN, I’D LIKE YOU TO SPEAK FOR 5 MINUTES, TELLING ME WHAT KIND OF A PERSON (relative’s first name) IS, AND HOW YOU GET ALONG TOGETHER. AFTER YOU’VE BEGUN TO SPEAK, I’D PREFER NOT TO ANSWER ANY QUESTIONS UNTIL THE 5 MINUTES ARE OVER. DO YOU HAVE ANY QUESTIONS YOU’D LIKE TO ASK BEFORE WE BEGIN? (Standard response to questions: ANYTHING YOU THINK WOULD BE IMPORTANT FOR ME TO UNDERSTAND (relative’s first name), AND HOW YOU GET ALONG TOGETHER). OK, PLEASE BEGIN. (START STOP WATCH).

IF THERE ARE STILL A COUPLE OF MINUTES TO GO AND THE SUBJECT IS SILENT FOR 30 SECONDS AND APPEARS UNABLE TO CONTINUE, EXAMINER SHOULD MAKE ONE COMMENT:

PLEASE TELL ME ANYTHING ABOUT (relative’s first name) FOR A FEW MORE MINUTES.

Relative spoken about: _____

Perceptions of EE Scale

1). In describing your relative would you say (relative's name) is (check one):

not at all warm _____ somewhat warm _____ very warm _____

2). In describing your relative would you say (relative's name) is (check one):

not at all critical _____ somewhat critical _____ very critical _____

Family Environment Scale (FES)

The following are statements about families. Circle T if the statement is true or mostly true for most members of your family. Circle F if the statement is false or mostly false for most members. Answer questions based on the LAST 3 MONTHS or SINCE YOUR LAST ASSESSMENT. Answer questions based on family members participating in study with you.

- 1) T F Family members really help and support one another.
- 2) T F There is a feeling of unity and cohesion in our family.
- 3) T F We often seem to be killing time at home.
- 4) T F We put a lot of energy into what we do at home.
- 5) T F We rarely volunteer when something has to be done at home.
- 6) T F Family members really back each other up.
- 7) T F There is very little group spirit in our family.
- 8) T F We really get along well with each other.
- 9) T F There is plenty of time and attention for everyone in our family.

Brief Psychiatric Rating Scale (BPRS), Version 4.0

Description and Administration of the BPRS

The Brief Psychiatric Rating Scale (BPRS) provides a highly efficient, rapid evaluation procedure for assessing symptom change in psychiatric patients. It yields a comprehensive description of major symptom characteristics. Factor analyses of the original 18-item BPRS typically yields four or five factor solutions. The Clinical Research Center's Diagnosis and Psychopathology Unit has developed a 24-item version of the BPRS.

This manual contains interview questions, symptom definitions, specific anchor points for rating symptoms, and a "how-to" section for problems that arise in rating psychopathology. The purpose of the manual is to assist clinicians and researchers to sensitively elicit psychiatric symptoms and to reliably rate the severity of symptoms. The expanded BPRS includes six new scales added to the original BPRS (Overall & Gorham, 1962) for the purpose of a more comprehensive assessment of a wider range of individuals with serious mental disorders, especially outpatients living in the community (Lukoff, Nuechterlein, & Ventura, 1986).

This manual will enable the clinician or researcher to conduct a high quality interview adequate to the task of eliciting and rating the severity of symptoms in individuals who are often inarticulate or who deny their illness. The following guidelines are provided to standardize assessment. Please familiarize yourself with these methods for assessing psychopathology.

- (1) Using all sources of information on symptoms.
- (2) Selecting an appropriate period or interval for rating symptoms.
- (3) Integrating frequency and severity in symptom rating: the hierarchical criterion.
- (4) Rating the severity of past delusions for which the patient lacks insight.
- (5) Rating symptoms when the patient denies them.
- (6) Using a standardized reference group in making ratings.
- (7) Rating symptoms that overlap two or more categories or scales on the BPRS.
- (8) Rating a symptom that has no specified anchor point congruent with its severity level.
- (9) "Blending" ratings made in different evaluation situations.
- (10) Resolving apparently contradictory symptoms.

1. USING ALL SOURCES OF INFORMATION ON SYMPTOMS

The rating of psychopathology should be made on the basis of all available sources of information about the patient. These sources include behavioral observations and interviews made by treatment staff, family members, or other caregivers in contact with the patient, available medical and psychiatric case records, and the present interview of the patient. The interviewer/rater is encouraged to seek additional sources of information about the patient's psychopathology from others to supplement the present interview—this is particularly important when the patient denies symptoms.

2. SELECTING AN APPROPRIATE PERIOD OR INTERVAL FOR RATING SYMPTOMS

The duration of the time frame for assessment depends upon the purpose for the rating. For example, if the rater is interested in determining the degree of change in psychopathology during a one month period between pharmacotherapy visits, the rating period should be one month. If a research protocol aims to evaluate the emergence of prodromal symptoms or exacerbation of psychotic symptoms, it may be advisable to select a one week interval since longer periods may lose accuracy in retrospective recall. When a study demands completeness in identifying criteria for relapse or exacerbation during a one or two year period, frequent BPRS assessments will be necessary.

Rating periods typically range from one day to one month. Retrospective reporting by patients beyond one month may suffer from response bias, retrospective distortions, and memory problems (which are common in persons with psychotic and affective disorders). When resources and personnel do not permit frequent assessments, important information can still be captured if the frequency of assessments can be temporarily increased when (1) prodromal symptoms or stress are reported; (2) medication titration and dosing questions are paramount; and (3) before and after major changes in treatment programs.

3. INTEGRATING FREQUENCY AND SEVERITY IN SYMPTOM RATING: THE HIERARCHICAL CRITERION

Most of the BPRS scales are scored in terms of the frequency and/or severity of the symptom. It is sometimes the case that the frequency and severity do not match. A hierarchical principle should be followed that requires the rater to select the highest scale level that applies to either frequency or severity. Thus, when the anchor point definitions contain an "OR," the patient should be assigned the highest rating that applies. For example, if a patient has hallucinations persistently throughout the day (a rating of "7"), but the hallucinations only interfere with the patient's functioning to a limited extent (a rating of "5"), the rater should score this scale "7".

The BPRS is suited to making frequent assessments of psychopathology covering short periods of time. If, however, an interviewer intends to cover a relatively long period of time (e.g., 6 weeks), then combining ratings for severity and frequency of symptoms must be carefully thought out depending upon the specific goals. If the goal of a project is to define periods of relapse or exacerbation, the rating should reflect the period of peak symptomatology. For example, if over a six week period the patient experienced a week of persistent hallucinations, but was free of hallucinations the remaining time, the patient should be rated a "6" on hallucinations, reflecting the "worst" period of symptomatology. Alternatively, if the goal is to obtain a general level of symptomatology, the rating should reflect a "blended" or average score. For extended rating periods (e.g., 3 months), the interviewer may prefer to make one rating reflecting the worst period of severity/frequency/functioning and another rating reflecting the "average" amount of psychopathology for the entire period.

4. RATING THE SEVERITY OF PAST DELUSIONS FOR WHICH THE SUBJECT LACKS INSIGHT

Patients may often indicate varying degrees of insight or conviction regarding past symptoms, making their symptoms difficult to rate. Experiences that result from psychotic episodes can often appear quite real to patients. For example, the belief that others were trying to poison you, or controlled all your thoughts and forced you to walk into traffic, could have created severe anxiety and intense fear. Patients can give vivid accounts of their psychotic experiences that are as real as if the situations actually occurred. It is important in these cases to rate the extent to which these memories of a delusional experience can be separated from current delusions involving the present.

Please note that a patient may be able to describe his or her past or current delusions as part of an illness or even refer to them as “delusions.” However, a patient should always be rated as having delusions if he or she has *acted* on the delusional belief during the rating period.

When a patient describes a delusional belief once firmly held, but that is now seen as irrational, then a “1” should be scored for Unusual Thought Content (and also for Grandiosity, Somatic Concern, Guilt, or Suspiciousness if the idea feel into one of these thematic categories). However, if the individual still believes that the past psychotic experience or event was real, despite not currently harboring the concern, it should be rated a “2” or higher depending on the degree of reality distortion associated with the belief.

Consider the following scenarios:

Scenario No. 1: The patient gives an account of delusional and/or hallucinatory experience and realizes in retrospect that he was ill. He indicates that he has a chemical imbalance in his brain, or that he has a mental condition.

- Rate “1” on Unusual Thought Content.

Scenario No. 2: The patient gives indications that his past psychotic experiences were due to a chemical imbalance and/or an illness, but entertains some degree of doubt. He claims it is possible that people were trying to kill him, but he is doubtful. The memories of what happened are not bizarre and he indicates that currently he is certain no one is trying to hurt him.

- Rate “2” or “3” on Unusual Thought Content depending on degree of reality retained.

Scenario No. 3: The patient describes previous psychotic experiences as if they actually occurred. He can give examples of what occurred, e.g., co-workers put drugs in his coffee, or that machines read his thoughts. However, the patient says those circumstances no longer occur. The patient is not currently concerned about co-workers or machines, but he is convinced that the circumstances on which the delusion are based actually occurred in the past.

- Rate “3” or “4” on Unusual Thought Content depending on the degree of reality distortion, and a “1” on Suspiciousness.

Scenario No. 4: The patient holds bizarre beliefs regarding the circumstances that occurred in the past and/or his current behavior is influenced by delusional beliefs. For example, the patient believes that thoughts were at one time beamed into his mind from aliens OR the patient will not watch T.V. for fear that the messages will again be directed to him OR that the mafia is located in shopping malls that he should avoid.

- Rate “4” or higher on Unusual Thought Content depending on the degree of preoccupation and impairment associated with the belief. Consider rating suspiciousness.

Scenario No. 5: The patient believes that previous psychotic experiences were real and previous delusional beliefs are currently influencing most aspects of daily life causing preoccupation and impairment.

- Rate “6” or “7” on Unusual Thought Content depending on the degree of preoccupation and impairment associated with the belief.

5. RATING SYMPTOMS WHEN THE PATIENT DENIES THEM

An all too common phenomenon in clinical practice or research is the denial or minimization of symptoms by patients. Patients deny, hide, dissemble or minimize their symptoms for a variety of reasons, including fear of being committed or restricted to a hospital or having medication increased. Simply recording a patient’s negative response to BPRS symptom items, if denial or distortion is present, will result in invalid and unreliable data. When an interviewer suspects that a patient may be denying symptoms, it is absolutely essential that other sources of information be solicited and utilized in the ratings.

Several situations might suggest that patient is not entirely forthcoming in reporting his/her symptom experiences. Patients may deny hearing voices, yet be observed whispering under their breath as if in response to a voice. The phrasing that a patient uses in response to a direct question about a delusion or hallucination can alert the interviewer to the potential denial of symptoms. For example, if a patient responds to an inquiry as saying “No.” Subtleties in patient responses communicate a great deal and must be followed-up before the interviewer concludes that the symptom is absent.

There are several ways for the interviewer to obtain more reliable information from a patient who may be denying or minimizing symptoms. In all these approaches, interviewing skills, interpersonal rapport, and sensitivity to the patient are of paramount importance. If the patient is experiencing difficulty disclosing information about psychotic symptoms, the interviewer can shift to inquire about less threatening material such as anxiety/depression or neutral topics. The interviewer should then return to sensitive topics after the patient feels more comfortable and concerns about disclosure have been addressed.

The use of empathy is critical in helping a patient express difficult and possibly embarrassing experiences. An interviewer may say, “I understand that recalling what happened may be unpleasant, but I am very interested in exactly what you experienced.” It is advisable to let patients know what you may be sensing clinically; “I have the impression that you are reluctant to tell me more about what happened. Could that be because you are concerned about what I might think or write down about you?” The interviewer should actively engage the patient in discussing any apparent reasons for denying symptoms. The interviewer can discuss openly in an inviting and noncritical fashion any discrepancies noted between the patient’s self-report of symptoms and observations of speech and behavior. For example, “You have said that you are not depressed, yet you seem very sad and you have been moving very slowly.” When denial occurs, the BPRS interview becomes a dynamic interplay between the interviewer’s

desire for accurate symptom information and determining the reasons underlying the patient's reluctance to disclose.

Occasionally, at the time of the interview, the interviewer will have information about the symptoms that the patient is denying. It is permissible to use a mild confrontation technique in an attempt to encourage a patient to disclose accurate symptom information. For example, a BPRS interviewer may learn from the patient's therapist or relatives of the presence of auditory hallucinations. The interviewer may state, "I understand from talking with your therapist (or relative) that you have been hearing voices. Could you tell me about that?" Letting the patient know in a sensitive and gentle manner that information about his symptoms are already known may aid willingness to disclose. This approach is most effective when a policy of sharing patient information in a treatment team situation is explained to all entering patients. It may be necessary to inform the patient that not all clinical material is shared, but that symptom information needed to manage treatment can not in all cases be confidential.

When you cannot resolve conflicts or contradictions between patient's self-report and the report of others, you must use your clinical judgment regarding the most reliable informants. Be sure to make notes on the BPRS rating sheet regarding any conflicting sources of information and specify how the final decision was made.

6. USING A STANDARDIZED REFERENCE GROUP IN MAKING RATINGS

The proper reference group for conducting assessments is a group of normal individuals who are not psychiatric patients that are living and working in the community free of symptoms. BPRS interviewers should have in mind a group of individuals who are able to function either at work/school, socially, or as a homemaker, at levels appropriate to the patient's age and socioeconomic status. Research has shown that normal controls score at "2" or below on most psychotic items of the BPRS. BPRS interviewers should not use other patients previously interviewed, especially those with severe symptoms, as the reference standard, since this will systematically bias ratings toward lower scores.

7. RATING SYMPTOMS THAT OVERLAP TWO OR MORE CATEGORIES OR SCALES ON THE BPRS

Systematized or multiple delusions can be rated on more than one symptom item or scale on the BPRS, depending on the theme of the delusional belief. For example, if a patient has a delusion that certain body parts have been surgically removed against his/her will and replaced with broken mechanical parts, he or she would be rated at the level of "6" or "7" on both Somatic Concern and at the level of "4" to "7" on Unusual Thought Content depending on the frequency and preoccupation with the delusion. Furthermore, if the patient felt guilty because he believed the metal in his body interfered with radio transmissions between air traffic controllers and pilots resulting in several plane crashes, the BPRS item Guilt should also be rated.

The specific ratings for each of the overlapping symptom dimensions may differ depending on the anchor points of the BPRS item(s). Thus, a patient with a clear-cut persecutory delusion involving the neighbors should be rated a "6" on Suspiciousness. Whereas, the same delusion could be rated a "4" on Unusual Thought Content if it is encapsulated and not associated with impairment.

8. RATING A SYMPTOM THAT HAS NO SPECIFIC ANCHOR POINT CONGRUENT WITH ITS SEVERITY LEVEL

The anchor points for a given BPRS item are critical in achieving good reliability across raters and across research settings. However, there are occasions when a particular symptom may not fit any of the anchor point definitions. Anchor point definitions could not be written to cover all possible symptoms exhibited by patients. In general, ratings of “2” or “3” represent nonpathological but observable mild symptomatology; “4” or “5” represents clinically significant moderate symptomatology; and “6” or “7” represents clinically significant and severe symptomatology.

The anchor points in this manual are guidelines to aid in the process of defining the character, frequency, and impairment associated with various types of psychiatric symptoms. When faced with a complicated rating, the interviewer may find it useful to first classify the symptom as mild (“2” or “3”), moderate (“4” or “5”), or severe (“6” or “7”), and second to consult the anchor point definitions to pinpoint the rating.

BPRS symptoms that are classified in the severe range usually represent pathological phenomena. However, it is possible for a patient to report or be observed to exhibit examples of mild psychopathology that should be rated at much higher levels. For example, on the item Tension, if hand wringing is observed on 2-3 occasions, the interviewer would rate a “2” or “3.” However, if the patient is observed to be hand wringing constantly, then consider a higher rating such as a “5” or “6” on Tension. Similarly, instances of severe psychopathology that are brief, transient, and non-impairing in nature should be rated in the mild range.

9. “BLENDING” RATINGS MADE IN DIFFERENT EVALUATION SITUATIONS

A psychiatric patient can exhibit different levels of the same symptom depending on the setting in which the patient is observed or the time period involved. Consider the patient who is talkative during a rating session with the BPRS interviewer, but is very withdrawn and blunted with other patients. In the interview session the patient may rate a “3” on blunted affect and “2” on emotional withdrawal, but rate “5” on those symptoms when interacting with other patients. The interviewer can consider integrating the two sources of information and make an averaged or “blended” rating.

10. RESOLVING APPARENTLY CONTRADICTORY SYMPTOMS

It is possible to rate two or more symptoms on the BPRS that represent seemingly contradictory dimensions of phenomenology. For example, a patient can exhibit blunted affect and elevated mood in the same interview period. A patient may laugh and joke with the interviewer, but then shift to a blunted, slowed, and emotionally withdrawn state during the same interview. In this case, rating the presence of both elevated mood and negative symptoms may be appropriate reflecting that both mood states were present. Although the simultaneous presence of apparently contradictory symptoms are rare, if such combinations do appear, the rater should consider rating each symptom lower than if just one had appeared. This conservative approach to rating reflects a cautious orientation to the rating process when there is ambiguity regarding the symptomatology being assessed.

CLINICAL APPLICATIONS OF THE BPRS: GRAPHING SYMPTOMS

A graph is printed at the end of this administration manual to help raters plot and monitor symptoms from the BPRS. Because psychotic and other symptoms often fluctuate over time, graphing them enables the clinician to identify exacerbations, periods of remission, and prodromal periods that precede a relapse. Monitoring and graphing can be the key to early intervention to reduce morbidity, relapses, and rehospitalizations.

Graphing of symptomatology can provide vivid representations of the relationships between specific types of symptoms (e.g., hallucinations) and other variables of interest, such as (1) medication type and dose, (2) changes in psychosocial treatment and rehabilitation programs, (3) the use of “street” drugs or alcohol, (4) life events, and (5) other environmental and familial stressors. The preprinted graph shown at the end of this manual provides space to write specific life events or treatment changes and permits the “eyeballing” of the influence of these variables on symptoms. Repeated measurement and graphing of symptoms over time can be done for individual items (e.g., anxiety or hallucinations), or for clusters of symptoms (e.g., psychotic index). Such clusters can be chosen from factor analyses of earlier versions of the BPRS (Guy, 1976; Overall, Hollister, and Pichot, 1967; Overall and Porterfield, 1963). The blank graph of this manual allows raters to select and write in specific symptoms of the BPRS based on the needs of individual patients.

REFERENCES

- Guy W: *ECDEU Assessment Manual for Psychopharmacology*. DHEW Pub. No. (ADM) 76-338. Rockville, MD: National Institute of Mental Health, 1976.
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- Overall JE, Hollister LE, Pichot P: Major psychiatric disorders: A four-dimensional model. *Archives of General Psychiatry*, 16: 146-151, 1967.
- Overall JE and Porterfield, JL. Powered vector method of factor analysis. *Psychometrika* 28: 415-422, 1963.

SCALE ITEMS AND ANCHOR POINTS

Rate items 1-14 on the basis of patient's self-report. Note items 7, 12, and 13 are also rated on the basis of observed behavior. Items 15-24 are rated on the basis of observed behavior and speech.

1. **SOMATIC CONCERN:** Degree of concern over present bodily health. Rate the degree to which physical health is perceived as a problem by the patient, whether complaints have realistic bases or not. Somatic delusions should be rated in the

sever range with or without somatic concern. Note: Be sure to assess the degree of impairment due to somatic concerns only and not other symptoms, e.g., depression. In addition, if the subject rates a “6” or “7” due to somatic delusions, then you must rate Unusual Thought Content at least a “4” or above.

Have you been concerned about your physical health? Have you had any physical illness or seen a medical doctor lately? (What does your doctor say is wrong? How serious is it?)

Has anything changed regarding your appearance?

Has it interfered with your ability to perform your usual activities and/or work?

Did you ever feel that parts of your body had changed or stopped working?

[If patient reports any somatic concerns/delusions, ask the following]:

How often are you concerned about [use patient's description]?

Have you expressed any of these concerns with others?

- 2 Very Mild
Occasional concerns that tend to be kept to self.
- 3 Mild
Occasional concerns that tend to be voiced to others (e.g., family, physician).
- 4 Moderate
Frequent expressions of concern or exaggerations of existing ills or some preoccupation, but no impairment in functioning. Not delusional.
- 5 Moderately Severe
Frequent expressions of concern or exaggeration of existing ills or some preoccupation and moderate impairment of functioning. Not delusional.
- 6 Severe
Preoccupation with somatic complaints with much impairment in functioning OR somatic delusions without acting on them or disclosing to others.
- 7 Extremely Severe
Preoccupation with somatic complaints with severe impairment in functioning OR somatic delusions that tend to be acted on or disclosed to others.

2. ANXIETY: Reported apprehension, tension, fear, panic or worry. Rate only the patient's statements, not observed anxiety which is rated under TENSION.

Have you been worried a lot during [mention time frame]? Have you been nervous or apprehensive?

(What do you worry about?)

*Are you concerned about anything? How about finances or the future?
When you are feeling nervous, do your palms sweat or does your heart beat fast
(or shortness of breath, trembling, choking)?*

[If patient reports anxiety or autonomic accompaniment, ask the following]:
*How much of the time have you been [use patient's description]?
Has it interfered with your ability to perform your usual activities/work?*

- 2 Very Mild
Reports some discomfort due to worry OR infrequent worries that occur more than usual for most normal individuals.
 - 3 Mild
Worried frequently but can readily turn attention to others things.
 - 4 Moderate
Worried most of the time and cannot turn attention to others things easily but no impairment in functioning OR occasional anxiety with autonomic accompaniment but no impairment in functioning.
 - 5 Moderately Severe
Frequent, but not daily, periods of anxiety with autonomic accompaniment OR some areas of functioning are disrupted by anxiety or worry.
 - 6 Severe
Anxiety with autonomic accompaniment daily but not persisting throughout the day OR many areas of functioning are disrupted by anxiety or constant worry.
 - 7 Extremely Severe
Anxiety with autonomic accompaniment persisting throughout the day OR most areas of functioning are disrupted by anxiety or constant worry.
3. DEPRESSION: Include sadness, unhappiness, anhedonia, and preoccupation with depressing topics (can't attend to TV or conversations due to depression), hopelessness, loss of self-esteem (dissatisfied or disgusted with self or feeling of worthlessness). Do not include vegetative symptoms, e.g., motor retardation, early waking, or the amotivation that accompanies the deficit syndrome.

How has your mood been recently? Have you felt depressed (sad, down, unhappy, as if you didn't care)?

*Are you able to switch your attention to more pleasant topics when you want to?
Do you find that you have lost interest in or get less pleasure from things you used to enjoy, like family, friends, hobbies, watching T.V., eating?*

[If subject reports feelings of depression, ask the following]:

How long do these feelings last?

Has it interfered with your ability to perform your usual activities/work?

- 2 Very Mild
Occasionally feels sad, unhappy or depressed.
- 3 Mild
Frequently feels sad or unhappy but can readily turn attention to other things.
- 4 Moderate
Frequent periods of feeling very sad, unhappy, moderately depressed, but able to function with extra effort.
- 5 Moderately Severe
Frequent, but not daily, periods of deep depression OR some areas of functioning are disrupted by depression.
- 6 Severe
Deeply depressed daily but not persisting throughout the day OR many areas of functioning are disrupted by depression.
- 7 Extremely Severe
Deeply depressed daily OR most areas of functioning are disrupted by depression.

4. SUICIDALTY: Expressed desire, intent or actions to harm or kill self.

Have you felt that life wasn't worth living? Have you thought about harming or killing yourself? Have you felt tired of living or as though you would be better off dead? Have you ever felt like ending it all?

[If patient reports suicidal ideation, ask the following]:

How often have you thought about [use patient's description]?

Did you (Do you) have a specific plan?

- 2 Very Mild
Occasional feelings of being tired of living. No overt suicidal thoughts.
- 3 Mild
Occasional suicidal thoughts without intent or specific plan OR he/she feels they would be better off dead.
- 4 Moderate
Suicidal thoughts frequent without intent or plan.

- 5 Moderately Severe
Many fantasies of suicide by various methods. May seriously consider making an attempt using non-lethal methods or in full view of potential saviors.
- 6 Severe
Clearly wants to kill self. Searches for appropriate means and time, OR potentially serious suicide attempt with patient knowledge of possible rescue.
- 7 Extremely Severe
Specific suicidal plan and intent (e.g., “as soon as _____, I will do it by doing X”), OR suicide attempt characterized by plan patient thought was lethal or attempt in secluded environment.
5. GUILT: Overconcern or remorse for past behavior. Rate only patient’s statements, do not infer guilt feelings from depression, anxiety, or neurotic defenses. Note: If the subject rates a “6” or “7” due to delusions of guilt, then you must rate Unusual Thought Content as least a “4” or above depending on level of preoccupation and impairment.

Is there anything you feel guilty about? Have you been thinking about past problems? Do you tend to blame yourself for things that have happened? Have you done anything you’re still ashamed of?

[If patient reports guilt/remorse/delusions, ask the following]:
*How often have you been thinking about [use patient’s description]?
Have you disclosed your feelings of guilt to others?*

- 2 Very Mild
Concerned about having failed someone or at something but not preoccupied. Can shift thoughts to other matters easily.
- 3 Mild
Concerned about having failed someone or at something with some preoccupation. Tends to voice guilt to others.
- 4 Moderate
Disproportionate preoccupation with guilt, having done wrong, injured others by doing or failing to do something, but can readily turn attention to other things.
- 5 Moderately Severe
Preoccupation with guilt, having failed someone or at something, can turn attention to other things, but only with great effort. Not delusional.

6 Severe
Delusional guilt OR unreasonable self-reproach grossly out of proportion to circumstances. Subject is very preoccupied with guilt and is likely to disclose to others or act on delusions.

6. HOSTILITY: Animosity, contempt, belligerence, threats, arguments, tantrums, property destruction fights and any other expression of hostile attitudes or actions. Do not infer hostility from neurotic defenses, anxiety or somatic complaints. Do not include incident of appropriate anger or obvious self-defense.

*How have you been getting along with people (family, co-workers, etc.)?
Have you been irritable or grumpy lately? (How do you show it? Do you keep it to yourself?)*

*Were you ever so irritable that you would shout at people or start fights or arguments? (Have you found yourself yelling at people you didn't know?)
Have you hit anyone recently?*

2 Very Mild
Irritable or grumpy, but not overtly expressed.

3 Mild
Argumentative or sarcastic.

4 Moderate
Overtly angry on several occasions OR yelled at others excessively.

5 Moderate Severe
Has threatened, slammed about or thrown things.

6 Severe
Has assaulted others but with no harm likely, e.g., slapped or pushed, OR destroyed property, e.g., knocked over furniture, broken windows.

7 Extremely Severe
Has attacked others with definite possibility of harming them or with actual harm, e.g., assault with hammer or weapon.

7. ELEVATED MOOD: A pervasive, sustained and exaggerated feeling of well-being, cheerfulness, euphoria (implying a pathological mood), optimism that is out of proportion to the circumstances. Do not infer elation from increased activity or from grandiose statements alone.

Have you felt so good or high that other people thought that you were not your normal self?

Have you been feeling cheerful and "on top of the world" without any reason?

[If patient reports elevated mood/euphoria, ask the following]:

Did it seem like more than just feeling good?

How long did that last?

- 2 Very Mild
Seems to be very happy, cheerful without much reason.
 - 3 Mild
Some unaccountable feelings of well-being that persist.
 - 4 Moderate
Reports excessive or unrealistic feelings of well-being, cheerfulness, confidence or optimism inappropriate to circumstances, some of the time. May frequently joke, smile, be giddy or overly enthusiastic OR few instances of marked elevated mood with euphoria.
 - 5 Moderately Severe
Reports excessive or unrealistic feelings of well-being, confidence or optimism inappropriate to circumstances much of the time. May describe feeling “on top of the world,” “like everything is falling into place,” or “better than ever before,” OR several instances of marked elevated mood with euphoria.
 - 6 Severe
Reports many instances of marked elevated mood with euphoria OR mood definitely elevated almost constantly throughout interview and inappropriate to content.
 - 7 Extremely Severe
Patient reports being elated or appears almost intoxicated, laughing, joking, giggling, constantly euphoric, feeling invulnerable, all inappropriate to immediate circumstances.
8. GRANDIOSITY: Exaggerated self-opinion, self-enhancing conviction of special abilities or powers or identity as someone rich or famous. Rate only patient’s statements about himself, not his demeanor. Note: If the subject rates a “6” or “7” due to grandiose delusions, you must rate Unusual Thought Content at least a “4” or above.

Is there anything special about you? Do you have any special abilities or powers? Have you thought that you might be somebody rich or famous?

[If patient reports any grandiose ideas/delusions, ask the following]:

How often have you been thinking about [use patient's description]? Have you told anyone about what you have been thinking? Have you acted on any of these ideas?

- 2 Very Mild
Feels great and denies obvious problems, but not unrealistic.
 - 3 Mild
Exaggerated self-opinion beyond abilities and training.
 - 4 Moderate
Inappropriate boastfulness, claims to be brilliant, insightful, or gifted beyond realistic proportions, but rarely self-discloses or acts on these inflated self-concepts. Does not claim that grandiose accomplishments have actually occurred.
 - 5 Moderately Severe
Same as 4 but often self-discloses and acts on these grandiose ideas. May have doubts about the reality of the grandiose ideas. Not delusional.
 - 6 Severe
Delusional—claims to have special powers like ESP, to have millions of dollars, invented new machines, worked at jobs when it is known that he was never employed in these capacities, be Jesus Christ, or the President. Patient may not be very preoccupied.
 - 7 Extremely Severe
Delusional—same as 6 but subject seems very preoccupied and tends to disclose or act on grandiose delusions.
9. SUSPICIOUSNESS: Expressed or apparent belief that other persons have acted maliciously or with discriminatory intent. Include persecution by supernatural or other nonhuman agencies (e.g., the devil). Note: Ratings of “3” or above should also be rated under Unusual Thought Content.

Do you ever feel uncomfortable in public? Does it seem as though others are watching you? Are you concerned about anyone's intentions toward you? Is anyone going out of their way to give you a hard time, or trying to hurt you? Do you feel in any danger?

[If patient reports any persecutory ideas/delusions, ask the following]:
How often have you been concerned that [use patient's description]? Have you told anyone about these experiences?

- 2 Very Mild

Seems on guard. Reluctant to respond to some “personal” questions. Reports being overly self-conscious in public.

- 3 Mild
Describes incidents in which others have harmed or wanted to harm him/her that sound plausible. Patient feels as if others are watching, laughing, or criticizing him/her in public, but this occurs only occasionally or rarely. Little or no preoccupation.
- 4 Moderate
Says others are talking about him/her maliciously, have negative intentions, or may harm him/her. Beyond the likelihood of plausibility, but not delusional. Incidents of suspected persecution occur occasionally (less than once per week) with some preoccupation.
- 5 Moderately Severe
Same as 4, but incidents occur frequently, such as more than once per week. Patient is moderately preoccupied with ideas of persecution OR patient reports persecutory delusions expressed with much doubt (e.g., partial delusion).
- 6 Severe
Delusional—speaks of Mafia plots, the FBI, or others poisoning his/her food, persecution by supernatural forces.
- 7 Extremely Severe
Same as 6, but the beliefs are bizarre or more preoccupying. Patient tends to disclose or act on persecutory delusions.

10. HALLUCINATIONS: Reports of perceptual experiences in the absence of relevant external stimuli. When rating degree to which functioning is disrupted by hallucinations, include preoccupation with the content and experience of the hallucinations, as well as functioning disrupted by acting out on the hallucinatory content (e.g., engaging in deviant behavior due to command hallucinations). Include thoughts aloud (“gedankenlautwerden”) or pseudohallucinations (e.g., hears a voice inside head) if a voice quality is present.

Do you ever seem to hear your name being called?

Have you heard any sounds or people talking to you or about you when there has been nobody around?

[If hears voices]: What does the voice/voices say? Did it have a voice quality?

Do you ever have visions or see things that others do not see? What about smell odors that others do not smell?

[If patient reports hallucinations, ask the following]:

Have these experiences interfered with your ability to perform your usual activities/work? How do you explain them? How often do they occur?

- 2 Very Mild
While resting or going to sleep, sees visions, smells odors, or hears voices, sounds or whispers in the absence of external stimulation, but no impairment in functioning.
 - 3 Mild
While in a clear state of consciousness, hears a voice calling the subject's name, experiences non-verbal auditory hallucinations (e.g., sounds or whispers), formless visual hallucinations, or has sensory experiences in the presence of a modality-relevant stimulus (e.g., visual illusions) infrequently (e.g., 1-2 times per week) and with no functional impairment.
 - 4 Moderate
Occasional verbal, visual, gustatory, olfactory, or tactile hallucinations with no functional impairment OR non-verbal auditory hallucinations/visual illusions more than infrequently or with impairment.
 - 5 Moderately Severe
Experiences daily hallucinations OR some areas of functioning are disrupted by hallucinations.
 - 6 Severe
Experiences verbal or visual hallucinations several times a day OR many areas of functioning are disrupted by these hallucinations.
 - 7 Extremely Severe
Persistent verbal or visual hallucinations throughout the day OR most areas of functioning are disrupted by these hallucinations.
11. UNUSUAL THOUGHT CONTENT: Unusual, odd, strange or bizarre thought content. Rate the degree of unusualness, not the degree of disorganization of speech. Delusions are patently absurd, clearly false or bizarre ideas that are expressed with partial or full conviction. Consider the patient to have full conviction if he/she has acted as though the delusional belief were true. Ideas of reference/persecution can be differentiated from delusions in that ideas are expressed with much doubt and contain more elements of reality. Include thought insertion, withdrawal and broadcast. Include grandiose, somatic and persecutory delusions even if rated elsewhere. Note: if Somatic Concern, Guilt, Suspiciousness, or Grandiosity are rated "6" or "7" due to delusions, then Unusual Thought Content *must* be rated a "4" or above.

Have you been receiving any special messages from people or from the way things are arranged around you? Have you seen any references to yourself on T.V. or in the newspapers?

Can anyone read your mind?

Do you have a special relationship with God?

Is anything like electricity, X-rays, or radio waves affecting you?

Are thoughts put into your head that are not your own?

Have you felt that you were under the control of another person or force?

[If patient reports any odd ideas/delusions, ask the following]:

How often do you think about [use patient's description]?

Have you told anyone about these experiences? How do you explain the things that have been happening [specify]?

- 2 Very Mild
Ideas of reference (people may stare or may laugh at him/her), ideas of persecution (people may mistreat him/her). Unusual beliefs in psychic powers, spirits, UFO's, or unrealistic beliefs in one's own abilities. Not strongly held. Some doubt.
- 3 Mild
Same as 2, but degree of reality distortion is more severe as indicated by highly unusual ideas or greater conviction. Content may be typical of delusions (even bizarre), but without full conviction. The delusion does not seem to have fully formed, but is considered as one possible explanation for an unusual experience.
- 4 Moderate
Delusion present but no preoccupation or functional impairment. May be an encapsulated delusion or a firmly endorsed absurd belief about past delusional circumstances.
- 5 Moderately Severe
Full delusion(s) present with some preoccupation OR some areas of functioning disrupted by delusional thinking.
- 6 Severe
Full delusion(s) present with much preoccupation OR many areas of functioning are disrupted by delusional thinking.
- 7 Extremely Severe
Full delusion(s) present with almost total preoccupation OR most areas of functioning are disrupted by delusional thinking.

Rate items 12-13 on the basis of patient's self-report and observed behavior.

12. BIZARRE BEHAVIOR: Reports of behaviors which are odd, unusual, or psychotically criminal. Not limited to interview period. Include inappropriate sexual behavior and inappropriate affect.

Have you done anything that has attracted the attention of others?

Have you done anything that could have gotten you in trouble with the police?

Have you done anything that seemed unusual or disturbing to others?

- 2 Very Mild
Slightly odd or eccentric public behavior, e.g., occasionally giggles to self, fails to make appropriate eye contact, that does not seem to attract the attention of others OR unusual behavior conducted in private, e.g., innocuous rituals, that would not attract the attention of others.
- 3 Mild
Noticeably peculiar public behavior, e.g., inappropriately loud talking, makes inappropriate eye contact, OR private behavior that occasionally, but not always, attracts the attention of others, e.g., hoards food, conducts unusual rituals, wears gloves indoors.
- 4 Moderate
Clearly bizarre behavior that attracts or would attract (if done privately) the attention or concern of others, but with no corrective intervention necessary. Behavior occurs occasionally, e.g., fixated staring into space for several minutes, talks back to voices once, inappropriate giggling/laughter on 1-2 occasions, talking loudly to self.
- 5 Moderately Severe
Clearly bizarre behavior that attracts or would attract (if done privately) the attention of others or the authorities, e.g., fixated staring in a socially disruptive way, frequent inappropriate giggling/laughter, occasionally responds to voices, or eats non-foods.
- 6 Severe
Bizarre behavior that attracts attention of others and intervention by authorities, e.g., directing traffic, public nudity, staring into space for long periods, carrying on a conversation with hallucinations, frequent inappropriate giggling/laughter.
- 7 Extremely Severe
Serious crimes committed in a bizarre way that attract the attention of others and the control of authorities, e.g., sets fires and stares at flames OR almost constant bizarre behavior, e.g., inappropriate giggling/laughter, responds only to hallucinations and cannot be engaged in interaction.

13. SELF-NEGLECT: Hygiene, appearance, or eating behavior below usual expectations, below socially acceptable standards, or life-threatening.

How has your grooming been lately? How often do you change your clothes? How often do you take showers? Has anyone (parents/staff) complained about your grooming or dress? Do you eat regular meals?

- 2 Very Mild
Hygiene/appearance slightly below usual community standards, e.g., shirt out of pants, buttons unbuttoned, shoelaces untied, but no social or medical consequences.
- 3 Mild
Hygiene/appearance occasionally below usual community standards, e.g., irregular bathing, clothing is stained, hair uncombed, occasionally skips an important meal. No social or medical consequences.
- 4 Moderate
Hygiene/appearance is noticeably below usual community standards, e.g., fails to bathe or change clothes, clothing very soiled, hair unkempt, needs prompting, noticeable by others OR irregular eating and drinking with minimal medical concerns and consequences.
- 5 Moderately Severe
Several areas of hygiene/appearance are below usual community standards OR poor grooming draws criticism by others, and requires regular prompting. Eating or hydration are irregular and poor, causing some medical problems.
- 6 Severe
Many areas of hygiene/appearance are below usual community standards, does not always bathe or change clothes even if prompted. Poor grooming has caused social ostracism at school/residence/work, or required intervention. Eating erratic and poor, may require medical intervention.
- 7 Extremely Severe
Most areas of hygiene/appearance/nutrition are extremely poor and easily noticed as below usual community standards OR hygiene/appearance/nutrition requires urgent and immediate medical intervention.

14. DISORIENTATION: Does not comprehend situations or communications, such as questions asked during the entire BRPS interview. Confusion regarding person, place, or time. Do not rate if incorrect responses are due to delusions.

May I ask you some standard questions we ask everybody?

How old are you? What is the date? [allow + or – 2 days].

What is this place called? What year were you born? Who is the president?

- 2 Very Mild
Seems muddled or mildly confused 1-2 times during interview. Oriented to person, place and time.
- 3 Mild
Occasionally muddle or mildly confused 3-4 times during interview. Minor inaccuracies in person, place, or time, e.g., date off by more than + or – 2 days, or gives wrong division of hospital.
- 4 Moderate
Frequently confused during interview. Minor inaccuracies in person, place, or time are noted, as in “3” above. In addition, may have difficulty remembering general information, e.g., name of president.
- 5 Moderately Severe
Markedly confused during interview, or to person, place, or time. Significant inaccuracies are noted, e.g., date off by more than one week, or cannot give correct name of hospital. Has difficulty remembering personal information, e.g., where he/she was born, or recognizing familiar people.
- 6 Severe
Disoriented to person, place, or time, e.g., cannot give correct month and year. Disoriented in 2 out of 3 spheres.
- 7 Extremely Severe
Grossly disoriented to person, place, or time, e.g., cannot give name or age. Disoriented in all three spheres.

Rate items 15-24 on the basis of observed behavior and speech.

15. CONCEPTUAL DISORGANIZATION: Degree to which speech is confused, disconnected, vague or disorganized. Rate tangentiality, circumstantiality, sudden topic shifts, incoherence, derailment, blocking, neologisms, and other speech disorders. Do not rate content of speech.
- 2 Very Mild
Peculiar use of words or rambling but speech is comprehensible.
- 3 Mild
Speech a bit hard to understand due to tangentiality, circumstantiality or sudden topic shifts.
- 4 Moderate

Speech difficult to understand due to tangentiality, circumstantiality, idiosyncratic speech, or topic shifts on many occasions OR 1-2 instances of incoherent phrases.

- 5 Moderately Severe
Speech difficult to understand due to circumstantiality, tangentiality, neologisms, blocking, or topic shifts most of the time OR 3-5 instances of incoherent phrases.
- 6 Severe
Speech is incomprehensible due to severe impairments most of the time. Many BPRS items cannot be rated by self-report alone.
- 7 Extremely Severe
Speech is incomprehensible throughout interview.

6. BLUNTED AFFECT: Restricted range in emotional expressiveness of face, voice and gestures. Marked indifference or flatness even when discussing distressing topics. In the case of euphoric or dysphoric patients, rate Blunted Affect if a flat quality is also clearly present.

Use the following probes at end of interview to assess emotional responsivity:
Have you heard any good jokes lately? Would you like to hear a joke?

- 2 Very Mild
Emotional range is slightly subdued or reserved but displays appropriate facial expressions and tone of voice that are within normal limits.
- 3 Mild
Emotional range overall is diminished, subdued, or reserved, without many spontaneous and appropriate emotional responses. Voice tone is slightly monotonous.
- 4 Moderate
Emotional range is noticeably diminished, patient doesn't show emotion, smile, or react to distressing topics except infrequently. Voice tone is monotonous or there is noticeable decrease in spontaneous movements. Displays of emotion or gestures are usually followed by a return to flattened affect.
- 5 Moderately Severe
Emotional range very diminished, patient doesn't show emotion, smile or react to distressing topics except minimally, few gestures, facial expression does not change very often. Voice tone is monotonous much of the time.

- 6 Severe
Very little emotional range or expression. Mechanical in speech and gestures most of the time. Unchanging facial expression. Voice tone is monotonous most of the time.
- 7 Extremely Severe
Virtually no emotional range or expressiveness, stiff movements. Voice tone is monotonous all of the time.
17. EMOTIONAL WITHDRAWAL: Deficiency in patient's ability to relate emotionally during interview situation. Use your own feeling as to the presence of an "invisible barrier" between patient and interviewer. Include withdrawal apparently due to psychotic processes.
- 2 Very Mild
Lack of emotional involvement shown by occasional failure to make reciprocal comments, occasionally appearing preoccupied, or smiling in a stilted manner, but spontaneously engages the interviewer most of the time.
- 3 Mild
Lack of emotional involvement shown by noticeable failure to make reciprocal comments, appearing preoccupied, or lacking in warmth, but responds to interviewer when approached.
- 4 Moderate
Emotional contact not present much of the interview because subject does not elaborate responses, fails to make eye contact, doesn't seem to care if interviewer is listening, or may be preoccupied with psychotic material.
- 5 Moderately Severe
Same as "4" but emotional contact not present most of the interview.
- 6 Severe
Actively avoids emotional participation. Frequently unresponsive or responds with yes/no answers (not solely due to persecutory delusions). May leave during interview or just not respond at all.
- 7 Extremely Severe
Consistently avoids emotional participation. Unresponsive or responds with yes/no answers (not solely due to persecutory delusions). May leave during interview or just not respond at all.

18. **MOTOR RETARDATION:** Reduction in energy level evidenced by slowed movements and speech, reduced body tone, decreased number of spontaneous body movements. Rate on the basis of observed behavior of the patient only. Do not rate on the basis of patient's subjective impression of his own energy level. Rate regardless of medication effects.
- 2 **Very Mild**
Slightly slowed or reduced movements or speech compared to most people.
 - 3 **Mild**
Noticeably slowed or reduced movements or speech compared to most people.
 - 4 **Moderate**
Large reduction or slowness in movements or speech.
 - 5 **Moderately Severe**
Seldom moves or speaks spontaneously OR very mechanical or stiff movements.
 - 6 **Severe**
Does not move or speak unless prodded or urged.
 - 7 **Extremely Severe**
Frozen, catatonic.
19. **TENSION:** Observable physical and motor manifestations of tension, "nervousness," and agitation. Self-reported experiences of tension should be rated under the item on anxiety. Do not rate if restlessness is solely akathisia, but do rate if akathisia is exacerbated by tension.
- 2 **Very Mild**
More fidgety than most but within normal range. A few transient signs of tension, e.g., picking at fingernails, foot wagging scratching scalp several times, or finger tapping.
 - 3 **Mild**
Same as "2," but with more frequent or exaggerated signs of tension.
 - 4 **Moderate**
Many and frequent motor tension with one or more signs sometimes occurring simultaneously, e.g., wagging one's foot while wringing hands together. There are times when no signs of tension are present.
 - 5 **Moderately Severe**

Many of frequent signs of motor tension with one or more signs often occurring simultaneously. There are still rare times when no signs of tension are present.

- 6 Severe
Same as “5,” but signs of tension are continuous.
- 7 Extremely Severe
Multiple motor manifestations of tension are continuously present, e.g., continuous pacing and hand wringing.
20. UNCOOPERATIVENESS: Resistance and lack of willingness to cooperate with the interview. The uncooperativeness might result from suspiciousness. Rate only uncooperativeness in relation to the interview, not behaviors involving peers and relatives.
- 2 Very Mild
Shows nonverbal signs of reluctance, but does not complain or argue.
- 3 Mild
Gripes or tries to avoid complying, but goes ahead without argument.
- 4 Moderate
Verbally resists but eventually complies after questions are rephrased or repeated.
- 5 Moderately Severe
Same as “4,” but some information necessary for accurate ratings is withheld.
- 6 Severe
Refuses to cooperate with interview, but remains in interview situation.
- 7 Extremely Severe
Same as “6,” with active efforts to escape the interview.
21. EXCITEMENT: Heightened emotional tone, or increased emotional reactivity to interviewer or topics being discussed, as evidenced by increased intensity of facial expressions, voice tone, expressive gestures or increase in speech quantity and speed.
- 2 Very Mild
Subtle and fleeting or questionable increase in emotional intensity. For example, at times seems keyed-up or overly alert.

- 3 Mild
Subtle but persistent increase in emotional intensity. For example, lively use of gestures and variation of voice tone.
- 4 Moderate
Definite but occasional increase in emotional intensity. For example, reacts to interviewer or topics that are discussed with noticeable emotional intensity. Some pressured speech.
- 5 Moderately Severe
Definite and persistent increase in emotional intensity. For example, reacts to many stimuli, whether relevant or not, with considerable emotional intensity. Frequent pressured speech.
- 6 Severe
Marked increase in emotional intensity. For example. Reacts to most stimuli with inappropriate emotional intensity. Has difficulty settling down or staying on task. Often restless, impulsive, or speech is often pressured.
- 7 Extremely Severe
Marked and persistent increase in emotional intensity. Reacts to all stimuli with inappropriate intensity, impulsiveness. Cannot settle down or stay on task. Very restless and impulsive most of the time. Constant pressured speech.
22. DISTRACTIBILITY: Degree to which observed sequences of speech and actions are interrupted by stimuli unrelated to the interview. Distractibility is rated when the patient shows a change in the focus of attention as characterized by a pause in speech or a marked shift in gaze. Patient's attention may be drawn to noise in adjoining room, books on a shelf, interviewer's clothing, etc. Do not rate circumstantiality, tangentiality, or flight of ideas. Also, do not rate rumination with delusional material. Rate even if the distracting stimulus cannot be identified.
- 2 Very Mild
Generally can focus on interviewer's questions with only 1 distraction or inappropriate shift of attention of brief duration.
- 3 Mild
Patient shifts focus of attention to matters unrelated to the interview 2-3 times.
- 4 Moderate

Often responsive to irrelevant stimuli in the room, e.g., averts gaze from the interviewer.

- 5 Moderately Severe
Same as above, but now distractibility clearly interferes with the flow of the interview.
- 6 Severe
Extremely difficult to conduct interview or pursue a topic due to preoccupation with irrelevant stimuli.
- 7 Extremely Severe
Impossible to conduct interview due to preoccupation with irrelevant stimuli.

23. MOTOR HYPERACTIVITY: Increase in energy level evidenced in more frequent movement and/or rapid speech. Do not rate if restlessness is due to akathisia.

- 2 Very Mild
Some restlessness, difficulty sitting still, lively facial expressions, or somewhat talkative.
- 3 Mild
Occasionally very restless, definite increase in motor activity, lively gestures, 1-3 brief instances of pressured speech.
- 4 Moderate
Very restless, fidgety, excessive facial expressions or nonproductive and repetitious motor movements. Much pressured speech, up to one third of the interview.
- 5 Moderately Severe
Frequently restless, fidgety. Many instances of excessive nonproductive and repetitious motor movements. On the move most of the time. Frequent pressured speech, difficult to interrupt. Rises on 1-2 occasions to pace.
- 6 Severe
Excessive motor activity, restlessness, fidgety, loud tapping, noisy, etc. throughout most of the interview. Speech can only be interrupted with much effort. Rises on 3-4 occasions to pace.
- 7 Extremely Severe
Constant excessive motor activity throughout entire interview, e.g., constant pacing, constant pressured speech with no pauses, interviewee

can only be interrupted briefly and only small amounts of the relevant information can be obtained.

24. MANNERISMS AND POSTURING: Unusual and bizarre behavior, stylized movements or acts, or any postures which are clearly uncomfortable or inappropriate. Exclude obvious manifestations of medication side-effects. Do not include nervous mannerisms that are not odd or unusual.
- 2 Very Mild
Eccentric or odd mannerisms or activity that ordinary persons would have difficulty explaining, e.g., grimacing, picking. Observed once for a brief period.
- 3 Mild
Same as “2,” but occurring on two occasions of brief duration.
- 4 Moderate
Mannerisms or posturing, e.g., stylized movements or acts, rocking, nodding, rubbing or grimacing observed on several occasions for brief periods or infrequently but very odd. For example, uncomfortable posture maintained for 5 seconds more than twice.
- 5 Moderately Severe
Same as “4,” but occurring often, or several examples of very odd mannerisms or posturing that are idiosyncratic to the patient.
- 6 Severe
Frequent stereotyped behavior, assumes and maintains uncomfortable or inappropriate postures, intense rocking, smearing, strange rituals, or fetal posturing. Subject can interact with people and the environment for brief periods despite these behaviors.
- 7 Extremely Severe
Same as “6,” but subject cannot interact with people or the environment due to these behaviors.

Brief Psychiatric Rating Scale (Version 4.0)

Name/ID # _____ Date _____ Rater _____
 Hospital/Location _____ Period of assessment _____

NA 1 2 3 4 5 6 7
 Not Assessed Not Present Very Mild Mild Moderate Moderately Severe Severe Extremely Severe

Rate items 1-14 on the basis of patient's self-report during interview. Mark "NA" for symptoms not assessed.

Note items 7, 12, and 13 are also rated on observed behavior during the interview. PROVIDE EXAMPLES.

1.	Somatic Concern	NA	1	2	3	4	5	6	7
2.	Anxiety	NA	1	2	3	4	5	6	7
3.	Depression	NA	1	2	3	4	5	6	7
4.	Suicidality	NA	1	2	3	4	5	6	7
5.	Guilt	NA	1	2	3	4	5	6	7
6.	Hostility	NA	1	2	3	4	5	6	7
7.	Elevated Mood	NA	1	2	3	4	5	6	7
8.	Grandiosity	NA	1	2	3	4	5	6	7
9.	Suspiciousness	NA	1	2	3	4	5	6	7
10.	Hallucinations	NA	1	2	3	4	5	6	7
11.	Unusual Thought Content	NA	1	2	3	4	5	6	7
12.	Bizarre Behavior	NA	1	2	3	4	5	6	7
13.	Self-neglect	NA	1	2	3	4	5	6	7
14.	Disorientation	NA	1	2	3	4	5	6	7

Rate items 15-24 on the basis of observed behavior or speech of the patient during the interview.

15.	Conceptual Disorganization	NA	1	2	3	4	5	6	7
16.	Blunted Affect	NA	1	2	3	4	5	6	7
17.	Emotional Withdrawal	NA	1	2	3	4	5	6	7
18.	Motor Retardation	NA	1	2	3	4	5	6	7
19.	Tension	NA	1	2	3	4	5	6	7
20.	Uncooperativeness	NA	1	2	3	4	5	6	7
21.	Excitement	NA	1	2	3	4	5	6	7
22.	Distractibility	NA	1	2	3	4	5	6	7
23.	Motor Hyperactivity	NA	1	2	3	4	5	6	7
24.	Mannerisms and Posturing	NA	1	2	3	4	5	6	7

Sources of information (check all applicable):
 questioned

_____ Patient
 _____ Parents/Relatives
 _____ Mental Health Professionals
 _____ Chart

Explain here if validity of assessment is

_____ Symptoms possibly drug-induced
 _____ Underreported due to lack of rapport
 _____ Underreported due to negative symptoms
 _____ Patient uncooperative
 _____ Difficult to assess due to formal thought

disorder

Confidence in assessment:

_____ Other: _____
_____ 1: Not at all 5: Very confident