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Acculturation, Enculturation, and Symptoms of Schizophrenia in Ethnic Minority Patients: An Examination of Sociocultural Mediators Underlying These Relationships

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UNIVERSITY OF MIAMI

ACCULTURATION, ENCULTURATION, AND SYMPTOMS OF SCHIZOPHRENIA
IN ETHNIC MINORITY PATIENTS: AN EXAMINATION OF SOCIOCULTURAL
MEDIATORS UNDERLYING THESE RELATIONSHIPS

By

Vamsi K. Koneru

A DISSERTATION

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Philosophy

Coral Gables, Florida

August 2009

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Acculturation, Enculturation, and Symptoms of Schizophrenia
In Ethnic Minority Patients: An Examination of Sociocultural
Mediators Underlying These Relationships

(August 2009)

Abstract of a dissertation at the University of Miami.

Dissertation supervised by Associate Professor Amy Weisman de Mamani.

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The preponderance of evidence from large-scale studies shows a detrimental association between greater acculturation (to mainstream U.S. values and beliefs) and mental health. Prior research also suggests that greater acculturation may be associated with a breakdown of adaptive behaviors and values (e.g., religiosity/spirituality) thereby negatively impacting mental health. In addition, literature generally suggests that enculturation (retention of culture of origin customs and values) is associated with better mental health. However, few studies have examined potential mediators between acculturation/enculturation and mental health; and research on this topic with patients with schizophrenia is particularly scarce. Using a sample of 44 Hispanic and African-American patients with schizophrenia, this study evaluated whether higher acculturation and lower enculturation would be associated with more symptoms of schizophrenia. Religiosity/spirituality, family cohesion, and religious coping were evaluated as potential mediators of these relationships. As hypothesized, greater family cohesion (measured by the Family Environment Scale) was associated with fewer schizophrenia symptoms (measured by the Brief Psychiatric Rating Scale). However a meditational model was not

supported. Contrary to hypotheses, when examining the total sample, neither acculturation nor enculturation (measured by the Abbreviated Multidimensional Acculturation Scale) were associated with schizophrenia symptoms. Ethnic subgroup analyses were conducted and will be discussed along with study implications, limitations, and directions for future research.

DEDICATION PAGE

A special appreciation is extended to the patients and families who participated in the Schizophrenia Family Study. Your kindness and grace in managing one of the most difficult of illnesses is a testament to courage.

Thank you to Amy Weisman de Mamani. Your guidance and encouragement throughout graduate school made an, at times, painful process more manageable and far, far more enjoyable.

An only half-joking nod to my long-sleeve Grateful Dead t-shirt, thank you for not falling apart when things got rough.

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I thank Ravi, my little monkey, for reminding me throughout this process that a Tupperware container makes a lovely hat. Your smile and laugh bring me endless joy.

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Chapter 1: Introduction

Schizophrenia is a serious mental illness marked by an array of challenging, if not debilitating, symptoms. These symptoms, subdivided into positive (e.g., hallucinations, delusions) and negative (e.g., avolition, affective flattening) categories, can have a marked impact on cognition, emotional processing, and general functioning (American Psychiatric Association, 2000). Several lines of research, including twin, neuroimaging, biochemical, and epidemiological studies, indicate that this illness has clear biological underpinnings (Kremen et al., 2006; Fusar et al., 2007; Jablensky, 2000; Winterer, 2006). Although biological processes play a key role in this disorder, numerous studies indicate that sociocultural factors, including family environment, cultural values and practices, and migration and adaptation, also play a significant role in the presentation and course of this serious mental disorder (Cantor-Graae & Selten, 2005; Fabrega, 1990; Keith, Regier, Rae, 1991; Koneru & Weisman de Mamani, 2006; McGrath, 2006; Pierloot & Ngoma, 1988; Rogler, 1989; Weisman, 1997; Zhang & Snowden, 1999).

Research focusing on prevalence and symptom variation between ethnic groups demonstrates the potential influences of environment and culture in schizophrenia. The World Health Organization (Jablensky et al., 1992; Sartorius et al., 1986) has reported that the global prevalence of schizophrenia is approximately 1%. However, McGrath (2006) has argued that there is “prominent worldwide variation.” Studies within the U.S. demonstrate varying prevalence rates of disorders in the schizophrenia spectrum between ethnic groups (Garb, 1997; Minsky, Vega, Miskimen, Gara & Escobar, 2003; Shur, 1988; Van Os, Castle, Takei, Der, & Murray, 1996). For example, African Americans are more

frequently diagnosed with a disorder in the schizophrenia spectrum than other ethnic groups. In a review on incidence of schizophrenia, McGrath et al. (2003), using data from 158 studies conducted in 32 countries, demonstrated significant incidence variations in schizophrenia in terms of gender, urbanicity, and migrant status. Results demonstrated that the incidence of schizophrenia was higher for men, for individuals living in a city in comparison to a rural site, and for individuals who have migrated in comparison to native born individuals.

Findings from migration studies are particularly compelling in light of this study's focus. These studies have consistently demonstrated dramatic differences between ethnic groups in terms of rates of psychotic illness. For example, the UK-based Aetiology and Ethnicity of Schizophrenia and Other Psychoses (AESOP) study found that the incidence rate ratios for African-Caribbeans and Black Africans, using a White British group as comparison, are 6.7 and 4.1 respectively (Fearon et al., 2006). Several studies have demonstrated that these findings are most likely not due to diagnostic error (Hickling et al., 1999), preponderance of migration of individuals prone to psychosis (Cooper, 2006), or markedly elevated rates of psychosis in culture-of-origin countries (Bhugra, 1996). A recent meta-analysis by Cantor-Graae and Selten (2005) demonstrated that first-generation ethnic minorities, in comparison to the indigenous population, had a relative risk of 2.7 for psychosis manifestation. Surprisingly, the relative risk for second-generation immigrants was 4.5. This latter finding highlights migration as a considerable risk factor for psychosis, however, elements of acclimating to a new culture are seemingly more significant in terms of psychosis development.

Research also suggests potential cultural influences on schizophrenia symptom presentation. For example, Weisman et al. (2000), using the Present State Examination, demonstrated that Mexican-American patients living in the United States more frequently reported somatic symptoms compared to Anglos. Escobar, Randolph, and Hill (1986) state that Latinos are more prone to understand and experience psychological symptoms in somatic terms than are Anglos, because there are fewer words and concepts in Spanish to convey psychological symptoms. In addition, Latino communities tend to have a mind-body integration stance (Bates, Rankin-Hill, & Sanchez-Ayendez, 1997) and typically conceptualize mental illness in terms of physical or medical terms (Jenkins, 1988). Weisman et al. (2000) found that Anglo patients more frequently reported symptoms such as persecutory delusions and blunted affect. Some data also demonstrates that Anglo family members are significantly more critical and hostile towards an ill relative with schizophrenia than are Latinos (Weisman de Mamani, Kymalainen, Rosales, & Armesto, 2007). Thus, the greater frequency of persecutory delusions in Anglos observed by Weisman et al. (2000) may indicate that these patients internalize the negative emotions expressed by their relatives and have psychotic experiences that reflect this process. Hispanic/Latino and African-American culture tends to be more effusive and emotive, in comparison to Anglo-American culture which tends to be more emotionally restrictive (Simons & Hughes, 1993). This variation in emotional expression may underlie the greater frequency of negative symptoms found in the Anglo-American sample.

Cross-cultural investigation has also provided compelling results when comparing symptom manifestation between diverse ethnic groups. Numerous studies have found that visual hallucinations are more prevalent in non-Western cultures, whereas, auditory

hallucinations tend to be more pervasive in the presentation of schizophrenia in Western cultures (Arnold et al., 2004; Chu, Sallach, Zakeria, Klein 1985; Ndeti & Vadher, 1985; Sartorius et al., 1986). Al-Issa (1995) has argued that this divergence may stem from non-Western cultures applying a positive value to the concept of “visions.” Research has also demonstrated that African-Americans tend to report fewer negative symptoms in comparison to Anglo-Americans (Fabrega et al., 1988).

The importance of the connection between culture and severe mental illness has also been recognized by large-scale international studies, such as the International Pilot Study of Schizophrenia (IPSS) conducted by the World Health Organization (WHO, 1973, 1992) and the Epidemiological Catchment Area (ECA) study (Eaton, Regier, Locke & Taube, 1981). The results of the original IPSS study (1973) and the follow-up (1992) demonstrated that in all nine centers of investigation, groups of psychotic patients could be found who exhibited symptoms characteristic of schizophrenia. Another major finding of this study was that among patients from developing countries, the course of illness was shorter and the prognosis was better (Jablensky et al., 1992; see Gureje, 1996 and Edgerton & Cohen, 1994 for critiques). The ECA study (Eaton et al., 1981) has served as a major source for estimating the ethnic ratio of mental disorders. With specific regard to schizophrenia, the results demonstrated that the percentages of the disorder vary between Whites (0.9%), Blacks (1.6%), Latinos (0.4%), and Asians (0.2%) (see Zhang & Snowden, 1999 for critique).

Studies focusing on variations between ethnic groups in terms of prevalence rates and symptom variation may potentially be reflecting clinician bias (non-adherence to diagnostic criteria). For example, Murkhejee (1983) demonstrated that several Black and

Hispanic patients preliminarily diagnosed with schizophrenia actually met criteria for an affective disorder diagnosis when strict diagnostic research criteria were applied. Cultural bias, or over-or-underestimating ethnic variation in symptom presentation in psychiatric practice (Whaley, 2004), may also be contributing to prevalence and symptom differences in ethnically-diverse patients with schizophrenia.

Despite potential limitations in cross-cultural studies on schizophrenia, this type of investigation has been beneficial in offering potential hypotheses regarding factors that may account for cultural differences in the presentation and course of schizophrenia. Despite this, Betancourt and Lopez (1993) have voiced concern that researchers frequently report on ethnic or race variations but do not measure specific aspects of culture. Instead, the authors suggest that researchers should first define what is meant by culture that is relevant to the behavior or outcome under study. For instance, culture should be defined in terms of values, expectations, and norms. Once culture is defined in such meaningful terms, then these aspects of culture can be assessed and their relations with the relevant outcomes can be tested. Betancourt and Lopez argue that this approach will better equip researchers to ascertain what specific elements of culture are related to the target variables of interest.

Following Betancourt and Lopez's suggestion, this project will attempt to identify specific cultural variables that might help us better understand variation in severity of schizophrenia symptoms in Hispanic and African-American patients with schizophrenia. The relationship between acculturation (defined below) and symptoms of schizophrenia will be a primary study focus. In addition, sociocultural mediators (i.e., family cohesion,

religious coping, and religiosity/spirituality) that may underlie this relationship will be explored.

Acculturation has been conceptualized as a bidimensional process in which individuals can adapt to and acquire mainstream or host-country culture as well as retain country-of-origin culture (Ryder, Alden, Paulhus, 2000). This latter process of retention of culture-of-origin has been labeled enculturation (Kim & Omizo, 2006) and has been noticeably absent in the majority of acculturation research to date. In this study, the relationship between enculturation and symptoms of schizophrenia as well as mediators potentially underlying this relationship will also be investigated.

There is a strong need to investigate acculturation, enculturation and mental health in the Hispanic/Latino population. Hispanics/Latinos are a rapidly burgeoning group in the United States. They are currently the largest minority group in the U.S. at 42.7 million individuals and represent 14.4 % of the total U.S. population (U.S. Census Bureau, 2000a). In addition, it has been estimated that Hispanics/Latinos will represent 24% of the total U.S. population by the year 2050 (Alegria et al., 2007a). From 1990 to 2000, in seven states of the U.S., the Latino population increased by 200% or more (U.S. Census Bureau, 2000a). At least 25 additional states had increases between 60% and 199%. These statistics show that a large segment of the Latino population has recently arrived and is adjusting to life in many different regions in the U.S. During this adjustment an individual's values and beliefs may change, which could be beneficial or detrimental to their psychological health. For example, acquiring a greater flexibility with English may facilitate adaptation. In contrast, a diminished utilization of familial support could be costly for an individual within a new environment. Thus, understanding the

relationship between Hispanics' cultural adjustment, in terms of both acquisition of host culture as well as retention of culture-of-origin, and mental health is crucial.

Research examining the relationships between acculturation, enculturation, and mental health in African-Americans is also necessary. Presently, African-Americans are the largest minority group in 24 states in the U.S., represent 13% of the U.S. population, and total approximately 38 million individuals (U.S. Census Bureau, 2000b). Landrine and Klonoff (1994) have argued that the paucity of research examining acculturation and mental health with African-American samples is due to researchers assuming that differences within this ethnic group, in comparison to Anglo-Americans, are the result of only regional and socioeconomic influences. Walker (2008) argues that, although African-Americans have resided in the United States for many years, there is a unique African-American culture, distinct from mainstream Anglo-American culture. Centuries of enslavement and segregation have resulted in an African-American culture which distinguishes itself from mainstream Anglo-American culture in terms of how an individual "organizes life, makes decisions, arrives at beliefs, and derives meaning" (Jones, 1991, pg. 619). Thus, it is important to understand the potential impact that movement towards mainstream U.S. values and behaviors has on African-American's mental health.

In the next section a discussion of how to appropriately conceptualize and measure acculturation will be presented. Following this, a brief summary of research on the relationship between acculturation and mental health will be provided. In this section, those studies that have measured acculturation in a bidimensional fashion will be highlighted. Following this, current limitations in the study of acculturation and mental

health will be briefly discussed (i.e., the paucity of research using bidimensional measurement and infrequency of studies that have explored underlying mechanisms). Next, literature that has investigated relationships among acculturation, symptoms of schizophrenia, and the proposed mediators (e.g., family cohesion, religious coping, and religiosity/spirituality), will be reviewed.

Conceptualizing and Measuring Acculturation

In one of the earliest systematic attempts to operationalize the construct of acculturation, Redfield, Linton, and Herskovits (1936) reported “acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups.” Gordon (1964) proposed a unidimensional assimilation model in which adoption of mainstream values and beliefs was necessarily associated with the “disappearance of the ethnic group as a separate entity.” More recent definitions have considered acculturation to be a bidimensional construct in which culture-of-origin and host cultural identities can vary independently. The most widely cited and used bidimensional conceptualization has been Berry’s acculturation framework (Berry, 1997). This framework is based on the definition of acculturation as “the dual process of cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members” (Berry, 2005).

Within Berry’s (2005) definition there is potential for individuals to maintain components of their cultural identity, engage with the culture of the larger society, and have their acculturation experience influenced by the host society. From this

conceptualization four acculturation strategies emerge: an *integrative* acculturation strategy, that combines retention of beliefs, values, and practices from one's original culture with incorporation of cultural elements from the host culture, *assimilation* or full acquisition of host culture, *segregation or separation* is willfully or forcefully separating from the host culture and retaining one's original culture, and *marginalization* or disengaging and rejecting the host and original culture (for critique see Rudmin & Ahmadzadeh, 2001).

Studies have typically indicated that integration is associated with the most adaptive outcomes, whereas marginalization is typically associated with deleterious outcomes (Berry, 1997; Phinney & Devich-Navarro, 1997). For instance outcomes such as stress, self-esteem, and specific symptoms of mental health have been found to be influenced by an integrated or marginalized acculturation strategy. More recently, Berry, Phinney, Sam, and Vedder (2006) provided further empirical support for these four strategies in a study considering over 5000 immigrant youth from 26 different cultural backgrounds who had settled in 13 countries. Their results further corroborated a four strategy framework and demonstrated that integration was associated with the highest level of both psychological (e.g., life satisfaction, self-esteem, and psychological problems) and sociocultural adaptation (e.g., school adjustment and behavioral problems).

Strong evidence indicates that acculturation is bidimensional and that individuals can maintain or strengthen some values from their culture of origin, or the process of enculturation, while also acquiring or adapting to values of the mainstream culture, or the process of acculturation (Kim & Abreu, 2001; Ryder, Alden, & Paulhus, 2000). Despite

this, most available instruments measure acculturation as a unidimensional construct, suggesting that adaptation occurs along a single continuum in which acquisition of host culture values is accompanied by loss of culture-of-origin values (Chung, Kim, & Abreu, 2004). Debate continues regarding how to appropriately operationalize acculturation (Kang, 2006; Rudmin, 2003). In this study both acculturation and enculturation will be measured (a description of the measure will be provided in methods section). By measuring both of these dimensions, their interaction can be analyzed and Berry's four-strategy framework can be appropriately conceptualized. For example, if an individual were to score high, or low, on both acculturation and enculturation subscales this would indicate an integrated or marginalized acculturation strategy respectively (see Figure 1.1 for a graphical representation of Berry's four-strategy framework).

Acculturation and Mental Health

Acculturation is a variable of considerable interest in mental health research. Theories have suggested that greater acculturation may facilitate daily social interaction (Organista, Organista, & Kurasaki, 2003) and increase awareness of treatment options (Rodriguez-Reimann, Nicassio, Reimann, Gallegos, & Olmedo, 2004). Conversely, greater acculturation may increase social stress or conflict between two competing cultures (Nguyen & Peterson, 1993), or be associated with a reduction in family support (Gil, Wagner, & Vega, 2000). Not surprisingly, then, empirical findings have been mixed, as some studies link greater acculturation to poorer mental health, whereas others demonstrate a favorable relationship or no association at all (Abrams, Allen, & Gray, 1993; Karno et al., 1989; Miranda & Umhoefer, 1998; Shen & Takeuchi, 2001).

In the following paragraphs a recent review paper conducted by the first author and colleagues, which focuses on the relationship between acculturation and mental health, (Koneru, Weisman de Mamani, Flynn, & Betancourt, 2007) will be summarized. The review includes studies that address the relationship between acculturation and stress and distress, alcohol/drug abuse, eating disorders, depression, and childhood psychiatric disorders in Hispanic/Latino American, Asian/Asian American, African-American, and other less studied ethnic groups (e.g., Turkish, Fijian). Within this summary, those studies that measured both acculturation and enculturation will be highlighted. Following this, a summary, and discussion of significant limitations, of the first study to date examining the relationship between acculturation and schizophrenia symptoms will be provided. Finally, large-scale studies that have considered the relationship between acculturation and mental health will be reviewed.

Recent findings from acculturation and mental health literature

In their recent review, Koneru et al. (2007) sought to elucidate discrepancies in findings focusing on the relationship between acculturation and mental health. The authors attempted to determine if variations in how mental health was operationalized contributed to the heterogeneity in findings. To address this issue, the authors only retained studies that identified acculturation as a predictor variable and used a structured mental health measure consisting of more than a single item. Despite controlling for the quality of articles examined, similar to previous reviews (Balls Organista et al., 2003; Hunt et al., 2004; Rogler et al., 1991; Salant et al., 2003) only studies focusing on the relationship between acculturation and alcohol and drug use demonstrated a consistent pattern of findings. These studies clearly demonstrated that greater acculturation was

associated with increased substance use (Cheng et al., 2004; Epstein et al., 2003; Gfroerer et al., 2003; Gil et al., 2004; Nieri et al., 2005; Sakai et al., 2005; Segura et al., 2003; So et al., 2006; Turner et al., 2006). No studies included in this review examined the relationship between enculturation and alcohol use. However, research has demonstrated that greater enculturation (i.e., participation in traditional activities and traditional spirituality) demonstrated a positive association with alcohol cessation in a sample of American Indian adults (Stone, Whitbeck, Chen, Johnson, & Olson, 2006).

There was significant heterogeneity in study findings focusing on the relationship between acculturation and stress and distress, eating disorders, childhood psychiatric disorders (e.g., conduct disorder), and depression. Study results in these four areas demonstrated both positive and negative associations as well as no relationship at all. For example, in studies focusing on stress and distress across ethnic groups, seven studies found a positive association (i.e., greater acculturation was associated with more stress and/or distress) (Buddington, 2002; Bratter & Eschbach, 2005; Kim & Saranson, 2006; Mak, Chen, Wong, & Zane, 2005; Pillay, 2005; Vinuesa Thoman & Suris, 2004; Virta, Sam, & Westin, 2004), seven studies found a negative association (Barrett, Sonderegger, & Sonderegger, 2002; Cho, Hudley, & Back, 2003; Lee, Koeske, & Sales, 2004; Liebkind, Jasinskaja-Lahti, & Solheim, 2004; MacLachlan, Smyth, Breen, & Madden, 2004; Ouarasse & van de Vijver, 2004; Safdar, Lay, & Struthers, 2003), one study found a mixed relationship (Navarra & James, 2005), and three studies found no relationship (Castillo, Conoley, & Brossart, 2004; Franzini & Fernandez-Esquer, 2004; Torres & Rollock, 2004). Only one study of this group examined this relationship bidimensionally. In a study focusing on Chinese adolescent migrants in Australia, Barrett et al. (2002),

using the Bicultural Involvement Questionnaire (BIQ; Szapocznik, Kurtines, & Fernandez, 1990), found that greater separation (i.e., maintaining identification with Chinese culture, and achieving little identification with Australian culture) was associated with higher anxiety and lower self-esteem in comparison to more integrated and assimilated children.

In studies focusing on acculturation and eating disorders, across ethnic groups, seven studies found a positive association (i.e., greater acculturation was associated with more eating disorder symptoms) (Becker, Burwell, Navara, & Gilman, 2003; Bhugra & Bhui, 2003; Chamorro & Flores-Ortiz, 2000; Davis & Katzman, 1999; Franko & Herrera, 1997; Gowen, Hayward, Killen, Robinson, & Taylor, 1999; Marais, Wassenaar, & Kramers, 2003), four studies found a negative association (Barry et al., 2000; Cachelin & Regan, 2006; Chan & Owens, 2006; Jennings, Forbes, McDermott, Juniper, & Hulse, 2005), and ten studies found no relationship (Abdollahi & Mann, 2001; Bhugra, Bhui, & Gupta, 2000; Haudek, Rorty, & Henker, 1999; Joiner & Kashubeck, 1996; Kuba & Harris, 2001; Lester & Petrie, 1995; Ogden & Elder, 1998; Sahi Iyer & Haslam, 2003; Stark-Wroblewski, Yanico, & Lupe, 2005; Yoshimura, 1995). Two studies examined this relationship in a bidimensional fashion. Specifically, Jennings et al. (2005) found that higher endorsement of items on the Typical Asian Index (TA; composed of cognitive and behavioral items), representing greater enculturation, in comparison to the Typical Caucasian Australian Index (TCA), was associated with more eating disorder symptoms (e.g., dieting, symptoms of bulimia, drive for thinness) in a sample of Asian girls acculturating to Australian culture. It should be noted that Traditional Asian culture may demand adherence to rigid norms and have strict expectations for physical appearance,

thus, ethnic identification may not serve as a protective influence (Sahi Iyer & Haslam, 2003). Becker et al. (2003) found that movement away from a traditional Fijian attitude toward the body (e.g., body shape is fixed and unresponsive to efforts to change it), or a reduction in enculturation, unlike greater acculturation (i.e., moving towards a Western attitude towards the body), was associated with binge eating in a sample of ethnic Fijian women.

In studies focusing on acculturation and child and adolescent psychiatric disorders, one study found that higher acculturation was associated with more deviant behavior in a sample of Mexican-American high school students (McQueen, Getz, & Bray, 2003), four studies found a negative relationship (Bhui et al., 2006; Crane, Ngai, Larson, & Hafen, 2005; Lau et al., 2005; Oppedal, Roysamb, & Sam, 2004), and two studies found mixed results (Oppedal, Roysamb, & Heyerdahl, 2005; Sawrikar & Hunt, 2005). Two studies examined this relationship in a bidimensional fashion. Oppedal et al. (2005) found that greater ethnic and host cultural competence, representing enculturation and acculturation respectively, were generally associated with fewer psychiatric problems in a multi-ethnic sample (participant's were from 11 different national origins including Morocco, India, and several Latin American countries) in Norway. Sawrikar and Hunt (2005) used the Acculturation Inventory, a bidimensional acculturation scale, and found that high Australian pride, or greater acculturation, as well as high native pride, or greater enculturation, were associated with lower depression, anxiety, stress, and negative affect in a sample of mixed ethnicity non-English speaking adolescents in Australia. Additionally, their results indicated that a separated cultural identity (high native pride

and low Australian pride), as opposed to an assimilated cultural identity (high Australian pride and low native pride), was associated with more severe depressive symptoms.

The largest variation in study findings appeared in the literature base focusing on the relationship between acculturation and depression. In these studies, five studies found a positive association (i.e., greater acculturation was associated with more symptoms of depression) (Cuellar, Bastida, & Braccio, 2004; Heilemann, Frutos, Lee, Salvador Kury, 2004; Martinez-Schallmoser, Telleen, & MacMullen, 2003; Rahman & Rollock, 2004; Ramos, 2005), eleven studies found a negative association (Abbot et al., 2003; Bhui et al., 2005; Carvajal, Hanson, Romero, & Coyle, 2002; Foss, 2001; Jang, Kim, & Chiriboga, 2005; Kim, Han, Shin, Kim, & Lee, 2005; Knipscheer & Kleber, 2006; Michaels Miller et al., 2006; Newcomb & Vargas Carmona, 2004; Parker, Chan, Tully, & Eisenbruch, 2005; van der Wurff et al., 2004), eleven studies found no relationship (Cintron, Carter, Suchday, Sbrocco, & Gray, 2005; Elder et al., 2005; Gonzalez, Costello, La Tourette, Joyce, & Valenzuela, 1997; Kuo et al., 2004; Lee et al., 2004; Mak & Zane, 2004; Masten et al., 2004; McNaughton, Cowell, Gross, Fogg, & Ailey, 2004; Robinson Shurgot & Knight, 2004; Rodriguez Le Sage & Townsend, 2004), and four studies found mixed results (Chen, Guarnaccia, & Chung, 2003; Gonzalez & Shriver, 2004; Greenland & Brown, 2005; Hwang, Chun, Takeuchi, Myers, & Siddarth, 2005). Three studies measured this relationship in a bidimensional fashion. Gonzalez and Shriver (2004) used the Bidimensional Acculturation Scale (BAS) and found that patients who maintained strong ties with Hispanic values and beliefs demonstrated fewer symptoms of depression. Elder et al. (2005) used both dimensions of the ARSMA-II, the Anglo orientation scale and the Mexican orientation scale, and found no relationship between either dimension

with symptoms of depression in a sample of Mexican-American adolescents. Finally, Abbot et al. (2003) used two 21-question surveys to gather data regarding orientation to both Chinese and New Zealand culture. Their results demonstrated no association between Chinese cultural orientation and depressive symptoms. However, a low New Zealand cultural orientation was associated with more symptoms of depression in a sample of elderly Chinese immigrants in New Zealand.

Schizophrenia

To our knowledge, Koneru and Weisman de Mamani (2006) conducted the first study exploring the relationship between acculturation and symptoms of schizophrenia. Results with Latinos and Blacks were not significant, but indicated small negative associations between facets of acculturation and fewer symptoms of schizophrenia. In contrast, there was a small, though not statistically significant, positive association between acculturation and schizophrenia symptoms for Anglo patients.

The authors interpreted their findings by suggesting that White patients who reside in households that largely endorse mainstream U.S. values and behaviors may be exposed to high-EE (e.g., high levels of criticism, hostility, and emotional overinvolvement) environments. There are several lines of research which demonstrate that patients residing in high-EE households tend to have a poorer course of illness. In contrast, White patients residing in households that have greater exposure to non-mainstream culture (e.g., less acculturated) may also have greater access to people, practices, and environments (e.g., low EE) that are associated with better mental health.

For the Latino subsample the ethnic interactions subscale of the Suinn-Lew Self-Identity Scale (Suinn, Ahuna, Khoo, 1992) demonstrated a small negative association

with symptoms of schizophrenia. The authors suggested that a modest increase in acculturation (potentially reflecting an integrative acculturation strategy), while maintaining a strong Latino orientation, may be beneficial for Latino patients with schizophrenia. A more integrated Latino patient with schizophrenia may maintain supportive ties with their familial network while simultaneously becoming more aware of mental health services and resources. For the Black subsample the cultural behavior subscale of was negatively correlated with symptoms. Greater engagement in mainstream U.S. cultural behavior may be reflecting a greater likelihood to use necessary medical or psychological treatment to facilitate symptom reduction.

A significant limitation of this investigation was that the Latino sample was marked by a limited acculturative range. Most of this sample was relatively unacculturated and the range spanned from relatively unacculturated individuals, possibly indicating a separationist acculturation strategy, to individuals with a mid-level of acculturation, possibly reflecting an integrative acculturation strategy. Thus, an increase in acculturation for this subsample could be reflecting movement from a less adaptive to a more adaptive acculturation strategy which subsequently could have beneficial impact on symptoms of mental health. If this sample was marked by a full acculturative range, it is possible that individuals moving from a mid-level of acculturation towards a high level of acculturation, possibly reflecting an assimilationist acculturation strategy, may have displayed a worsening schizophrenia symptom profile.

Two other limitations of this study will be addressed in the present research. One is that no data were gathered on enculturation. A second is that this study did not examine

mediators potentially underlying the relationship between acculturation and symptoms of schizophrenia

Large-Scale Studies investigating Acculturation and Mental Health

The Hispanic Health and Nutrition Evaluation Survey (HHANES) was a broad epidemiological study designed to ascertain information regarding health and nutritional status of Mexican American, Puerto Ricans, and Cuban Americans (Delgado, Johnson, Roy, Trevino, 1990). The HHANES was conducted between 1982 and 1984 and recruited approximately 16,000 participants from the Southwestern and Northeastern United States and Dade County, Florida. Amaro, Whitaker, Coffman, and Heeren (1990) analyzed a representative subsample of the HHANES data and examined the relationship between acculturation, measured by both nativity (U.S. born or not) and language use, and drug use. Results demonstrated, after controlling for relevant sociodemographic variables including age, gender, income, and education, that U.S. born Hispanic men and women, compared to those born outside of the U.S., reported more frequent marijuana and cocaine use. Similar results were found when comparing English-speaking Hispanic men and women to participants who reported using English less frequently or being monolingual Spanish speakers. Odds ratios demonstrated that marijuana use was 5 to 8 times greater for English speakers and cocaine use was up to 25 times greater for participants reporting English language dominance. Similar results were found when analyses were conducted that stratified the overall Hispanic group by specific ethnic subgroup (e.g., Mexican American, Puerto Rican).

The National Comorbidity Survey (NCS) was a large-scale nationally representative survey administered to 8,098 participants between 1990 and 1992. The

NCS used a two-part interview to gather data on individuals ranging in age from 15-54 to estimate the prevalence of DSM-III psychiatric disorders and assess risk factors and consequences of these disorders (Kessler, 1994). Ortega, Rosenheck, Alegria, and Desai (2000) analyzed the NCS data to determine whether greater acculturation, measured by nativity, parental nativity, language usage as a child, and current language used at home, was associated with an increased risk of DSM-III-R psychiatric disorders. The subsample used in the Ortega et al. (2000) analyses was the 9% of the NCS sample who had self-identified as Hispanic (6% were Mexican-American, 1% were Puerto Rican, and 2% were of other Hispanic nationality). Analyses were stratified by specific nationality and controlled for relevant sociodemographic variables including age, education, and income. Results demonstrated that Mexican Americans having at least one parent born in the U.S. and speaking English as a first language at home as a child were more likely to have three or more psychiatric disorders. For Puerto Ricans, currently speaking English at home was associated with greater likelihood of substance use disorders. Finally, for “other” Hispanics, using English as the primary language at home was associated with greater likelihood of any psychiatric disorder and increased comorbidity of psychiatric disorders.

The National Latino and Asian American Study (NLAAS) is a nationally representative study estimating the prevalence rates of mental disorders and mental health service utilization in a probabilistic sample of Asians and Latinos in the United States (Alegria et al., 2004). This study conducted between 2002-2003 includes approximately 4,600 participants. 2,554 are English and Spanish speaking Latinos including Mexicans, Puerto Ricans, Cubans, and “other” Hispanics. This study has several strengths in comparison to previous large-scale studies including a sample containing both English

and Spanish speaking (50%) participants. Results demonstrated that U.S. born Latinos, in comparison to immigrant Latinos, were more likely to have a history of any psychiatric disorder. Similar findings were reported with respect to other proxy variables representing greater acculturation including English proficiency, second or third generation status, and longer residence in the United States (Alegría et al., 2007).

Nationally representative studies demonstrate the potential generalizability of the relationship between greater acculturation and poorer mental health. However, these studies, similar to small scale studies, acknowledge several limitations including: using proxy measures (language, nativity status) as opposed to a bidimensional measure of acculturation, lack of data to explore mechanisms underlying the relationship between acculturation and psychiatric disorders, and no data to investigate the relationship between acculturation and schizophrenia. The first two limitations will be reviewed in the following sections.

Limitations in the Study of Acculturation and Mental Health

A potential reason for the discrepancies in small-scale study findings on acculturation and mental health outcomes may be that acculturation has not been consistently operationalized across studies, resulting in considerable measurement heterogeneity (Zane & Mak, 2003). For example, some studies use ethnic-specific measures (e.g., DeLeon & Mendez, 1996; Snowden & Hines, 1999) whereas others use ethnic-general acculturation scales (e.g., Stephenson, 2000). Furthermore, several studies employ single variables (e.g., language, nativity status) to represent acculturation. These variables can be conceived as proxy variables of acculturation and are more reflective of grouping or population categories. More importantly, they do not measure specific

values, beliefs, expectations, roles and norms that define culture. Despite this variability, findings do not differ systematically by acculturation measure.

Several researchers have argued that acculturation is an orthogonal bidimensional process in which the acquisition of host-culture norms and values, or acculturation, is not necessarily associated with the loss of culture-of-origin attributes, or enculturation. As previously noted, both retention of ethnic culture and acquisition of host culture should be assessed independently (Berry, 2003; Kim et al., 2001; Ryder et al., 2000). Only a small number of studies reviewed by Koneru et al. (2007) measured acculturation using a bidimensional scale, and surprisingly, a number of studies that used bidimensional scales still reported a linear acculturation score. Those studies (Abbott et al., 2003; Barrett et al., 2002; Becker et al., 2003; Elder et al., 2005; Gonzalez et al., 2004; Jennings et al., 2005; Ouarasse et al., 2004) that analyzed the relationship between separate cultural orientations and their respective mental health outcome of interest were able to present more interpretable results. Findings were able to clearly demonstrate that integration (e.g., high values on both ethnic-culture orientation and host-culture orientation) was generally associated with fewer mental health symptoms in comparison to marginalization, separation or assimilation.

Mediators of the relationship between acculturation and mental health

Most research on the relationship between acculturation and mental health has not focused on potential mediators. Researchers have posited that acculturation can be associated with positive attributes, such as awareness of health systems and resources, or negative consequences, such as familial conflict or disruption of support networks. To date, there is a limited empirical base to support these claims.

Only seven studies included within the Koneru et al. (2007) review investigated mediational models (Chen et al., 2003 ; Epstein et al., 2003 ; McQueen et al., 2003 ; Michaels Miller et al., 2006 ; Oppedal et al., 2004 ; Ouarasse et al., 2004 ; Robinson Shurgot et al., 2004). Findings from these investigations were mixed, with some results demonstrating that acculturation can be associated with positive attributes (e.g., reduced social alienation, more school and work success) and subsequent reductions in mental health symptoms, whereas, other studies demonstrated the opposite pattern of findings (e.g., greater acculturation was associated with higher levels of family conflict). A few studies focused on changes within the familial environment that occur during the acculturation process and their subsequent association with poorer mental health. Thus, greater focus on family dynamics could advance our understanding of the relationship between acculturation and mental health.

Future research is needed to identify other variables that potentially mediate the relationship of acculturation with mental health symptoms and outcomes (Shen & Takeuchi, 2001), such as religiosity/spirituality and coping strategies. Mediational analyses can provide possible targets for clinical intervention (Gonzalez, Deardorff, Formoso, Barr, & Barrera, 2006).

In the next six sections, studies of the relationships among acculturation and schizophrenia symptoms and the three proposed mediators (e.g., religiosity/spirituality, family cohesion, and religious coping) will be reviewed. Emphasis will be placed on studies with Hispanic and African-American samples.

Acculturation and Religiosity/Spirituality

Recent survey data has indicated that approximately 95% of the U.S. population reports having some form of religious faith (National Center on Addiction and Substance Abuse, 2001). Religiosity has been operationalized as a multidimensional construct containing both behavioral (e.g., prayer) and attitudinal (e.g., belief in God) components (Amey, Albrecht, & Miller, 1996). Research has demonstrated that religiosity can be associated with better physical and mental health (McCullough, Hoyt, Larson, Koenig, Thoresen, 2000; Payne, Bergin, Bielema, & Jenkins, 1991). Ethnic minorities, in comparison to non-ethnic minorities, tend to be more observant of religious beliefs and practices (De La Rosa & White, 2001; Ellison, 1998; Marin & Gamba, 2003). Cadge and Ecklund (2006) have demonstrated, using data from the New Immigrant Survey-Pilot, that for ethnic minorities adherence to religion is a means to maintain ties to ethnic identity.

In a study focusing on both Hispanics and Asian Americans, results demonstrated that Hispanic participants who were less affiliated with American culture, measured by the Majority-Minority Relations Survey, subscribed to Catholicism categorically, in comparison to Protestantism (Sodowsky, Lai, & Plake, 1991). These results were concordant with findings with Olmedo and Padilla (1978) who found that highly acculturated Mexicans were more likely to be Protestant than Catholic. Hunt (1998) has argued that the loss of Catholic affiliation for Hispanics/Latinos is associated with a reduction in Hispanic identity.

Several other studies with Hispanic/Latino samples also indicate that changes in religious practices (e.g., church attendance, prayer) and beliefs can be associated with

greater acculturation to mainstream U.S. culture. Cavalcanti and Schleef (2005) found that more acculturated Latinos, measured by language usage, value similarity, ethnic interaction, and political participation, were far more likely to report being Protestant in comparison to Catholic, as well as subscribing to no religion. Amaro (1988) found that bicultural Mexican women, in comparison to those with a greater Mexican affiliation, were less affiliated with religious beliefs. Similar results have been found when focusing on Latino adolescents (Marsiglia, Kulis, Nieri, & Parsai, 2005; Vega & Gil, 1998) and a mixed ethnicity, including Latinos, undergraduate sample (Ghorpade, Lacritz, & Singh, 2004).

In contrast to the above findings, Arredondo, Elder, Ayala, Campbell, and Bauero (2005) found that greater acculturation, measured by the Acculturation Rating Scale for Mexican Americans (ARSMA; Cuellar et al., 1995), was associated with more frequent church attendance in a predominantly Mexican-origin Latina sample. Arredondo et al. (2005) suggest that more highly acculturated Hispanics may be more integrated into their communities and to maintain this, or perhaps indicative of the pathway to achieve this, are more highly involved in religious organizations. In addition, results from this study demonstrated that highly acculturated participants reported better self-rated physical health and more frequent physical activity. Neff and Hope (1993) found no differences in religiosity when comparing three groups of Mexican Americans stratified by high, medium, and low acculturation levels. Results did indicate that greater acculturation for Mexican-American males was associated with lower depression. However, the researchers used only two brief subscales (i.e., adherence to traditional customs and language preference/nativity), to measure acculturation.

Research exploring the relationship between acculturation and religiosity/spirituality with non-Hispanic/Latino samples has also been conducted. Regarding the role of religion among African Americans Taylor (2004) wrote: “Religion and religious institutions of African Americans have had a profound impact on individuals and broader black communities...Black religious institutions are cohesive spiritual and social communities that foster the religious and social well-being and integration of individuals and families.” Klonoff and Landrine (1999a) found that more culturally traditional (e.g., less acculturated) African Americans, measured by the African-American Acculturation Scale (AAAS), espoused more religious beliefs and practices and were less likely to consume alcohol. Similar findings have been demonstrated by Ghorpade, Lackritz, and Singh (2006) who found that, for African Americans, greater psychological acculturation, measured by the Psychological Acculturation Scale (PAS), was associated with less intrinsic religious orientation. Sadowsky et al. (1991) found, among an Asian sample, that those who practiced traditional Eastern religion were the least acculturated. Finally, Jewish immigrants, in comparison to U.S. born Jewish individuals, report a more regular practice of Judaism including maintenance of a kosher lifestyle and observation of the Sabbath (Legge, 1997).

Religiosity/Spirituality and Schizophrenia

Surveys have suggested that the rates of religious practice are comparable between individuals with SMI and the general population (Kroll & Sheehan, 1989; Neeleman & Lewis, 1994). Despite the prevalence of religious beliefs and practices within the SMI population, the data to indicate whether these beliefs and practices are

beneficial is somewhat mixed. Several lines of research indicate a beneficial association in that greater religiosity can be associated with reduced symptom severity and relapse (Huguelet, Binyet-Vogel, Gonzalez, Favre, & McQuillan, 1997; Rogers, Poey, Reger, Tepper, Coleman, 2002), less frequent suicide attempts (Huguelet et al., 2007), reduced time to first encounter with mental health treatment (Moss, Fleck, & Strakowski, 2006), and with better overall functioning (Tepper, Rogers, Coleman, & Maloney, 2001). Religiosity was operationalized in these studies in several ways including level of religious activity (i.e., activity with an organized religious group) and religious coping (i.e., using religious beliefs and activities to cope with illness). Huguelet et al. (1997) argues that religious activity could mark “a very positive step for schizophrenic patients in that it leads to social contacts, leisure activities, and also perhaps a certain spiritual peace.”

Some research suggests a detrimental association between religiosity and schizophrenia indicating that patients with higher self-reported religiosity report a greater frequency of religious delusions (Siddle, Haddock, TARRIER, & Faragher, 2002). It should be noted that 91 of 193 participants in this study identified as being religious but did not experience religious delusions. Furthermore, 9 of the 45 participants who reported experiencing religious delusions identified as non-religious. Additionally, Siddle et al. (2002) found that patients who experienced religious delusions demonstrated worse outcomes (e.g., higher amount of antipsychotic medication) in comparison to patients without religious delusions. Wilson (1998) suggests that higher religiosity can be detrimental for some patients with schizophrenia because it will influence the content of patients' religious delusions (e.g., greater tendency to report presence of devil in

delusional content) and can be associated with more intense religious guilt. Findings indicate that greater religiosity can be associated with more frequent detrimental religious delusions, however, the majority of patients from the Siddle et al. (2002) did not experience this type of delusion. Weisman et al. (2005) found no relationship between religiosity and mental health in a multi-ethnic sample of patients with schizophrenia. The authors argue that their findings may be partially due to their use of the Family Environment Scale (Moos & Moos, 1981) which focuses primarily on religious practices as opposed to values and attitudes. Previous research (Pargament, Koenig, & Perez, 2000) indicates that religiosity is a complex construct composed of both behaviors and beliefs. Weisman et al. (2005) suggested that future research should assess both religious behaviors and attitudes when analyzing the relationship between religiosity and mental health. Because of this complexity, in this study a measure which contains items accounting for both religious values and attitudes and religious behaviors and practices was used.

Summary of Acculturation, Religiosity/Spirituality, and Schizophrenia

Legge asserts a “religious erosion-assimilation hypothesis” that argues that individuals who are more highly acculturated to mainstream U.S. culture will be less observant of religious beliefs and practices. Although the literature focusing on the relationship between acculturation and religiosity/spirituality does not unequivocally support an “erosion” hypothesis, most data does suggest that more highly acculturated individuals experience an alteration, and often, diminishment of religious beliefs and practices. Additionally, findings from Amaro (1988) and Klonoff and Landrine (1999a) indicate that greater enculturation can be associated with retention of religious and

spiritual beliefs and practices. Findings indicating that greater acculturation is associated with reductions in religiosity/spirituality could be detrimental for patients with schizophrenia. Most studies on the relationship between religiosity/spirituality and schizophrenia indicate that greater religiosity/spirituality predicts better outcomes (i.e., reduced symptom severity, less frequent suicide attempts) for this patient population. Based on these lines of research, as well as previously described findings from large-scale studies, it appears that religiosity/spirituality may mediate the relationship between acculturation and symptoms of schizophrenia.

Acculturation and Family Cohesion

Family dynamics, such as the cohesion within a household, tend to vary between ethnic groups. Studies have demonstrated that the cultural value of familism, or “a strong identification and attachment with nuclear and extended families as well as feelings of loyalty, reciprocity, and solidarity” (Triandis, Marin, Betancourt, Lisansky, & Chang, 1982), tend to be more important for ethnic minority groups (i.e., Hispanics/Latinos, African-Americans, Native Americans) in comparison to non-Hispanic/Latino Anglo-Americans (Marin & Gamba, 2003; Moos & Moos, 1981). In addition, research has demonstrated that the amount of criticism in Hispanic/Latino households tends to be far less when compared to Anglo-American households (Weisman de Mamani, Kymalainen, Rosales, & Armesto, 2007). Several lines of research have investigated the relationships between greater acculturation to mainstream U.S. culture, family dynamics, and health.

Greater acculturation has been found to be associated with reduced endorsement of familial obligations (i.e., requirement to provide support to family members) and perceiving the family as referents (i.e., family members serve as behavioral and

attitudinal referents) in a sample of Latino adults (Sabogal, Marin, Otero-Sabogal, Marin, & Perez-Stable, 1987). Using a Puerto-Rican adult sample, Rodriguez and Kosloski (1998), despite using a near identical instrument to the Sabogal et al. (1987) study, found a positive relationship between acculturation and family obligations and support from relatives. Similar to findings from Sabogal et al. (1987), they found a negative relationship between acculturation and perceiving the family as referents. Lugo Steidel and Contreras (2003) argued that the familism measures used by the two above-mentioned studies were incomplete and had questionable factor construction. In an attempt to address these proposed weaknesses, Lugo Steidel et al. (2003) constructed a new attitudinal familism scale which included two new subscales measuring familial interconnectedness (i.e., family members maintain emotional and physical closeness) and familial honor (i.e., family members have the duty to uphold the family name). The authors investigated the relationship between this scale and a bidimensional acculturation measure. The authors used both the Latino and Anglo orientations of the ARSMA-II (Cuellar et al., 1995) and found a significant negative relationship between aspects of familism and Anglo orientation and a significant positive relationship between aspects of familism and Latino orientation. In other words, greater adherence to mainstream U.S. culture was associated with reduced endorsement of family interconnectedness, honor, and support. In addition, greater adherence to Latino culture, or greater enculturation, was associated with greater belief in familial interconnectedness and honor. Similar findings indicating that greater acculturation is associated with reduced familial support and connection have been found in other studies focusing on

Latinos (Bacallao & Smokowski, 2007; Merali, 2004; Miranda, Estrada, Firpo-Jimenez, 2000; Miranda & Matheny, 2000; Rueschenberg & Buriel, 1989).

Studies have extended the above findings by including both physical and mental health outcomes. Mulvaney-Day, Alegria, and Sribney (2007) found, in a nationally representative sample of Latinos, that greater acculturation was associated with less family and friend support and poorer self-rated mental health (measured by a single-question: “how would you rate your overall mental health?”). Similar results have also been found with Cuban-American adolescents (Vega, Gil, Warheit, Zimmerman, Apospori, 1993), pregnant Mexican American women (Balcazar, Krull, Peterson, 2001), Mexican-American families (Bonnheim & Korman, 1985) and Mexican adults (Finch & Vega, 2003). It should be noted that no relationship between acculturation and familism was found in a sample of Hispanic American adolescents (Ramirez et al., 2004). This sample had limited acculturative range (majority of sample was predominantly moderately to highly acculturated) and their results did demonstrate that lower levels of familism were associated with greater usage of marijuana and inhalants. Edwards and Lopez (2006) conducted a more detailed analysis and found that both greater Mexican orientation and Anglo orientation were associated with higher perceived family support. In contrast, only the Mexican orientation subscale was associated with greater life satisfaction in a sample of Mexican-American adolescents. Robinson Shurgot and Knight (2004) found that a higher Latino orientation, and a lower Anglo orientation, was associated with greater familism and reduced burden in a sample of Latino caregivers of persons with dementia. Finally, in a longitudinal study, Gil, Wagner, and Vega (2000) demonstrated significant associations between acculturation, familism, and alcohol use in

a sample of Latino teenage males in South Florida. Their results demonstrated that greater acculturation, measured by English or Spanish language preference and years in the United States, was associated with reductions in traditional Latino familistic values and more frequent current and lifetime alcohol use. The authors argue that their findings lend support for a stress-coping model of addiction. Acculturation can be a stressful process due to difficulties adjusting to a host-culture and potential discrimination. Gil et al. (2000) suggest that alcohol use is a potential strategy to manage these stressors.

A smaller body of research has investigated the relationship between acculturation and family conflict in Hispanic/Latino samples. *Simpatia*, or emphasizing harmonious social relationships and avoidance of interpersonal conflict (Marin & Marin, 1991), is a more salient element of Hispanic/Latino American culture in comparison to mainstream Anglo-American culture. Greater acculturation to mainstream U.S. culture appears to be associated with a more conflictual interpersonal pattern between family members. This may be due to changes in gender role expectations within the household (Flores-Ortiz, 1991) and/or clashes in value systems between family members who are at different acculturation stages (Falicov, 1996). Several studies have demonstrated that greater acculturation is associated with higher levels of marital conflict (Flores, Tschann, VanOSS Marin, Pantoja, 2004; Santos, Bohon, Sanchez-Sosa, 1998). It should be noted that Flores et al. (2004) used the bicultural involvement questionnaire (BIQ; Szapocznik, Kurtines, & Fernandez, 1980) and found a different pattern of findings when examining each cultural orientation with conflict. Their results demonstrated that more American-oriented husbands reported more frequent conflict, more verbal aggression by both partners, and less frequent conflict resolution. American-oriented wives reported more

frequent emotional expression during conflict. More Mexican-oriented husbands and wives reported fewer conflicts and less frequent withdrawal from arguments. As previously noted, in a longitudinal investigation, McQueen, Getz, and Bray (2003) found that greater acculturation was associated with higher levels of family conflict and increased deviant behavior as well as drug and alcohol use in a sample of Mexican-American high school students. Similar findings, also with Mexican-American samples, have been demonstrated by other studies (Gonzalez, Deardorff, Formoso, Barr, Barerra, 2006; Pasch et al., 2006; Samaniego & Gonzalez, 1999).

Studies have examined the relationship between acculturation and family dynamics with African-American samples. Landrine and Klonoff (1996) found that more traditional African-American individuals in the United States were more likely to seek support from family and relatives whereas acculturated individuals sought support from coworkers and friends. More culturally traditional African-Americans espoused stronger beliefs in traditional family structure, values, and traditions (Klonoff & Landrine, 1999b). Similar findings were found with African-American college women (Nasim, Corona, Belgrave, Utsey, & Fallah, 2007) and African-American adolescents (Brook, Whiteman, Balka, Win, & Gursen, 1997).

Studies investigating the relationship between acculturation and family dynamics in non-Hispanic/Latino groups demonstrate a complex pattern of findings. Uba (1994) has reported that Asian-American families tend to be more cohesive when compared to Anglo-American families. In line with this, studies hypothesize that greater acculturation to mainstream Anglo values and norms will be associated with decreases in family cohesion, however, results to date have been mixed. Some studies have found a positive

association (i.e., greater acculturation is associated with greater cohesion) (Leong, Ming-Chu Kao, & Lee, 2004) while others demonstrate a negative association (Ying & Han, 2007; Youn, Knight, Jeong, & Benton, 1999). Variations in findings among these studies are challenging to interpret because the studies used different ethnic subgroups, age ranges, and acculturation measures.

Finally, some studies investigating the relationship between acculturation and family dynamics have been conducted in less frequently studied ethnic groups. For example, Faragallah, Schumm, and Webb (1997) found that greater acculturation was associated with reduced family satisfaction in a sample of Arab immigrants. Similar results have been found when investigating Pilipino-Americans (e.g., migrants from the Philippines) (Heras & Revilla, 1994) and Greek-Americans (Harris & Verven, 1998).

Family Cohesion and Schizophrenia

Research indicates a connection between family functioning and mental health in patients with schizophrenia. The largest area focusing on this topic has examined the relationship between expressed emotion (EE; criticism, hostility, and emotional overinvolvement) and schizophrenia. Numerous studies, with several different ethnic groups in various cultures, have demonstrated that high-EE in family members is strongly predictive of a poorer course of illness, in terms of both relapse and rehospitalization, for patients with schizophrenia (Butzlaff & Hooley, 1998; Kavanagh, 1992). Although the connection between high-EE and course of schizophrenia is relatively consistent across ethnic groups (see Hashemi, 1997 and Rosenfarb, Bellack, & Aziz 2006 for a discussion of exceptions), base rates for high-EE can be alarmingly different. For example, one recent study demonstrated that mainstream Anglo households are rated as high EE 3 to 5

times more often (depending on method of assessment) than are Latino households (Weisman de Mamani et al., 2007). In line with findings from the reviewed studies, Koneru and Weisman de Mamani (2007) found that greater acculturation is associated with high-EE in Latino relatives of patients with a member with schizophrenia.

Weisman, Gomes, and Lopez (2003) have found that Hispanic family members tend to have external, in comparison to internal, attributions for schizophrenia (i.e., believing that the illness is outside of the patients' control). In addition, Hispanic/Latino American families tend to view themselves as more interdependent (i.e., tied to relationships and social roles), as opposed to independent (i.e., tied to being unique) (Markus & Kitayama, 1991). These factors may be underlying the lower levels of EE typically present in Hispanic/Latino American families.

Interestingly, a number of researchers have found that, in African American families, high-EE tends to be associated with a better course of illness (Moline et al., 1985; Rosenfarb et al., 2006; Tompson et al., 1995) and may be associated with better outcomes (Rosenfarb et al., 2006) for patients with schizophrenia. Researchers have argued that in many African American families, forceful and argumentative speech (i.e., high EE) is indicative of genuine caring and concern (Rogan & Hammer, 1998). Within African American families, seemingly negative behavior may be reflective of caring and concern. As African American families become more acculturated they may be moving away from their own cultural norms in which sincere communication patterns are associated with confrontation, forceful speech, and emotional intensity (Davidson, 2001). In line with these findings, Koneru and Weisman de Mamani (2006) found a positive trend between greater acculturation and low-EE. These findings highlight that although

the manifestation of a cohesive family environment may vary when considering African-American patients the association between a supportive familial structure and better psychiatric functioning is present.

Studies have also focused on other aspects of family dynamics and their relationship with schizophrenia. Higher conflict, measured by the FES, predicted greater psychotic relapse in a sample of patients in Spain (Canive et al., 1995). King and Dixon (1996) found that greater family cohesion, measured by the Family Adaptability and Cohesion Evaluation Scales III, was associated with fewer positive symptoms of schizophrenia. Finally, Weisman, Rosales, Kymalainen, and Armesto (2005) found that greater patient perceptions of family cohesion, measured by the Family Environment Scale (FES), was associated with less general emotional distress (i.e., depression, anxiety, and stress) in Hispanic and African-American patients with schizophrenia.

Summary of Acculturation, Family Cohesion, and Schizophrenia

Research has consistently demonstrated that acculturating minority families, including Hispanic/Latino and African-American families, experience significant changes in their family functioning. Most studies of Hispanic/Latino samples have found that greater acculturation to mainstream U.S. culture is associated with reductions in familial support and cohesiveness. In addition, the small body of literature examining the relationship between enculturation to Hispanic/Latino culture and family cohesion has demonstrated that greater enculturation is associated with higher familial interconnectedness. Studies focusing on African-American samples have also consistently demonstrated that movement away from traditional culture is associated with reductions in familial connectivity. Also, numerous studies have demonstrated the

importance of family functioning in relation to schizophrenia. Findings indicate that poorer family functioning, marked by reduced family cohesion, can have a detrimental impact on presentation and course of illness for patients with schizophrenia. Based on these lines of research it seems likely that family cohesion will mediate the relationships between symptoms of schizophrenia and acculturation as well as enculturation.

Acculturation and Coping

An individual's response to a psychologically challenging situation has been defined as coping (Lazarus & Folkman, 1984). Although there is a robust literature on coping strategies in Anglo-Americans, there is relatively limited empirical work examining coping strategies in Hispanics and other ethnic minority groups. The existing literature has provided some consistent findings regarding the prevalence of religious coping among ethnic minorities.

Religious coping has been defined "as an attempt to deal with problematic situations by engaging in prayer, asking for support and guidance from God, seeking direction from religious leaders, and by trusting that God has a greater plan for one's life that stretches beyond one's current problems or suffering" (Brechtling & Giancola, 2007). Religious coping tends to be more widely used by Hispanic and African-American groups in comparison to Anglo-Americans (Copeland & Hess, 1995). In a study focusing on women in early-stage treatment for breast cancer, Culver, Arena, Antoni, and Carver (2002) found that both African-American and Hispanic women were more likely to use religious coping. Similar results demonstrating an increased usage of religious-based coping strategies by Hispanics and African-Americans have been found in samples of HIV patients (Griswold, Evans, Spielman, & Fishman, 2005), and patients dealing with

chronic pain (Edwards, Moric, Husfeldt, Buvanendran, & Ivankovich, 2005). Religious coping may be associated with beneficial health outcomes because it provides social support and a system of meaning (Ellison, 1991). Ethnic minorities are typically less able to access health care services potentially accounting for their greater likelihood of employing religious-oriented coping strategies to deal with illness (Njoku, Jason, Torres-Harding, 2005).

As individuals are influenced by cultural processes, they may alter their behavioral response to particular stressors (Huang et al., 1994). For example, Anglo-Americans tend to more frequently use substance use/abuse and self-distraction as coping strategies (Farley, Galves, Dickinson, & Diaz Perez, 2005; Vacarro & Wills, 1998) when dealing with depression and general psychological distress in comparison to Hispanics and African-Americans. In contrast, Hispanics and African-Americans have been found to use denial more frequently than Anglo-Americans when dealing with chronic fatigue (Njoku et al., 2005), and physical health-related quality of life (Farley et al., 2005).

Several studies have investigated whether coping strategies vary within-groups and whether coping relates to acculturation. Two studies have demonstrated that highly acculturated Latina caregivers of patients with dementia engage in less religious coping, measured respectively by a 3-item scale assessing religious importance and the short form of the Brief Religious Coping Scale (BRCOPE; Pargament, 1999), in comparison to less acculturated Latinas (Coon et al., 2004; Mausbach, Coon, Cardenas, & Thompson, 2003).

Maldonado (1985) found that younger, highly acculturated Latino caregivers, in comparison to older, less acculturated caregivers, were more frequent attendees in

support groups and tended to seek out information. Thus, it could be argued that younger, highly acculturated caregivers engage in other forms of active coping and perhaps do not need the support of a religious framework. However, Latinos who rely on religious-coping tend to report better physical and mental health in comparison to those engaged in other methods of coping (Hovey, 2000; Levin, Markides, & Ray, 1996). Short and Porro-Salinas (1996) found that greater acculturation was positively associated with a problem-focused coping strategy, measured by the Coping Strategy Indicator (CSI; Amirkhan, 1990), in a sample of recently immigrated Salvadorians. In addition, , problem-focused coping was associated with fewer symptoms of depression and less frequent alcohol use. However, the authors point out that their sample was restricted to participants with an acculturation range falling between unacculturated to integrated. Other studies have also found a relationship between greater acculturation and active coping strategies. To date, these studies have primarily focused on this relationship in physical, as opposed to mental, illness populations. For example, greater acculturation was positively associated with active coping (i.e., behavioral steps related to actively caring for oneself), measured by 3 items from the Active Problem Solving Scale (Folkman & Lazarus, 1980), and health promoting behaviors in a sample of HIV-positive Latino immigrant gay men (Bianchi, Zea, Poppen, Reisen, & Echeverry, 2004). In addition, greater length of residence in the U.S., a proxy measure for acculturation, was associated with more active coping (i.e., more frequent prostate-specific antigen testing) in a multi-ethnic sample (includes a Puerto-Rican subsample) of men who were hypothetically diagnosed with prostate cancer (Kudadije-Gyamfi, Consedine, Magai, 2006). Bianchi et al. (2004) argue that more highly acculturated Hispanic/Latino men may experience reduced

discrimination. This may allow them to feel better about themselves, motivating them to engage in more active coping strategies. Higher acculturation may reduce barriers to healthcare information and access (Rodriguez-Reimann et al., 2004). Finally, Cuellar et al. (1995) has demonstrated empirically that greater acculturation is associated with reductions in fatalism (i.e., believing that your behavior and future are out of your direct control). Due to this, greater acculturation may be associated with believing in the benefits of personal fitness and engagement in health-promoting behavior.

Vega, Kolody, and Valle (1988) found no relationship between acculturation and coping strategies, measured by the marital coping measure (Pearlin & Schooler, 1978), in a sample of Mexican-American married women. Similar to the sample used by Short and Porro-Salinas (1996), the sample employed in the Vega et al. (1988) study was predominantly unacculturated. No relationship between acculturation and coping strategies was also found in a highly acculturated sample of Mexican-American college students (Vasquez & Garcia Vasquez, 1995).

To date, the literature base examining acculturation and coping with African-American samples is limited. Results from the National Survey of American Life, a sample that included 3,570 African-American participants, demonstrated that more traditional African-Americans engage in more religious coping (Chatters, Taylor, Jackson, & Lincoln, 2008). Similar results were found when examining an African-American sample with Type 2 diabetes (Jones et al., 2006). The relationship between acculturation and coping strategies has also been investigated in Asian samples. In a longitudinal study comparing Chinese sojourners to Canada to Chinese-Canadian university students, Zheng and Berry (1991) found that students were less likely to use

problem-solving and tension reduction and more likely to use self-blame as coping strategies. It should be noted that Chinese students were more likely to seek informational support in coping with psychological difficulties. Greater acculturation in Chinese-American fourth and fifth grade children has also been found to be associated with more frequent usage of retaliation in dealing with peer problems. Less acculturated children tended to use emotional suppression when confronting peer difficulties (Huang, Leong, Wagner, 1994).

Variation in coping strategies and their relationship with acculturation has also been investigated with other Asian subgroups. For example, some work has demonstrated that highly acculturated Korean adults are more likely to use problem-focused coping strategies (Noh & Kaspar, 2003), whereas, other work has demonstrated that greater acculturation was positively associated with avoidance (Roesch, Wee, & Vaughn, 2006). It should be noted that although both studies used Korean adult samples they differed on acculturation measure and host-country (Canada and U.S. respectively). Vohra and Broota (1996) found that Indian college students living in India in comparison to Indian immigrants in the U.S. (samples were matched on age, education, and SES) were less likely to espouse strong religious beliefs and were less likely to be “external” (i.e., belief in more external agencies such as luck or fate). The authors argue that immigration stressors and perceived discrimination may compel Indians living in the U.S. to seek more traditional Indian cultural modes of coping. Finally, research has demonstrated that more highly acculturated Bengali college students (lived 10 years outside of Bengali culture) have been found to use more positive coping styles (Dasgupta & Roy, 2005) when dealing with psychological difficulties.

A small literature base exists that has investigated the relationship between acculturation and coping strategies with infrequently studied ethnic minority subgroups. Using a bidimensional acculturation measure, Kosic (2004) investigated the relationship between original cultural maintenance and host-group relationship (i.e., relationships with Roman citizens) and coping strategies in a sample of Croatian and Polish immigrants in Rome. Results for the Croatian subsample demonstrated that greater host-group relationships were negatively associated with both emotional and avoidant coping strategies. Problem-oriented coping was associated with maintenance of culture-of-origin. For the Polish subsample, results demonstrated that maintenance of culture-of-origin behaviors was associated with greater emotional coping and that greater host group relationships were positively associated with problem-oriented coping and negatively associated with emotional and avoidance coping.

Coping and Schizophrenia

Patients with schizophrenia employ a variety of coping strategies to manage the symptoms of their illness. In a comprehensive review, Farhall, Greenwood, and Jackson (2007) reported that approximately 70% of patients with schizophrenia, with predominantly positive symptoms, were able to identify coping behaviors specifically intended to reduce the frequency and intensity of their symptoms. These coping strategies were typically cognitive-behavioral in nature (i.e., problem-solving, positive self-talk, use of prayer) (Bak et al., 2001; McNally & Goldberg, 1997). Farhall et al. (2007) noted that the quantity of coping strategies can vary greatly in patients. Some studies noted that patients with a predominant positive-symptom profile reported using a total of 2 strategies (Bak et al., 2001) whereas others reported an average of 9.75 strategies (Boschi

et al., 2000). Although there are clear discrepancies in the quantity of employed strategies it is apparent that patients with schizophrenia are attempting to use coping strategies to deal with the symptoms of their illness.

Research indicates that patients with schizophrenia cope with their illness in an ineffective manner (Lysaker, Davis, Lightfoot, Hunter, & Stasburger, 2005). This is particularly important as studies have indicated that ineffective coping can be associated with greater emotional distress and symptom relapse (Macdonald, Pica, Macdonald, Hayes, & Baglioni, 1998; Meyer, 2001). Most patients with schizophrenia report experiencing benefits (i.e., reduction in symptoms) upon use of an effective individual coping strategy or repertoire of strategies (Lee, Lieh-Mak, Yu, & Spinks, 1993; Witztum, Briskin, & Lerner, 1999). Additionally, treatments oriented to teaching adaptive coping strategies (i.e., Coping Strategy Enhancement; Tarrier, Harwood, Yusopoff, Beckett, & Baker, 1990) have demonstrated efficacy in improving coping strategies and are associated with reductions in number and severity of symptoms (Tarrier et al., 1993). Most research has indicated that adaptive coping strategies (i.e., calming self-talk, reality testing, seeking instrumental and emotional social support) are associated with reductions in symptom expression and distress (Lee et al., 1993; McNally et al., 1997; Pallanti, Quercioli, Pazzagli, 1997) and with improved psychosocial functioning (Boschi et al., 2000) for patients with schizophrenia. Some studies have demonstrated that religious coping can facilitate insight and medication adherence for patients with schizophrenia (Kirov, Kemp, Kirov, & David, 1998; Murphy, 2000).

Meyer (2001) found that psychotic symptom severity in hospitalized patients with schizophrenia, in comparison to a predominantly non-psychotic psychiatric patient

sample, was associated with impaired, or infrequent, adaptive coping. This is consistent with previous evidence which has indicated that patients with more severe symptoms of schizophrenia tend to lack effective coping mechanisms. However, further data from the Meyer (2001) study indicates that patients who engaged in adaptive coping at baseline interview tended to report fewer symptoms at follow-up, controlling for baseline symptom severity (follow-up typically occurred 4-6 weeks after discharge). Results indicate that active coping can be a beneficial strategy, even for patients with severe symptoms, to impact schizophrenia symptom quantity and intensity. Adaptive coping strategies may impact various dimensions (i.e., symptoms of schizophrenia, general functioning, insight) by reducing perceived stress and fostering more adaptive cognitions and beliefs (Mann & Chong, 2004).

To date, few studies have examined cultural factors and coping in schizophrenia. Wahass and Kent (1997) examined whether coping strategies for auditory hallucinations varied between Saudi Arabian and British patients with schizophrenia. Their results demonstrated that Saudi Arabian patients were more likely to use religious coping strategies (i.e., reading religious text), whereas the British patients typically used physiological methods (e.g., engaging in physical activity, using alcohol). The authors also found that Saudi Arabian patients were more likely to use religious coping strategies to handle their symptoms regardless of the content of these symptoms. Thus, patients were not using religious coping strategies to exclusively confront hallucinations that were religious in nature. In addition, both patient groups felt that their strategies were effective for managing their symptoms. Based on their results, the authors argue that cultural

processes appear to have an impact on the selection of coping strategy but limited influence on the existence or perceived efficacy of coping strategies.

Summary of Acculturation, Coping, and Schizophrenia

Wahass and Kent (1996) argue that cultural variables may influence an individual's selection of coping strategy. Research demonstrates that greater acculturation to mainstream U.S. culture can lead to reduced engagement in religious coping for Hispanics/Latinos. This may be due to religiosity/spirituality holding a less significant place in mainstream U.S. culture compared to Hispanic/Latino culture. Numerous studies have also indicated that greater use of religious practices (e.g., reading spiritual texts, attending religious services) can be associated with better outcomes for patients with schizophrenia. Based on these lines of research, religious coping may mediate the relationships between acculturation or enculturation, and symptoms of schizophrenia.

Summary

Acculturation to mainstream culture can be associated with, and impact, mental health presentation and course. Although the broader acculturation and mental health literature has provided significantly heterogeneous findings, large-scale studies, including the HHANES, the NCS, and the NLAAS, have provided consistent results. Findings from these large-scale studies have demonstrated that greater acculturation to mainstream U.S. culture is associated with poorer mental health (i.e., greater drug and alcohol use, higher prevalence of psychiatric disorders). Alegria, co-investigator of the NLAAS, has argued that a crucial area of investigation in the acculturation and mental health literature is exploring the underlying causes for the connection between increasing "length of time in the United States and [the] rising incidence of mental health disorders" (Powell, 2004).

Although some small-scale studies have explored mechanisms underlying these relationships, this continues to be a significant limitation within the acculturation and mental health literature (Shen & Takeuchi, 2001; Koneru et al., 2007). A greater understanding of these underlying processes is necessary to better understand how acculturation relates to mental health and could provide targets for culturally-informed therapeutic intervention.

Literature focusing on the relationship between acculturation to mainstream U.S. culture and religiosity/spirituality, family cohesion, and religious coping suggests that these three variables may be potential mediators underlying the relationship between acculturation and schizophrenia. Study results have demonstrated that greater acculturation to mainstream U.S. culture can lead to reductions in religiosity/spirituality, family cohesion, and utilization of religious coping strategies. Also, research has demonstrated that greater enculturation to Hispanic/Latino and African-American culture is associated with higher levels of religiosity/spirituality, family cohesion, and utilization of religious coping. In addition, research has demonstrated that lower levels of these three variables are associated with a poorer schizophrenia symptom profile. The above described research pertaining to relationships between acculturation, enculturation, and the three proposed mediators is in line with Corral and Landrine's operant model of acculturation (2008). This model suggests that low-prevalence behaviors among low-accultured minorities increase in prevalence with greater acculturation. Presently, no study has examined the relationships among acculturation and enculturation with symptoms of schizophrenia. A more detailed analysis, involving both acculturation and enculturation, will provide clearer information regarding the unique associations between

schizophrenia symptoms and acquisition of mainstream culture as well as retention of culture-of-origin. In addition, similar to the broader acculturation and mental health literature, mediators potentially underlying these relationships have yet to be elucidated. Thus, this study will provide greater clarity regarding sociocultural mechanisms that may underpin the relationships between symptoms of schizophrenia and acculturation as well as enculturation.

Hypotheses

Based on the literature reviewed above, this study will examine the following hypotheses:

1. Guided by findings from well-designed large-scale studies (i.e., HHANES, NCS, and the NLAAS), it is hypothesized that greater acculturation to mainstream U.S. culture, measured by the Abbreviated Multidimensional Acculturation Scale (AMAS; Zea, Asner-Self, Birman, & Buki, 2003), will be associated with more symptoms of schizophrenia measured by the Brief Psychiatric Rating Scale (BPRS; Ventura, Lukoff, Nuechterlein, Liberman, Green, & Shaner, 1993). It should be noted that this hypothesis goes against the small negative associations observed for both Latinos and Blacks in the Koneru and Weisman de Mamani study (2006). However, as addressed above, most well designed large-scale studies (Alegria et al., 2007, Amaro et al., 1990; Ortega et al., 2000) found a positive relationship between acculturation and mental health outcomes.
2. Although there is a limited research on enculturation and mental health, growing evidence indicates that retention of culture-of-origin is associated with better mental health profiles (Becker et al., 2003; Gonzalez et al., 2004; Kim & Omizo, 2006; Stone et al., 2006). Based on these findings, it is hypothesized that higher enculturation, measured

by the AMAS, will be associated with fewer symptoms of schizophrenia measured by the BPRS.

3. The next set of hypotheses address relationships among religiosity/spirituality, religious coping and family cohesion with acculturation, enculturation and schizophrenia symptoms. First, based on the majority of findings from the literatures focused on the relationships between acculturation and religiosity/spirituality (Cavalcanti & Scheef, 2005; Marsiglia et al. 2005; Sadowsky et al. 1991; Vega & Gil, 1998), religious coping (Coon et al., 2004; Mausbach et al., 2003), and family cohesion (Bacallao & Smokowski, 2007; Koneru & Weisman de Mamani, in press; Merali, 2004; Miranda, Estrada, Firpo-Jimenez, 2000; Miranda & Matheny, 2000; Rueschenberg & Buriel, 1989), it is hypothesized that higher acculturation will be negatively correlated with religiosity/spirituality measured by the Religious Orientation Scale-Revised (ROS-R; Gorsuch & McPherson, 1989), religious coping measured by the Religious Coping Scale (RCS; Pargament et al., 1990), and family cohesion measured by the Family Cohesion subscale (FCS) of the Family Environment Scale (FES; Moos & Moos, 1986). Second, based on previous research, it is hypothesized that lower religiosity/spirituality (Huguelet et al., 1997; Moss et al., 2006; Rogers et al., 2002; Teppers et al., 2001), religious coping (Kirov et al., 1998; Murphy, 2000), and family cohesion (King & Dixon, 1996; Weisman et al., 2005) will be associated with more symptoms of schizophrenia. Third, based on findings from previous research that has examined the relationships between enculturation and religiosity/spirituality (Amaro, 1988), religious coping (Copeland & Hess, 1995; Culver et al., 2002), and family cohesion (Lugo Steidel et al., 2003; Robinson-Shurgot & Knight, 2004), it is hypothesized that higher enculturation will be

positively correlated with religiosity/spirituality, religious coping, and family cohesion. Finally, based on previous research, it is hypothesized that higher religiosity/spirituality, religious coping, and family cohesion will be associated with fewer symptoms of schizophrenia.

4. The next set of hypotheses examine potential mediators. Based on the above mentioned literatures, it is hypothesized that religiosity/spirituality, family cohesion, and religious coping will mediate the linear relationships between acculturation and symptoms of schizophrenia (if a curvilinear relationship is found between acculturation and symptoms of schizophrenia, it is hypothesized that the proposed mediators will only mediate the linear relationship between acculturation and symptoms). Higher acculturation will be associated with less religiosity/spirituality, family cohesion, and religious coping and lower scores will predict more symptoms of schizophrenia. In addition, it is hypothesized that the three variables outlined above will also mediate the relationship between enculturation and symptoms of schizophrenia. Higher enculturation will be associated with higher religiosity/spirituality, religious coping, and family cohesion and these higher scores will predict fewer schizophrenia symptoms. The primary models to be examined are summarized in figures 1.2 and 1.3.

5. In light of the findings observed in the Koneru and Weisman de Mamani study (2006), this study will also evaluate the possibility that the relationship between acculturation and schizophrenia symptoms is curvilinear. If the relationship is curvilinear, decreasing symptoms will be associated with movement from early to mid ranges of acculturation and increases in symptoms will be associated with movement from mid to higher ranges of acculturation. It should be noted that a curvilinear regression analysis was conducted

using the NLAAS study data to examine if a quadratic relationship was present between acculturation and mental health (Alegria et al., 2007). This relationship was found to be nonsignificant, in other words, only the linear relationship between acculturation and mental health outcomes was statistically significant. However, because the Koneru and Weisman de Mamani (2006) study was the first study to examine the association between acculturation and mental health specifically in schizophrenia, it is important to further investigate the potential for a quadratic relationship.

6. Research has consistently demonstrated that an integrative acculturation strategy, being relatively high on both acculturation and enculturation, tends to be associated with better mental health profiles (Berry, 1997; Phinney & Devich-Navarro, 1997). Based on these findings, it is hypothesized that integration, measured by calculating an interaction term between acculturation and enculturation, will be associated with fewer symptoms of schizophrenia measured by the BPRS.

Chapter 2: Research Design and Methods

Participants:

Data for this study were drawn from a larger ongoing project aimed at evaluating the efficacy of a culturally-informed family therapy for schizophrenia. Participants in the larger study include both patients and family members of Hispanic, African-American, and Anglo-American descent. In the current study, participants included the Hispanic and African-American subsample of patients ($N=44$, 31 Hispanic, M age =36.4, $SD=11.94$, 36 male). See Table 2.1 for complete demographic data on total sample. Tables 2.2 and 2.3 present demographic data on Hispanic and African-American subsamples respectively. All patients were diagnosed as having schizophrenia or schizoaffective disorder based on the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1996).

Procedure:

Families with a member thought to have schizophrenia were recruited to participate in the Culturally-Informed Family Therapy for Schizophrenia (CIT-s) project. CIT-s is a 15-session family-focused treatment with five modules: family collectivism, psychoeducation, religiosity/spirituality, communication, and problem-solving (see Weisman, Duarte, Koneru, & Wasserman, 2006 for complete description of treatment modules). Patients were interviewed at baseline using the SCID, the Brief Psychiatric Rating Scale (BPRS), and an assessment packet covering a variety of domains, including cultural identity, family dynamics, religiosity/spirituality, and coping strategies. Assessments typically occurred in the University of Miami Psychological Services Clinic (PSC), however, in some cases assessments occurred in the family's home or in an

assisted living facility. Assessments were conducted in either English or Spanish. All patient assessments were conducted by trained clinical psychology graduate students. Patients had to be deemed sufficiently cognitively intact and psychiatrically sound to understand the nature of the study and the questions asked. Patient's gross cognitive functioning was screened during the interview and with item 14 on the Brief Psychiatric Rating Scale which assesses disorientation. If patients were more than moderately disoriented, as noted by the interviewer or by receiving a score of 5 or higher on BPRS item 14, the protocol indicates that the interview is suspended and the CIT-s team meets to discuss the patient's appropriateness for, and ability to participate in the study. No patient in this sample was judged ineligible due to inadequate cognitive capacity. The CIT-S protocol also deems patients ineligible for study participation if symptoms appear to sufficiently interfere with participation (or warrant hospitalization). This was determined through phone and in person interviews and BPRS scores. If patients received scores of 6 or higher on the 4 psychosis items on the Brief Psychiatric Rating Scale (suspiciousness, hallucinations, conceptual disorganization, and unusual thought content) the interview was suspended and the case was discussed with the PI and the research team. In cases where patients were judged to be too psychiatrically unstable to participate appropriately in the study (based on interview or BPRS scores) they were provided appropriate referrals. Thus, all patients who entered the baseline portion of the study were deemed to have sufficient cognitive capacity and psychiatric functioning to give adequate informed consent and to understand the nature of the questions asked. All assessments were conducted in interview format to account for variation in reading abilities. Following the baseline assessment families were randomly assigned to receive

either CIT-s or a Treatment-As-Usual (TAU) control condition consisting of 3 sessions of psychoeducation. Follow-up assessments occurred immediately post-treatment and at 6 and 12 months following post-treatment assessment.

Language and translation of measures:

The editorial board approach was used to translate all measures from English to Spanish; this method is considered to be more effective than the more common translation-back translation approach (Geisinger, 1994). This translation approach attends to within ethnic group language variations. A native Spanish speaker of Cuban descent first translated all study measures, the translator then met with the editorial board. This editorial board was comprised of native Spanish speakers of Cuban, Nicaraguan, Costa Rican, Columbian, Mexican, and Puerto Rican descent, as well as the primary investigator of this study who is a non-native Spanish speaker with personal and professional experience in Spanish speaking countries (e.g., Mexico, Cuba, Spain) and U.S. cities where Spanish is frequently spoken (Los Angeles, Miami). The members of the board independently reviewed the translations and carefully compared them with the original English versions. The board then met with the original translator and discussed any concerns or discrepancies with the Spanish translations in order to create the most language-generic version of the measures. Board members independently reviewed the measures for a second time before meeting again to make final revisions in which all members agreed that the language was clear and targeted the intended constructs.

Overview of Measures

All measures are included in the appendix of measures.

Background Information: A demographic sheet was included to assess respondents' gender, age, ethnicity, educational level, primary language, religious subscription, and marital status.

Diagnosis Confirmation: Schizophrenia or schizoaffective disorder diagnosis confirmation was done using the psychotic disorders module of the Structured Clinical Interview for the DSM-IV Axis I Disorders, Version 2.0, patient edition (SCID-I/P). The SCID-I/P (First et al., 1996) is a semi-structured interview designed for diagnosing patients with Axis I disorders according to DSM-IV criteria. The SCID-I/P is widely used and has demonstrated high inter-rater reliability on individual symptoms and overall diagnosis of schizophrenia (Ventura, Liberman, & Green, 1998). All interviewers are trained by the Principal Investigator (PI, Amy Weisman de Mamani). To assess inter-rater reliability in the current study, all interviewers as well as the study Principal Investigator watched six videotaped interviews and independently rated each question and determined an overall diagnosis. Interrater agreement using Cohen's Kappa was 1.0. In other words, interviewers were in complete consensus regarding the presence or absence of diagnosis.

Exercises to prevent rater drift are conducted several times per year. These exercises involve watching a randomly selected video of a study participant interview and having each interviewer rate items independent of the group. Following independent completion all interviewers meet to discuss ratings and reach consensus if any scoring discrepancies exist.

Symptoms of Schizophrenia: Patient's schizophrenia symptoms were rated using the Brief Psychiatric Rating Scale (BPRS; Ventura, Lukoff, Nuechterlein, Liberman, Green,

& Shaner, 1993). This scale is a 24 item semi-structured interview, which evaluates eight primary areas: Unusual thought content, hallucinations, conceptual disorganization, depression, suicidality, self-neglect, bizarre behavior, and hostility. All questions are on a 7-point Likert-type scale ranging from 1 (not present) to 7 (extremely severe). Scores on all items were summed to obtain a total BPRS score. The measure has been frequently used in English and Spanish and has demonstrated good reliability with Whites and ethnic minorities (e.g., Caram, Agraz, Ramos, & Garcia, 2001; Nuechterlein, Dawson, Gitlin, Ventura, Goldstein, Snyder, Yee, & Mintz, 1992).

To establish interrater reliability, all interviewers were first trained by the P.I. (Dr. Amy Weisman de Mamani) who was trained by and demonstrated previous reliability with the Dr. Joseph Ventura a BPRS trainer and expert. Once trained, interviewers watched 6 videotaped BPRS training interviews selected by Dr. Ventura. Intraclass correlation coefficients between the study interviewers and Dr. Ventura's consensus ratings ranged from .85 to .98 for total scores. In general, and as is common in studies using this scale (e.g., Ventura, Green, Shaner, & Liberman, 1993; Schutzwahl et al., 2003) coefficients were higher for items based on verbal responses ($M = .91$, $SD = .06$) and lower for items based on interviewer observations ($M = .65$, $SD = .28$). Restriction of range in the observation only scores appeared to contribute to lower coefficients, as there was less variability for these items than other items.

Self report scales. See Table 2.1 for Cronbach's alpha broken down by English speakers, Spanish speakers, Hispanics and African-Americans for the following scales:

Acculturation and Enculturation: Acculturation and enculturation were measured using the Abbreviated Multidimensional Acculturation Scale (Zea, Asner-Self, Birman, &

Buki, 2003). This scale consists of 42 questions on a 4-point Likert-type scale and has demonstrated adequate validity and reliability in previous studies (Zea et al., 2003).

Acculturation is measured using 21 items that measure three main factors: U.S. American cultural identification (e.g., “I feel that I am part of U.S. American culture”), English language competence (e.g., “How well do you speak English on the phone?”), and U.S. American cultural competence (e.g., “How well do you know U.S. American history?”).

A total acculturation score is obtained by averaging these 21 items. A higher score indicates greater adherence to U.S. American culture. Enculturation is measured using 21 items which also measure three main factors: country-of-origin cultural identification, country-of-origin language competence, and country-of-origin cultural competence. A total enculturation score is obtained by averaging these 21 items. A higher score indicates greater adherence to country-of-origin culture. Cronbach’s Alpha for the present study was 0.90.

Religiosity/Spirituality: Religiosity/Spirituality was assessed using the *Religious Orientation Scale-Revised* (ROS-R; Gorsuch & McPherson, 1989). A religiosity/spirituality score is obtained by averaging the 14 items. This scale includes items that assesses both intrinsic (values, attitudes, and ideas) and extrinsic religious (behaviors and practices) orientations. Sample items include “*I have often had a strong sense of God’s presence*” and “*I go to church mostly to spend time with my friends.*” Items are scored using a 5-point (1 = strongly disagree to 5 = strongly agree) Likert type rating scale, with higher scores indicating greater religiosity/spirituality. Cronbach’s alpha for the present study was 0.81.

Family Cohesion: Family cohesion was measured using the Family Cohesion Subscale (Moos & Moos, 1986) of the Family Environment Scale (FES). This subscale has 9 True/False questions designed to measure the commitment, help, and support between family members. The FES cohesion subscale has demonstrated adequate reliability and validity in previous studies (Moos, 1990). A total score was obtained by summing the number of “True” answers, after three questions were reverse-scored. A higher score indicated less family cohesion. Cronbach’s Alpha in the present study was 0.82.

Religious Coping: Religious Coping was assessed using the Religious Coping Activities Scale (RCAS; Pargament et al., 1990). This 29-items scale assesses the extent to which people turn to religion to cope with stressful life circumstances. Items are scored on a 1 (not at all) to 4 (a great deal) basis, with higher scores indicating greater use of religious coping. This scale has 6 subscales: spiritual based coping, good deeds, discontent, interpersonal religious support, please, and avoidance. Cronbach’s Alpha for the present study was 0.96.

Chapter 3: Results

Preliminary Analyses.

Multiple imputation. Missing data were present for all variables of interest and indicated no systematic response bias. The percentage of missing data was highest for acculturation and enculturation, 29%, because this measure was added following study onset. The percentage of missing data for religiosity/spirituality was 8.9%. The percentage of missing data for family cohesion and religious coping activities was 6.7% and for schizophrenia symptoms was 2.3%. Missing data in this study was considered missing completely at random (MCAR) because missingness was unrelated to the observed data (Enders, 2006). To account for missing data, multiple imputation (MI) was used. Enders (2006) has argued that MI is the “methodologic state of the art”, in comparison to traditional techniques (i.e., listwise and pairwise deletion), because it can produce unbiased and efficient parameter estimates.

MI creates m copies of the dataset (e.g., 5), each of which has different estimates of the missing values (2006; Schafer, 1997, 1999). Using these m copies, the selected statistical model (e.g., regression) is fit to each of the m complete data sets, and the resulting parameter estimates and standard errors are combined into a single inference (2006). The single inference for a given parameter (e.g., beta coefficient) is the arithmetic average of that parameter over the m analyses. The single inference for the standard error is calculated by combining two components: the within-imputation variance and between imputation variance. Within-imputation variance is defined as the arithmetic average of the m squared standard errors and the between-imputation variance is the variance of the parameter estimate across the m imputations (2006; Rubin, 1987).

Imputations of the data were generated using Stata 10 (Statacorp, 2008). Parameter estimates were based on 5 imputations because Rubin (1987) has demonstrated that there is only minimal increase in precision when more than 5 imputations are conducted.

Power. Power estimation was calculated using nQuery advisor 7.0. Estimates indicated that for a multiple linear regression model which includes 2 covariates with a squared multiple correlation (R^2) of 0.0900, a sample size of 44 will have 76% power to detect, at $\alpha = .05$, an increase in R^2 of 0.16 due to including 2 additional covariates. R^2 value selection was based on previous literature that examined relationships between acculturation, a mediator, and mental health symptoms after controlling for relevant covariates.

Study variables. All study variables were examined for outliers and normalcy. Based on standardized residuals, Cook's D, and dfBeta values (Pedhazur, 1997) one outlier was detected in symptoms of schizophrenia. This value was removed for subsequent analyses. Following deletion of this participant, all distributions were relatively normal. See Tables 2.5, 2.6, and 2.7 for descriptive statistics for each variable of interest for total sample and per ethnic subgroup.

Demographic variables. Table 2.2 presents descriptive statistics on the demographic variables of age, age of onset of illness, length of illness in years, gender, ethnicity, primary language (English or Spanish), marital status (single or divorced/separated. The divorced/separated category was collapsed, because only one participant endorsed being separated. No participants in this sample were currently married.), education (on a 7 point scale from 1= advanced degree to 7 = below grade 8) and religious affiliation (Catholic, Protestant, Jewish, Muslim, None, Other, and Not applicable) for the total

sample. Tables 2.3 and 2.4 present demographic data on the Hispanic and African-American subsamples respectively. Independent samples t-tests indicated that there were significant differences between ethnic groups on age and total acculturation score ($t(42)=-2.26, p<.05$ and $t(42)=-2.21, p<.05$ respectively). African-American participants were older and reported higher acculturation. The relationships between demographic variables and all study variables were examined. Pearson correlations were conducted to examine relationships between continuous demographic variables and dependent variables. See Table 2.8 for full correlation matrix for total sample and tables 2.9 and 2.10 for Hispanic and African-American subsamples respectively. One-way ANOVA and t-tests were conducted to examine relationships between categorical demographic variables and dependent variables. For the total sample, older age was associated with greater endorsement of religiosity/spirituality, more education was associated with higher family cohesion, and there were significant differences in religious coping based on marital status. Divorced participants used more religious coping in comparison to single participants ($t(42)=2.21, p<.05$). For the Hispanic subsample, higher education was associated with higher family cohesion, and Spanish-speaking participants endorsed significantly higher religiosity/spirituality in comparison to English-speaking participants ($t(29)=-2.88, p<.05$). For the African-American subsample, older participants endorsed higher religiosity/spirituality. In cases where covariates related to dependent variables, hierarchical linear regression was used and dummy coded categorical and continuous covariates were entered in block 1 and predictors were entered in step 2. Pearson correlations were used to examine relationships between variables when there were no statistical covariates.

Primary Analyses.

Correlations and Regressions. To examine hypotheses 1-3, a series of correlations and multiple regressions were conducted. In line with hypotheses, for the total sample, greater family cohesion was associated with fewer symptoms of schizophrenia ($r=.43$, $p<.05$). It should be noted that family cohesion is reverse coded thus a higher number reflects less cohesion. In addition, and not surprisingly, there was a significant relationship (after controlling for age) between religiosity/spirituality and religious coping activities ($B=.26$, $p<.05$). Contrary to hypotheses (after controlling for marital status), results demonstrated a significant positive relationship between higher acculturation and religious coping activities ($B=.55$, $p<.05$). See Tables 2.11 and 2.12 for complete results of each step of multiple regression and R^2 change values.

Ethnicity was also examined as a potential moderator for each of the significant relationships described above. To examine for moderation, first, each continuous independent variable was centered (religiosity/spirituality and acculturation) to reduce collinearity between independent variables (Pedhazur, 1997). This involved subtracting the mean value of the variable from each observation. Because ethnicity is a dichotomous categorical variable it was dummy-coded (Hispanics were coded as 1 and African-Americans were coded 0). An interaction term was calculated by multiplying the independent variable and the dummy-coded ethnicity variable. A linear regression was conducted in which the independent variable, the dummy-coded ethnicity variable, and the interaction term were added. In each analysis, the interaction term beta coefficients were not significant ($p >.05$ for all) which indicated that the interaction term was not a

significant predictor of the dependent variables (schizophrenia symptoms and religious coping activities). Thus, ethnicity did not moderate any of the observed relationships.

On an exploratory basis, each ethnic group was reexamined separately for all primary analyses. Given the small sample sizes, this was done even when interaction terms (described above) were not significant, to avoid missing interesting ethnic patterns in the data. For African-Americans, greater family cohesion was associated with fewer psychiatric symptoms ($r=.67$, $p<.05$). Also, (after controlling for age), greater religiosity/spirituality was associated with fewer symptoms ($B=-12.83$, $p<.05$) and greater family cohesion ($B=-4.33$, $p<.05$). In addition, not surprisingly (after controlling for age), higher religiosity/spirituality was associated with higher religious coping activities ($B=.97$, $p<.05$). See Tables 2.13, 2.14, and 2.15 for complete results from the multiple regressions.

For Hispanics, results demonstrated a significant positive relationship between enculturation and symptoms of schizophrenia ($r=.37$, $p<.05$) as well as acculturation and religious coping activities ($r=.49$, $p<.05$). Also, (after controlling for language), there was a significant positive relationship between acculturation and religiosity/spirituality ($B=.76$, $p<.05$). Not surprisingly (after controlling for language) higher religiosity/spirituality was associated with higher religious coping activities ($B=.52$, $p<.05$). These findings should be considered preliminary, and interpreted cautiously, because the number of participants in each ethnic subgroup was relatively small, thus findings may be unstable. See Tables 2.16 and 2.17 for complete results from the multiple regressions.

Mediational models. To examine hypothesis 4, Baron and Kenny's (1986) criteria were followed to evaluate whether religiosity/spirituality, religious coping, and family cohesion mediate the linear relationships between acculturation and enculturation with schizophrenia symptoms as depicted in figures 1 and 2. According to Baron and Kenny (1986), the following conditions must be met to demonstrate mediation: (a) the independent variable (acculturation and enculturation) must influence the mediator variable (religiosity, family cohesion, coping) in the predicted direction, (b) the mediator variable must influence the dependent variable (schizophrenia symptoms) in the predicted direction, (c) the independent variable must influence the dependent variable in the predicted direction, and (d) the relation between the independent variable and the dependent variable must be eliminated when the dependent variable is regressed on both the independent variable and the mediator (indicating full mediation) or at least significantly reduced (indicating partial mediation).

To test the mediational models presented in figures 1 and 2, first Baron and Kenny's steps a-c were evaluated by examining the semipartial correlations described under the first 3 sets of hypotheses. Because necessary conditions were not met in steps a-c further regression analyses were not conducted. Thus, contrary to hypotheses, religiosity/spirituality, religious coping, and family cohesion were not found to mediate the relationships between acculturation and enculturation with schizophrenia symptoms.

Curvilinear relationship. To examine hypothesis 5, a hierarchical quadratic regression analysis was conducted to assess whether the relationship between acculturation and total symptoms of schizophrenia was linear or non-linear. Independent variables were centered (Pedhazur, 1997). A quadratic acculturation term was calculated by raising each

value of acculturation, after being centered, to the second power. In step 1 centered acculturation was added, and in step 2, the quadratic centered acculturation term was added. Results demonstrated no significant relationship between the linear acculturation term and total symptoms, nor any significant R^2 change between steps 1 and 2 which demonstrated no significant relationship between the quadratic acculturation term and total symptoms. See Table 2.18 for unstandardized beta coefficients and standard errors.

Interaction regression model. To examine hypothesis 6, a regression was conducted to evaluate whether an interaction between acculturation and enculturation predicted symptoms of schizophrenia. An interaction term was calculated by multiplying the centered acculturation variable by the centered enculturation variable. A linear regression was conducted in which centered acculturation, centered enculturation, and the acculturation X enculturation interaction term were added. The interaction term beta coefficient was not significant which indicated that the interaction term was not a significant predictor of the dependent variables (symptoms of schizophrenia). See Table 2.19 for unstandardized beta coefficients and standard errors.

Chapter 4: Discussion

Immigration is rapidly changing global demographics. It is estimated that by the year 2050 ethnic minorities will comprise 47% of the total U.S. population (U.S. Census Bureau 2000a). In addition, a growing literature base is demonstrating that immigration is a significant risk factor for the development of psychosis (Cantor-Graae & Selten, 2005; Fearon & Morgan, 2006). Despite this, the present study was the first to examine relationships between both acculturation and enculturation with symptoms of schizophrenia in an ethnic minority sample. Study results will first be discussed for the collective sample and then broken down by ethnicity. Following this, limitations of the present study and directions for future research will be detailed.

Findings for the total sample

As hypothesized, higher family cohesion was associated with fewer symptoms of schizophrenia. This finding is in line with previous research (King & Dixon, 1996; Weisman et al. 2005). The majority of prior research has focused on negative family attributes (e.g., criticism) and their association with poorer mental health. This finding underscores the importance of measuring positive family factors and highlights that perceptions of family unity and support are closely tied to well-being. In addition, it suggests that family cohesion may be an important target variable when delivering family-focused interventions.

Contrary to hypotheses, higher acculturation was associated with more religious coping activities. Potential reasons for this finding may relate to the sociocultural context that individuals were acculturating to and that many study participants were likely to be of Cuban descent (data on country of origin is not available in this study). Ethnic groups

were instead classified by broad ethnic category, e.g., Hispanic, African American). Balls et al. (2003) suggest that the degree of similarity between the culture of origin and the host culture potentially influences the relationship between acculturation and mental health. Hispanic and African-American participants within this study were acculturating to the sociocultural context of Miami, FL which is largely characterized by Hispanic culture. Thus, participants within this study were acculturating to a host culture which is marked by Hispanic values, norms, and behaviors which include a high frequency of and engagement in religious-oriented coping activities. Religious coping may be a salient manner in which individuals adjust to the environment.

The congruence between the culture-of-origin and host culture may also be accounting for the non-significant relationships between acculturation and religiosity/spirituality, family cohesion, and symptoms of schizophrenia. The acculturative process was potentially marked by less acculturative stress and thus did not detrimentally impact adherence to values or mental health symptoms. It appears that acculturation to the culture of Miami-Dade county may be beneficial for this sample because it is associated with greater engagement in positive behavioral activities and maintenance of adaptive intrinsic value structures.

Findings for the Hispanic and African-American subsamples

For the Hispanic subsample, contrary to hypotheses, results demonstrated that higher acculturation was associated with higher religiosity/spirituality and engagement in religious coping activities. Hispanics tend to cite religious coping as a frequently employed strategy to manage stressors. In addition, most participants likely belonged to the Cuban subgroup as over 50% of Hispanics in Miami-Dade county self-identify as

Cuban (Portes & Rumbaut, 2006). Cuba is well-known to be a communistic society; a political structure which limits open religious expression. Individuals living in this society may have been forced to limit their religious activity despite holding strong intrinsic religious beliefs (2006). As individuals acclimate to a region characterized by strong religious belief and the freedom to openly practice there may be a trend towards increasing religious coping activities and strengthening of existing internal religious/spiritual values.

Also contrary to hypotheses, higher enculturation was associated with more symptoms of schizophrenia. A recent study conducted by the National Alliance for Mental Illness (NAMI) demonstrated that less than one in eleven Hispanic immigrants seek treatment for mental health needs (2006). Hispanic families, in comparison to non-Hispanic families, are more likely to perceive mental illness as something related to witchcraft, possession, or drug or alcohol abuse (2006). Some researchers suggest that this may be due to the notion that these above-listed factors are more likely to independently dissipate and not require medical intervention. Based on the greater potential for patients to reside in households that hold non-medical conceptualizations of schizophrenia, duration of untreated psychosis (DUP) may be prolonged. In previous studies, DUP has been found to be associated with higher schizophrenia symptom scores (Schimmelmann et al., 2008).

Related to duration of untreated psychosis, more enculturated Hispanic patients with schizophrenia may perceive significant stigma regarding their mental illness (Corrigan & Watson, 2007). The authors argue that this may be associated with lower educational attainment in this subgroup which could subsequently contribute to less

awareness of the biological underpinnings of mental illness. In addition, family members frequently experience significant shame due to their relative's illness. Large scale studies have shown that between a quarter and a half of family members believe that their relationship with a person with mental illness should be kept hidden or otherwise be a source of shame to the family (Phelan, Bromet, & Link, 1998). Due to perceived stigma, patients tend to experience lower self-esteem and self-efficacy which may lead to a decreased propensity to seek, or awareness of, necessary pharmacological and psychosocial treatment (Watson, Corrigan, Larson, & Sells, 2007). Relatives of the patients may have experienced "courtesy stigma", or the "prejudice applied to a group because of their association with a stigmatized person" (Phelan et al., 1998). As a result, more highly enculturated patients may reside with family members who potentially delay engaging psychiatric services for their relative. Finally, Hispanic patients with schizophrenia may have experienced considerable discrimination in their lives for being both ethnic minorities and individuals with mental illness. Corrigan (2000) has argued that prejudice and discrimination are often associated with medical services being withheld or replaced by intervention by the criminal justice system. This it seems, is likely to result in increased symptoms because Hispanic patients may not be receiving appropriate care in mental health centers or more readily incarcerated as opposed to hospitalized during an acute psychotic episode.

For African-Americans, as hypothesized, higher family cohesion and religiosity/spirituality were associated with fewer symptoms of schizophrenia. Also, and not surprisingly, higher religiosity/spirituality was associated with higher family cohesion. Both of these constructs tend to be highly prevalent in African-American

families (Klonoff & Landrine, 1999b). Finally, not surprisingly, religiosity/spirituality and religious coping activities were highly correlated.

Although not statistically significant, after controlling for age and marital status respectively, there was a trend with a medium effect size (Cohen, 1988) for higher acculturation to be associated with higher religious coping activities and religiosity/spirituality. Findings for the Hispanic subsample have been discussed and a similar rationale may be applicable for the African-American subgroup. African-American participants within this study were highly acculturated and thus potentially strongly influenced by Hispanic, largely Cuban, culture. Due to the very small subsample size these associations must be viewed as highly tentative and in need of replication.

It is also interesting to note a few patterns that emerged with respect to demographic variables. For example, single participants were significantly younger than divorced/separated participants and were less religious/spiritual. Older age was associated with higher religiosity/spirituality. This may be a cohort effect. However, Brierley (2006) found that as people age, their engagement in religion increases. It would be interesting to confirm in future longitudinal research, whether patients with schizophrenia also become more religious as they age. Finally, higher education was associated with more family cohesion. Given the strong links between family cohesion and a host of mental health benefits (Weisman et al. 2005), educated patients may have several advantages. For example, several studies have demonstrated that engagement in psychoeducation is beneficial for patients with schizophrenia in terms of reducing patient relapse and rehospitalization as well as for reducing family burden (Magliano et al.,

2006). It is possible that psychoeducation is more culturally sanctioned within families with higher levels of education. Therefore, these families may be more likely to take advantage of family focused educational programs to cope with mental illness. In addition to improving mental health for patients and their relatives, engaging in such programs may have the added benefit of making patients feel more connected to their loved ones. These findings are preliminary and in need of further investigation to determine the stability of the associations and the mechanisms underlying them.

Limitations

There were a number of limitations to the present study. The first was the small sample size. In particular, ethnic subgroup sizes were low. Patients with schizophrenia are typically a challenging sample to recruit due to their limited awareness of resources, hesitancy to engage in intervention, and often diminished cognition. Ethnic minorities are also traditionally challenging to engage in research (Swanson & Ward, 1995). Thus, recruitment for this study was further complicated by restriction to Hispanic and African-American participants.

Subgroup heterogeneity was also a potential concern due to the limited sample size. Cubans comprise 54% of the Hispanic population of Miami-Dade county suggesting that this sample, while potentially largely Cuban, could have been comprised of Hispanics from various regions. Hispanics from various regions may differ on several sociodemographic and cultural constructs. For example, non-Cuban Hispanics tend to be lower in socioeconomic status in comparison to Cubans (U.S. Census Bureau, 2000a). Heterogeneity may have also been present in the African-American sample due to Black Haitians or Hispanics potentially self-classifying to this subgroup.

The sample had a slightly restricted range in terms of family cohesion. Participants perceived their families typically as moderately to highly cohesive. This finding is not entirely surprising as the majority of families participating in this study were willing to enroll in a family-focused psychosocial intervention are probably committed to one another and the well-being of the family system. Due to this, and the sociocultural context of this study, the potential relationship between acculturation and family cohesion may have been attenuated.

Finally, the sociocultural context in which individuals are acculturating, and its congruence with one's own culture, is quite important (Suarez-Orozco & Suarez-Orozco, 2001). Koneru et al. (2007) argued that individuals acculturating to a region characterized by high education and wealth will adopt a different set of norms, customs, and values in comparison to individuals acculturating to an underprivileged, lower-educated, lower income community. In this study, the lack of association between acculturation and several study variables may be due to the similarity between the sample's own culture and the host culture.

Future Directions

Findings from the present study suggest a strong need for continued investigation into the mediating role of sociocultural variables in the relationship between acculturation, enculturation and schizophrenia symptoms. Based on the findings of this study, it would be useful to examine other cultural constructs including folk beliefs, stigma, and conceptualizations of mental illness to determine if they are associated with acculturation and psychiatric symptoms. Results demonstrated that religious coping may be an important variable for ethnic minority patients with schizophrenia. Future studies

should attempt to collect qualitative data from participants regarding religious coping to determine participants' perceived benefits.

Future work would benefit from closer examination of the specific elements perceived as reflecting family cohesion and support among different ethnic subgroups. Findings from previous work have demonstrated that what is viewed as support versus criticism may differ markedly by ethnicity. Hispanics' conceptualization of family cohesion for example, appears to be characterized by warmth and a lack of critical and hostile attitudes (Kymalainen & Weisman, 2006; Weisman, Rosales, Kymalainen, & Armesto, 2006). On the other hand, some research suggests that for African-Americans, perceptions of supportive communication may be quite different. For example, some research suggests that conflict and criticism from family members is often experienced as reflecting caring and concern for this ethnic group (Davidson, 2001; Rosenfarb et al., 2006; Tompson, 1995). More detailed information on how ethnicity interacts with perceptions of family cohesion and warmth would be useful for tailoring family-focused treatments to be relevant for ethnic minorities.

The present study included patients with schizophrenia residing in Miami, FL, a majority Hispanic urban setting. However, Hispanics accounted for half of the U.S. population growth since the year 2000 and this is not regionally concentrated growth exclusive to metropolitan areas. Thus, it will be important for acculturation research to consider ethnic minority patients with schizophrenia in cultural contexts dissimilar from their own.

A major limitation in the larger acculturation literature is the lack of longitudinal investigation (Koneru et al., 2007). Fulgini (2001) has argued that analysis over time is

critical because the relationship between acculturation and mental health outcomes may not be linear. In addition, potential mediator variables may change rapidly over time whereas others demonstrate more stability (Cabassa, 2003).

In conclusion, to the best of our knowledge, this was only the second investigation to date to examine relationships between acculturation and symptoms of schizophrenia. Although many study results ran counter to hypotheses, findings from these analyses highlight several critical areas for future research. Continued investigation into the relationships among cultural variables such as acculturation and enculturation with symptoms of schizophrenia is necessary and will be crucial for designing appropriate interventions for immigrants with psychosis.

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Figure 1. Berry's four strategy framework based on acculturation and enculturation

	High Acculturation	Low Acculturation
High Enculturation	Integration	Separation
Low Enculturation	Assimilated	Marginalized

Figure 2. Hypothesized mediators of the relationships between acculturation and symptoms of schizophrenia

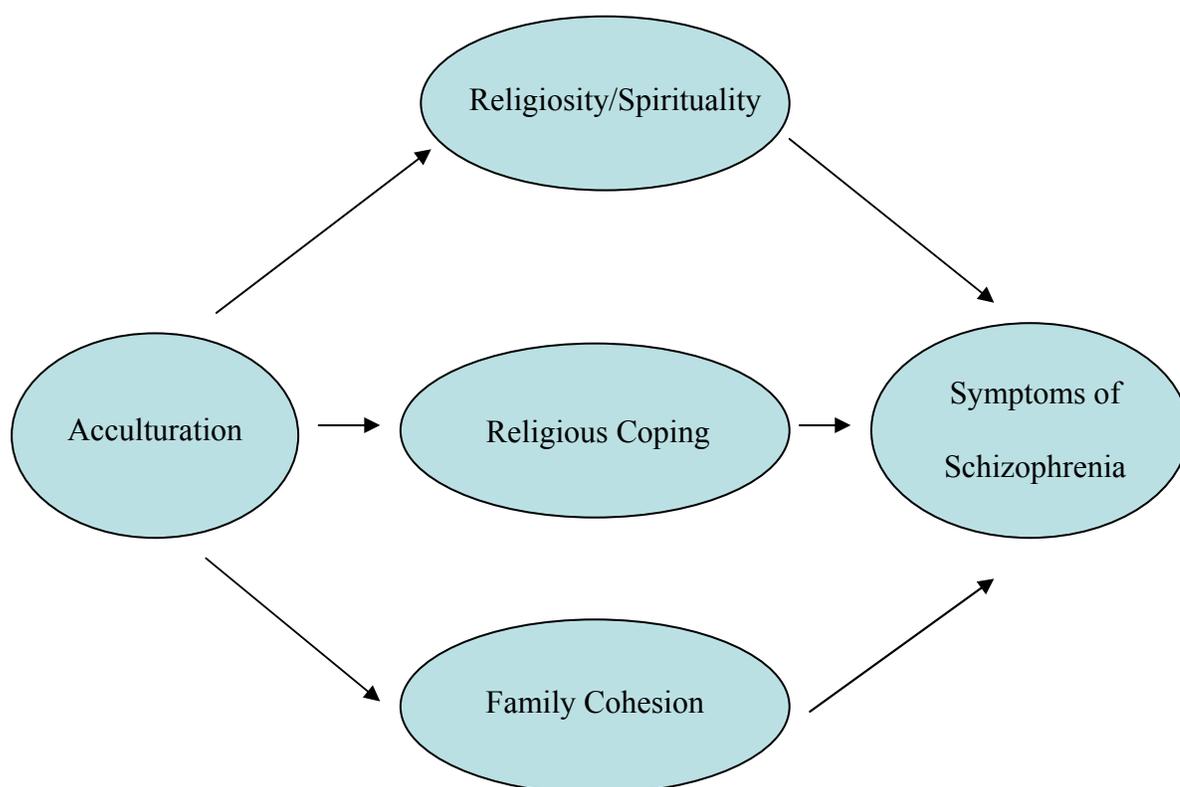


Figure 3. Hypothesized mediators of the relationships between enculturation and symptoms of schizophrenia

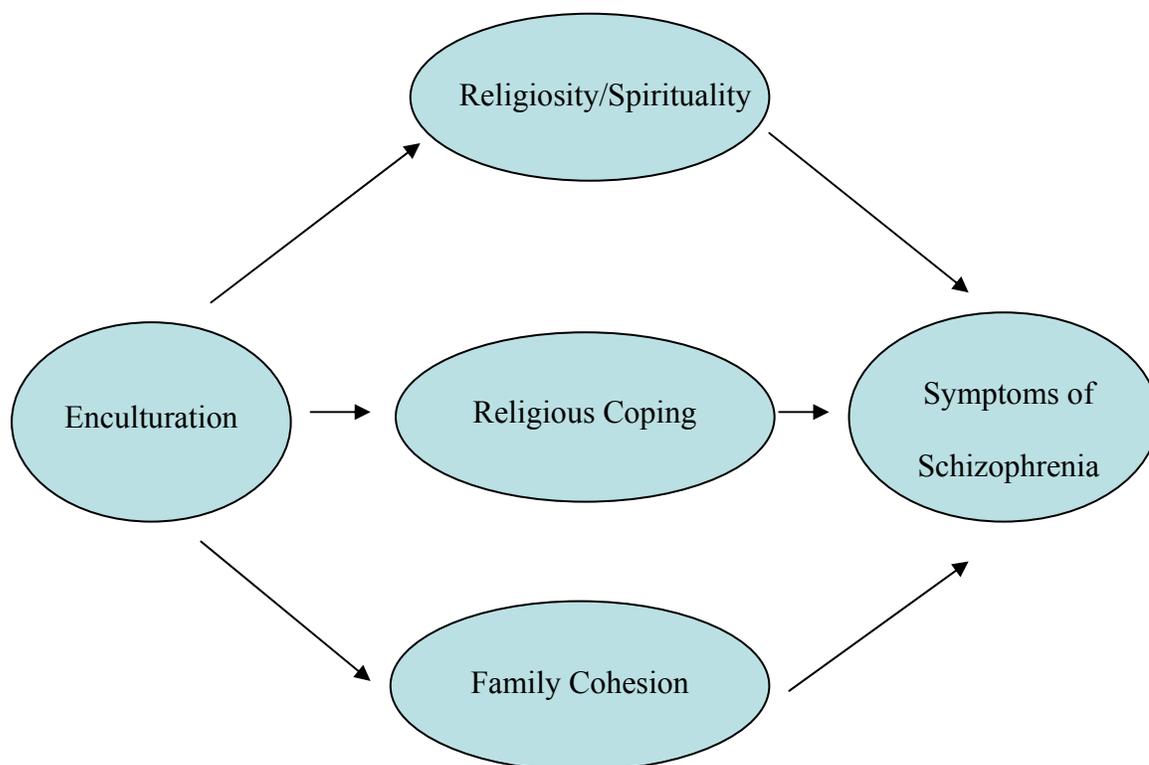


Table 1. Cronbach's alpha for all study variables

	Acculturation	Religiosity/Spirituality	Family Cohesion	Religious coping activities
English-speakers	.94	.85	.88	.95
Spanish-speakers	.86	.80	.66	.96
Hispanics	.88	.85	.73	.97
African-Americans	.96	.72	.92	.93

Table 2. Demographic data for total sample ($N=44$)

Variable	Mean or Frequency	Standard Deviation
Age	36.77	12.07
Age of first symptoms	20.11	9.45
Length of illness	17.56	12.03
Gender	Male = 35	
Ethnicity	Hispanic = 31	
Primary language	English = 26	
Marital status	Single = 33 Divorced or Separated = 11	
Education	College degree = 4 Some college = 17 High School graduate = 13 Some highschool beyond grade 8 = 9 Grade 8 completed = 1	
Religion	Catholic = 20 Protestant = 11 None = 7 Other = 6	

Table 3. Demographic data for Hispanic subsample ($N=31$)

Variable	Mean or Frequency	Standard Deviation
Age	34.23	11.48
Age of first symptoms	18.48	8.93
Length of illness	16.88	12.01
Gender	Male = 27	
Primary language	Spanish = 17	
Marital status	Single = 25 Divorced or Separated = 6	
Education	College degree = 3 Some college = 13 High School graduate = 9 Some highschool beyond grade 8 = 5 Grade 8 completed = 1	
Religion	Catholic = 18 Protestant = 5 None = 3 Other = 5	

Table 4. Demographic data for African-American subsample ($N=13$)

Variable	Mean or Frequency	Standard Deviation
Age	42.85	11.66
Age of first symptoms	24.50	9.86
Length of illness	19.30	12.51
Gender	Male = 8	
Primary language	English = 12	
Marital status	Single = 8 Divorced or Separated = 5	
Education	College degree = 1 Some college = 4 High School graduate = 4 Some highschool beyond grade 8 = 4	
Religion	Catholic = 2 Protestant = 6 None = 4 Other = 1	

Table 5. Descriptive statistics for variables of interest for total sample

Variable	Mean	Scale Range	Standard Deviation	Skew	Kurtosis
Acculturation	3.20	1-4	0.66	-.48	-1.1
Enculturation	2.99	1-4	.97	-.86	-.45
Religiosity/Spirituality	3.24	1-5	1.12	-.72	-.12
Family Cohesion	12.41	9-18	2.88	.75	-.76
Religious Coping Activities	2.63	1-4	0.82	-.19	-.86
Symptoms of schizophrenia	54.13	24-168	13.64	-.25	-.59

Table 6. Descriptive statistics for variables of interest for Hispanics

Variable	Mean	Standard Deviation	Skew	Kurtosis
Acculturation	3.06	0.71	-.14	-1.50
Enculturation	3.17	.86	-1.37	1.22
Religiosity/Spirituality	3.06	1.24	-.39	-.70
Family Cohesion	12.01	2.49	.86	-.04
Religious Coping Activities	2.55	0.87	-.14	-1.01
Symptoms of schizophrenia	52.03	14.04	-.21	-.82

Table 7. Descriptive statistics for variables of interest for African-Americans

Variable	Mean	Standard Deviation	Skew	Kurtosis
Acculturation	3.53	0.40	-.71	.97
Enculturation	2.57	1.16	.01	-1.52
Religiosity/Spirituality	3.67	.61	-.94	.97
Family Cohesion	13.35	3.60	.30	-2.03
Religious Coping Activities	2.82	0.68	.13	-1.26
Symptoms of schizophrenia	46.54	12.01	.15	-.70

Table 8. Correlation matrix for total sample

	Age	AOI	LI	Edu	Acc	Enc	R/S	FES	RC AS	BP RS
Age	1									
AOI	.36*	1								
LOI	.75* *	-.35*	1							
Edu	.09	-.002	.07	1						
Acc	.25	.017	.12	-.17	1					
Enc	.16	-.04	.22	-.12	-.04	1				
R/S	.31*	.18	.21	.20	.14	.08	1			
FES	.18	.17	.03	.41 **	.14	-.08	-.08	1		
RCAS	.22	-.065	.17	.14	.50 *	.09	.39*	-.13	1	
BPRS	.1	-.05	.11	.01	.17	.27	-.03	.43*	.02	1

** denotes statistically significant correlation at $p < .01$

* denotes statistically significant correlation at $p < .05$

Age = Participant age at time of consent

AOI = Age of onset of illness

LI = Length of illness in years

Edu = Level of educational attainment

Acc = Total acculturation score

Enc = Total enculturation score

R/S = Religiosity/Spirituality

FES = Family cohesion

RCAS = Religious coping activities scale

BPRS = Brief Psychiatric Rating Scale

Table 9. Correlation matrix for Hispanic subsample

	Age	AOI	LI	Edu	Acc	Enc	R/S	FES	RC AS	BP RS
Age	1									
AOI	.31	1								
LI	.81* *	-.33	1							
Edu	-.20	-.03	-.13	1						
Acc	.09	.13	.12	-.32	1					
Enc	.29	.04	.37	-.12	-.01	1				
R/S	.20	.15	.18	.20	.00 4	.12	1			
FES	.05	-.19	.13	.36 *	.07	-.18	-.09	1		
RCAS	.17	-.10	.15	.16	.49 *	.09	.32	-.08	1	
BPRS	.03	-.08	.06	-.09	.15	.37 *	-.06	.30	.13	1

Table 10. Correlation matrix for African-American subsample

	Age	AOI	LI	Edu	Acc	Enc	R/S	FE S	RC AS	BP RS
Age	1									
AOI	.23	1								
LI	.64*	-.60	1							
Edu	.68*	.02	.53	1						
Acc	.46	.05	-.05	.19	1					
Enc	.25	.01	-.01	-.05	.26	1				
R/S	.56*	-.22	.36	.07	.60*	.39	1			
FES	.25	.58	-.18	.46	.12	.13	-.37	1		
RCAS	.23	-.29	.18	.02	.51	-.12	.72*	-.39	1	
BPRS	.33	.08	.44	.50	-.15	.36	-.28	.67	-.59	1

Table 11. Multiple linear regression for total sample: Religious coping activities regressed on religiosity/spirituality

Model	Unstandardized Coefficients		R ² change	t	Sig.	
	B	Std. Error				
1	(Constant)	2.074	.397			
	Ptage	.015	.010	.049	1.476	.147
2	(Constant)	1.508	.447		3.376	.002
	Ptage	.008	.010		.732	.468
	Pblrel/spir	.261	.110	.114	2.367	.023

Table 12. Multiple linear regression for total sample: Religious coping activities regressed on acculturation

Model	Unstandardized Coefficients		R ² change	t	Sig.	
	B	Std. Error				
1	(Constant)	2.480	.137		18.052	.000
	Marital status	-.608	.275	.10	2.212	.032
2	(Constant)	.791	.556		1.422	.163
	Marital status	.303	.268		1.131	.265
	Pblacctot	.551	.177	.17	3.117	.003

Table 13. Multiple linear regression for African-Americans: Schizophrenia symptoms regressed on religiosity/spirituality

Model		Unstandardized Coefficients		R ² change	t	Sig.
		B	Std. Error			
1	(Constant)	45.150	12.533		3.603	.004
	Ptage	.327	.283	.11	1.155	.273
2	(Constant)	76.479	17.131		4.464	.001
	Ptage	.699	.288		2.430	.035
	Pblrel/spir	-12.825	5.513	0.31	-2.326	.042

Table 14. Multiple linear regression for African-Americans: Family cohesion regressed on religiosity/spirituality

Model		Unstandardized Coefficients		R ² change	t	Sig.
		B	Std. Error			
1	(Constant)	10.021	3.986		2.514	.029
	Ptage	.078	.090	.063	.862	.407
2	(Constant)	20.593	5.261		3.915	.003
	Ptage	.203	.088		2.300	.044
	Pblrel/spir	-4.328	1.693	0.370	-2.556	.029

Table 15. Multiple linear regression for African-Americans: Religious coping activities regressed on religiosity/spirituality

Model		Unstandardized Coefficients		R ² change	t	Sig.
		B	Std. Error			
1	(Constant)	2.262	.762		2.968	.013
	Ptage	.013	.017	.05	.760	.463
2	(Constant)	-.098	.878		-.112	.913
	Ptage	-.015	.015		-1.015	.334
	Pblrel/spir	.966	.283	.51	3.419	.007

Table 16. Multiple linear regression for Hispanics: Religiosity/spirituality regressed on acculturation

Model		Unstandardized Coefficients		R ² change	t	Sig.
		B	Std. Error			
1	(Constant)	1.267	.653		1.940	.062
	Ptprimlang	1.156	.402	.22	2.880	.007
2	(Constant)	-2.041	1.581		-1.291	.207
	Ptprimlang	1.793	.469		3.825	.001
	Pblacctot	.758	.334	.12	2.269	.031

Table 17. Multiple linear regression for Hispanics: Religious coping activities regressed on Religiosity/spirituality

Model		Unstandardized Coefficients		R ² change	t	Sig.
		B	Std. Error			
1	(Constant)	1.267	.653		1.940	.062
	Ptprimlang	1.156	.402	.22	2.880	.007
2	(Constant)	-.195	.856		-.227	.822
	Ptprimlang	1.241	.373		3.323	.002
	Pblrel/spir	.521	.216	.13	2.413	.023

Table 18. Curvilinear model of acculturation predicting symptoms of schizophrenia

(N=44)

Block 1

Variable	<i>B</i>	<i>SE B</i>
Acculturation	3.50	3.12

Block 2

Variable	<i>B</i>	<i>SE B</i>
Acculturation	3.81	3.37
Acculturation ²	1.58	5.83

Table 19. Interaction model with acculturationXenculturation predicting symptoms of schizophrenia ($N=44$)

Variable	<i>B</i>	<i>SE B</i>
Acculturation	1.68	3.14
Enculturation	3.36	2.00
AccXEnc	6.26	3.32

Appendix: Measures

Family Environment Scale

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.

Religious Orientation Scale-Revised

Answer questions based on the LAST 3 MONTHS or SINCE YOUR LAST ASSESSMENT.

1. I enjoy reading about my religion

1 = I strongly disagree	4 = I tend to agree
2 = I tend to disagree	5 = I strongly agree
3 = I'm not sure	

2. I attend religious services because it helps me make friends

1 = I strongly disagree	4 = I tend to agree
2 = I tend to disagree	5 = I strongly agree
3 = I'm not sure	

3. It doesn't much matter what I believe so long as I am good

1 = I strongly disagree	4 = I tend to agree
2 = I tend to disagree	5 = I strongly agree
3 = I'm not sure	

4. It is important to me to spend time in private thought and prayer

1 = I strongly disagree	4 = I tend to agree
2 = I tend to disagree	5 = I strongly agree
3 = I'm not sure	

5. I have often had a strong sense of God's presence.

1 = I strongly disagree	4 = I tend to agree
2 = I tend to disagree	5 = I strongly agree
3 = I'm not sure	

6. I pray mainly to gain relief and protection

1 = I strongly disagree	4 = I tend to agree
2 = I tend to disagree	5 = I strongly agree
3 = I'm not sure	

7. I try hard to live all my life according to my religious beliefs.

1 = I strongly disagree 4 = I tend to agree
 2 = I tend to disagree 5 = I strongly agree
 3 = I'm not sure

8. What religion offers me most is comfort in times of trouble and sorrow.

1 = I strongly disagree 4 = I tend to agree
 2 = I tend to disagree 5 = I strongly agree
 3 = I'm not sure

9. Prayer is for peace and happiness.

1 = I strongly disagree 4 = I tend to agree
 2 = I tend to disagree 5 = I strongly agree
 3 = I'm not sure

10. Although I am religious, I don't let it affect my daily life. (Note: Answer "5" if you are not religious)

1 = I strongly disagree 4 = I tend to agree
 2 = I tend to disagree 5 = I strongly agree
 3 = I'm not sure

11. I go to religious services mostly to spend time with my friends.

1 = I strongly disagree 4 = I tend to agree
 2 = I tend to disagree 5 = I strongly agree
 3 = I'm not sure

12. My whole approach to life is based on my religion.

1 = I strongly disagree 4 = I tend to agree
 2 = I tend to disagree 5 = I strongly agree
 3 = I'm not sure

13. I go to religious services mainly because I enjoy seeing people I know there.

1 = I strongly disagree 4 = I tend to agree
 2 = I tend to disagree 5 = I strongly agree
 3 = I'm not sure

14. Although I believe in my religion, many other things are more important in life. (Note: answer "5" if you are not religious)

1 = I strongly disagree 4 = I tend to agree

2 = I tend to disagree
3 = I'm not sure

5 = I strongly agree

Religious Coping Activities Scale

Please read the statements listed below and for each statement please indicate to what extent each of the following was involved in your coping with having/having a relative with schizophrenia. Answer questions based on the LAST 3 MONTHS or SINCE YOUR LAST ASSESSMENT. Please use the following scale to record your answers.

1 = not at all
 2 = somewhat
 3 = quite a bit
 4 = a great deal

1. Trusted that God would not let anything terrible happen to me.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

2. Experienced God's love and care.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

3. Realized that God was trying to strengthen me.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

4. In dealing with the problem, I was guided by God.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

5. Realized that I didn't have to suffer since Jesus suffered for me.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

6. Used Christ or other religious figure as an example of how I should live.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

7. Took control over what I could and gave the rest to God.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

8. My faith showed me different ways to handle the problem.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

9. Accepted the situation was not in my hands but in the hands of God.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

10. Found the lesson from God in the event.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

11. God showed me how to deal with the situation.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

12. Used my faith to help me decide how to cope with the situation.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

13. Tried to be less sinful.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

14. Confessed my sins.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

15. Led a more loving life.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

16. Attended religious services or participated in religious rituals.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

17. Participated in religious groups (support groups, prayer groups, Bible studies.)

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

18. Provided help to other members of my religious community.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

19. Felt angry with or distant from God.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

20. Felt angry with or distant from the members of the religious community.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

21. Questioned my religious beliefs and faith.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

22. Received support from the clergy (for example, pastors, priests, rabbis, etc.).

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

23. Received support from other members of the religious community.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

24. Asked for a miracle.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

25. Bargained with God to make things better.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

26. Asked God why it happened.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

27. Focused on the world-to-come rather than the problems of this world.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

28. I let God solve my problems for me.

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

29. Prayed or read the Bible or other religious text to keep my mind off my problems

1 = not at all 2 = somewhat 3 = quite a bit 4 = a great deal

Abbreviated Multidimensional Acculturation Scale
(items 1-6, 13-21, and 31-36 measure acculturation and items 7-12, 22-30, and 37-42
measure enculturation)

The following section contains questions about your culture of origin and your native language. By culture of origin we are referring to the culture of the country either you or your parents came from (e.g., Puerto Rico, Cuba, China). By native language we refer to the language of that country, spoken by you or your parents in that country (e.g., Spanish, Quechua, Mandarin). If you come from a multicultural family, please choose the culture you relate to the most. Answer questions based on the last 3 months or since your last assessment.

Instructions: Please mark the number from the scale that best corresponds to your answer.

- 1 = Strongly disagree
- 2 = Disagree somewhat
- 3 = Agree somewhat
- 4 = Strongly agree

- __ 1. I think of myself as being U.S. American.
- __ 2. I feel good about being U.S. American.
- __ 3. Being U.S. American plays an important part in my life.
- __ 4. I feel that I am part of U.S. American culture.
- __ 5. I have a strong sense of being U.S. American.
- __ 6. I am proud of being U.S. American.
- __ 7. I think of myself as being _____ (a member of my culture of origin).
- __ 8. I feel good about being _____ (a member of my culture of origin).
- __ 9. Being _____ (a member of my culture of origin) plays an important part in my life.
- __ 10. I feel that I am part of _____ culture (culture of origin).
- __ 11. I have a strong sense of being _____ (culture of origin).
- __ 12. I am proud of being _____ (culture of origin).

Please answer the questions below using the following responses:

- 1 = Not at all
- 2 = A little
- 3 = Pretty well
- 4 = Extremely well

How well do you speak English:

- __ 13. at school or work

- __14. with American friends
- __15. on the phone
- __16. with strangers
- __17. in general.

How well do you understand English:

- __18. on television or in movies
- __19. in newspapers and magazines
- __20. words in songs
- __21. in general

Please answer the questions below using the following responses:

- 1 = Not at all
- 2 = A little
- 3 = Pretty well
- 4 = Extremely well

How well do you speak your native language:

- __22. with family
- __23. with friends
- __24. on the phone
- __25. with strangers
- __26. in general

How well do you understand your native language:

- __27. on television or in movies
- __28. in newspapers and magazines
- __29. words in songs
- __30. in general

How well do you know:

- __31. American national heroes
- __32. popular American television shows
- __33. popular American newspapers and magazines
- __34. popular American actors and actresses
- __35. American history
- __36. American political leaders

How well do you know:

- 37. national heroes from your native culture
- 38. popular television shows in your native language
- 39. popular newspapers and magazines in your native language
- 40. popular actors and actresses from your native culture
- 41. history of your native culture.
- 42. political leaders from your native culture

Version 4.0
Brief Psychiatric Rating Scale
(BPRS)

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.

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.

1. 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.

INTEGRATING FREQUENCY AND SEVERITY IN SYMPTOM RATING: THE HIERARCHICAL CRITERION

2. 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”.

3. 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 fell 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 CONTRADICTIONARY 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.

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- Overall JE and Gorham DR, The Brief Psychiatric Rating Scale. *Psychological Reports* 10: 799-812, 1962.
- Overall JE, Hollister LE, Pichot P: Major psychiatric disorders: A four-dimensional model. *Archives of General Psychiatry*, 16: 146-151, 1967.
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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 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, shoe laces 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.

16. 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 _____

5	NA	6	1	2	3	4
			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):
assessment is questioned

_____ Patient

_____ Parents/Relatives

_____ Mental Health Professionals

_____ Chart

Explain here if validity of

_____ 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