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# Ethnic/Racial Differences in the Experience of Burden and Psychological Outcomes for Caregivers of Patients with Schizophrenia: the Influence of Family Cohesion and Interdependence

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UNIVERSITY OF MIAMI

ETHNIC/RACIAL DIFFERENCES IN THE EXPERIENCE OF BURDEN AND  
PSYCHOLOGICAL OUTCOMES FOR CAREGIVERS OF PATIENTS WITH  
SCHIZOPHRENIA: THE INFLUENCE OF  
FAMILY COHESION AND INTERDEPENDENCE

By

Giulia C. Suro

A THESIS

Submitted to the Faculty  
of the University of Miami  
in partial fulfillment of the requirements for  
the degree of Master of Science

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Ethnic/Racial Differences in the Experience  
of Burden and Psychological Outcomes for  
Caregivers of Patients with Schizophrenia:  
The Influence of Family Cohesion and Interdependence.

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Research has demonstrated that taking care of a patient with schizophrenia has serious mental health costs to caregivers including high levels of burden and poorer overall mental health. Research also indicates that caregivers from certain ethnic/racial groups may fare better in this process. Specifically, prior research indicates that African American and Hispanic caregivers often exhibit better mental health than their Caucasian counterparts. Using a sample of 176 caregivers of patients with schizophrenia, the present study was specifically aimed at examining whether three variables (caregiver burden, family cohesion and interdependence) may account for part of the formerly observed ethnic/racial differences in psychological outcomes. Study hypotheses pertaining to ethnicity/race and family cohesion were not supported. For the most part, minorities in this study did not demonstrate better mental health outcomes than Caucasians and family cohesion did not predict mental health outcomes. However, in line with study hypotheses, we did find that subjective burden mediated the relationship between objective burden and mental health. In other words, subjective appraisals of caregiving appear to partially underlie the association between concrete costs of caregiving and psychological outcomes in schizophrenia caregivers. Also as expected, we found that interdependence moderated the relationship between objective burden and subjective burden. This finding

suggests that helping caregivers to value harmony and connection with others over individual self-interests may reduce the likelihood that objective stressors (which are often inevitable in schizophrenia) will result in subjective distress.

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## **CHAPTER 1: INTRODUCTION**

Schizophrenia is a severe and chronic psychiatric disorder that occurs in approximately 1% of the population (Mueser & Jeste, 2008). The disorder poses multiple challenges in its management for both patients with the illness, as well as their caregivers. In the past fifty years, de-institutionalization has resulted in many patients residing at home. In fact, it is estimated that from 50 to 90% of American adults with schizophrenia live with a relative (Bolger et al., 1993; Honkonen, et al., 1999; WHO, 2001). As the burden of care has shifted from hospitals to homes, a field of research, known as caregiver burden, has developed to investigate the consequences of this experience for family members. Recent research sheds light on certain subpopulations of caregivers who experience these consequences at lower rates than others. Specifically, African American and Hispanic caregivers have been shown to fare better in terms of mental health outcomes than Caucasian caregivers of patients with schizophrenia. However, the mechanisms underlying these differences are not fully understood. In this thesis, the sociocultural values of family cohesion and interdependence are investigated as variables that may interact with caregiver burden to explain these ethnic/racial differences in mental health outcomes for schizophrenia caregivers.

### **Caregiver Burden**

Over the past fifty years there has been a dramatic increase in the number of patients with severe mental illnesses that are residing at home with family. Studies estimate that between one-third and two-thirds of individuals with schizophrenia return to live with family members after being hospitalized (Foldemo & Gullberg, 2005; Goldman,

1982). A major consequence of the dramatic deinstitutionalization of mental health care patients has been that family members are now increasingly responsible for providing basic caregiving services to their mentally ill loved ones. The experience of caring for a patient and the psychological state that ensues has come to be known as caregiver burden. Burden is a construct that has for the most part been operationalized broadly. It comprises both tangible objective elements (e.g, physical and economic consequences) as well as more subjective ones (e.g., embarrassment, guilt, shame, and self-blame) (Clausen & Yarrow, 1955; Clausen, Yarrow & Deasy, 1955; Grad & Sainsbury, 1963). To date, a plethora of studies have been conducted to examine the serious effect that caregiver burden has on patients. Far fewer studies have focused on the psychological consequences that caring for a loved one can have on the caregiver him or herself (Maurin & Boyd, 1990). As discussed below, the adverse effects of caregiving have been found across a spectrum of settings including: family, health, work, and recreation (Clausen & Yarrow, 1955; Dinos, 2004). However, variations in these adverse effects have been observed for different ethnic/racial groups. The reasons underlying these discrepancies, however, are still unclear. More attention is needed to better understand the mechanisms leading to ethnic/racial differences in the caregiver burden construct and to identify family strengths and values that may mitigate this relationship.

### *Burden and Psychological Outcomes*

Caregiver burden has mostly been researched in the United States, Canada, and Great Britain, although a few other international studies have been conducted as well (e.g. Chien et al., 2006; Mavundla, et al., 2009). Regardless of the location of the

population being investigated, research has consistently shown that mental illness in a relative is burdensome for family members. Gaining a more thorough understanding of this burden is vital, because studies have demonstrated that the caregiving experience is associated with numerous maladaptive psychological outcomes including grief over loss of family member's capabilities (Walker & Pomeroy, 1996), increase in substance use (Prunchno & Potashnick, 1989), and poor effects on the immune system which may result in increased viral illnesses (Glaser & Kiecolt-Glaser, 1997; Kiecolt-Glaser & Glaser, 1994).

In fact, a typical consequence of living with a family member with a psychiatric illness, such as schizophrenia, is greater general emotional distress in family members and a negative influence on overall mental health (Barrowclough, Tarrier, Johnston, 1996; Oldridge & Hughes, 1992; Winefield & Harvey, 1993). It is important to note that the terms "burden" and "distress" are sometimes used interchangeably. However, according to Maurin and Boyd (1990), "caregiver burden" refers to the direct emotional responses of coping with a patient's illness and his or her symptoms. "Distress" on the other hand, is a term used to refer to general unhappiness with one's life situation, which may or may not be a consequence of caring for a mentally or physically ill loved one.

A considerable body of research has examined the specific ways in which caring for a patient with schizophrenia can impact mental well-being. Common consequences include feelings of uncertainty, shame, guilt, and anger (Awad & Voruganti, 2008; Gutierrez-Maldonado, 2006; Magliano et al., 1998). Research suggests that, like the patient they are caring for, caregivers often feel stigmatized and socially isolated because of the psychiatric illness (Wahl & Harman, 1989). Caregivers of relatives with

schizophrenia have also been shown to report impaired personal, social and vocational role performance as a result of their caregiving responsibilities (Gallagher & Mechanic, 1996; Jungbaur et al., 2003; Madianos et al., 2004; Magana et al., 2007). These strains on caregivers may contribute to an overall compromised quality of life (Gallagher & Mechanic, 1996; Noh & Turner, 1987). For example, Folderno and colleagues (2005) examined perceptions of quality of life over time in a sample of caregivers living with a relative with schizophrenia. Results from the self-rating scales on the Quality of Life Index and the Burden Assessment Scale demonstrated a significant negative correlation between quality of life and overall burden.

The most extensively investigated psychological outcome associated with the burden of caring for a patient with a severe mental illness is depression. Depression is a serious risk factor for caregivers that is associated with poor subjective quality of life, and other adverse outcomes such as functional decline and mortality (Clyburn et al., 2000; Janevic & Connell, 2001; Levine, 1999). The prevalence of depression for caregivers of individuals with psychiatric illnesses has been estimated to range from 38 to 70 percent (Moller et al., 2009; Winefield & Harvey, 1994). One of the most consistently found predictors of caregiver's depression as well as overall distress is the severity of the patient's symptoms (Biegel, D., Milligan, S. & Putnam, 1994; Kim et al., 2003; Magana et al., 2007; Winefield & Harvey, 1993). However, other factors more specific to the caregiver, him or herself, appear to play a role as well.

### *Ethnicity/Race and Psychological Outcomes*

It is first important to define what is meant by ethnicity/race and discuss why we have combined these terms. "Race" is often used to capture biological or phenotypic

traits (Cuddy, Fiske, & Glick, 2007; Dovidio & Gaertner, 2004; Eberhardt & Goff, 2005). Ethnicity, on the other hand, generally refers to characteristics based on social or cultural influences (e.g. Fiske & Fiske, 2007; Markus & Kitayama, 2003; Nisbett, 2003). These culture-specific traits may include language, religion, and moral values (Davis & Engel, 2010). Following other studies (e.g. Markus, 2008; Psoter, Pendry & Morse, 2006; Skaer, Sclar & Robinson, 2000; Whaley, 2003), we are combining the terms “ethnic” and “racial” to classify groups differentiated by either a shared biological and/or a cultural history.

Research in the past two decades has shed light on subpopulations of caregivers who may fare better in terms of the mental health outcomes described above. Specifically, differences in the psychological experience of caregiving have been found for African American, Hispanic, and Caucasian schizophrenia caregivers. Only these three populations were examined in the current study as the preponderance of research in the caregiving field has focused on these groups, thus facilitating comparisons across studies. There is a strong body of work indicating that African-American caregivers appraise the act of caregiving as less burdensome than do Caucasian caregivers and, consequently, exhibit lower levels of poor mental health as a result of caregiving (e.g. Morycz, Malloy, Bozich, & Martz, 1987; Lawton, Rajagopal, Brody, & Kleban, 1992). For example, in a study of African American and Caucasian caregivers of patients with schizophrenia, Haley et al. (2006) found that Caucasian caregivers reported significantly higher rates of depression and lower levels of general life satisfaction than their African American counterparts after controlling for age, socioeconomic status, gender, and relationship to the patient. These outcome disparities have been replicated for caregivers of adults with

dementia (Hinrichsen & Ramirez, 1992) as well as Alzheimer's (Kim, Knight & Longmire, 2007). These findings are especially noteworthy given that African American caregivers are more likely to have lower incomes and educational attainment. Despite these obstacles, it appears that African American caregivers may be uniquely resilient to the stresses of caregiving. The reasons underlying these outcomes are not well understood. Cox and Monk (1990) examined rates of depression for African American, Hispanic and Caucasian caregivers of relatives with dementia. Hispanic caregivers had significantly higher depression scores than African American caregivers but significantly lower scores than Caucasians. In another study, Valle et al. (2003) found that African American schizophrenia caregivers had significantly lower levels of depression than both Hispanic and Caucasian caregivers, who were not found to be significantly different from one another.

There is less research examining the emotional well-being of Hispanic schizophrenia caregivers, however existing findings also suggest that this group experiences the act of caregiving as less burdensome and more normative than do Caucasian caregivers (Magana et al., 2005). More than any other group, Hispanic patients with schizophrenia are likely to live at home with a family member (Morse & Messimeri-Kiandis, 1997). Furthermore, research has shown that Hispanic caregivers are more likely to be accepting of their relative with schizophrenia and exhibit more expressions of warmth in their communication compared to Caucasian caregivers (Lopez et al., 2004). A study conducted by Potasznik and Nelson (1994) found that when compared to African American and Caucasian schizophrenia caregivers, Hispanic caregivers were less likely to express anxiety or worry about the patient's future. While most research appears to

indicate that Hispanic caregivers have more adaptive mental health responses to caregiving than do Caucasians, it is important to note that one study demonstrated that Hispanic schizophrenia caregivers report higher levels of depressive symptomology than Caucasian caregivers (Magana, Ramirez, Hernandez & Cortez, 2007).

*Objective and Subjective Burden.*

In order to further understand the complex and general nature of caregiver burden, Hoening and Hamilton (1967) conceptualized burden as comprising two distinct components, objective and subjective. Objective burden (OB) is defined by Hoening and Hamilton (1967) as stress stemming from the visible, concrete costs to a caregiver that are the direct result of the mental illness of their family member. Subjective burden (SB) is defined as the caregiver's appraisals of these costs and the extent to which they perceive their situation to be burdensome. These differentiations have frequently been used in the subsequent literature to conceptualize the experience of caregiver burden. However, few studies have empirically examined how these two components of burden interact with each other and with other sociocultural variables to impact mental health outcomes.

Some research has compared the prevalence rates of OB and SB. Hoenig and Hamilton (1967) found that while 76% of caregivers reported experiencing "objective" adverse effects in their household as the result of living with a family member with schizophrenia, only 38% endorsed "subjective" adverse effects. In a study examining the association between OB and SB in a sample of caregivers of patients with a psychiatric illness, Jones (1996) found a similar discrepancy in base rates for OB and SB as related to caregiving. In this study, 34% of caregivers reported experiencing OB in response to



caregiving, while 14% endorsed SB. Thus, it appears that objectively stressful events do not automatically result in subjective appraisals of burden. Over the past twenty years, the theoretical models explaining the associations between caregiver burden and mental health have generally been based on stress-appraisal-coping theories (Lazarus & Folkman, 1984; Schene 1990; Biegel et al. 1991; Szmuckler et al. 1996). According to this conceptualization, aspects of the patient's illness are considered to be objective stressors that result in strain or distress for the caregiver. However, the extent to which the act of caregiving will actually impact the caregiver's mental health is dependent on the caregiver's appraisal, or subjective evaluation, of the stressor. More simply, while the objective components of burden do impact the caregiver, it is subjective burden that is thought to causally determine the severity of potentially negative psychological outcomes.

This is exemplified in Lawton et al.'s (1989) application of Lazarus and Folkman's (1984) stress model to the construct of caregiver burden in order to clarify the relationship between OB and SB. In this model, psychological distress begins with a stressor that operates outside of the individual. In the area of caregiving, these stressors have been identified as tangible costs to the family's functioning as well as the actual behaviors necessary for caregiving, all of which fall under the category of OB (Kinney et al., 1995). According to Lazarus and Folkman's conceptualization, this stressor arouses a process of appraisal within an individual, in this case a caregiver, who then decides whether the event or behavior is a true stressor or a nonstressor. It is this act of labeling or not labeling that leads to psychological outcomes such as depression, anxiety and stress. Lawton and colleagues (1989) tested this conceptual approach based on a stress

model among a sample of caregivers of disabled elders. It was confirmed that rates of OB were generally higher than SB, and SB was significantly predicted by troublesome behaviors from the patient that were then labeled as disruptive or embarrassing. This appraisal process was found to be predictive of levels of psychological distress.

Building upon these earlier stress and coping models (e.g., Lazarus and Folkman's, 1984) and further adapting them to the experience of caregiving, Maurin and Boyd (1990) developed a theory to clarify the relationship between OB and SB that has become the most commonly used framework for understanding the experience of caregiving for a patient with a psychiatric illness. In this model, antecedent variables or stressors that define the situation of mental illness such as the patient's diagnosis, symptom severity, and functional status, are thought to contribute to the perceived OB that is placed upon caregivers. In turn, subjective factors come in to play whereby some caregivers appraise their situation as personally more burdensome than do others. Differences in subjective appraisals are consequently believed to determine one's subsequent psychological outcomes. This model has been applied in several studies to examine the intricacies of the experience of caregiving for different disorders. For example, Mak and Cheung (2008) found the affiliate stigma of caregivers of individuals with intellectual disabilities to influence the relationship between OB and SB such that increased levels of perceived stigma lead to higher ratings of SB. Furthermore, in a qualitative study examining the experience of mothers caring for a child with a severe and persistent mental illness, Muhlbauer (2008) found that the extent of education participants had regarding the illness of their child appeared to influence their subsequent interpretation of caregiving as distressing. Finally, Chan (2010) utilized Maurin and

Boyd's (1990) model in a sample of schizophrenia caregivers to study predictors of negative attitudes toward caregiving. Results indicated that caregivers' appraisal of their relative's behaviors as difficult as well as the extent they perceived their relative to be dependent were significant predictors of negative attitudes about caregiving. Like Chan (2010), most studies examining burden in schizophrenia caregivers have focused on the patient's presentation of the illness (e.g. symptom severity, disruptive behaviors) as it directly influences burden and indirectly leads to mental health outcomes.

In line with the model presented above, further empirical research has demonstrated that SB is a more powerful predictor of negative psychological outcomes than either characteristics of the patient (e.g. symptom severity, overall functioning) or the OB of the caregiver. For example, Coyne et al. (1987) found that SB was the most predictive factor for psychological distress in family members living with a depressed relative, above and beyond household routine disruption or patient symptom severity. Furthermore, Noh and Avison (1988) found that for husbands and wives caring for a spouse recently hospitalized for a psychiatric illness, the perceived burden of daily events was more predictive of negative psychological outcomes than patient's symptom severity and perceived resources. In a later study examining the two constructs of burden and well-being in family members living with a patient with a psychiatric illness, Noh and Turner (1987) found that while OB and SB were associated with each other, only SB was significantly related to psychological well-being. This suggests that the variability in OB that is linked to distress is shared with SB. Therefore, difficulties associated with the presence and behavior of patients seems to be relevant to the psychological outcomes of family members only to the extent that they are perceived as sources of subjective

burden. Interestingly, most studies of burden in serious mental illness do not differentiate between OB and SB.

While not directly testing the constructs of OB and SB, other studies have found that negative psychological outcomes in caregivers of patients with schizophrenia are correlated with or predicted by beliefs, appraisals, or other subjective components of the experience of caregiving. For example, Barrowclough et al. (1996) found that emotional distress in relatives of patients with schizophrenia was predicted by beliefs that their loved one's illness was caused by factors internal to the relatives themselves, or self-blaming beliefs. Similarly, Weisman de Mamani (2010) found that shame proneness was strongly and positively associated with general emotional distress in a sample of family members of patients with schizophrenia. Garcia, Hernandez and Dorian (2009) examined both objective and subjective predictors of psychological distress in a sample of Mexican-American caregivers of patients with schizophrenia. In this study, caregiver's coping efficacy, or the extent to which caregivers believed they could successfully manage the challenges presented by their relative's illness, accounted for more variance in psychological distress than patient's symptom severity. These studies suggest that further understanding the appraisal processes and belief systems involved in how caregivers perceive their relative's schizophrenia, or SB, is important for understanding their response to the illness and helping to reduce negative psychological outcomes.

Some studies have found ethnic/racial differences in the ways that caregivers perceive and evaluate the experience of caregiving. Pinpointing potential variables that influence the relationship between OB and SB may be useful in identifying subsamples of caregivers who may be more vulnerable to experiencing negative psychological

outcomes when faced with burdensome caregiving experiences. In a study examining ethnic/racial differences in mental well-being for caregivers of patients with Alzheimer's, Lawton et al. (1992) found that African American and Caucasians differed in their appraisals of caregiving. Specifically, African American caregivers reported lower levels of SB, greater overall satisfaction related to caregiving and a higher perception of mastery related to caregiving when compared to their Caucasian counterparts. Similarly, Rosenfarb and colleagues (2006) found indirect evidence that cultural factors may play a role in determining the degree to which patients' symptoms are perceived as burdensome by caregivers. Their study was based on Lazarus and Folkman's (1984) stress, appraisal, and coping model (described above). Rosenfarb et al. found differences in how ethnic/racial groups appraised the perceived burden of patient symptoms and behaviors and in the attitudes they held towards their ill family member. Specifically, Caucasian relatives reported feeling more burdened in general and endorsed greater negative attitudes toward their relative with schizophrenia than did African American relatives. This supports the greater body of literature discussed above indicating that African American caregivers demonstrate lower levels of mental health outcomes than other groups. Based on these findings, there is reason to believe that the influence of family and other sociocultural variables may account for differences in the appraisal component of burden.

#### Sociocultural variables: Family Cohesion and Interdependence

Some evidence suggests that two sociocultural variables, family cohesion and interdependence may influence perceptions of burden and may partially account for

ethnic/racial differences previously observed in SB in particular (e.g., Rosenfarb et al. 2006). These two values are pertinent to caregiving in particular because research has consistently demonstrated that the prognosis for patients with a serious mental illness is better in societies where kin networks are more broadly and extensively defined compared to those where the conception of kin is limited to smaller, nuclear families (Jablensky et al., 1992; Lin & Kleinman, 1988). Some of the most striking evidence for this difference in prognosis came from the World Health Organization's (1979) International Pilot Study of Schizophrenia (IPSS). This large-scale, multinational study found that individuals with schizophrenia from the developing nations of Nigeria, India, and Colombia presented fewer symptoms and demonstrated improved functioning between episodes than ill individuals from more industrialized countries such as Denmark, the United Kingdom, and the United States. These findings were reaffirmed by two- and 5-year follow-up studies (Leff, Sartorius, Jablensky, Korten, & Ernberg, 1992). Findings such as these have led to deeper investigation of the role of family and community in the manifestation and outcome of psychotic disorders. Further evidence suggests that these values may also have a positive influence on caregiver health. As previously noted, African Americans and Hispanics, consistently report lower levels of caregiver burden and appraise caregiving as less stressful than Caucasian caregivers. These are also two ethnic/racial groups that generally endorse higher levels of family cohesion and interdependence (Calderon & Tennstedt, 1998; Connell & Gibson, 1997; Farran, Miller, Kaufman, & Davis, 1997; Gonzales, 1997; Haley et al., 1996; Stueve, Vine, & Struening, 1997). Examining these two sociocultural variables in further detail

and their potential influence on SB and OB may shed light on the improved outcomes noted for subsamples of caregivers.

### *Family Cohesion*

Family cohesion is a sociocultural variable that refers to a “strong identification and attachment of individuals with their families (nuclear and extended), and strong feelings of loyalty, reciprocity and solidarity among members of the same family” (Sabogal et al., 1987, pp. 397–398). It is characterized by the salient role played by the family in the life of the individual, as well as the high reliance upon the family to provide practical and emotional support to its members (Cruz-Lopez & Pearson, 1985; Padilla, 2002; Sotomayor & Applewhite, 1988; Valle, 1989).

There is reason to believe that an increased perception of family cohesion has positive implications for the mental well-being of caregivers and patients with schizophrenia. In one of the first studies to examine this construct in a psychiatric sample, Siegel and Wissler (1986) found that higher ratings of family openness and communication by patients predicted fewer days of rehospitalization. This relationship was particularly strong among patients with schizophrenia. Furthermore, higher scores of perceived family cohesion predicted better patient adjustment as rated by their family members. Patients were also more likely to rate themselves as better adjusted if they came from families with a lower emphasis on autonomy. Importantly, perceived family environment was a better predictor of rehospitalization than baseline ratings of symptom severity. In a study comparing Caucasian, Hispanic, and African American family members of patients with schizophrenia, Weisman et al. (2005) found that greater self-reported family cohesion was associated with fewer psychiatric symptoms in patients.

Furthermore, a perception of one's family as cohesive was associated with better emotional well-being. This is consistent with the growing field of research known as expressed emotion (EE). Multiple EE studies have demonstrated that patients with schizophrenia who live with relatives who are perceived as critical or hostile towards them (high-EE) have a poorer course of illness when compared to relatives who communicate more warmth, acceptance and support (low-EE) (see Butzlaff and Hooley, 1998 for review).

Indirect research further suggests that caregivers' perception of having support and being unified with their family influences the way relatives react to mental illness in a loved one. Knight et al. (2002) examined the role of familism, a value similar to family cohesion, on acceptance of the caregiving role and general levels of burden for family members of patients with dementia. While greater familism was not significantly related to burden in this study, it was predictive of lower levels of depressive symptoms for Hispanic caregivers. In a study examining participants' affective reactions to schizophrenia, Weisman and Lopez (1996) found that increased perception of one's real family unit as cohesive and supportive was associated with favorable affect toward a hypothetical family member described to meet criteria for schizophrenia. Dilworth-Anderson and Gibson (2002) examined the relationship between respect for family and self-conscious emotions (e.g. shame, guilt) in a sample of African American caregivers living with a parent diagnosed with dementia. The authors found that higher ratings of respect for family were negatively associated with the perception of unusual behavior resulting from dementia as a source of embarrassment. Bussing and colleagues (2003) tested ethnic/racial differences in communication and perceived support in a sample of



parents of children diagnosed with attention-deficit hyperactivity disorder. Results indicated that African-Americans reported more frequent communication with immediate and extended family about their child's diagnosis, as well as higher levels of perceived support than their European-American counterparts. Furthermore, higher levels of reported instrumental support lowered the odds of parents seeking additional treatment for their child's ADHD in a 12 month period. Each of these studies demonstrates that a perception of general support, and closeness to one's family, in particular, relates to well-being for caregivers of relatives with mental illness.

### *Interdependence*

Another sociocultural value that may help clarify the relationship between OB and SB is a measure of self-construal known as interdependence, or the interconnectedness of individuals within a group. Self-construal is defined as "a constellation of thoughts, feelings, and actions concerning the relation of the self to others and the self as distinct from others" (Singelis et al., 1999, p. 316). Theoretically, self-construal has been defined as "socially imbedded beliefs about the relationship between the self and others" (Markus & Kitayama, 1991, p. 226). These beliefs encompass an individual's perception of themselves in relation to other people. Self-construal, then, manifests itself through the extent to which one values or prioritizes relationships with others, and makes decisions based on these values. In this way, one's self-construal serves as the lens through which an individual makes choices regarding relationships with other people (Singelis et al., 1999). These self-construal beliefs have been found to often exist unbeknownst to the individual due to their deeply-rooted and highly integrated nature (Oyserman & Lee, 2008). Not surprisingly, the culture in which one is raised, and the values and norms

associated with it, have been shown to be a powerful influence on these perceptions starting in infancy (Singelis, 1994). Further evidence for the inherent nature of self-construal can also be found in culture-specific linguistic biases (Tardif, 1996) and cultural preferences for different types of reasoning (Peng, 1997; van Baaren et al., 2003).

Researchers also refer to priming experiments to provide support for the innate nature of self-construal. For example, Gardner et al. (2007) found that perceptions of self-construal could be amplified after reading a story with an independent or interdependent theme without participants' awareness. Furthermore, these results were strongest when the self-construal presented by the story was congruent with the cultural background of the participant. Priming of self-construal has also been found to influence information processing (Choi & Nisbett, 2001), as well as expression of forgiveness (van Baaren et al., 2003) in experimental settings without participants' knowledge. These priming studies indicate that self-construal exists in intrinsic value endorsements that may be strengthened or weakened by contextual factors in order to influence subsequent actions. This suggests that, at least to some degree, the extent to which we view ourselves as interconnected or distinct from others is not a conscious choice.

Interdependence entails viewing oneself as part of an all-encompassing social group, and consequently guiding one's behavior based on the feelings, actions, or standards established by the larger whole (Markus & Kitayama, 1991). Singelis (1994) states that it is a perception of self that emphasizes relationships with others, fitting in, occupying one's "proper place" and engaging in the appropriate actions for a given situation.

Although not examined in the current study, the self-construal of independence is closely related and deserves mention. This self-construal is defined by perceiving a clear boundary that separates the self from others and gives precedent to individual goals over and above group goals. Individuals who endorse this self-construal often perceive themselves and their behavior to be a product of their distinct thoughts, feelings and actions. While interdependence and independence are not mutually exclusive, research has demonstrated that individuals tend to endorse values of one of these self-construals more strongly than the other (Markus & Kitayama, 1991). It is also important to differentiate interdependence from collectivism.

In the literature, interdependence is sometimes used interchangeably with this closely related construct. Collectivism refers to the extent to which individuals perceive group goals to be more important than their own individual goals and as a result view themselves as integrated into a cohesive ingroup that provides both protection and support (Kim, Triandis, Kagitcibasi, Choi, & Yoon, 1994; Masset, 2000; Kim et al., 2001). Interdependence, on the other hand, is a personal perception of the way that one views themselves in relation to other people, rather than a more global cultural value. Not surprisingly, the culture in which one is raised, and the beliefs, values and norms associated with it, have been shown to be a powerful influence on both perceptions of self as well as patterns of socialization (Singelis, 1994). Members of collectivistic cultures generally learn dominant values such as harmony and solidarity and acquire a preferred way to conceive of themselves based on interconnectedness with others. Members of individualistic cultures conversely learn different dominant values such as achievement and independence and acquire a preferred way to view themselves based on a perception

of being unique and independent (Gudykunst et al., 1996). Not surprisingly, therefore, individuals from collectivistic cultures are more likely to endorse values, beliefs, and behaviors consistent with an interdependent self-construal, while those from individualistic cultures are more likely to endorse those more consistent with an independent self-construal (Carpenter, 2000; Levine, 2003).

The self-construal of interdependence does not appear to be as strongly endorsed by European-Americans. In fact, in many Western societies, there is a strong emphasis on remaining autonomous and deriving one's sense of self-esteem from achievements that result from internal attributes, such as one's personality traits, abilities, and intelligence (Matsumoto, 1997). As noted, Caucasians have been shown to endorse higher levels of burden in response to caregiving when compared to other ethnic/racial groups. Furthermore, additional evidence indicates that Caucasians also experience more negative outcomes related to caregiving including depression (e.g. Skarupski et al., 2009), global role strain (Farran et al., 2007), and decreased well-being and physical health (Haley et al, 2004). Perhaps one reason for these ethnic/racial differences in psychological outcomes for Caucasians is the absence of a given expectation or standard establishing caring for one's family as the norm.

Like family cohesion, research suggests that an interdependent self-construal may promote a positive caregiving experience and consequently may have implications for the mental well-being of both caregivers and patients with a severe mental illness. Dilworth-Anderson and colleagues (2005) conducted a confirmatory factor analysis to test a "cultural profile" for caregivers of adults with dementia. That is, the authors examined

the extent to which caregiving activities were driven by “cultural justifications.” The questionnaire developed for this study was derived from scales of self-construal and focused heavily on orientations toward interdependence or independence. Results indicated that African American caregivers were more likely than Caucasians to hold perceptions of interdependence of family and community and to have an implicit understanding of reciprocity between individuals in one’s community. The results of this study suggest that the act of caregiving may be more normative or in psychodynamic terms, ego-syntonic, within collectivistic cultures and ethnic/racial groups.

Freeberg and Stein (1996) investigated cultural differences in attitudes toward caregiving in a study comparing Caucasian and Mexican American students caring for an elderly parent or grandparent. There was no difference found in the levels of perceived obligation to the family between the two groups. However, Caucasians endorsed the extent of the responsibility they felt toward their family members as being influenced by the quality of their relationship (i.e. closeness) with their ill relative. Therefore, the closer they felt toward their family member, the more obliged they felt to care for this relative. This indicates a perception of taking care of family as more of a personal choice. For Mexican Americans, however, levels of obligation to their ill relative were predicted by collectivistic attitudes, or their perceived membership in a group. In this case, caregiving responsibility had less to do with choice and more to do with the social role of being a group member. This suggests that it is the appraisal process that may be different in the caregiving experience depending on the extent one views their role as a caregiver as assumed or chosen.

Indirect evidence for the influence of interdependence on caregiving attitudes and behaviors is found in the EE literature. As mentioned, EE has been shown to predict course of illness for schizophrenia across diverse cultural and national groups (Doane et al., 1989; Kavanagh, 1992; Weisman, 2005). However, base rates of high EE have been found to vary across cultures with significantly greater frequencies of high-EE found in European-American families, as compared to Hispanic families (Karno et al., 1987). Weisman de Mamani et al. (2007) found that European-American relatives were designated as high-EE up to five times more often than Hispanics. Jenkins and Karno (1992) suggest that EE may be a reflection of the meaning that relatives generate about behaviors that are perceived to be violating culturally-based social norms. Research has demonstrated that these norms may be shaped by conceptions of self-construal. For example, individuals with more interdependent or collectivistic self-construals have been found to be less conflictual and more eager to maintain group cohesion (Oetzel, 1998; Kim et al., 2001). High EE relatives, on the other hand, have generally been found to engage in more argumentative and hostile interactions than Low EE relatives (e.g. Hahlweg et al., 1989). Findings from the EE literature suggest that a strong orientation toward interdependence may lead caregivers to have greater empathy for relatives with schizophrenia and to possibly perceive them to be less responsible for their condition as a way to preserve the solidarity of the group. The previously described findings suggest that the extent to which objective stressors are viewed as subjectively burdensome may be lower for individuals who hold an interdependent self construal that encourages them to focus on harmony.

### The Current Study

Attention to family and cultural differences in caregiver burden has been fairly limited, although it has gained some attention in recent years (e.g. Janevic & Connell, 2001; Magana et al., 2005). Previous studies have tested for ethnic/racial differences in caregiver burden. Little research has examined why it is that ethnic/racial groups vary in these outcomes. In other words, what socio-cultural variables may underlie these differences? The current study sought to not only confirm prior findings of variation in caregiver outcomes for different ethnic/racial groups, but also to address these gaps in the literature by shedding light on the ways in which the experience of burden is shaped by sociocultural variables to explain ethnic/racial discrepancies in mental health for schizophrenia caregivers. Specifically, the current study investigated how caregiver burden accounted for ethnic/racial differences in poor mental health outcomes for caregivers. African Americans and Hispanics were grouped together in most primary analyses. Furthermore, for the first time, family cohesion and interdependence were examined in their influence on caregiver burden, and the appraisal of caregiving in particular. While prior research has provided evidence that these values shape perceptions and appraisals for caregivers, they have yet to be tested for their direct influence on OB and SB.

The current study has implications for the direct treatment of caregivers and the indirect well-being of patients. Research has clearly demonstrated that caregivers of patients with severe mental illnesses are in great need of specialized mental health treatment and attention. Thus, indentifying the mechanisms of burden and pinpointing caregiver variables that may place them at greater risk for experiencing higher levels of

burden may have implications for treatment. Furthermore, identifying the mechanisms or values that may lead certain subgroups of caregivers to fare better than others may potentially contribute to interventions and treatments targeting the well-being of caregivers in other ethnic/racial groups. Elucidating variables that contribute to SB may help improve interventions for caregivers of patients with schizophrenia. Delineating and further understanding the relationship between OB and SB is a crucial step in this process as many objective determinants of burden (e.g., financial burdens and disrupted personal plans associated with caregiving) are not easily modifiable and therefore may be of more limited use in developing interventions aimed at the caregiver population. However, the generalized subjective appraisals of burden (e.g., feeling stigmatized or embarrassed by the patient's condition) are highly amenable to adaptation and change (Jones, 1996). Similarly, knowledge will be advanced and treatment enhanced by better distinguishing the specific sociocultural variables that influence burden appraisals.

### Hypotheses

The overarching aim of this study was to better understand the mechanisms that may account for ethnic/racial differences in psychological outcomes for caregivers of patients with schizophrenia. The study was specifically focused on understanding whether the following variables can help to explain the relationships between ethnicity/race and caregivers' psychological outcomes: caregiver burden, family cohesion and interdependence. Drawing from the research reviewed above, the current study tested three sets of hypotheses:

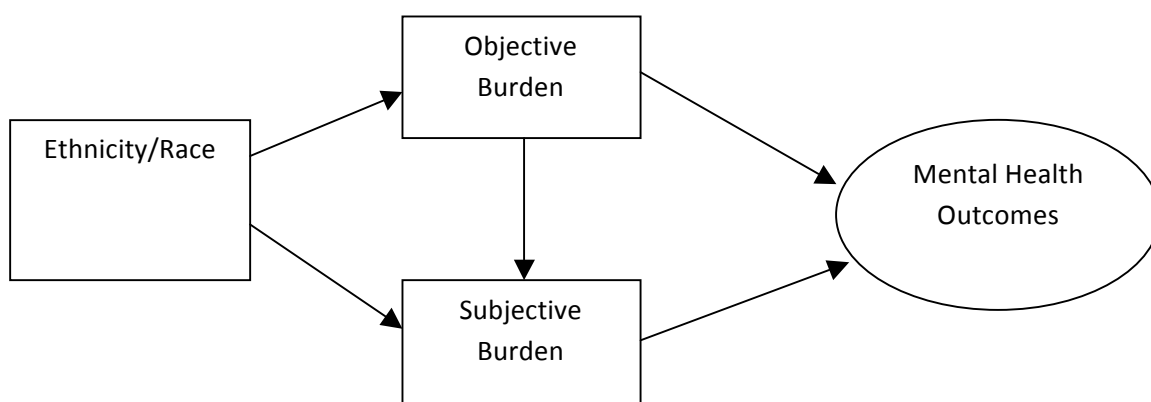
1. We first attempted to replicate prior research confirming ethnic/racial differences in mental health outcomes and caregiver burden. It was hypothesized that African



American and Hispanic caregivers would demonstrate better mental outcomes and lower levels of burden than Caucasians.

2. The second set of analyses was aimed at examining whether caregiver burden underlies or explains part of the expected ethnic/racial differences in outcomes. Specifically, based on the work of researchers such as Barrowclough, Tarrier and Johnston (1996) and Maurin and Boyd (1990) the variable of burden was expected to mediate the relationship between ethnicity/race and mental health outcomes. In other words, the greater levels of burden experienced by Caucasian caregivers were hypothesized to partially explain their poorer mental health in comparison to their minority counterparts. Furthermore, based on the work of Coyne (1987) and Noh and Turner (1987), the link between OB and mental health was expected to be indirect and mediated by SB.

This model for the second hypothesis is depicted visually below:

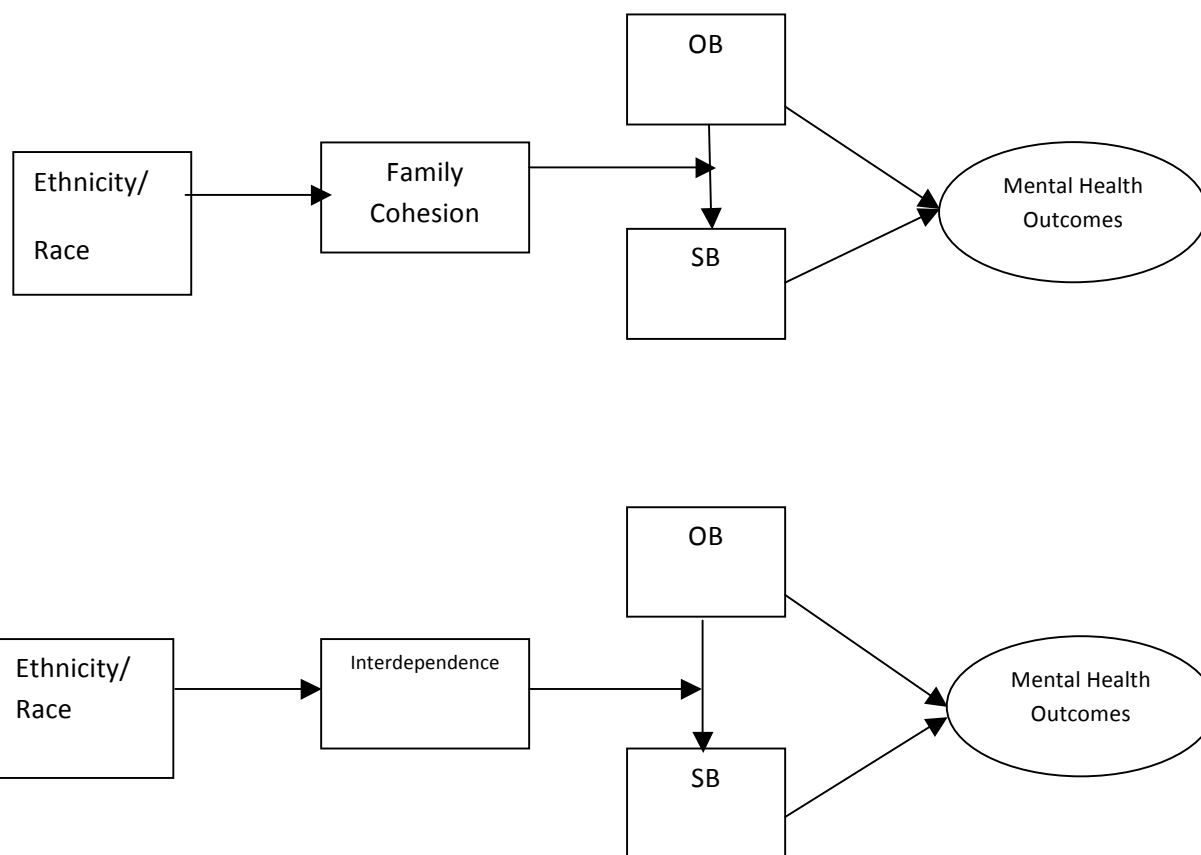


3. Drawing from and extending the findings of Rosenfarb and colleagues (2006), Weisman et al. (2005) and Freeberg and Stein (1996), the third set of hypotheses

examined ethnic/racial differences in the influence of two sociocultural variables as moderators of the OB-SB relationship.

- a. It was expected that African American and Hispanic caregivers would endorse higher levels of both family cohesion and interdependence than Caucasian caregivers.
- b. Furthermore, the relationship between ethnicity/race and caregiver burden, comprised of OB and SB, was expected to be moderated by family cohesion and interdependence.

The models for the third set of hypotheses are depicted visually below:



## CHAPTER2: METHODS

### *Sample*

Data for this study was drawn from a larger research project examining how culture, family, and other psychosocial factors relate to treatment outcomes for schizophrenia (Weisman, Duarte, Koneru, & Wasserman, 2005). Participants in the larger study included both patients and caregivers. In the current study, participants included only the caregiver subsample. To be considered eligible for study participation, participants had to be caring for or in close contact with a patient who meets DSM-IV criteria for schizophrenia or schizoaffective disorder, as assessed by the Psychotic Module of the Structured Clinical Interview for the DSM-IV (SCID), or have a family member who meets diagnostic criteria. Furthermore, the family member(s) and patient were required to share at least one hour of contact per week. While one hour together each week was established as the minimum criteria for caregivers to participate in this study, it should be noted that nearly all caregivers spend above 10 hours per week, with over 80% of caregivers actually residing with the identified patient.

The current family member sample included 176 participants (68 male, 108 female) with a mean age of 51.05 years ( $SD = 15.13$ ). One hundred and seven family members participated in the study without a patient. Forty-nine family members were the only relatives to participate with the patient. In the remaining cases where multiple family members were assessed, the family member identified by the patient as being the relative with whom they are in closest contact was included in the sample. Twenty-nine percent of the family member sample identified as Caucasian, 10.3% as African American and

59.8% identified as Hispanic. Forty-five percent identified as mother of the patient, 15.3% identified as father of the patient, 11.3% identified as significant other of the patient, 10.1% identified as sister of the patient, 6.8% identified as a long-term, family equivalent, friend of the patient, 5% identified as brother of the patient, 3.8% as daughter of the patient, and 2.5% as son of the patient.

*Procedure:*

Family members of a patient diagnosed with schizophrenia were recruited to participate in a 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). The sample of the parent study was obtained through referrals from hospitals and community mental health centers as well as through recruitment of patients and their family member(s) from Miami and neighboring cities through newspaper advertisements and advertisements on Miami's above-ground rail system. A research assistant contacted patients and/or family members who expressed interest in the study and informed potential participants of study details and eligibility requirements. As mentioned, participants were required to meet the following criteria in order to participate in the study: the family member(s) must have a relative with schizophrenia or schizoaffective disorder, the family member(s) and patient must share at least one hour of contact per week, and participants must speak English or Spanish. Those who met eligibility criteria were then scheduled to complete a baseline assessment, where they were interviewed using the SCID to confirm patient diagnosis, the Brief Psychiatric Rating Scale (BPRS),

and an assessment packet intended to gather data across a variety of domains including, but not limited to, cultural identity, family dynamics, religiosity/spirituality, and coping strategies. Assessments occurred in the University of Miami Psychological Services Clinic (PSC). Assessments were conducted in either English or Spanish. Family member assessments were conducted by either trained clinical psychology graduate students or trained undergraduate research assistants. 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 the post treatment assessment. However, data for this study is restricted to information obtained at baseline.

### *Translation of Measures*

All assessments in this study were offered in English or Spanish. Measures were translated from English to Spanish using the editorial board approach. This is considered to be more effective than the translation-back translation approach because it takes into account the within group language variations that are often an issue (Geisinger, 1994). Measures were first translated by a native Spanish speaker of Cuban descent, who then convened with an editorial board comprised of native Spanish speakers of Cuban, Nicaraguan, Costa Rican, Columbian, Mexican, and Puerto Rican descent, as well as the Primary Investigator of the larger previously mentioned project, 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 to the original English versions. Concerns or discrepancies in the Spanish translation were then discussed to create the most language-generic version of the measures. Measures were then reviewed for a second time. All remaining discrepancies were then discussed in a final meeting and board members modified necessary items until they arrived at consensus that the language of all measures and instructions was clear and targeted the intended constructs. In this sample, 58 of the baseline assessments were conducted in Spanish.

### *Measures*

*Eligibility for current study.* The Structured Clinical Interview for the DSM-IV Axis I Disorders, Version 2.0, patient edition (SCID-I/P; First, Spitzer, Gibbon, & Williams, 1996) is a semi-structured interview used for determining diagnosis with patients with Axis I disorders. The psychotic symptoms section is used in this study to determine diagnoses of schizophrenia/schizoaffective disorder. The SCID-I/P has shown high inter-rater reliability for symptoms and diagnosis (Ventura, Liberman, & Green, 1998). To assess inter-rater reliability of the SCID in the current study, all interviewers as well as the study's Principle Investigator watched six videotaped interviews and independently rated each item to determine an overall diagnosis. Inter-rater agreement using Cohen's Kappa was 1.0.

*Ethnicity/ Race.* Ethnicity/race was obtained using a self-report questionnaire. Specifically, participants were asked to select the primary category that best captures their perception of their ethnic/racial background from the following options: Caucasian,

Hispanic, African American, Asian American, Native American, and Other. For the purposes of the current study, data was analyzed only for participants who identified as African American, Hispanic, or Caucasian. Sample sizes in the other groups are far too small to yield meaningful analyses. Furthermore, as reviewed above, African Americans, Hispanics and Caucasians are the primary populations examined in prior cultural studies investigating caregiver burden and would therefore facilitate comparisons among studies.

While there are certainly a number of subgroups within African American, Hispanic and Caucasian cultures, individuals identified within these broader categories share many cultural features, histories, migration patterns, and political and economic processes that define them to themselves and to others (Guarnaccia, 2009). In our experience in this study and in the PI's prior research (Weisman et al 2005; 2007), when explained properly, few participants have difficulty selecting a primary ethnic/racial category from this list. Self-designation ensures that the participant's choice most closely matches their own construal of their ethnic/racial background. As this is a socio-cultural study, we were much more interested in how people (and those around them) conceptualize their ethnic/racial identity than we are in the actual biological markers that are sometimes presumed to underlie ethnic/racial differences. Our current data set contained three participants who did not identify as a member of any one of these three ethnic/racial groups. These three participants were therefore excluded from the study.

*Burden.* Family member burden was assessed using The Modified Burden Assessment Scale for Families of the Seriously Mentally Ill (BAS, Reinhard, Gubman, Horwitz, and Minsky, 1994). The BAS is a 19-item self-report measure that was

designed to assess both objective and subjective burden associated with the experience of caring for a mentally ill family member. On this measure, subjects are asked to indicate on a 4-point Likert scale the extent to which they have experienced burden in each of the 19 areas covered. This scale has been reported to have excellent reliability (Cronbach's alpha .89-.91).

Ten items comprise the OB subscale. These items assess a range of areas including financial strains (e.g. "To what extent have you had financial problems because of your relative's illness?"), disrupted activities (e.g. "To what extent have you found the household routine was upset because of your relative's illness?"), and interrupted social functioning (e.g. To what extent have you had to change your personal plans like taking a new job, or going on vacation because of your relative's illness?). Nine items make up the SB subscale which appears to assess caregivers appraised perceived burden in a variety of domains such as distress regarding patients illness (e.g. "To what extent were you upset about how much your relative had changed from his/her former self?"), guilt (e.g., "To what extent have you felt guilt because you felt responsible for causing your relative's problem?"), and worry about the patient's future (e.g. "To what extent have you worried about what the future holds for your relative?").

The BAS is a measure of caregiver burden that was developed for and normed on family members of patients with schizophrenia. Reinhardt et al. (1994) tested the construct validity of the BAS using caregiver advisory groups comprised of caregivers of patients with schizophrenia who were recently hospitalized, and caregivers of patients stable on medication. As expected, parents of hospitalized patients reported higher levels



of burden. Furthermore, a two-factor structure of the measure emerged with items relating to personal distress, guilt, and fears about the future clustering together to encompass the SB subscale and items addressing disrupted social functioning, interrupted activities and financial strains formed the OB subscale. This two-factor structure has been shown to be stable across diverse samples of schizophrenia caregivers including Mexican American (Breitborde, López, Chang, Kopelowicz & Zarate, 2009), Chinese American (Kung, 2004), Swedish (Ivansson, Sidenvall & Carlsson, 2004) and Australian (Page, Hooke, O'Brien, de Felice, 2006). Overall the BAS demonstrated good reliability with a total Chronbach's alpha of .864 (.882 for English and .847 for Spanish). The OB subscale demonstrated good reliability with an alpha value of .836 (.857 for English and .816 for Spanish). Similarly, the SB subscale demonstrated good reliability with an alpha value of .856 (.849 for English and .866 for Spanish).

*Sociocultural Variables.* Perceived family cohesion was assessed using The Family Cohesion subscale of the Family Environment Scale (FES). This instrument was designed by Moos and Moos (1981) to measure family members' perceptions of their family environment. This is a 90 item measure with a true-false response format, which includes a total of nine subscales, all of which have been demonstrated to have adequate internal reliability. The current study will examine data from the Cohesion subscale of the FES, which consists of 9 true-false items that have been designed to measure the perceived commitment (e.g. "Family members really help one another.") and support family members provide for one another (e.g. "Family members really back each other up). Responses are coded such that higher scores indicate greater family cohesion.

While there are few studies addressing the validity of the cohesion scale of the FES in particular, available evidence does support this subscale as a valid measure of family cohesion (Busch-Rossnagel, 1985; Caldwell, 1985). In summarizing validation research for the FES as a whole, Moos and Moos (1994) reported several validation studies making a priori predictions about expected correlates for each scale, and provided convergent validity evidence for the cohesion scale in particular. In terms of construct validity, the cohesion subscale of the FES has been widely used across a diverse spectrum of samples. In caregiving studies, the cohesion subscale has been applied to Hispanic (e.g. Cespedes & Huey, 2008; East & Chien, 2010; East & Weisner, 2009), Asian (e.g. Ozono, 2010), Asian American (e.g. Masood, Ozaki & Takeuchi, 2009), and African American (e.g. Mazeo, Mitchell & Williams, 2008; Street, Harris-Britt & Walker-Barnes, 2009) caregiver samples. Internal reliability using Cronbach's alpha was reported to be .78 by the scale's developers (Moos & Moos, 1981). In the current study Cronbach's alpha for the FES was .617 (.725 for English and .411 for Spanish).

A measure of interdependence was rated using Singelis' (1994) "Measurement of Independent and Interdependent self-construal Scale (SCS)." The full scale is 24-item instrument designed to assess independent values, as reflected by an emphasis on the separateness and uniqueness of the individual and interdependent values, as reflected by an emphasis on connectedness and relatedness. For this study we were interested in the construct of interdependence and used the 12 item Interdependent subscale only. Respondents are asked to indicate their agreement with the items in a 7-point Likert-type format (1 = strongly disagree, 7 = strongly agree). Scores can range from 12 to 84 on this subscale, with higher scores indicating a more interdependent self-construal.

Research indicates that the SCS demonstrates adequate construct validity as the two scales are strongly associated with other variables that are theoretically consistent with the most commonly used definitions of self-construal (e.g., Markus & Kitayama's, 1991; Gudykunst & Lee, 2003; Markus, et al., 1997; Mullally, Masuda, & Fryberg, 1997). Furthermore, the SCS has been applied in multiple ethnically/racially diverse settings. During the creation of the measure, authors compared Asian American and Caucasian samples and findings were consistent with characterizations of North Americans as more independent and Asians as more interdependent. These results have been consistently replicated over time (e.g. Chen, 2010; Huang, 2009; Singelis, Triandis, Bhawuk & Gelfand, 1994). Similarly, multiple applications of the SCS have been found to support characterizations of African American and Hispanic samples as endorsing a more interdependent self construal than do Caucasians (e.g. Davis & Engel, 2009; Hardin, 2006; Singelis, Yamada, Barrio, Laney, et al., 2006). Other studies have utilized the SCS in samples from Australia (Verma, 1992), New Zealand and Kyrgyzstan (Hackman et al., 1999). Finally, there is evidence for convergent validity as SCS variables are highly associated with the same scales on other highly regarded measures of self-construal such as the Independent and Interdependent Self Construal Scales (IISC Scales; Gudykunst, 1996) and the Self Construal Scale adapted by Leung & Kim (1997). Singelis reported inter-item reliability using Cronbach's alpha to be .74 for interdependent items. In the entire sample of the current study, the SCS demonstrated adequate internal reliability with a Chronbach's alpha value of .712 (.723 for English and .745 for Spanish).

*Mental Health Outcomes.* Mental health outcomes were measured as a latent variable, specified by four different indicators. First, patient and family members' level

of depression were rated based on the *Beck Depression Inventory* (BDI; Beck, 1961). The BDI is a 21-item questionnaire measuring depressive symptoms in adults. Each item consists of four statements graded in severity from 0-3. A total score ranging from 0-63 is calculated by summing the severity ratings of the endorsed statements. Scores ranging from 0-10 indicate no depressive symptoms, scores from 11-16 suggest a mild level of mood disturbance, and scores from 17-23 and 24-63 indicate moderate and severe levels of depressive symptoms (Beck, 1961). Internal consistency studies have demonstrated a correlation coefficient between .86 and .93 (Bumberry, Oliver, & McClure, 1978; Beck, 1961). In this sample, the BDI demonstrated good reliability with a Chronbach's alpha value of .886 (.836 for English and .905 for Spanish).

The *Beck Anxiety Inventory* (BAI; Beck, 2000) was used to assess patient and relative anxiety. The scale consists of 21 items, each describing a common symptom of anxiety. The respondent is asked to rate how much he or she has been bothered by each symptom over the past week on a 4-point scale ranging from 0 to 3. The items are summed to obtain a total score that can range from 0 to 63. Beck reports adequate internal consistency with item-total correlations ranging from .30 to .71 (median=.60). In the entire sample, the BAI demonstrated superior reliability with a Chronbach's alpha value of .946 (.915 for English and .955 for Spanish).

Depression, anxiety and stress were rated by the Depression and Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995). The DASS is a 42 item self-report questionnaire, comprised of three factors: depression, anxiety and stress. Examples of items from this scale include "I felt that life wasn't worthwhile," "I found myself getting upset rather easily," and "I had a feeling of faintness." This measure has demonstrated excellent

reliability in prior schizophrenia research (Cronbach's  $\alpha = .96$  for family members and  $.97$  for patients; Weisman, Rosales, Kymalainen, Armesto, 2005). Like the BDI and the BAI, the DASS is a well-accepted measure of general emotional distress. It has been applied in ethnically/racially diverse samples and has consistently demonstrated a three-factor structure on subscales of depression, stress, and anxiety (Clark & Shipley, 2006). For the entire sample, the DASS demonstrated adequate reliability with a Chronbach's  $\alpha$  value of  $.629$  ( $.816$  for English and  $.448$  for Spanish). Finally, in addition to assessing specific domains of emotional well-being (e.g depression, anxiety, and stress), The Quality of Life Inventory (QOLI) was also administered to family members as a more global assessment of life satisfaction. This 32-item instrument is based on an empirically validated model of life satisfaction that conceptualizes satisfaction in various domains. Seventeen areas of life are assessed in terms of degree of importance and level of satisfaction. The scale's developers report a Cronbach's  $\alpha$  coefficient of  $.86$  demonstrating good reliability (Frisch, et al. 1991). Like the other measures of mental health outcomes, the QOLI has demonstrated adequate construct validity in ethnically/racially diverse samples (e.g. Chen, Varni & Vasquez, 2007). Furthermore, it has also been applied in multiple caregiving studies to caregivers in diverse settings and situations (Frisch et al., 2005). For the entire sample, the QOLI demonstrated adequate reliability with a Chronbach's  $\alpha$  value of  $.682$  ( $.702$  for English and  $.660$  for Spanish).

*Covariates.* The following covariates were also examined and controlled for when they related to any primary outcome variable:

*Gender and age.* These items were obtained through a self-report, demographics questionnaire.

*Education.* Education was measured using a single item asking “How much formal education do you have?” Responses were coded on a 7 point scale from 1= advanced degree to 7= below grade 8.

*Psychiatric symptoms.* Patients’ psychiatric symptoms were rated using the *Brief Psychiatric Rating Scale (BPRS)*. The BPRS is a 24 item semi-structured interview, which assesses the following eight areas: Unusual thought content, hallucinations, conceptual disorganization, depression, suicidality, self-neglect, bizarre behavior, and hostility. Scores are rated based on a 7 point scale ranging from 1 = not present to 7 = extremely severe. In previous research examining a schizophrenia sample, Subotnik and Nuechterlein (1988) demonstrated good reliability (Intraclass coefficients scores ranged from .77 to .93 across scales with a mean of .85). To establish interrater reliability, study interviewers were trained by the P.I. (Dr. Amy Weisman de Mamani) who was trained by and established reliability with the Dr. Joseph Ventura, a BPRS trainer and expert. After being trained, study interviewers watched and rated 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 scale scores. The BPRS has been applied in multiple settings to evaluate psychiatric symptomology and has demonstrated adequate validity. Furthermore, the eight scales have been found to be consistent across diverse samples (e.g, McIlhaney et al., 2008; Plante et al., 1995).

## CHAPTER 3: RESULTS

### *Preliminary Analyses.*

*Missing data.* Missing data were present for all variables of interest and there was no indication of a systemic response bias. The maximum likelihood estimation method was used to account for missing observations. Using this method, all cases in the sample are partitioned into subsets with the same patterns of missing observations. Statistical information and structural parameters are obtained from each subset, and each case remains in the analysis. The maximum likelihood estimation method has been found to outperform traditional methods of accounting for missing data in structural equation modeling (Kline, 2005).

*Study Variables.* All primary study variables were examined for both outliers and normalcy. One outlier was found for results on the DASS based on standardized residuals, Cook's D, as well as dfBeta values (Pedhazur, 1997). This observation was removed for subsequent analyses. Skewness and kurtosis values were all within acceptable limits. Curran, West, and Finch (1996) recommend concern about non-normality if skewness is above 2 and kurtosis is above 7. No transformations were necessary for any study variable using these criteria.

*Demographic Variables.* Table 2 presents frequency statistics for the demographic variables of relative's gender, ethnicity/race (Caucasian, African American, Hispanic), primary language (English or Spanish), and type of relative (mother, father, significant other/spouse, offspring, sibling, friend, grandparent, aunt/uncle, or cousin). Table 3 presents descriptive statistics for continuous variables in the study. Tables 4-10 present

descriptive data for all of the major study variables by ethnic/racial group. The relationship between demographic variables and all study variables were examined.

Initial analyses were performed to assess the relationships between demographic and other potential covariates and the primary variables in this study. Pearson's  $r$  correlations were conducted with the main variables of study (Family Cohesion, Interdependence, OB, SB, Depression, Anxiety, General Emotional Distress, Quality of Life) and with continuous demographic variables (age, symptom severity and education). Older caregiver age was significantly associated with lower total depression scores ( $r = -.243, p < .01$ ) as well as lower total anxiety scores ( $r = -.405, p < .01$ ). Older caregiver age was also associated with lower levels of subjective burden ( $r = -.327, p < .01$ ). Higher levels of patient symptom severity was associated with higher levels of total depression scores ( $r = .303, p < .01$ ). It was also positively associated with both objective burden ( $r = .262, p < .01$ ) and subjective burden ( $r = .578, p < .01$ ). Lower levels of education were found to be significantly positively related to greater general emotional distress as measured by the DASS ( $r = .265, p < .01$ ). As a result, age, symptom severity and education were controlled for in all primary hypotheses.

Independent-samples  $t$ -test statistics were performed in order to assess whether main variables of study were significantly associated with nominal demographic variables with two groups (gender). Gender was not found to be significantly associated with any of the primary variables of interest in the study.



### ***Primary Analyses***

*CFA:* A CFA was conducted on the Mental Health Outcomes variable cluster using the indicators of depression, anxiety, general emotional distress, and quality of life. This CFA did not produce adequate fit to the data,  $\chi^2 (8) = 37.536$ ,  $p = .000$ , CFI = .852, RMSEA = .334, SRMR = .083. Upon examination of factor loadings for each of the indicators as well as R-Square values, it was determined that the indicator of quality of life, as measured by the QOLI, loaded the least strongly to the latent variable. Therefore, it was removed from the model and examined separately. The CFA of mental health outcomes specified by the BDI, BAI and DASS produced adequate fit to the data indicating that all three observed variables were good indicators of the latent variable,  $\chi^2 (7) = 5.776$ ,  $p = .075$ , CFI = .987, RMSEA = .079, SRMR = .022. Furthermore, all of the standardized regression coefficients of the indicators were larger than .5 indicating strong paths. Therefore, this latent variable was retained for all subsequent analyses. However, we also evaluated quality of life independently as an outcome indicator in all primary analyses. Table 11 provides factor loading information for the CFA.

*Ethnicity/race predicting mental health and caregiver burden.* The second set of analyses tested race/ethnicity as a predictor of mental health outcomes. Because ethnicity/race is a categorical variable it was dummy coded into two variables with Caucasians remaining as the reference group. The latent variable of mental health outcomes was regressed on two dummy coded variables of ethnicity/race. Results indicated that ethnic/racial groups did not significantly predict mental health outcomes, as indicated by the overall test of model fit  $\chi^2 (9) = 19.42$ ,  $p = .033$ , CFI = .0006, RMSEA = .160, SRMR = .054. Ethnic/racial

groups also did not significantly predict quality of life, as indicated by the overall test of model fit  $\chi^2(6) = 15.08, p = .002$ , CFI = .710, RMSEA = .021, SRMR = .000.

To further examine ethnic/racial differences in mental health, ethnicity/race mean differences were examined for each indicator of mental health. Bonferoni corrections were run to control for Type I error rates for multiple comparisons in the examination of ethnic/racial differences in mental health outcomes. Each ANOVA was tested at the .025 level. There were no significant ethnic/racial differences in scores of depression as measured by the BDI. On measures of anxiety as measured by the BAI, significant differences were found between Hispanics and Caucasians,  $F = 11.276, p < .05$ . No ethnic/racial differences were found in OB ( $F = .847, p = .431$ ) or SB ( $F = 1.14, p = .216$ ) nor on the QOLI ( $F = .207, p = .197$ ) or the DASS ( $F = 2.47, p = .103$ ).

*Caregiver burden as mediator between ethnicity/race and mental health.* Baron and Kenny's criteria were used to test the mediational hypothesis. According to these criteria, the following conditions must be met in order for mediation to be established: (a) the independent variable must significantly influence the mediator variable, (b) the mediator variable must influence the dependent variable in the predicted direction, and (c) the independent variable must significantly influence the dependent variable in the predicted direction, (d) finally after controlling for the mediator, that the relationship between the dependent and independent variable must be diminished or significantly attenuated (Baron and Kenny, 1986). The first mediation to be examined was caregiver burden as a mediator between ethnicity/race and mental health outcomes. However, as ethnicity/race was not found to predict mental health outcomes, step (a) was violated.

Therefore, ethnicity/race was removed as an independent variable for the rest of this set of analyses.

The next mediational analysis tested OB as the independent variable, SB as the mediator, and mental health outcomes as the dependent variable in order to examine the indirect effect of objective burden on mental health outcomes via subjective burden. The direct path between objective burden and mental health outcomes was found to be significant,  $\beta=.581$ ,  $p < .05$ , indicating that for every unit change in objective burden, mental health outcomes increased by .581. Objective burden also significantly predicted subjective burden,  $\beta= .326$ ,  $p < .05$ . Next, the relationship between SB and mental health outcomes was examined. In order to examine the potential collinearity between SB and mental health, a correlation command was added to the syntax. A correlation of .318 was found between SB and mental health. Furthermore, the addition of a correlation statement to the model was not included in the model indices provided by Mplus. Therefore, a unidirectional direct path was added to test SB as a predictor of mental health outcomes. Subjective burden was found to significantly predict mental health outcomes as well,  $\beta=.372$ ,  $p < .05$ . Finally a significant indirect effect was found from objective burden to mental health outcomes via subjective burden,  $\beta=.649$ ,  $p < .05$ , indicating that for every unit change in objective burden, mental health outcomes increased by .649 via subjective burden. With SB included in the model as a mediator, OB was found to significantly predict mental health outcomes,  $\beta=.371$ ,  $p < .05$ . A test of chi-square change indicates that the direct effect from OB to mental health outcomes was significantly diminished with the inclusion of SB as a mediator,  $\chi^2(2) = 7.57$ ,  $p = .0031$ , indicating a significant mediation effect. This model fit the data as indicated by the overall test of model fit  $\chi^2$

(12) = 8.95,  $p = .566$ , CFI = .993, RMSEA = .072, SRMR = .019. The same mediational analyses were run with quality of life as the outcome measure. However, OB was not found to significantly predict quality of life therefore a full mediation could not be tested. A marginally significant trend was found between SB and quality of life,  $\beta = .338$ ,  $p = .059$ .

*Sociocultural variables as moderators of OB-SB link.* The next set of hypotheses addressed the two sociocultural variables, family cohesion and interdependence, mediating the relationship between ethnicity/race and caregiver burden (OB and SB). Ethnicity/race did not significantly predict family cohesion or interdependence in this sample. Therefore, ethnicity/race was removed from the model as an independent variable for this set of analyses.

Each sociocultural variable was then tested as a moderator between OB and SB. First, subjective burden was regressed on mean-centered scores of objective burden, family cohesion, and the interaction between objective burden and family cohesion. There were no significant findings for either the main effects or the interaction effect. Furthermore, when included in the model, the chi-square test of fit became significant indicating lack of model fit,  $\chi^2(16) = 35.26$ ,  $p = .0038$ , CFI = .846, RMSEA = .043, SRMR = .322. To further examine potential relationships between family cohesion and mental health outcomes, family cohesion was tested as a predictor of each mental health indicator, but no significant relationships were found. Consequently, family cohesion was removed from the model as a moderator.

Next, we tested whether interdependence moderated the relationship between OB and SB. Supporting study hypotheses, interdependence was found to significantly moderate this relationship. Results indicated that the interaction between mean-centered values of objective burden and interdependence was significant,  $\beta = -.660$ ,  $p < .05$ , for predicting subjective burden. In other words, objective burden was less likely to result in subjective burden in caregivers who endorse interdependence more strongly. Furthermore, this model adequately fit the data as indicated by fit indices,  $\chi^2(16) = 27.610$ ,  $p = .0682$ , CFI = .981, RMSEA = .056, SRMR = .038. The full model is depicted in Figure 1. The same model was run with QOL as a single outcome measure of mental health. This model demonstrated significantly worse fit with the data as indicated by fit indices  $\chi^2(13) = 34.872$ ,  $p = .002$ , CFI = .901, RMSEA = .111, SRMR = .056.

Because of the small number of African Americans in our study, and because prior research led us to expect that African Americans and Hispanics would endorse similar values and beliefs on the primary variables in our study: caregiver burden, interdependence and family cohesion, African Americans and Hispanics were grouped together in primary analyses. On an exploratory basis, the full model was also run separately for Hispanics and Whites. To examine whether patterns among primary study variables differed for these two groups. Unfortunately, the African American subsample was too small ( $N=16$ ) to examine independently. Kline (2005) recommends a minimum sample size of 100 in order to compare parameters between groups.

Fit indices indicated that both Hispanics and Caucasians demonstrated adequate model fit when analyzed separately in the full model,  $\chi^2(16) = 11.68$ ,  $p = .113$ , CFI =

.984, SRMR = .040, RMSEA = .041;  $X^2(16) = 14.26$ ,  $p = .811$ , CFI = 1.000, SRMR = .018, RMSEA = .000. A test of chi-square change was run in order to examine whether the two groups differed significantly in terms of overall model fit. This test was not significant indicating that there were no major differences in fit for Caucasians and Hispanics,  $X^2(0) = 7.58$ ,  $p = .089$ . Next, unstandardized path estimates were evaluated to examine whether the two groups demonstrated different predictive power for each individual path in the model. These estimates demonstrated that the full model has somewhat greater predictive power for Hispanics than Caucasians in terms of some of the relationships in the model. Specifically, in the Hispanic sample the unstandardized coefficient for the direct effect of objective burden on subjective burden was  $\beta = 5.13$  ( $p < .01$ ).

In the Caucasian sample however, the unstandardized coefficient for the same direct effect was only  $\beta = 1.87$  ( $p < .05$ ). Similarly, the unstandardized coefficient of the direct effect of the interaction between interdependence and objective burden on subjective burden in the Hispanic sample was  $\beta = -4.55$  ( $p < .05$ ). The same path in the Caucasian sample was  $\beta = -2.01$  ( $p < .05$ ). The remaining paths were within a range of .8 or less. These findings may indicate that the relationship between objective burden and subjective burden, as well as the moderation effect for interdependence on the relationship between objective and subjective burden has greater predictive power for Hispanics when compared to Caucasians. However, all results should be interpreted with caution due to the small subsample sizes making it difficult to evaluate for ethnic/racial differences in the current study's model.

## CHAPTER 4: DISCUSSION

As reviewed, caring for a family member with schizophrenia has been associated with numerous negative mental health outcomes. However, some research suggests that ethnic/racial minority caregivers may experience less burden and fewer aversive mental health consequences than their Caucasian counterparts. The overarching objective of the current study was to clarify and better understand these ethnic/racial discrepancies in response to caregiving for a patient with schizophrenia. Specifically, the study examined whether two sociocultural variables, family cohesion and interdependence, might account for part of the ethnic/racial differences found in prior research. We also tested whether subjective burden (SB) mediated the relationship between objective burden (OB) and mental health. In other words, we examined whether the subjective appraisals of caregiving underlie the previously found associations between the concrete costs of caregiving and the poor psychological profiles observed in schizophrenia caregivers. Below, findings from this study and subsequent clinical implications will be discussed. Next, study limitations, future research directions, and final conclusions will be offered.

The first aim of this study was to replicate prior research demonstrating better mental health outcomes for ethnic/racial minority caregivers. Contrary to hypotheses, ethnicity/race was not found to predict depression, anxiety, general emotional distress or quality of life when measured as a latent variable. However, when each indicator of mental health was examined separately, ethnic/racial differences were found for both depression (as measured by the BDI) and anxiety (as measured by the BAI). Interestingly, Hispanic caregivers in this study were found to have the highest levels of

both anxiety and depression. While this was not consistent with our expectations based on the preponderance of research in this area, there are, as noted in the introduction, a handful of prior studies that have demonstrated similar findings (e.g., Magana, 2006; Magana, Ramirez, Hernandez & Cortez, 2007). We are not sure why our results differ from the majority of other studies. Possible explanations are explored in subsequent parts of this paper.

In line with the hypotheses of the current study, African American caregivers were found to demonstrate lower levels of depression when compared to both Caucasian and Hispanic caregivers. This is consistent with prior literature positing a more positive psychological profile for African American caregivers when compared to other ethnic/racial groups (e.g. Haley, Roth & Coletton et al, 2006; Morycz, Malloy, Bozich, & Martz, 1987; Lawton, Rajagopal, Brody, & Kleban, 1992). Similarly, African American caregivers endorsed lower levels of anxiety than did Hispanics. However, surprisingly, they reported having more anxiety than Caucasians. It is unclear why, in our sample, Hispanics endorsed higher levels of anxiety than did Caucasians. It is possible that there are unique regional stressors that may make the experience of African Americans or Hispanics in Miami more stressful than in other cities (e.g. a more conservative political climate that may be viewed as unfavorable to minorities). Another possibility that may account for differences between our findings and those of prior research could pertain to the fact that we did not differentiate among ethnic/racial subgroups of Hispanics. For example, people from Cuban, Dominican, Puerto Rican, or Colombian descent as well as other Hispanic subgroups all likely identified to this category. The majority of our Hispanic sample was likely comprised of people of Cuban descent as Cubans comprise



54% of the Hispanic population of Miami-Dade. Thus, our results may have differed from those of other studies based in the United States as Cubans are not as heavily represented in other parts of the country. Cubans differ from other Hispanic subgroups on many dimensions. For example, they tend to be of higher socioeconomic status (U.S. Census Bureau, 2000a). Thus they may also have different beliefs, values and behaviors that may influence the way they respond to stress when compared to their non-Cuban Hispanic counterparts. The issue of subgroup heterogeneity is briefly discussed further below as a study limitation.

A secondary aim of this study was to examine the relationship among OB, SB and mental health outcomes. As hypothesized, OB was found to be significantly related to SB in our sample. Also in line with expectations, greater levels of both the objective and subjective components of burden were associated with poorer mental health outcomes. This confirms a large body of work demonstrating the psychological toll that burden places on family members and other loved ones who look after a mentally ill person with schizophrenia (e.g., Barrowclough, Tarrier, Johnston, 1996; Fredman, Daly & Lazur, 1995; Oldridge & Hughes, 1992; Winefield & Harvey, 1993). These findings suggest that it is critical to reduce caregiver burden in order to alleviate the negative mental health implications often observed in this population. Also in line with hypotheses, OB was found to significantly predict mental health outcomes not only directly, but also indirectly, via subjective burden. This significant indirect effect indicates that SB partially mediated the relationship between OB and mental health outcomes in this sample, demonstrating the underlying influence of appraisal on psychological well-being. This finding is supported by previous work in the area of stress and coping. However,

this research is much less developed in the realms of severe mental illness and caregiving.

In line with Lazarus and Folkman's (1984) stress and coping model, our results indicate that objective stressors may arouse an appraisal process in schizophrenia caregivers whereby external stressors are deemed to be either benign or distressing. In other words, two caregivers may weather the same objective event (e.g., needing to cancel a planned vacation because of caregiving responsibilities) very differently depending on how they appraise the situation. One caregiver may reason that "while this is disappointing, there will always be other vacations." On the other hand, another may respond with resentment and contempt (e.g., "John is so demanding, I can never do anything fun for myself"). These appraisals, then, will manifest themselves differently in terms of consequent psychopathology. In a related vein, research in general clinical samples has found that targeting negative cognitions and appraisals through a focus on self-efficacy has been shown to reduce distorted thinking as well as levels of psychological distress (Bibou-Nakou, Kidaio, & Bairactaris, 1997; Rose, Mallinson & Walton-Moss, 2002). Our finding of SB's influence on mental health demonstrates the potential for negative psychological outcomes to be improved by addressing caregivers' appraisals of the caregiving experience. This entails examining contextual factors and their potential to influence a caregiver's subjective perception of managing a relative's mental illness. This finding is important as it seems that SB may be more malleable to therapeutic intervention than OB. Therapists may be more limited in how much they can assist caregivers in overcoming the financial, social, or time constraints associated with caregiving. On the other hand, the way one appraises a stressor seems to be much less

constrained. To drive home this point, we turn to a quote from Kushner (2006) from the forward of Victor Frankle's renowned book *Man's Search for Meaning*, "*Forces beyond your control can take away everything you possess except for one thing, your freedom to choose how you will respond to the situation. You cannot control what happens to you in life, but you can always control what you will feel and do about what happens to you.*"

The current study also examined two sociocultural variables, family cohesion and interdependence, and the role they may play in moderating the OB-SB link. In line with hypotheses, interdependence was found to be a significant moderator of the OB-SB relationship. That is, OB was related to lower levels of SB for schizophrenia caregivers who reported higher levels of interdependent beliefs and values. Interdependence, therefore, appears to play a protective role for caregivers such that objective burden is less detrimental to subjective burden appraisals when interdependence levels are high. Having a sense of oneself as connected with a larger community may serve to alleviate the stressor-appraisal process and provide a resource to caregivers who are managing the burdens frequently associated with caring for a mentally ill individual. By way of example, it seems that individuals who are more likely to strongly endorse items such as "I will sacrifice my own self-interest for the benefit of the group I am in" or "I often have the feeling that my relationships with others are more important than my own accomplishments" may feel less subjectively imposed upon when they encounter objective caregiving stressors that limit their own leisure activities and financial well-being. In short, our findings suggest that a strong perception of being interdependent with a larger community may serve to mitigate the stressor-appraisal process and provide a resource to caregivers managing a frequently distressing situation.

Contrary to expectations, family cohesion was not found to be significantly related to either OB or SB, or to moderate the relationship between the two. These findings are puzzling and go against prior research (e.g., Dillworth-Anderson and Gibson, 2000, Knight et al., 2000). There are several possible explanations for this unexpected finding. For example, research has demonstrated that a greater sense of commitment to one's family is inversely associated with perceived global social support (Shurgot & Knight, 2005). That is, individuals who are highly integrated into their family unit may receive fewer support resources outside of the family. As reviewed, an increased sense of family cohesion has been associated with numerous mental health benefits (e.g. Knight et al., 2002; Weisman et al., 2005). However, in some cases caregivers from highly cohesive families may be less likely to take advantage of support from outside sources, hence cancelling out some of the mental health benefits of having strong family bonds.

Furthermore, Kim and colleagues (2007) found that higher levels of familism, a construct similar to family cohesion, was more highly related to an avoidant coping style, defined by maladaptive thoughts and behaviors such as denial and disengagement, when compared to an active coping style in a sample of dementia caregivers. That is, as caregivers increasingly prioritized their family's needs and goals, they had more difficulty coping with a family member's dementia in an adaptive way. Perhaps family members who view themselves as being more separated from a relative's illness are more likely to employ direct and active coping techniques when they experience objective stressors related to the illness. Caregivers who perceive themselves as being highly integrated in their families, then, may have more difficulty applying adaptive coping techniques in managing the stressful events related to their loved one's illness. The noted

differences in coping as well as perceptions of social support associated with higher levels of family cohesion may explain why it was not found to serve as a protective factor for schizophrenia caregivers as expected.

While not directly related to the primary hypotheses of the current study, interesting preliminary findings emerged that may be relevant for future work in the area of caregiver burden. Specifically, older caregiver age was associated with improved psychological functioning in this sample. Older caregivers demonstrated lower levels of depression, anxiety, as well as subjective burden. This is consistent with other findings in the area of caregiver well-being. For instance, Van den Heuvel et al. (2000) found that younger caregiver age was associated with higher levels of distress in a sample of caregivers of stroke patients. In the same study, older caregiver age was associated with higher confidence in knowledge about self-efficacy. Similarly, Jones et al., (1995) and Winefield (2003) found that increased caregiver age was associated with lower levels of caregiver burden for individuals caring for a patient with a psychiatric illness such as schizophrenia. Another study examining a sample of schizophrenia caregivers found that the amount of time dedicated to caregiving activities increased linearly with age (Dahlberg et al., 2007). Furthermore, the highest reported commitment to caregiving was found in individuals aged 80-89 years. Perhaps prior results, in conjunction with those from the present study, suggest that older caregivers experience better mental health because they have had more opportunities to come to terms with their caregiving responsibilities in addition to generally having more free time to devote to caregiving.

Furthermore, increased symptom severity was associated with increased depression, OB and SB. This is consistent with the body of work demonstrating that higher levels of both the positive and negative symptoms of schizophrenia are associated with psychological distress related to caregiving. Finally, caregivers with less scholastic education appeared to experience greater general emotional distress. This is also consistent with a large body of work indicating that formal education appears to be a protective force in mental and physical health (Kessler & McLoyd, 2002). Greater education may offer caregivers access to a variety of coping resources to assist them in dealing with the psychological consequences of coping with mental illness in a loved one.

*Limitations, future directions, and conclusions.* There were a number of limitations in the present study. The first of these involves the ethnic/racial makeup of the sample. While the size of the overall sample was adequate, there was a particularly small subsample of African Americans. Prior studies have demonstrated that African Americans are particularly challenging to recruit in research due to their limited awareness of resources and often hesitancy to engage in intervention (Swanson & Ward, 1995). Thus, overstratification of this ethnic/racial group may be necessary in future research. Heterogeneity of both African American and Hispanic subgroups may also have clouded results of the present study. While we did not have enough statistical power to do so in the current study, recruiting large enough samples to assess ethnic/racial subgroups separately will be an important direction for future research.

The cross-sectional nature of the data is another limitation. Without longitudinal data, the current study does not warrant causal inferences to be made. Future studies are

needed to examine objective and subjective burden over time. The sample also had a slightly restricted range for the measure of family cohesion. In general, participants perceived their families to be moderately to highly cohesive. This finding is not entirely surprising as most of the caregivers participating in this study were willing and often eager to enroll in a family-focused psychosocial intervention. Thus most are likely to be committed to the well-being of both the patient and the family system. While high levels of family cohesion are desirable in a clinical sense, limited range on this construct may have impeded our ability to see relationships with other constructs (e.g., psychological well-being) using this variable. In the future, using a larger and more varied sample size may provide more range in terms of this construct.

Finally, several of the scales used for this study (FES, DASS, and QOLI) demonstrated lower reliability than we would have liked. Some of these values were particularly low for the Spanish speakers in this sample. Therefore, these measures may not have been accurately assessing the intended constructs. This may explain why ethnicity/race was not found to predict family cohesion, general emotional distress or quality of life in this sample. While these scales have generally demonstrated adequate reliability and validity with Hispanics in prior research, in future studies it may be useful to supplement or replace these scales with more culturally sanctioned measures of these constructs.

In conclusion, we found that subjective burden mediated the relationship between objective burden and mental health outcomes in schizophrenia caregivers. This finding has implications for the treatment of caregivers. As noted above, many objective

determinants of burden are not easily modifiable and therefore may be of more limited use in developing interventions aimed at the caregiver population. However, the subjective appraisals of burden are highly amenable to adaptation and change (Jones, 1996). Results of our study indicate that clinicians may help to assuage psychological distress in schizophrenia family members by targeting the more malleable subjective burdens associated with caregiving. Study findings also suggest that the stressor-appraisal process may be mitigated for caregivers with higher levels of interdependence. This suggests that working to foster collaborative and interdependent value systems in caregivers may help to lessen the impact of objective stressors when they do occur. In the future, research should examine other variables that may influence the relationship between appraisals and mental health outcomes.



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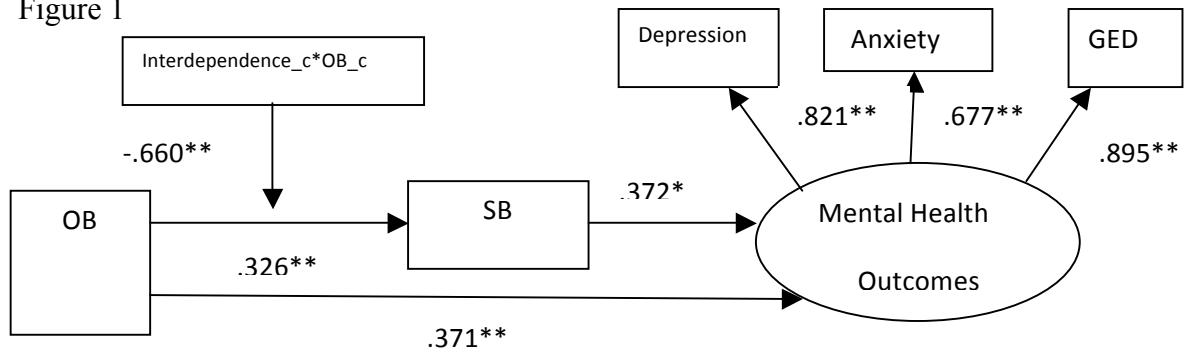
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Figure 1



\* $p < .05$ .  
\*\* $p < .01$



Table 1  
*Correlations Between Major Study Variables*

Variable	1	2	3	4	5	6	7	8
<b>1. FES</b>	1							
<b>2. SCS</b>	-.063	1						
<b>3. BDI</b>	-.221**	.135	1					
<b>4. BAI</b>	-.213**	.029	.448**	1				
<b>5. DASS</b>	.045	.120	.684**	.578	1			
<b>6. QOL</b>	-.309**	.011	-.136*	-.109*	-.137*	1		
<b>7. OB</b>	.025	.139	.335**	.262**	.361**	-.024	1	
<b>8. SB</b>	-.154*	.090	.255**	.298**	.277**	-.214**	.365**	1

FES, Family Environment Scale; SCS, Singelis Self Construal Scale; BDI, Beck Depression Inventory; BAI, Beck Anxiety Inventory; DASS, Depression Anxiety Stress Scale; QOL, Quality of Life; OB, Objective Burden; SB, Subjective Burden.

\* $p < .05$ .

\*\* $p < .01$

Table 2

*Frequencies for categorical data (N=176)*

Variable	Frequency
<b>Type of Relative</b>	Mother = 79 Father = 32 Significant Other/Spouse = 25 Sister= 18 Friend = 10 Brother= 7 Offspring = 5
<b>Gender</b>	Female = 108 Male = 68
<b>Ethnicity</b>	Hispanic = 109 Caucasian = 51 African American = 16
<b>Primary language</b>	English = 118 Spanish = 58
<b>Education</b>	Education College degree = 41 Some college = 68 High School graduate = 42 Some highschool beyond grade 8 = 21 Grade 8 completed = 4

Table 3

*Descriptive statistics for continuous variables (N=176)*

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Skew</b>	<b>Kurtosis</b>	<b>Possible Range</b>	<b>Observed Range</b>
Age	51.05	15.13	.377	-.737		
Family Cohesion	7.18	1.71	-.74	-.54	0-9	3-9
Interdependence	64.51	9.53	-.74	1.46	12-84	32-84
Depression	11.34	8.28	1.09	.478	0-61	1-34
Anxiety	15.25	15.69	1.70	3.07	0-61	0-46
General Emotional Distress	26.73	24.15	1.98	4.52	0-126	0-122
Quality of Life	22.77	8.60	.72	-.137	0-58	4-40
Objective Burden	22.00	1.82	.81	1.92	10-40	10-35
Subjective Burden	20.15	6.04	.046	.40	9-36	9-32

Table 4

*Means of family cohesion in total sample (N=176) and among ethnic/racial groups*

	<b><i>M</i></b>	<b><i>SD</i></b>
<b>Total Sample</b>	7.18	1.71
<b>Ethnic/Racial Group</b>		
African Americans	8.00	1.09
Hispanics	7.22	1.68
Caucasians	7.01	1.82

Table 5

*Means of interdependence in total sample (N=176) and among ethnic/racial groups*

	<i>M</i>	<i>SD</i>
<b>Total Sample</b>	61.33	9.52
<b>Ethnic/racial group</b>		
African Americans	61.17	3.83
Hispanics	64.51	7.27
Caucasians	59.13	10.81

Table 6

*Means of depression in total sample (N=176) and among ethnic/racial groups*

	<i>M</i>	<i>SD</i>
<b>Total Sample</b>	11.34	8.28
<b>Ethnic/racial group</b>		
African Americans	4.5	3.83
Hispanics	12.69	9.06
Caucasians	9.25	5.72

Table 7

*Means of general emotional distress in total sample (N=176) and among ethnic/racial groups*

	<i>M</i>	<i>SD</i>
<b>Total Sample</b>	26.16	24.14
<b>Ethnic/racial group</b>		
African Americans	23.5	13.15
Hispanics	26.73	24.15
Caucasians	21.91	9.34

Table 8

*Means of quality of life in total sample (N=176) and among ethnic/racial groups*

	<i>M</i>	<i>SD</i>
<b>Total Sample</b>	17.36	8.80
<b>Ethnic/racial group</b>		
African Americans	17.77	8.85
Hispanics	16.94	8.47
Caucasians	20.25	9.60

Table 9

*Means of objective burden in total sample (N=176) and among ethnic/racial groups*

	<i>M</i>	<i>SD</i>
<b>Total Sample</b>	22.00	8.77
<b>Ethnic/racial group</b>		
African Americans	19.77	5.48
Hispanics	24.40	9.02
Caucasians	19.94	6.89

Table 10

*Means of subjective burden in total sample (N=176) and among ethnic/racial groups*

	<i>M</i>	<i>SD</i>
<b>Total Sample</b>	20.15	6.04
<b>Ethnic/racial group</b>		
African Americans	19.15	2.19
Hispanics	20.28	6.17
Caucasians	20.25	6.04

Table 11

*Standardized Loadings for Confirmatory Factor Analysis of Mental Health Outcomes*

	Coefficient	SE	Z
<b>Mental Health Outcomes</b>			
BAI	.677	.045	15.144**
BDI	.821	.036	23.036**
DASS	.895	.032	28.169**
QOLI	.472	.062	7.579

\*p &lt; .05.

\*\*p &lt; .001.

Table 12

*Standardized Path Coefficients, Standard Errors and z-Values for Direct Effects and Indirect Effect*

	Coefficient	SE	z
<b>Direct Path</b>			
OB to SB	.326	.182	17.952**
OB to Mental Health Outcomes	.371	.095	4.952**
SB to Mental Health Outcomes	.372	.085	4.368*
Interdependence_c*OB_c to SB	-.660	.001	-4.663**
<b>Indirect Path</b>			
OB to Mental Health Outcomes via SB	.649	.102	6.353**

\*p &lt; .05.

\*\*p &lt; .001.