ACCULTURATION, ACCULTURATIVE STRESS, AND ANXIETY AMONG HISPANIC UNDERGRADUATES

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First generation college students face some unique challenges in the pursuit of higher education. Aside from academic stressors, there are stressors related to social and cultural transitions which may exacerbate pre-existing emotional or psychological distress. Research suggests that acculturation influences psychological well-being and development. The current study examined the relationships between acculturation, acculturative stress, socio-economic status, and symptoms of anxiety among first-generation college students of Hispanic origin. Participants (*N* = 125) included those who were first in their family to attend college and were primarily female, of traditional college age, and of Mexican heritage. All measures were self-report and were completed online. Overall, this study was inconclusive as most analyses were underpowered. The present study failed to support a relationship between style of acculturation and symptoms of anxiety, although, experiencing Anglo marginality was related to high levels of acculturative stress and anxiety. Finally, regression analysis revealed that acculturative stress, age, and Anglo marginalization were significant predictors of anxiety and accounted for 31% of variance in anxiety. Implications of the present study were discussed. Further study with adequate power is highly recommended.

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TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF ILLUSTRATIONS

Page

INTRODUCTION

The United States Census Bureau reports that the Hispanic population is one of the fastest growing populations within the United States (2000). Currently, the Hispanic population constitutes 14% of the total United States population (US Census Bureau, 2000). It is projected that by the year 2050, the Hispanic population will constitute about 24.4% of the entire United States population (US Census Bureau, 2000). Given the projected growth of the Hispanic population, it is necessary to examine this population more extensively, particularly mental health outlook.

Previous research supports the idea that an individual's ethnicity and culture are relevant to an individual's mental wellbeing (Rogers, Cortes, & Malgady, 1991). More specifically, research suggests that an individual's culture influences the features, presentation, and course of a mental illness as well as reaction, coping, resolution and adjustment to the illness (Barlow, 2002; Tseng & Streltzer, 2004). Previous research has examined mental health in ethnic populations with some focus on depression. Anxiety, as a natural emotional state, is another condition that has some culture specific presentations as well as diagnostic challenges. Cross-cultural research suggests that there are cultural differences in description and presentation of anxiety (Barlow, 2002; Freidman, 1997). Consequently, although anxiety appears to be a common human experience, there are some challenges when examined cross-culturally. These characteristics, the commonality and complexity, make anxiety important to research as well as difficult.

As the demographics of the United States continue to change, enrollment in colleges and universities is also changing. Yet, despite the growth of the Hispanic

population, they are generally underrepresented in postsecondary education (Harrell & Forney, 2003). It is important to note that education is a means of engaging with a dominant culture. Given the projected growth of the Hispanic population, understanding the cultural frame of psychopathology and educational attainment is important.

The present study is designed to examine the role of culture in reported symptoms of anxiety within a Hispanic first generation college student population. Acculturation was used as the vehicle for understanding an individual's cultural identification. Anxiety symptoms as a whole were evaluated as well as cognitive, affective, and physiological symptoms. Acculturative stress and socioeconomic status (objective and subjective measures) were examined as factors influencing reported symptoms of anxiety.

Hispanic Immigration to the United States

Presently, there are over 304.1 million people living in the United States (US Census Bureau, 2000), a population which has been and continues to be shaped by immigration. In 1970, there were approximately 9.6 million foreign born inhabitants of the United States; by 1990 that number had grown to 19.6 million (Larsen, 2004; Passel & Suro, 2005). Between 1999 and 2000, migration grew rapidly and the foreign-born population rose to over 30 million people (US Census Bureau, 2000).

According to the US Census Bureau, about 11.7% of the population is foreign born with many being of Hispanic origin (US Census Bureau, 2000). Mexico, South American, Latin American, and Asian countries have stimulated much of the recent immigration flow with Mexico being the largest contributor (Passel & Suro, 2005). It is estimated that there are nearly 400,000 Mexican migrants to the US each year (Passel

& Suro, 2005). It is estimated that about 64% of the Hispanics within the US are of Mexican decent (Passel & Suro, 2005).

When examining the current Hispanic population, it is evident that this population ranks low on a few measures of socioeconomic status. In terms of income, the median income for Hispanic households is about $38,00 while non-Hispanic Whites earn a median of about $54,500 (US Census Bureau, 2010). Poverty rates are about 25% for Hispanics and about 9% for non-Hispanic Whites. Of the 68% of Hispanic individuals working in the civilian labor force, about 24% work in service occupations, 22% in sales, 19% in production and transportation, 18% in managerial and professional occupations and 15% in construction (US Census Bureau, 2004). As aforementioned, Hispanics also rank low in education.

Education of Hispanic Individuals

According to the United States Department of Education and National Center for Education Statistics, Hispanics have the highest high-school dropout rate (US Department of Education and National Center for Education Statistics, 2005). About 60% of the US Hispanic population has attained a high school diploma, compared to 89% of non-Hispanic Whites (Therrien & Ramirez, 2000). Given the dismal numbers of those who have attained a high school diploma, the numbers for those attaining post-secondary education is also disproportionate. Among those who do graduate, about 53% are reported to enroll in colleges or universities (US Department of Education and National Center for Education Statistics, 2005). Retention rates of Hispanic students decline throughout the years of college education, and completion of a college degree is reported to be between 10-31% (US Department of Education and National Center for

Education Statistics, 2005). Among Hispanics about 11% receive a bachelor's degree or advanced degree, compared to 28% of non-Hispanic Whites (Therrien & Ramirez, 2000).

Given the projected size of the Hispanic population and these statistics regarding education, there seems to be adequate cause for concern that deserves some attention. Another related area that has received a growing amount of attention is Hispanic health. There have been some interesting findings regarding the physical and mental health of Hispanic individuals.

Mental Health of Hispanic Individuals

The phrase "Hispanic paradox" has been coined to describe the health of Hispanics who, despite negative social indicators, have health that is equal to or better than non-Hispanics in the United States (Franzini, Ribbbie, & Keddie, 2001). Franzini et al. (2001) examined literature from the past 20 years and found that across studies, Hispanics had lower mortality rates despite being characterized by low income, low levels of education, and high levels of unskilled occupations. There were also indications of lower morbidity among Hispanics. Franzini et al. go on to suggest that the "paradox" is complex with variations by demographic variables such as age, gender, country of birth, heritage, acculturation, and disease.

When examining mental health, one study which utilized data from the Epidemiological Catchment Areas Study found that immigrant Mexican individuals had a lower lifetime prevalence of mental illness than European American individuals (Burnam, Hough, Karno, Escobar, & Telles, 1987). In contrast, Mexican Americans (US born) were found to have higher lifetime prevalence of mental illness. This finding suggesting that individuals of immigrant status have a lower prevalence of mental

illness than those who are US born is interesting because immigrants' social status is often lower than those born in the US. Often individuals of immigrant status have lower socioeconomic status, and may generally be at a disadvantage with fewer resources available and numerous stressors and challenges (Chun, Organista, & Marín, 2003).

The National Comorbidity Study utilized data from the Mexican American Prevalence and Services Survey as well as data collected in Mexico, and found that Mexican Americans and the general US population had comparable prevalence rates of mental illness (Vega, Kolody, Aguilar-Gaxiola, Alderete, Catalano, & Caraveo-Anduaga, 1998). The Mexican immigrant sample and those who were surveyed in Mexico also had comparable prevalence rates, which was about half of the prevalence within the Mexican Americans sample (Vega et al., 1998). From their findings, Vega et al. (1998) concluded that adapting to US culture potentially has a negative influence on the mental health of individuals of Mexican origin. When examining findings on mental health of Hispanic individuals, one important consideration is that these findings rely on The *Diagnostic and Statistical Manual-IV Text Revision* (*DSM-IV TR*), which may present some challenges.

Classification of Mental Health

In the United States, the *DSM-IV TR* is used as the standard tool to describe and define mental illness. The *DSM-IV TR* employs a categorical approach to defining mental illness. Although some disorders are thought to be universal, other disorders are culturally specific. Recognizing the cultural influence on psychopathology, the *DSM-IV TR* includes a glossary of culture-bound syndromes which have been defined as "recurrent, locality-specific patterns of aberrant behavior and troubling experience that

may or may not be linked to a particular DSM-IV diagnostic category" (American Psychiatric Association, 2000, p. 898). These syndromes do not conform to any *DSM-IV TR* diagnoses and are considered culturally specific and distressful patterns of abnormal behavior. The culture-bound syndrome addition to the *DSM-IV* provides insight into the particular experience of mental illness and suggests that it may present differently among those of diverse backgrounds.

The notion of culture-bound syndromes suggests the importance of the cultural construction of mental disorders. The culture-bound syndrome section of the *DSM-IV TR* reminds psychologists to be mindful of an individual's cultural background when working with ethnically diverse clients. The glossary of culture-bound syndromes assumes an emic perspective on mental health and describes afflictions that are indigenous to a particular group of people.

Attention to culture and culture-specific disorders highlights the importance of examining the construct of mental illness as it applies to those of diverse backgrounds. There are divergent expressions of symptoms and meanings of mental disorders as related to culture. For instance, anxiety disorders appear in all cultures, and aside from *DSM-IV TR* diagnoses of anxiety disorders there are also culture-bound syndromes that are inclusive of anxiety symptomology but are culture specific. The next section will examine culture's role in psychology and mental health.

Culture and Mental Health

The term culture in a general and anthropological sense defines parameters of a people in terms of values, customs, behaviors, ideals, and beliefs (Ember & Ember, 2004). It encompasses racial and ethnic identity as well as gender, age, sexual

orientation, language, and religion. Ember and Ember discuss the foundation of culture as dynamic patterns of everyday life exhibited by a group of people (2004). Research suggests that an individual's culture influences specific aspects of the presentation and course of a mental illness as well as the coping style and resolution (Barlow, 2002; Tseng & Streltzer, 2004). Therefore understanding the individual's sense of cultural identity may be helpful in understanding mental distress.

Assuming that culture exerts an influence on human experience necessitates that cultural constructs be evaluated (Dana, 2005). Dana (2005) proposes a systematic process of assessment and data examination. The multicultural assessment-intervention process (MAIP) model suggests a strategy for incorporating culturally pertinent information into the assessment procedure. Including relevant questions during the assessment process fosters a greater understanding of an individual's cultural differences. Furthermore, the multicultural assessment-intervention process (MAIP) model enhances case formulation, clinical diagnosis, and intervention by identifying cultural considerations (Dana, 2005). For instance, early in the MAIP model Dana recommends evaluating cultural/racial identity to make an informed decision about the applicability of etic/emic measures and norms.

Historically, there have been and continue to be a number of challenges for ethnic minorities seeking mental health care. Factors that influence the utilization of mental health care include stigma, reliance on familial support, socioeconomic status, language, level of education, employment, and quality of health insurance (Friedman, 1997; Tseng & Streltzer, 2004). Each of these areas encompasses a potential impediment for an individual. In terms of Hispanics, within the US these individuals often

do not attain advanced education, are underemployed, have a low income, and are without health insurance (Friedman, 1997). Furthermore, this group has historically been underrepresented in seeking mental health care.

In considering the cultural background of the individual, challenges in seeking mental health care, and the process of acculturation, it is valuable to note the relative socioeconomic status of contacting cultures. Often there is considerable disparity among the interacting cultures (Chun, Organista, & Marín, 2003). Perhaps this is best understood when taken in extremes and considering when one from a highly impoverished country seeks a new life in a more affluent location. Socioeconomic status, as a place holder within society, is related to opportunity level and informs worldview.

Individuals of Hispanic descent often speak of psychological distress in different ways than might be expected in a society framed by a European American culture. Within Hispanic culture, verbal expressions of psychological problems may be stigmatized (Varela, Weems, Berman, Hensley, & Rodriguez de Bernal, 2007). Often, depending on the culture, one might hear: *nerviosidad* (nervousness), *locura* (craziness), and *mal de cerbro o de la mente* (bad in the brain or in the mind; Friendman, 1997). There are still other manners and idioms used by people of Hispanic origin to describe psychological distress. As idioms, such phrases may not translate accurately to English. The language used to describe someone of ill mental health is descriptive yet lacking in criteria of symptoms based on an European or European American view. Ignorance of such meaningful idioms is problematic and further complicates the mental health care situation.

Ethnic differences between health care provider and client may also be problematic at times. Miscommunication and lack in understanding could result in a misdiagnosis or missed diagnosis. Cultural sensitivity is as important in the diagnostic phase as it is in the therapeutic phase. As illustrated by Dana's multicultural assessment-intervention process (MAIP) model, understanding a client's cultural orientation may help to inform choice of measures (Dana, 2005). That is, emic measures may be more favorable than etic measures for ethnically diverse individuals who are not assimilated. Understanding and utilizing such measures ensures enhanced conceptualization, formulation, and intervention (Dana, 2005).

In becoming familiar with unique cultural contributions to the expression of mental conditions, it is also helpful to understand the individual's cultural relation. That is, how does an individual perceive his/her cultural identity? Further, how does the individual interact with others, especially when the individual is within a culture that is different from their culture of origin? This may best be understood in terms of immigrants or refugees who are immersed in a culture that is not their home culture/culture of origin. Yet, even those who are US born interact with others from diverse cultures. This is likely to be increasingly true as the demographics of the US change. Understanding the individual's relation to their culture of origin and the culture in which he/she is living seems to be a vital aspect of comprehending cultural identity and perhaps, perceptions of distress. Acculturation is a construct of the individual's frame which may be helpful in understanding a portion of this cultural aspect. Within recent decades, acculturation has also gained attention within psychological literature.

Acculturation

The term “acculturation” has roots in archeology, where it appeared in the late 19th century writings of J. W. Powell (Rudmin, 2003). Upon examining Native American languages, Powell wrote: “The force of acculturation under the overwhelming presence of millions [of Europeans] has wrought great changes” (as cited by Rudmin, 2003, p. 11). Powell was describing changes in Native American language due to interactions among Native Americans and European Americans.

In 1936, Redfield, Linton, and Herskovits described acculturation as having two distinctive elements that are essential –continuous contact and subsequent changes. These two elements are central in defining acculturation and were supported by the Social Science Research Convention (SSRC) in 1954. Acculturation is therefore understood as a phenomenon resulting when two or more independent cultures continuously encounter each other, rendering subsequent changes and adaptations for either or both cultures (Berry, 1997; Redfield, Linton, & Herskovits, 1936).

According to Redfield et al. and SSRC, three components are essential to understanding the acculturation process. Primarily, there are unique cultures. That is, there are at least two cultures that are distinct in observable ways. For instance, there may be differences in language, customs, values, or ideals. Secondly, these cultures are in constant contact with each other. The interaction of the cultures is where modifications are able to begin to take form. Finally, the constant contact of cultures fosters transformations and adaptations to each culture.

Acculturation research can be conceptualized from a group or individual perspective. Acculturation affects the psychology of the individual as well as changing

cultural aspects of the group. Understanding of the influences of acculturation on a cultural group has potential to yield greater understanding of social constructs such as immigration policy. Acculturation at the group level entails an understanding of the culture, institutions, and interactions among people. Within psychological research, more attention is placed on the acculturation experience of the individual, that is, on the individual's values, beliefs, and behaviors. Additionally, Cabassa (2003) has noted that many measures of acculturation attempt to capture the individual's level or type of acculturation style. There is a degree of variability among acculturation experiences (Berry, 1997; Cabassa, 2003), which makes it a worthwhile endeavor to focus on the individual's acculturation style and the implications of such a style.

History and Theory of Acculturation

Historically, the focus of acculturation theory and research has been on society as a whole (Sodowsky, Ming Lai, & Plake, 1991). However, within the last few decades, prolific amounts of research have been conducted on the psychological effects of acculturation on the individual (Burnam, Hough, Karno, Escobar, & Telles, 1987; Cabassa, 2003; Chun, Organista, & Marín, 2003; Cuéllar, Harris, & Jaso, 1980; Magaña, De la Roncha, Amsel, Fernandez, & Rulnick, 1996; Sodowsky, Ming Lai, & Plake, 1991). At the individual level, attention is placed on the changes in the individual's modality of culture. That is, examinations are concerned with the individual's perceptions, ideologies, behaviors, language(s), values, and beliefs as that individual lives in a new environment. This interest in acculturation has also introduced a substantial amount of literature with regard to theories on process and function of acculturation as well as how to measure such a construct (Cuéllar, Harris, & Jaso, 1980;

Magaña, De la Roncha, Amsel, Fernandez, & Rulnick, 1996; Sodowsky, Ming Lai, & Plake, 1991).

As the acculturation literature has evolved, a few theories and models have developed to explain the acculturation progression. Two theoretical frameworks have dominated the literature of the acculturation process as it pertains to the individual: a unidimensional paradigm and a multidimensional paradigm (Cabassa, 2003; Berry, 1997; Sodowsky, Ming Lai, & Plake, 1991). These competing theoretical frames have produced a substantial amount of research and debate (Cabassa, 2003).

The unidimensional paradigm maintains that acculturation flows along a single continuum of immersion (Cuéllar et al., 1980). At one end of the continuum is immersion into the culture of origin, while at the other end of the continuum is immersion into the dominant culture (Cuéllar et al., 1980). Interestingly this unidimensional progression only affects the acculturating group. There is an underlying assumption that the acculturating group does not influence the host culture. This model also assumes that acculturation progresses in the direction of assimilation; that is, relinquishing customs, values, and beliefs of the culture of origin for those of the dominant culture. According to this model, there is not room for biculturalism or multiculturalism. As such, this model is simplistic and provides an incomplete conceptualization of this cultural phenomenon.

The bidimensional and multidimensional model conceptualizes acculturation as entailing two distinct dimensions: (a) conformity to the dominant culture and (b) preservation of the culture of origin (Cabassa, 2003; Magaña, De la Roncha, Amsel, Fernandez, & Rulnick, 1996), with the assumption that both are possible. The individual retains aspects of the culture of origin and assimilates to the dominant culture, but

identification with each culture is possible. Individuals are seen as having the capacity to value and maintain the culture of origin (Berry, 1997; Cabassa, 2003). Thus, within the dimension concerned with an individual's culture of origin, on one end there is adherence to the home culture while on the opposite end is neglect of culture of origin. On the second dimension, there is rejection of the host culture on one end and adaptation to the host culture on the other end. Individuals are able to engage in the home culture as well as adopt aspects of the host culture (Berry, 1997; Cabassa, 2003). The multidimensional construct is a cultural dialogue of sorts, in which both the dominant or host culture and the culture of origin are simultaneously integrated to varying degrees. As such, this model provides greater scope for the individual yet increases the complexity of the construct.

One of the more popular multidimensional models of acculturation distinguishes between four styles of acculturation: assimilation, separation, integration and marginalization (Berry, 1980). An assimilated style of acculturation is one in which the person from the non-dominant culture fully embraces the dominant culture. That is, little from the culture of origin is retained and continuous interaction with the dominant culture is sought. A separated style of acculturation is the opposite of this and involves an individual of a less dominant culture rejecting the dominant culture. That is, the culture of origin is retained and there may be some level of avoidance in engaging others from the dominant culture. An integrated style of acculturation is one that combines aspects of the dominant culture as well as aspects from the culture of origin. That is, neither culture is completely rejected or retained; rather there is some incorporation of the cultures. This style may be thought of as bicultural. And finally, a

marginalized acculturation style is when the individual does not identify with either the dominant culture or the culture of origin.

It is important to note that there is a healthy amount of criticism and discussion surrounding the limitations of both of the models (Cabassa, 2003; Chun, Organista, & Marín, 2003). It is also important to underscore that the way in which acculturation is approached has implications for the choice of measurement instrument as well as hypotheses.

Acculturation Measures

Within the field of psychology there are many new instruments measuring acculturation (Zane & Mak, 2003). Numerous efforts have been made to operationalize and assess acculturation level among ethnic individuals. Because acculturation is broadly defined as cultural contact and subsequent change, there is a wide diversity of measures. Some instruments have focused on language usage and media behavior, while others take into consideration value expression and beliefs (Zane & Mak, 2003). Still other research has used proxy measures of acculturation such as demographic variables – number of years in the US (Cabassa, 2003). Given the broad nature of acculturation and the assortment of developed measures, there is consensus in the field that measures of acculturation need to undergo psychometric evaluations (Cabassa, 2003; Trimble, 2003; Zane & Mak, 2003).

There are also different frames around which to conceptualize acculturation. Because differences exist among ethnic cultures, many measures focus on specific ethnic groups such as African Americans or Mexican Americans. For instance, the African American Acculturation Scale -Revised (AAAS-R) which has been developed to

measure acculturation among African Americans (Klonoff & Landrine, 2000). Specific measures such as the AAAS-R have been designed for a particular population and normed on that samples. Although the specificity of particular measures does not lend itself to other ethnic groups, it is beneficial in capturing the changes of a specific ethnic group. Ethnic-specific measures attempt to capture the acculturation process at the individual level of a particular ethnic group.

Many of the acculturation measures have been developed as self-report instruments established in a unidimensional frame – assessing an ethnic individual's acculturation to European American culture (Zane & Mak, 2003). Measures that are grounded in a multidimensional model are inherently more complex as they attempt to encompass a conglomeration of areas that are associated with acculturation. Although such measures are thought to be a more realistic approximation of acculturation, the multidimensional model is not easily translated into an instrument (Cabassa, 2003). Multidimensional instruments characteristically measure adjustment to the host culture as well as preservation of the home culture. Typically instruments include areas such as identity, language usage, food and friendships preference, as well as preference in media – television, books, and music.

Many of the measures discussed above have been designed in a unidimensional frame, which assumes that the acculturation process is a linear construct. Again, this is a limitation in measurement and ultimately in conceptualization of the acculturation phenomenon. Given the current understanding of the acculturation construct, examining a multidimensional frame might be more accurate in terms of the dynamics involved for the individual.

Hispanic Measures of Acculturation

The following section highlights some acculturation measures for Hispanic individuals. The Language Acculturation Scale for Mexican Americans implements a rating of language as a basis of acculturation (Deyo, Diehl, Hazuda, & Stern, 1985). This and many other measures focus on simple factors such as language and duration of time in the host culture. The Cuban Behavioral Identity Questionnaire is a measure that focuses on the behavioral aspects of acculturation normed on a Cuban sample (Garcia & Lega, 1979). Behaviors such as foods eaten and preference of language in media are used as a gage. For such measures, participants answer questions regarding engagement in ethnic behaviors and familiarity with such culturally oriented aspects of behavior. The Short Acculturation Scale for Hispanics uses language, media, and ethnic social relations as the components of acculturation (Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987).

A popular and widely used measure, the Acculturation Rating Scale for Mexican Americans-II (ARSMA-II) has been developed to measure acculturation among Mexican Americans (Cuéllar, Arnold, & Moldonado, 1995). Aside from its wide spread use, this measure is amendable to Berry's model of acculturation styles. Furthermore, it appears to have adequate validity and reliability. Finally, it important to note that some measures, such as the ARSMA-II have been modified in order to examine acculturation in a different ethnic group (e.g. Lee, Yoon, & Liu-Tom, 2006). The present study modified the ARSMA-II to be inclusive of all Hispanic subgroups and will utilize Berry's model to establish acculturation styles.

Relevance of Acculturation for Psychology

Although there has not been complete consensus on the most accurate way of measuring acculturation, it has, as a complex and multifaceted cultural phenomenon, gained recognition as a valuable construct (Chun, Organista, & Marín, 2003). The course of acculturation has important implications for the individual as well as the larger group.

In terms of psychological implications for the individual, there are changes that occur within the individual related to specific behaviors, values, and customs. It is often easiest to note the observable changes which could include transformations observed in speech, dress, or communication. Yet, examining the psychological disposition and mental health of the individual once the individual engages in constant contact with another culture has significant value especially in an increasingly globalized society. That is, the manner in which the acculturative process relates to mental health in terms of symptoms of anxiety, depression, etc. is important for how the individual functions. Additionally, coping styles and the manner in which the individual adapts are issues of concern for the provision of mental health services.

Previous research suggests that acculturation influences psychological well-being and emotional development (Ghaffarian, 1998; Sonderegger & Barrett, 2004) and has acknowledged that acculturation should be taken into account when designing mental health treatment programs for ethnic individuals (Santiago-Rivera, 1995).

Acculturation and Mental Health

Although many researchers are interested in the role that acculturation plays in mental health of ethnic individuals, there have been disproportionate and diverse

findings. Much of the research has focused on Hispanic Americans with some research on African Americans, Asian Americans, and Native Americans (Chun, Organista, & Marín, 2003). Within the research, there is a general lack of consistency in methodology; studies often vary in measures of acculturation as well as measures of mental health (Chun, Organista, & Marín, 2003). The studies discussed below have primarily used global scales of mental health or have focused on depression and rarely on anxiety.

Some research has concluded that people confront more difficulties if they resist assimilation into the dominant culture (Ghaffarian, 1998; Griffith, 1983; Szapocznik, Kurtinez, & Fernandez, 1980). These studies have suggested that those who do not adopt the mainstream values and behaviors may not integrate well and therefore may experience high levels of distress. This has the potential to exacerbate pre-existing emotional and psychological distress. However, those who adopt some of the dominant culture may fit in better with the dominant culture and would experience less overall stress and better mental health. These findings support the melting pot hypothesis, which suggests that retention of native culture and psychological difficulties are directly related.

Conversely, some research has suggested that people who adopt the dominant culture and relinquish their culture of origin experience greater stress and more psychological difficulties (Ortiz & Arce, 1984; Ramirez, 1969). Burnam et al. (1987) found that within a Mexican sample, higher levels of acculturation (acculturated to dominant culture) were positively associated with a higher incidence of mental illness. Furthermore, Mexican Americans (US born) who had the higher scores on acculturation

also had higher rates of mental illness (Burnam et al., 1987). This research suggests that those who change and identify more with the dominant culture and less with the culture of origin, may experience increased stress and psychological distress.

Interestingly, there is research suggesting that those who adapt to the dominant culture while retaining their culture of origin (thus being bi-cultural or identifying with both cultures) are healthier and demonstrate better overall adaptation (Fernandez-Barillas & Morrison, 1984; Ghaffarian, 1998; Lang, Munoz, Bernal, & Sorensen, 1982; Szapocznik et al., 1980). This suggests that identifying with the host culture as well as the culture of origin is psychologically the healthiest.

The above review demonstrates how previous research has supported that both low acculturation to the dominant culture as well as high acculturation to the dominant culture leading to both poor and good mental health (Gamst, Dana, Der-Karabetian, Aragón, Arellano, & Kramer, 2002; Ghaffarian, 1998; Griffith, 1983; Ortiz & Arce, 1984; Ramirez, 1969; Szapocznik, Kurtinez, & Fernandez, 1980). These divergent and inconclusive research findings present an array of possibilities in the area of acculturation measurement and research, especially since the role of acculturation in mental health is not well understood. The varied findings have encouraged more investigations into the meaning of acculturation as well as the influence of acculturation on mental health. Furthermore, it is acknowledged that consistent methodology and replicated results would provide a better understanding of the relationship between acculturation and mental health. Moreover, understanding the relationship between style of acculturation and particular types of psychological symptoms of mental health

could enable mental health care providers to better serve clients of ethnic populations and those of diverse cultures.

It is important to highlight that although many have noted the importance of examining acculturation, there are a number of challenges in this area (Chun, Organista, & Marín, 2003). Hunt et al. (2004) suggest there are many conceptual deficiencies and methodological difficulties which hinder research concerning acculturation. Overall, acculturation research has lacked clear conceptualization and definition. Hunt et al. (2004) note that many research studies include ambiguous and inconsistent conceptualizations of acculturation. In relation to ambiguous conceptualization of acculturation is psychometric modeling and measurement. The manner in which acculturation is defined and the instruments used to measure it all point to the limitations in acculturation research.

Examining acculturation as it pertains to psychology and psychopathology is still developing. The psychometric challenges, such as simplistic definition of acculturation and less than rigorous measures, result in feeble conclusions regarding psychology and mental health. However, acculturation as an avenue to understand culture's influence in psychology appears to be a valuable endeavor. It is perhaps most applicable when considering multicultural groups and immigrants (Van Vijver & Phalet, 2004). The current project has defined acculturation according to the multidimensional paradigm and will utilize Berry's (1980) model. The instrument chosen, Acculturation Rating Scale for Mexican Americans-II (ARSMA-II), has been utilized in previous research and appears to have adequate validity and reliability.

The process of acculturation has the potential to foster a variety of challenges such as identity issues, emotional struggles, and psychological problems. These challenges would very likely exert an influence on other aspects of life. Acculturative stress is often a constituent in the process of acculturation (Thoman & Surís, 2004).

Acculturative Stress

Acculturative stress is a stress response that results from facing the demands of adapting to cultural shifts or changes in one's culture (Berry & Kim, 1988; Williams & Berry, 1991). It may include manifestations such as uncertainty, anxiety, and depression. Acculturative stress is any stress that is experienced because of cultural or language differences among two or more cultures.

Previous research has noted that the educational system, as a medium of the acculturation process, also serves as an avenue for acculturative stress (Cuéllar, 2000). This is most likely to occur when conflict is present between the home culture and the host culture and/or during initial stages of contact between the two cultures (Organista, Organista, & Kurasaki, 2003; Thoman & Surís, 2004). This conflict is generally thought to be resolved when some form of integration occurs.

There is evidence to suggest that acculturative stress may have valuable repercussions for mental health (Organista et al., 2003). Specifically, there appears to be a direct relationship between acculturative stress and psychological distress. Across ethnic groups, acculturative stress has been linked to a number of psychological symptoms of distress. The relationships among acculturation, acculturative stress, and mental health make the acculturative stress construct noteworthy. Furthermore, variables such as social support, attributions, and tolerance have been shown to

mediate the relationship between acculturative stress and mental health (Berry & Kim, 1988; Williams & Berry, 1991).

Acculturative stress has been associated with depressive symptoms as well as depression in Hispanic populations (Mejia & McCarthy, 2010). Depressive symptoms were also found to be associated with acculturative stress in international college students (Constantine, Okazaki, & Utsey, 2004). Previous literature has also indicated that acculturative stress may influence clinical and non/clinical anxiety (Crockett, Iturbide, Stone, McGinley, Raffaelli, & Carlo, 2007; Hovey & Magana, 2002a, c)

Although much of the acculturative stress literature has focused on refugees and immigrants, acculturative stress has also been found in US-born ethnic minorities. As it is a response which arises out of cultural pressures, acculturative stress has also been associated with symptoms of eating disorders like bulimia in Hispanic college students (Perez, Voelz, Pettit, & Joiner, 2002). Some research suggests that acculturative stress is also related to anxiety symptoms among ethnic minority college students (Mejia & McCarthy, 2010; Paukert, Pettit, Perez, Walker, 2006; Thompson, 2000). Generally, these findings suggest that culture does play a role in mental health and there are important implications for understanding mental health in diverse cultures. Understanding an individual's cultural background could provide better insight to an individual's experience of distress.

Given the previous research findings and the limitations within the research, there is a general need for further examinations of the relationship between acculturation and mental health as well as how acculturative stress might fit into the relationship. Examining specific symptoms in relation to cultural pressures may foster a

better understanding of the constructs at hand. The focus of the present research is on anxiety as it is prevalent in all cultures. According to the National Institute of Mental Health (2002), anxiety is a natural part of daily life and the human experience.

Anxiety

The National Institute of Mental Health has reported that anxiety disorders constitute some of the most prevalent psychological syndromes in the US (2002). Anxiety is an instinctive psychological, behavioral, and physical response to imagined or actual danger (Barlow, 2002). It may be thought of as a continuum, where at moderate levels it can be motivational while on the high end it can be debilitating. A moderate level of anxiety helps to encourage efficiency and production. When anxiety symptoms are pervasive, it becomes problematic and clinically significant.

Research in the realm of anxiety has been examined as being grounded in emotional processes, and viewed from various frames, namely behavioral, neurobiological, or cognitive theories (Barlow, 2002). Thus, there are a number of theoretical frames for understanding emotion from which anxiety could be understood. Since the late twentieth century, research has attempted to integrate the cognitive and behavioral models of anxiety to gain a more comprehensive understanding of anxiety (Barlow, 2002; Hollandsworth, 1990). Within this vein, there has been research examining anxiety as a human experience that is different from fear (Barlow, 2002). Theoretical developments and knowledge of anxiety as a construct point to the uniqueness of it, yet there is a consistency that anxiety shares with emotions such as fear (Barlow, 2002). Fear appears to be a basic human emotion that transcends age,

race, and culture (Barlow, 2002), while anxiety consists of some fear, but also seems to blend other emotions such as sadness, guilt, and excitement (Barlow, 2002).

The physiology underlying anxiety may be understood as universal (Al-Issa & Oudji, 1998; Barlow, 2002). With regard to the neurobiology – neurotransmitters and neurophysiology – anxiety looks much the same across individuals. That is, chemically and with regard to neural ways anxiety looks very similar in humans. The neurobiology of anxiety is not easily detectable, but there are physiological results that may be measured. Physiologically, during a state of anxiety, skin temperature usually lowers, heart rate increases, pupils dilate, blood pressure decreases, and sweat may be produced. Given the common physiological experience of anxiety, focus may shift toward understanding the situations that arouse anxiety, how it may be expressed and the role culture plays (Al-Issa & Oudji, 1998).

Culture and Symptoms of Anxiety

Although the human experience of anxiety may be physiologically similar across cultures, anxiety provoking situations and the manner in which anxiety is experienced and emotionally expressed may be shaped by culture. That is, there is an element of psychological distress that may be attributed to culture. Previous research suggests that there are cross-cultural disparities in the report of the anxiety experience (Barlow, 2002; Friedman, 1997). Furthermore, across cultures, not only do expressions of anxiety differ but symptoms are often articulated through culture-specific idioms (Friedman, 1997). The differences in articulation make it difficult to generalize symptomology across cultures since the *DSM-IV TR* description is framed in an Euro/Anglo American model.

Evidence for this is seen in some of the culture-bound syndromes, which constitute culturally appropriate ways of expressing anxiety.

To date, the *DSM-IV TR* recognizes ten unique cultural expressions relating to anxiety: *ataque de nervios*, *brain fag, dhat, koro*, *nervios*, *rootwork*, *shen-k'eui/shenkui*, *shin-byung, susto,* and *tajin kyofusho*. Cultures all over the world including among populations in Latin America, India, Malaysia, China, Korea, Japan, Caribbean Islands, Mexico, South America, as well as those of African descent living in North America are represented among these syndromes. They suggest the importance of culture. The anxiety related syndromes, like other culture-bound syndromes, are regional categories that "frame coherent meanings for certain repetitive, patterned, and troubling sets of experiences and observations" (American Psychiatric Association, 2000, p. 898).

Based on cross-cultural examinations of anxiety, Barlow (2002) concluded that "the somatic manifestation of emotional disorders is the prominent expression of anxiety in countries and cultures other than those of the European-influenced West" (p. 34). Additionally, the somatic symptoms may present differently among cultures (Barlow, 2002). Physically, anxiety is commonly associated with palpitations, elevated pulse rate, muscle tension, and tremors. Symptoms commonly described are those such as sweating, chest discomfort, dizziness, and nausea (Barlow, 2002). Because these physical symptoms mirror physical conditions, it is sometimes difficult to distinguish psychological distress from physical illness, and Barlow suggests, "the experience of anxiety seems to be culturally determined" (p. 35).

Given the variance among cultures in expression and articulation of anxiety, it becomes a difficult construct to assess. Yet, it is the cross-cultural differences that make

this area more compelling. Understanding cultural articulations and expressions becomes paramount when working with diverse populations. It is vital that clinicians become familiar with the unique cultural expression of mental and emotional distress. It is the lack of cultural familiarity that contributes to overpathologizing minority patients, misdiagnoses, and ineffective treatments (Aderibigbe & Pandurangi, 1995).

Self-reported measures of anxiety are often used to assess an individual's level of anxiety. Because anxiety is part of the human experience, some measures focus on duration and frequency. For instance, the State Trait Anxiety Inventory (STAI) examines anxiety from a state versus trait dimension. Other inventories such as the Personality Assessment Inventory (PAI) assess symptoms of anxiety. The PAI has a subscale which examines the cognitive, affective, and physiological symptoms of experienced anxiety.

Anxiety in Hispanic Populations

There has been research which suggests that Hispanics conceive mental illnesses on a continuum (Guarnaccia, Parra, Deschamps, Milstein, & Argiles, 1992). On the severe end is an individual who is "crazy" and completely out of touch with reality, which is signified with the term *loco* (crazy person). This term is often associated with psychotic-like symptoms. On the lower end is a person who is experiencing distress.

In terms of anxiety, on the extreme end is a person said to have experienced a *fallo mental* (mental failure). Among these individuals, there is a psychotic-like element and there is little expectation for recovery. Guarnaccia et al. (1992) found that a moderate level of distress would be considered *padercer de los nervios* (suffering from

nerves). This may be a more trait-like form of anxiety and may present as being chronic. And finally, on the lower extremity is a more state-like anxiety which corresponds with *estar nerviosa/o* (being nervous; Guarnaccia et al., 1992). This degree of anxiety is generally associated with situational distress.

The conceptualization offered by Guarnaccia et al. (1992) suggests that Hispanics may perceive mental illness as lying on a spectrum and varying in degree. Although a clear notion of the conceptualization of anxiety within Hispanic culture does not exist (especially since 'Hispanic' includes a number of ethnic groups), there are a few Hispanic culture-specific conditions which have been examined. *Ataque de nervios* (attack of the nerves), *nervios* (nerves), and *susto* (fright sickness) are three culturally specific syndromes experienced by Hispanic individuals (Friendman, 1997; Guarnaccia et al. 1992).

Ataque de nervios has been examined among Puerto Ricans and other Caribbean Hispanics as well as Latin Americans. The salient symptom reported has been uncontrollable screaming; other symptoms reported are attacks of crying and trembling. This syndrome may resemble panic attacks but is distinguished from those in a two ways. Notably, *ataque de nervios* are usually provoked by an upsetting event and there is generally a lack of fear and/or apprehension. *Nervios* (nerves) is commonly found among populations of Latinos in the United States and Latin America. This idiom seems to reflect both a trait vulnerability to stress as well as a state-like experience of distress. The salient symptoms include headaches, irritability, and gastrointestinal distress, difficulty sleeping, low concentration, trembling, and tingling. The wide range of symptoms mirrors the scope and depth of the syndrome. Finally, *susto* is another

Hispanic specific term that has been used to describe episodic negative reactions and to convey a sense of fear. *Susto* tends to be found among Latinos in the United States as well as Hispanics in Mexico, Central American, and South America. *Susto* is thought to occur after a frightening event. Prominent symptoms include lack of appetite, sleep irregularity, sadness, lack of motivation, muscle aches, headaches, gastrointestinal distress, diarrhea, and low self-worth.

These syndromes share some commonalities in symptoms and populations afflicted, yet have distinct sources of origin. The brief descriptions provided also illustrate how these syndromes are not accurately captured by any current *DSM-IV TR* diagnosis. This suggests a Hispanic cultural element influencing the experience and presentation of distress.

Historically, Hispanics, like those of other non-European cultures, have been noted to articulate psychological distress through physical distress (e.g. headaches and gastric distress; Barlow 2002; Canio, 2004). It has been noted that cultural norms have influenced those of Hispanic origin to express somatic complaints rather than cognitive or affective symptoms. Overall an individual might present with physical symptoms as it may be a culturally acceptable way to express psychological distress (Tseng & Streltzer, 2004). Physical symptoms include symptoms such as chest pain, nausea, dizziness, sweating, and stomach pains. Some have noted that the *DSM-IV TR* criteria place heavy emphasis on the emotional experience of worry and apprehension instead of somatic descriptions of anxiety (Friedman, 1997). However, Hispanic culture and various non-European cultures use somatic language to communicate anxiety (Barlow, 2002; Friedman, 1997).

One final consideration is the influence of demographic variables such as socioeconomic status. When examining cultural factors in a Hispanic sample, Griffith (1983) found that cultural factors, socioeconomic status, and stressful living circumstances were influencing distress. Cuéllar and Roberts (1997) also found that lower socioeconomic status increased the risk for depression. These studies suggest that socioeconomic status is an important variable to consider when examining the mental health of Hispanic individuals.

In considering the Hispanic population and cultural factors influencing expression of distress it is important to explore reported symptoms of mental distress such as anxiety. In considering possible Hispanic populations, one highly accessible and relevant group is first generation college students.

First Generation College Students

In the US there is a growing number of students who are the first in their family to pursue post-secondary education. The college experience for first generation college students is in some ways similar to that of traditional students (those who have at least one parent with a bachelor's degree) in that they face similar stressors and anxieties regarding pursuit of higher education (Terenzini, Springer, Yaeger, Pascarella & Nora, 1996). Like many college students, first generation students face challenges adjusting to a college environment and possibly a different location; students also generally face academic anxieties (e.g. course selection, career choices). However, first generation students also encounter meeting social and cultural transitions (Terenzini et al., 1996). Research also suggests that first-generation students experience obstacles in transitioning from high school into college (Terenzini, et al. 1996). Thus the education

system is both an avenue by which acculturation takes place and an avenue for acculturative stress (Cuéllar, 2000).

Terenzini et al. (1996) made several observations concerning how first generation students compare to traditional students and suggested how first generation students face a number of unique challenges. Generally, first-generation students have a lower socioeconomic status, are of minority status (primarily Hispanic or African American), and have lower academic ambitions (Terenzini, et al. 1996). Additionally, first generation students appear to experience a lack of support and preparation when deciding to pursue a higher level of education (Pascarella, Pierson, Wolniak, Terenzini, 2004; Phinney & Haas, 2003; Zalaquett, 2005). Furthermore, research suggests that overall, compared to traditional college students, first-generation college students are likely to be at a disadvantage in terms of family support, level of financial support, knowledge about higher education, academic preparation, and educational expectations (Pascarella et al., 2004; Phinney & Haas, 2003). Many of these areas are foundational to a college student's adaptation and development, and may ultimately influence success in college.

Despite the disadvantages, Pascarella et al. (2004) in their longitudinal study of community college students found that those first generation students who persist in college appear to be resilient in terms of not showing significant cognitive or non-cognitive deficits at the end of their second year. This study suggests that despite the disadvantages that first generation students encounter, the cognitive outcomes for those who persist may be comparable to those of traditional students.

This section has highlighted some characteristics of first generation students as well as some challenges within academia. Given the established general sense of the first generation student, it is important to consider the population and constructs of interest. By examining how first generation college students of Hispanic origin integrate their cultural experiences and how such individuals perceive and articulate anxiety, it may be possible to better understand and serve such a population.

Hispanic first generation college students. Congruent with shifts in the general US population, higher education is increasingly becoming more diversified. Specifically, there has been an increase in Hispanic student enrollment in college; and the rate of Hispanic students graduating from colleges and higher education has been increasing rapidly (National Center for Education Statistics, 2003; Terenzini et al., 1996). However, there is still a disproportionate number of Hispanics enrolling in post-secondary education. Furthermore, more Hispanic students enroll in two-year colleges as compared to four-year universities (National Center for Education Statistics, 2003). According to the National Center for Education Statistics, Hispanic students comprise about 14% of the student body enrolled in two-year institutions and about 7% of the student body in four-year institutions (2003). Of those Hispanics who enroll in a four-year institution, about 10% graduate (Solozano & Yosso, 2000).

In order to get a better sense of Hispanic first generation students, it is helpful to get a sense of challenges these individuals face. Hispanic first-generation college students face the same challenges and hurdles that other first-generation students face, including support, expectations, transitioning, academic stressors, etc. (Pascarella et al., 2004; Phinney & Haas, 2003; Yosso, 2000). Generally, challenges related to

familial, financial, social, and interpersonal contexts also arise (Saunders & Serna, 2004; Solozano & Yosso, 2000). Additionally, the general stressors may be exacerbated for Hispanic students because of their ethnic status (Jarama Alvan, Belgrave, & Zea, 1996). Hispanic students are likely to be exposed to being in the racial and ethnic minority. This status is likely to have implications for the college experience. For instance, it is likely that being in the ethnic minority might leave one vulnerable to prejudice and discrimination; they may feel less socially accepted and may experience conflicts in values with other students. Finally, Hispanic students might be faced with culturally related stressors (i.e. acculturative stress).

First generation college students of Hispanic origin typically interact with the two cultures of interest. This may best be understood by considering Hispanic first generation students attending an institution where the majority is a differing ethnicity. These individuals experience a unique blend of the majority culture and culture of origin. That is, within the home, these students are likely to have been exposed to traditional cultural values. However, by attending most colleges – or public education from kindergarten to twelfth grade – these individuals are introduced to the dominant culture. It is interesting to understand how first generation college students of ethnic minorities navigate and negotiate their culture of origin as well as the dominant culture.

The academic environment may be culturally foreign to first-generation students. Academia is often likely to reflect European American cultural values (Gloria & Rodriguez, 2000). For instance the college setting may promote uniqueness and independence as opposed to cooperation and interconnectedness. As such, Hispanic students may experience some general disconnect or isolation (Gloria & Rodriguez,

2000; Gloria, Castellanos, Lopez, & Rosales, 2005). Hispanic students may live and have worldviews that differ from their college peers, yet the Hispanic first-generation students may feel compelled to assimilate into the dominant culture. Here the process of acculturation might be evident, as might the complication of acculturative stress. These examples provide glimpses into potential areas of interpersonal disconnect and stress. Such situations may be particularly stressful as students attempt to gain acceptance and negotiate among and within cultures. Balancing among and within cultures becomes an additional undertaking apart from academic content.

It is likely that Hispanic first generation college students also experience psychological distress in relation to the academic stressors and cultural adaptations. Unfortunately, there is little research on how first generation college students experience anxiety. There is even less research on how first generation college students of Hispanic origin experience anxiety. Yet, understanding how this particular population experiences and presents anxiety may provide potential case formulations and treatment options. Furthermore, attaining a better understanding of such a population may lend itself to other similar populations as well as providing potential treatment options.

The Present Study

Some research examining primarily European American college students suggests that there is a positive relationship between academic stress and anxiety (Misra & McKean, 2000; Rawson, Bloomer, & Kendall, 2001). There also seems to be evidence that anxiety and stress are commonly found among college students (Misra & McKean, 2000; Rawson, Bloomer, & Kendall, 2001; Wong, Cheung, Chan, Ma, & Tang,

2006). However, it is important to note that this research has been based on European American students; and often with no report of college generation status for multicultural populations.

As the demographics of the US continue to change and shift the face of education (particularly post-secondary education has seen an increase in Hispanic enrollment), it is important to better understand Hispanic populations and first generation college students. It is also important to understand the psychological health of first generation Hispanic college students. Researchers are increasingly aware of the need to assess and treat minority individuals. However, research examining this population's mental health is sparse. As such, the current project investigated Hispanic first generation college students.

The addition of culture-bound syndromes to the *DMS-IV TR* suggests the importance of considering cultural influences on the individual. Moreover, within a cultural frame, it is becoming increasingly important to examine the implications of cultural shifts. Acculturation as a dynamic course of cultural change generates modifications for each culture involved and is an important element in understanding the experience of Hispanic populations. The current research examined cultural influences among Hispanic first generation college students via acculturation.

Related to cultural modifications that result from cultural interactions is cultural stress. Acculturative stress is distress associated with the acculturation process. It is likely that aside from academic stress, first generation college students also experience cultural or acculturation stressors. Some of the distress may be related to the culture of academia. Previous research has suggested that cultural distress may appear as

symptoms of anxiety or depression (Hovey, & Magaña, 2002b). However, the research examining acculturation and mental health within first generation college populations is insufficient at best. The present investigation examined acculturation and the role of acculturative stress within a first generation college sample.

This study focused on how first generation college students experience and express anxiety. Anxiety, as a natural part of the human experience, is complex. Cross-cultural research has suggested that non-European cultures may report somatic symptoms more often than cognitive or affective symptoms. It is likely that Hispanic first generation college students who identify more strongly with the culture of origin would report somatic symptoms more frequently than non-Hispanic college students. In addition, reported symptomology may resemble symptoms similar to those of culture-bound syndromes. This study examined the knowledge of and presence of symptoms associated with anxiety related culture-bound syndromes experienced by those of Hispanic origin.

The proposed study was designed to examine the relationships between acculturation and reported symptoms of anxiety as well as types of symptoms of anxiety in a sample of first generation college students of Hispanic origin. Acculturation style served as the independent variable while reported symptoms of anxiety served as the dependent variable. Since previous research supports relationships between acculturation and acculturative stress as well as between acculturative stress and psychological distress, acculturative stress was examined as mediating the relationship between acculturation and reported symptoms of anxiety. In addition, this study was designed to support previous research in identifying socioeconomic status as a

moderating variable of the relationship between acculturation and anxiety symptoms. Finally, exploratory analyses were utilized to investigate knowledge of culture-bound syndromes as well as symptoms reported that are consistent with those of culture bound syndromes.

Hypotheses

1. There will be a relationship between styles of acculturation (as measured by the ARSMA-II) and overall anxiety (as measured by the PAI Anxiety scale) such that
    a. Individuals with integrated and separated styles of acculturation will report the lowest average anxiety scores.
    b. Individuals with assimilated style of acculturation will report moderate anxiety scores.
    c. Individuals with marginalized acculturation style will report the highest average anxiety scores.
2. There will be a significant difference in symptoms of anxiety among individuals with integrated, separated, assimilated, and marginalized styles of acculturation. There will be a relationship between styles of acculturation and symptoms of anxiety such that
    a. Individuals with integrated acculturation style will have the lowest overall levels of anxiety (low cognitive, low affective, and low physical symptoms).
    b. Individuals with separated acculturation style will have high levels of physical symptoms.

c. Individuals with assimilated acculturation style will have low physical symptoms.
d. Individuals with marginalized acculturation style will have the highest overall levels of anxiety (high cognitive, affective, and physical symptoms).

3. First generation college students' reported level of acculturative stress (as measured by the SAFE scale) will mediate the relationship between style of acculturation and symptoms of anxiety such that
    a. Individuals who report a separated acculturation style will report a high level of acculturative stress. Acculturative stress is predicted to mediate the relationship between separated acculturation style and reported anxiety.
    b. Individuals who report a marginalized acculturation style will also report a high level of acculturative stress. Acculturative stress is predicted to mediate the relationship between marginalized acculturation style and reported anxiety. (See Figure 1).
4. First generation college students' reported socioeconomic status (as measured by the MacArthur Scale of Subjective Social Status and income) will moderate the mediated relationship between style of acculturation, acculturative stress, and reported anxiety symptoms such that

a. Individuals who report a separated or marginalized acculturation styles will report lower socioeconomic status. Lower socioeconomic status will be related to more acculturative stress and anxiety.
b. Individuals who report an integrated or assimilated acculturation style will report higher socioeconomic status. Higher socioeconomic status will be related to less acculturative stress and anxiety. (See Figure 2)

Exploratory Questions

1. Do Hispanic first generation college students report symptoms of anxiety more prominently than a non-Hispanic sample?
2. Are Hispanic first generation college students familiar with culture-bound syndromes? Do Hispanic first generation college students frequently endorse symptoms consistent with those described in anxiety-related culture-bound syndromes?
3. Which variables are predictors of anxiety within a Hispanic first generation college student sample?

METHOD

Participants

Of the 278 participants who completed the online survey, the present sample selected the 125 first generation college students of Hispanic origin. Participants were included if they identified as being of Hispanic origin (either ethnically or culturally) and if neither parent attended college. Descriptive data for demographic information can be found in Table 1. The sample was primarily composed of women (72%). Ages of participants ranged from 18 to 46, with a mean age of 21 and standard deviation of 4.3. A majority of participants reported they were single (89%). In terms of living situation, 11% reported living alone, while 30% reported living with parents and 59% reported living with a roommate, friends, siblings or significant other. Participants' college standing was as follows: 42 % were freshmen, 21% were sophomores, 20% were juniors, and 17% were seniors or had completed courses beyond senior level. Over half (57.6%) were seeking degrees in the social and behavioral science fields (psychology, sociology) while the rest were distributed among the fields of other sciences, business, and the arts.

The majority of participants were born in the US (83.2%). Among those who immigrated to the US, the average length of time living in the US was 13 years with a standard deviation of 7 years. Utilizing immigrant generational status criteria established by Cuéllar et al. (1995), 16.8 % were first generation immigrants (participant was born outside the United States), 65.6% were second generation immigrants (participant was born in the United States; either parent born outside the United States, 4.8% were third generation (participant and parents born in the United States; all grandparents born

outside the United States), 12.8% were fourth generation or higher (participant and parents were born in the United States; fourth included: at least one grandparent born outside the United States while fifth and higher included those whose grandparents were all born in the United States). Many participants identified their cultural heritage as Mexican (77.6%). The remaining participants identified their cultural heritage as follows: 13.6% Central American, while the rest were evenly distributed among Puerto Rican, Cuban, and other. Participants were asked about their religious affiliation, and over half (57%) reported being Catholic while 25% reported being Christian or Protestant and the remaining were split about equally among Agnostic, Atheist, and other.

Thirty-four percent of participants reported their parent's or guardian's average annual income as being $29,000 or less, 32% reported an income between $30,000 and $44,999 while 16.8% reported an income between $45,000 and $59,000, and 14.4% reported an income of over $60, 000. Participants were given a visual representation of socioeconomic status (MacArthur Scale of Subjective Social Status; Adler and Stewart, 2000), and on average they reported being slightly better than average in comparison to their self-defined community (i.e. family, classmates, church; *M* = 5.8 and *SD* = 1.9). When using the same scale and considering their position in relation to others in the US the average was slightly lower (*M* = 5.2, SD=1.9). Participant's father's education was statistically normally distributed with 35.2% receiving less than high school education, 30.4% attaining some high school education, and 34.4% obtaining a high school diploma or GED. Interestingly, the distribution was different for participant's mother's education; 33.6% received less than high school

education, while 21.6% attained some high school education, and 44.8% received a high school diploma.

In terms of health, most participants reported no history of physical or mental illness. Fifteen percent reported having had a panic attack. Among those who endorsed panic attacks, the frequency varied from a onetime occurrence to about once a week. Eleven percent reported a problem with alcohol while only 4% reported a problem with recreational drugs. Almost 25% reported having a parent who experiences alcohol or recreational drug abuse.

Measures

Participants completed a questionnaire packet which included a demographics section and the following instruments: MacArthur Scale of Subjective Social Status (Adler and Stewart, 2000), Acculturation Rating Scale for Mexican Americans (ARSMA-II, Cuéllar et al., 1995), the Anxiety Scale from the Personality Assessment Inventory (PAI, Morey 1991), the Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale (SAFE, Mena et al. 1987), and some open ended questions.

Demographics

The demographics section included information on age, marital status, highest level of education attained, place of birth, and estimated annual income. Information on the parent's highest level of education attained and place of birth was also collected. Additionally, questions regarding participant's physical and mental health were asked.

Acculturation Rating Scale for Mexican Americans (ARSMA-II)

This measure was developed by Cuéllar et al. (1995) to measure acculturation level in Mexican Americans. This instrument measures acculturation by way of

language, ethnic identity, and ethnic interaction. The ARSMA-II is composed of two components. The first portion of the instrument consists of 30 items (Scale 1) and the second has 18 items (Scale 2). The measure has been widely used and adapted for various ethnic groups. Parts of the measure have been reworded within this study to include all participants of Hispanic origin. For instance an item in Scale 1 was changed from “My friends are now are of Mexican origin” to “My friends are now of Hispanic (e.g. Mexican) origin.” Items in Scale 2 were also altered from “I have difficulty accepting ideas held by some Mexican Americans” to “I have difficulty accepting ideas held by some Hispanic Americans (e.g. Mexican Americans).”

Scale 1 utilizes a 5-point Likert-type scale (ranging from 1 *not at all* to 5 *extremely often or almost always*) to rate attitudes and behaviors toward the culture of origin and the host culture. The content of the questions gauges preferences for food, music, television, and language. Scale 1 is subdivided into two subscales: the Hispanic Orientation Scale (HOS) and the Anglo Orientation Scale (AOS). The Hispanic Orientation Scale is derived from the sum of scores on questions related to the participant’s engagement in Hispanic cultural aspects, while the Anglo Orientation Scale is derived from the sum of scores on questions related to the participant’s engagement in Anglo cultural aspects. The participants can then attain high and low scores within each culture yielding an Anglo orientation and a Hispanic orientation. High scores on each scale represent an orientation to either Hispanic or Anglo culture. When the mean of the Hispanic Orientation Scale is subtracted from the Anglo Orientation Scale a linear measure of acculturation is derived. The quantitative score can be qualified into various levels or styles of acculturation. Within Cuéllar’s sample the Mexican Orientation

subscale (Hispanic Orientation) had Cronbach's alpha of .88 while the Anglo Orientation subscale obtained a Cronbach's alpha of .83. Concurrent validity was also reported for the ARSMA-II with the original ARSMA (r = .89, p < .05). The internal consistency of the ARSMA-II for the current study was good, with a Cronbach's alpha of .72 for the AOS and .92 for the HOS.

Scale 2 of the ARSMA-II is a Marginality Scale comprised of 18 items. This scale utilizes a 5-point Likert-type scale (ranging from 1 *not at all* to 5 *extremely often or almost always*) to assess difficulties accepting ideas, beliefs, and behaviors of the dominant culture and home culture. The scale contains three subscales measuring the attitude toward three groups Anglo, Mexican, and Mexican American. When the items are summed the scale reflects the "total difficulty of accepting Anglo, Mexican, and Mexican-American ideas, beliefs, customs, and values" (Cuéllar et al., 1995, p. 285). Cuéllar (1995) reported adequate internal consistency (alpha coefficient = .87). Particularly the Anglo marginality subscale and the Mexican American marginality subscale were established to have high internal consistency (coefficient alpha = .90 and .91 respectively). The Mexican Marginality subscale has demonstrated moderate internal consistency (coefficient alpha = .68). In the current study good internal consistency was found for each of the marginality subscales with Cronbach's alpha of .93 for Anglo Marginality, .89 for Hispanic National Marginality, and .90 for Hispanic American Marginality.

Scale 1, measuring Hispanic Orientation and Anglo Orientation, of the ARSMA-II was used to determine acculturation styles which were based on Berry's (1980) model of acculturation. A mean split was utilized to form the four styles of acculturation. In

accordance with Berry's (1980) model, participants' style of acculturation was classified as assimilated, integrated, marginalized, and separated.

MacArthur Scale of Subjective Social Status

Adler and Stewart (2000) developed this measure to examine an individual's self appraisal of socioeconomic status. This measure provides a visual image of a ladder with ten rungs. Higher rungs indicate higher social status while lower rungs indicate lower social status. Participants place a mark on the location perceived to be the best representation of current social status. Two versions of the ladder exist – one associated with the individual's community as they defined it and another associated with more traditional conception of socioeconomic status. The community ladder has been particularly useful for impoverished communities where appraisal could be made in comparison to those within the local community. Participants were asked to "think of the ladder as representing where people stand in their communities" and "where would you place yourself on this ladder?" The second ladder followed the same format but asked people to think of the ladder as representing "where people stand in the United States" and then to place themselves on the ladder. Theoretically, ladder rankings should reflect objective measures of socioeconomic status (e.g. income), but represent a separate construct (Adler & Stewart, 2000). Research has shown a small to medium sized association between the Subjective Social Status ladder and income ($r = .22$, $p < .01$) and a moderate association with education ($r = .32$, $p < .01$; Adler, Epel, Castellazzo, & Ickovics, 2000). Adler et al. reported that subjective socioeconomic status was also strongly related to a composite of objective socioeconomic status indicators (education, income, and occupation; $r = .40$, $p < .01$). Neither reliability nor

validity otherwise were reported for this measure. The current study found an association between the Subjective Social Status in Comparison to the United States and income (r = .23, p < .05) but not Community Subjective Status and income (r = .16, p = *ns*)

Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale (SAFE)

Mena, Padilla, and Maldonado (1987) created a short version of Padilla, Wagatsuma, and Lindholm's (1985) 60-item measure to examine stress stemming from the acculturation process. The measure's short version, like the long version, was designed to examine acculturative stress in four domains: familial, social, attitudinal, and environmental. Sample questions from each subscale are as follows: "because I am different I do not get enough credit for the work I do," "I have trouble understanding others when they speak," and "it bothers me that family members I am close to do not understand my new values."

This 24-item scale uses a 5-point Likert-type scale (ranging from 1 *not at all* to 5 *extremely stressful*). Scores are summed as a total and by domain; higher scores indicate higher levels of acculturative stress. Mena et al. (1987) reported adequate internal consistency (Cronbach's alpha coefficient of .89) for international students. However, Mena et al. did not identify which items belonged to each of the factors. Fuertes and Westbrook (1996) examined the psychometric properties of the S.A.F.E short version with a sample of Hispanic college students. Results from Fuertes and Westbrook (1996) found 21 items to load into the 4 factors. Ten items loaded on the environmental factor, while 4 items loaded on the attitudinal factor and social factors, and 3 items loaded on the familial factor. Each of the factors was reported to have

adequate reliability for each subscale: environmental (Cronbach's alpha = .88), attitudinal (Cronbach's alpha = .73), social (Cronbach's alpha = .71), and familial (Cronbach's alpha = .70). Overall, reliability was found to be .89 (Fuertes & Westbrook, 1996). The current study established good overall internal consistency with a Cronbach's alpha of .93.

The current study also examined the factor structure using an exploratory factor analysis with oblique rotation. Mena et al. (1987) did not report the factor structure or indicate which items belonged to each scale. Therefore an exploratory factor analysis was most appropriate. Furthermore, it is believed that items may load onto more than one factor and the factors may be correlated. Therefore, the principle components analysis with the direct oblimin rotation was most appropriate.

Anxiety Scale - Personality Assessment Inventory (PAI)

This copyrighted measure was developed by Morey (1991) as a self-administered, multi-scale inventory of psychopathology and personality for adults ages 18 and older. With a permission agreement obtained from the publisher, Psychological Assessment Resources, the Anxiety Scale (24 of the 344 PAI items) was used to assess anxiety symptomatology. The 24-item measure can be broken down equally into three components consisting of 8 items each: cognitive, affective, and physical symptoms of anxiety, yielding an overall total of anxiety symptoms. This scale uses a 4-point Likert-type scale (ranging from 0 = *false*, *not at all true* to 3 = *very true*) to rate anxiety.

The cognitive subscale measures worry and expectation of harm that may be distracting and interfere with an individual's thinking abilities. Questions that assess this

are those such as “I usually worry about things more than I should.” The affective subscale examines feelings of apprehension, nervousness, and feelings of panic, as well as tension that may be present. Questions such as, “I can’t do some things well because of nervousness” examine this aspect of anxiety. The physical subscale inspects somatic symptoms associated with anxiety such as breathing and dizziness. Items such as “I can often feel my heart pounding” assess the physiological symptoms. Item scores are summed, with higher scores indicating a greater presence of anxiety. Morey (1991) has found the scale to have adequate reliability with internal consistency within a census sample (alpha coefficient = .90) as well as within a college sample (alpha coefficient = .89). Test-retest reliability was also established with a census sample (r = .88) as well as a college sample (r = .66). The Personality Assessment Inventory has also been used and construct validity has been established among Hispanic populations (Fantoni-Salvado & Rogers, 1997; Hoovey & Mangaña, 2000; Morey, 1991). Hovey & Magana (2002a, b, c) and Kiang, Grzywacz, Marin, Arcury, & Quandt (2010) utilized this scale independently from the full PAI and reported a Cronbach alpha of .91, .91, .91 and .88, respectively for total anxiety. The current study found the Anxiety Scale to have good internal consistency with a Cronbach’s alpha of .92. The subscales also had good reliability with the Cognitive scale’s Cronbach’s alpha of .81, the Affective Scale Cronbach’s alpha of .78 and the Physical Scale Cronbach’s alpha of .77.

Symptoms as Found in Culture-Bound Syndromes

Three questions asked participants about their knowledge of culture-bound syndromes. Participants were asked to “read through the following phrases [of culture-

bound syndromes] and check each that you may have heard before." A measure of symptoms reflecting those found in culture-bound syndromes was used to examine reported symptoms that are consistent with culture-bound syndromes. The sixteen items selected are the prominent symptoms from three culture-bound syndromes found in Hispanic populations – *ataque de nervios*, *nervios*, and *susto*. Sample items included: "I sometimes have bouts of uncontrollable screaming," "sometimes I get so nervous that I feel like I am suffocating" and "I fear unfamiliar places" (see Table 2 for a listing of all items). The current study created composite scores for culture-bound syndromes with scales labeled *ataque de nervios* (6 items), *nervios* (9 items), and *susto* (9 items). The frequency of item endorsement within each scale was then examined. This study established good internal consistency for *ataque de nervios* (Cronbach's alpha = .80), *nervios* (Cronbach's alpha = .82), and *susto* (Cronbach's alpha = .85).

Procedures

The present study recruited participants from postsecondary institutions located in the North Texas region. Participants within the UNT psychology undergraduate program were offered SONA credit and/or extra credit in a course for their participation. All participants were offered the opportunity to enter a raffle to win one of three Amazon gift cards. During fall 2009 and spring 2010, students enrolled in introductory psychology who indicated first-generation status and reported being of Hispanic origin (upon group testing) were recruited via email. During this time frame, students enrolled in psychology courses were also recruited via SONA, classroom visits, and posted flyers. During summer 2010, participants were primarily recruited via classroom visits and flyers. During fall 2010, participants were primarily recruited via the SONA website

and flyers; a few classroom announcements were also made. Non-UNT students were primarily recruited via email announcements and flyers.

This research was a web-based study, so all participants were given or directed to an electronic link where they would find an informed consent page followed by the questionnaires and scales. The survey ensured the confidentiality of participants by being hosted on a secure site and clearly asking participants not to type any part of their name. The online survey began with elicitation of stories by seven Thematic Apperception Test like pictures to be used for another study, followed by part of the demographic section, the open-ended question section, the MacArthur Scale of Subjective Social Status, the ARSMA-II, the anxiety scale of the PAI, the SAFE scale, and finally, more demographic questions.

About 570 individuals began the study and only 278 individuals completed it, yielding a 49% completion rate. About 54% of the 570 completed the first portion (seven pictures) of the study; the other participants who failed to complete the study were about evenly distributed throughout the remainder of the survey.

Upon completion of the survey, participants were directed to another website and survey where they could enter their UNT email address for course credit and had the opportunity to enter their email address into a raffle for a $50.00 gift card.

RESULTS

Descriptive Analyses

See Table 3 for means and standard deviations for age and each independent and dependent variable.

For the MacArthur Scale of Subjective Social Status, the mean score of the community ladder was 5.82 (*SD* = 1.93) while the US ladder had a mean of 5.20 (*SD* = 1.93).

Scale 1 of the Acculturation Rating Scale for Mexican Americans-II yielded two subscales, Anglo Orientation and Hispanic Orientation. The current study found that participants reported a mean of 4.00 (*SD* = .45) on the Anglo orientation subscale and the Hispanic Orientation subscale had a mean of 3.51 (*SD* = .84). Based on Cuéllar et al. (1995) linear classifications (using acculturation scores), 2% of the current sample was identified as very Hispanic national, 28 % as Hispanic-oriented to balanced bicultural, 42% as bicultural to slightly Anglo oriented, 23% as strongly Anglo oriented and 5 % as very assimilated.

The ARSMA-II Scale 1 was also used to determine acculturation styles based on Berry's (1980) model, which includes four acculturation styles: separate, marginalized, bicultural, and assimilated. The present study utilized mean scores of the AOS (*M*= 4.01) and HOS (*M* = 3.51) to determine acculturation styles. Participants were classified as separated (HOS ≥ 3.51; AOS ≤ 4.01); marginalized (HOS < 3.51; AOS < 4.01); integrated (HOS > 3.51; AOS > 4.01); and assimilated (HOS ≤ 3.51; AOS ≥ 4.01). In the present study, 31.2% of participants were classified as separated (*n*=39), 20% as marginalized (*n* = 25), 24% as integrated (*n* = 30), and 24.8% as assimilated (*n* = 31).

Scale 2 of the ARSMA-II was used to examine participant's level of marginality from both Anglo and Hispanic cultures. The Anglo Marginality subscale (AMS) had a mean score of 13.78 (*SD* = 5.22) and the Hispanic Marginality subscale (HMS) had a mean score of 12.84 (*SD* = 4.85). Participants in this study were classified into groups utilizing mean scores of the AMS (*M* = 13.78) and HMS (*M* = 12.84). The current study identified that there was about an equal number of participants who were marginalized from neither culture (37%; AMS < = 13.78 & HMS < 12.84) and as marginalized from both cultures (36%; AMS >13.78 & HMS >= 12.84). About 15% were marginalized from Anglo culture (AMS >13.78 & HMS < 12.84) and 12% were marginalized from Hispanic culture (AMS <= 13.78 & HMS >= 12.84).

The Anxiety scale of the PAI was examined as an overall score as well as subscale scores for cognitive symptoms, affective symptoms, and physical symptoms. The overall anxiety mean was 1.03 (*SD* = .52). Means and standard deviations of the subscales for this measure were as follows: cognitive subscale had a mean of 1.11 (*SD* = .63), affective subscale had a mean of 1.12 (*SD* = .57) and physical 0.85 (*SD* = .52).

Prior to the principle component analysis, the frequency distributions and inter-item correlations of the S.A.F.E scale were examined. The frequency distributions of the items were approximately normal. Most items were slightly to moderately correlated. Next, the Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KKMO) were examined as suggested by Tabachnick & Fidell (2007). Bartlett's test of sphericity was evaluated to examine whether a factor analysis was appropriate for these data; results were significant ($p < .01$) thus suggesting that the analysis was appropriate. Next, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was examined to check that the

ratio of the number of participants to items was sufficient (the KMO uses the ratio of squared correlations between items to the squared partial correlations) to make a factor analysis appropriate. The Kaiser-Meyer-Olkin measure of sampling adequacy was .89, suggesting that the ratio was good and a factor analysis was appropriate.

A principle component analysis with a direct oblimin rotation yielded a four factor structure of the S.A.F.E. scale. Four factors had eigenvalues greater than 1.0 and therefore the Kaiser retention criteria was satisfied (Kaiser, 1958). Additionally, the scree plot indicated a dominant first factor and three acceptable additional factors with a break after factor four. The unrotated four factors accounted for about 62% of the variance with the first factor contributing about 40% (eigenvalue of 9.52), the second factor accounted for 11% (eigenvalue of 2.74) of the variance, the third factor accounted for 6% (eigenvalue of 1.49) of the variance and the fourth factor accounted for 5% (eigenvalue of 1.17) of the variance. The pattern matrix was used to examine unique contribution of items to factors while the structure matrix was used to understand the correlations of items to each factor (Tabachnick & Fidell, 2007). Using these matrices and a .45 cutoff (Comrey & Lee, 1992), 10 items loaded on Factor 1, 6 items loaded on Factor 2, and 4 items each loaded on factors Factors 3 and 4; see Table 4. The relationship between Factor 1 and 4 is the largest with r = .39, followed by the association between Factors 1 and 3, r = .29 and one and two r = .21; see Table 5.

It is important to highlight that Tabachnick and Fidell (2007) cite .32 (equating to about 10% overlapping variance with other items in the factor) as minimum loading for items. S.A.F.E. Items 16, 5, 2, 7, and 9 exhibited crossloading with two factors at .32 or higher. Costello & Osborn (2005) suggest dropping items that have several strong

loaders (.50) on more than one factor. To further explore the SAFE measure items crossloading at .32 or higher were dropped and the analysis was re-run to examine how results change. Again, four factors emerged, with the unrotated 4 factors accounting for about 66% of the variance. The first contributed about 41% (eigenvalue of 7.87), the second factor accounted for 11% (eigenvalue of 2.18) of the variance, the third factor accounted for 7% (eigenvalue of 1.38) of the variance and the fourth factor accounted for 6% (eigenvalue of 1.02) of the variance. Using the pattern matrix, structure matrix and a .45 cutoff (Comrey & Lee, 1992), nine items loaded on factor one, three items loaded on factors two and three, and four items loaded factor four; see Table 6. There were no crossloading items. The relationships between factors changed slightly, the association between factors one and four remained the largest with r = .39, followed by the association between factors two and four r = .31, factor two and three, r = -.27 and one and three r = -.26; see Table 7. In comparing the two factor analyses computed for the current study, both resulted in four factors although the second accounted for slightly more variance. Additionally, some of the loadings and component correlations changed. Since the factors remained the same and there were not great changes between the two analyses, the original measure with all 24 items was used. This also provided an easier comparison with Fuertes and Westbrook (1996).

The results of the first analysis were compared to the results from Fuertes and Westbrook (1996). First, there was a difference in procedure used. Although this analysis and Fuertes and Westbrook used principal components analysis, the present study used an oblique rotation while the said authors utilized an orthogonal rotation. The current analysis identified four factors as did Fuertes and Westbrook; however, the

items loading on the factors did differ slightly. In both analyses the first factor was largest and included items related to environmental concerns – communication, others looking down on cultural practices, feeling pressure to assimilate. The third factor was also similar and included items relating to social aspects – not feeling at home and not having close friends. The current analysis differed from Fuertes and Westbrook on factors two and four. The present analysis identified that factor two included items concerning family – having conflicting values and expectations than one's family. Factor four was identified as attitudinal – issues stemming from considerations about culture and ethnicity. Fuertes and Westbrook (1996) identified factor two as being attitudinal and factor four as being familial.

In examining factor loadings in the pattern and structure matrix, it is important to note the initial moderate to high factor crossloadings. The current study included the item with the component where it had the highest loading. However, the cross-loading suggests that the item could be measuring more than the intended factor and makes precise interpretation difficult. Additionally, the slight to moderate correlations among factors suggest that the factors are not independent. Given the construct, a relationship among factors is reasonable, and the use of oblique rotation makes it more likely.

The S.A.F.E scale has not been well validated in the literature and the current analyses did not replicate findings of Fuertes and Westbrook (1996). For these reasons the remainder of the study will utilize the S.A.F.E measure in totality and not by examining subscales.

Bivariate Correlations

Among Demographic Variables

Bivariate correlations were computed using Pearson's product moment correlations to examine relationships among demographic variables, independent variables, and dependent variables. Cohen's (1992) standards were used to determine practical significance. See Table 8 for demographic intercorrelations among demographic variables.

Older individuals were more likely to be married, separated or divorced and to have attained higher levels of education compared to younger individuals. Education attainment was also positively related to immigrant generational status such that those who indicated higher immigrant generational status also indicated higher college standing. Higher immigrant generational status was related to having parents with having a high school diploma, GED or some high school.

Parent level of education was associated with parents' birthplace. Participants' fathers and mothers who were born in the US more often reported having high school education. Higher reported annual incomes were found among those whose mother had some high school education or a high school diploma and among US born participants who reported higher college standings. Participant's perceived social status as compared to the US was positively associated with income. Interestingly, there were no other statistically significant correlations between the subjective social status (both self-nominated community and US) and other demographic variables.

Among Demographic Variables and Independent Variables

See Table 9 for Pearson's product moment correlations among demographic and independent variables. Participants with earlier immigrant generational status were more likely to report having a Hispanic orientation. Later generational status was positively associated with Anglo Orientation. Those whose parents were more educated had higher scores on the Anglo Orientation but lower scores on Hispanic orientation. Participants with fathers who obtained high school levels of education reported lower levels of acculturative stress, yet the same pattern was not found for mother's education. Participants with higher levels of college standing had higher scores on Anglo Orientation, but not on Hispanic Orientation.

Higher reported levels of income and both the community and US subjective social status were related to higher Anglo Orientation but not associated with Hispanic Orientation. Community and US subjective social status were related to less acculturative stress. When examining the relationships between acculturation groups and income, there were no significant associations. However, when examining the relationships between acculturation groups and subjective social status, those who reported an integrated style reported higher rankings on community social status and social status as related to the US.

Among Demographic Variables and Dependent Variables

See Table 9 Pearson's product moment correlations among demographic and independent variables. Older individuals reported less total anxiety as well as less cognitive, affective, and physical symptoms of anxiety. Single participants reported higher levels of total anxiety as well as cognitive, affective, and physical symptoms.

Higher rankings of social status (both in community and US) were related to lower total anxiety, physical anxiety, and cognitive anxiety. Only community subjective status was related to lower levels of affective anxiety. There were no statistically significant relationships between income and anxiety.

Among Independent Variables

See Table 10 for Pearson's product moment correlations among independent variables. Participants' rating on US social status was positively and strongly associated with community social status. Community and US subjective social status were related to higher Anglo Orientation, but not associated with Hispanic Orientation. Higher ratings on community social status and social status as compared to the US were related to lower acculturative stress.

Anglo Orientation and Hispanic Orientation were negatively and slightly associated. Acculturative stress, although not associated with Anglo Orientation was positively associated with Hispanic Orientation and negatively associated with acculturation score. Those indicating lower levels of acculturation reported higher levels of acculturative stress, and those who reported higher levels of Hispanic Orientation reported higher levels of acculturative stress.

Among Dependent Variables

See Table 10 for Pearson's product moment correlations among dependent variables. Affective symptoms of anxiety were positively and very strongly related to cognitive symptoms and physical symptoms. Cognitive symptoms of anxiety and physical symptoms were also positively and very strongly associated.

Among Independent and Dependent Variables

See Table 10 for Pearson's product moment correlations among independent and dependent variables. Acculturative stress was positively and moderately to strongly associated with total anxiety as well as cognitive, affective and physical symptoms. The strongest relationship was observed between acculturative stress and physical symptoms of anxiety.

Hypotheses Testing

Hypothesis 1

There will be a relationship between styles of acculturation and overall anxiety such that individuals with integrated and separated styles of acculturation will have the lowest average anxiety scores. Individuals with assimilated style of acculturation will have moderate anxiety scores. Individuals with marginalized acculturation style will have the highest average anxiety scores. A one-way analysis of variance was conducted to examine differences in average anxiety among individuals with integrated, separated, assimilated, and marginalized styles of acculturation. Overall, results did not support this hypothesis. Levene's test of homogeneity of variance was conducted and suggested variances were homogenous. There did not appear to be differences among acculturation groups on reported levels of anxiety [F (3, 121)= .55, p = *ns*; η^2=.01]. Power analysis was conducted using GPower 3.1.2 and indicated low power of .16 to detect differences of this size between means at $p < .05$.

Descriptive analyses suggest that overall the group means did not differ significantly; see Table11. Individuals who reported an integrated style of acculturation had the lowest average anxiety score (M = .95, SD = .47). This was followed by those

who reported a marginalized style, (M = .99, *SD* = .48). Participants who reported assimilated and separated styles also reported highly similar and the relative greatest levels of anxiety (*M* = 1.04, *SD* = .60 and *M* = 1.11, *SD* = .54 respectively).

Hypothesis 2

There will be a relationship between styles of acculturation and symptoms of anxiety such that individuals with integrated acculturation style will have the lowest overall levels of anxiety (low cognitive, low affective, and low physical symptoms). Individuals with separated acculturation style will have low cognitive and affective symptoms but high physical symptoms. Individuals with assimilated acculturation style will have low physical symptoms and high cognitive and affective symptoms. Individuals with marginalized acculturation style will have the highest overall levels of anxiety (high cognitive, affective, and physical symptoms). A multivariate analysis of variance was conducted to examine whether symptoms of anxiety differed among individuals with integrated, separated, assimilated, and marginalized styles of acculturation. Levene's test of homogeneity of variance was conducted and suggested variances among the independent variables were homogenous. The analysis suggested that there were not significant differences among acculturation groups on reported levels of cognitive anxiety, [F (3, 121] = 1.41, p = *ns*; *partial* η^2 = .03), affective anxiety, [F(3, 121) = 0.70, p = *ns*; *partial* η^2 = .02], and physical anxiety [F(3, 121) = .14, p = *ns*; *partial* η^2 = .003]. Power analysis indicated low power to detect mean differences among groups and symptoms of anxiety at $p < .05$; observed power for cognitive anxiety, affective anxiety and physical anxiety at 0.37, 0.20, and 0.07 respectively.

Results of descriptive analysis (see Table 11) suggest that overall the cognitive, affective, and physical symptoms of anxiety did not differ greatly Those who reported an integrated style had the relative lowest levels of symptoms of cognitive anxiety (*M* = .96, *SD* = .51) and affective anxiety (*M* = 1.03, *SD* = .54) but moderate physical symptoms of anxiety (*M* = .87, *SD* = .55). Individuals who reported separated acculturation style reported the highest level of cognitive symptoms (*M* = 1.23, *SD* = .63) and affective symptoms (*M* = 1.22, *SD* = .58). Participants who reported a separated style of acculturation also reported a relatively high level of physical anxiety symptoms (*M* = 0.88, *SD* = .53). Those who reported an assimilated style of acculturation also reported the lowest level of physical symptoms of anxiety (*M* = .80, *SD* = .55), moderate cognitive symptoms (*M* = 1.19, *SD* = .73) and moderate affective symptoms (*M* = 1.14, *SD* = .65). Individuals reporting a marginalized style of acculturation also reported the relative highest level of physical symptoms (*M* = .88, *SD* = .54), moderate affective symptoms (*M* = 1.07, *SD* = .47) and cognitive symptoms (*M* = 1.01 *SD* = .59).

Hypothesis 3

Hispanic first generation college students' reported level of acculturative stress will mediate the relationship between style of acculturation and anxiety symptoms. A series of Pearson's correlation coefficients were computed to examine the relationships between acculturation (linear model and orthogonal model) and levels of anxiety (total, cognitive symptoms, affective symptoms, and physical symptoms). None of the relationships were statistically significant. Therefore, the hypothesized mediation model cannot be tested. The observed power to test the associations among variables was found to be under powered at .50.

One-way analysis of variance was used to examine acculturation styles and levels of reported acculturative stress. Levene's test of homogeneity of variance was conducted and suggested that variances were homogenous. There did not appeared to be acculturation group differences for reported acculturative stress [F (3, 121) = 1.16, p = *ns*; η^2 = .03]. See Table 12 for descriptive statistics. Although there was not a statistically significant difference among the acculturation groups' scores of acculturative stress, those who reported a separated style of acculturation also reported the highest level of stress (M = 2.11, SD = .69). Those who reported marginalized and integrated reported moderate levels of stress (M = 2.00, SD = .76; M = 1.98, SD = .69). Finally, individuals who reported an assimilated style reported the least acculturative stress (M = 1.80, SD = .68).

Hypothesis 4

Hispanic first generation college students who report separated and marginalized acculturation styles will have lower socioeconomic status than those who report assimilated or integrated acculturation styles. Socioeconomic status will moderate the mediated relationship between style of acculturation, acculturative stress, and reported anxiety. The moderator model hypothesized was not tested further due to the lack of relationship between the criterion and predictor. The observed power to test the associations among variables was found to be under powered at .50.

Independent t-test analyses were used to examine acculturation styles (separated/marginalized verses assimilated/integrated) and reported income as well as subjective ratings of social status. Levene's test of homogeneity of variance was conducted and suggested that variances were homogenous. There appeared to be

acculturation group differences for subjective social status in relation to the community [*t* (123) = 2.14, *p* < .05; *d* = .38; *point biserial r* = .19], for subjective social status in relation to the US [*t* (123) = 2.14, *p* < .05; *d*=.38; *point biserial r*=.19], and for income [*t* (118) = 2.20, *p* < .05; *d* = .40; *point biserial r* = .20].

See Table 13 for descriptive statistics. Participants who reported an integrated or assimilated acculturation style reported relatively high subjective status (Community: *M* = 6.19, *SD* = 1.88; US: *M* = 5.46, *SD* = 1.93) as well as high average income (*M* = 3.27, *SD* = 1.24). In contrast, those who reported separated or marginalized style of acculturation reported lower mean subjective status rankings (Community: *M* = 5.46 *SD* = 1.93; US: *M* = 4.84, *SD* = 1.92) as well as the lower average income (*M* = 2.78, *SD* = 1.18). For descriptive statistics for each acculturation group see Table 14.

Exploratory Questions

Question 1

Do Hispanic first generation college students report symptoms of anxiety more prominently than a non-Hispanic sample? This was analyzed by utilizing the physical, cognitive, and affective scores from the PAI Anxiety scale and comparing them to the standardized college student sample (*N* = 1051; Morey 1996). The standardized sample was similar to the present one in age (about 98.5% between 18-29 years of age), gender (63.3% female) and marital status (96.2% single). However the standardized sample primarily consisted of European American individuals (92.5%). Independent *t*-test analyses were used to examine mean differences between the current sample and the standardized sample on reported symptoms of anxiety. Results suggest that there were statistically significant differences between the current sample and the

standardized sample for physical symptoms of anxiety [*t* (1174) = 7.63, *p* < .01; *d* = .44; *point biserial r* =.22, cognitive symptoms [*t* (1174) = 4.01, *p* < .01; *d*=.23; *point biserial r* =.11], and affective symptoms [*t* (1174) = 5.68, *p* < .01; *d*=.33; *point biserial r* =.16].

See Table 15 for descriptive statistics. Overall, participants in the current sample reported higher levels of anxiety than the college student sample used to standardize the PAI. Physical symptoms were the lowest for the current sample and the standardization sample, yet the current sample (*M* = 6.86, *SD* = 4.19) reported higher levels than the standardization sample (*M* = 4.48, *SD* = 3.18). Cognitive symptoms were frequently endorsed by both groups, yet the current sample (*M* = 8.89, *SD* = 5.02) reported higher levels of symptoms than the standardization sample (*M* = 7.12, *SD* = 4.61). A similar pattern was found within affective symptoms (current samples: *M* = 8.98 *SD* = 4.54; PAI: *M* = 6.87, *SD* = 3.86).

Question 2

Are Hispanic first generation college students familiar with culture-bound syndromes? Do Hispanic first generation college students frequently endorse symptoms consistent with those described in anxiety-related culture-bound syndromes? This was analyzed by examining the distribution of participants who reported familiarity with culture- bound syndromes. A vast majority of participants reported having previously heard of *ataque de nervios* (80%), *nervios* (89.6%), and *susto* (84%). The items for the culture-bound syndrome domains were examined; see Table 2 for descriptive statistics. Overall, symptoms specific to culture-bound syndromes were not frequently endorsed.

Question 3

Which variables are predictors of anxiety within a Hispanic first generation college student sample? Exploratory regression models were used to find variables that might predict total anxiety. Since hypothesis testing revealed that acculturation styles were not significantly related to anxiety, marginality scales of acculturation were used to examine cultural effects. Other variables chosen for this exploratory analysis were those moderately correlated with total anxiety. Interestingly, variables such as social status (community and US) and marital status were not statistically significant predictors. The final model chosen examined acculturative stress, age, and Anglo Marginality as predictors of total anxiety. Each of the predictor variables appears linearly related to anxiety but not too strongly. The criterion variable appeared fairly normally distributed. A scatterplot was used to examine the assumption of homoscedasticity, and the data appear to meet this assumption. Results suggested that this model was significant, F (3, 121) = 19.90, $p < .01$, and accounted for 31.4% of the variance in total anxiety; see Table 16. When examining the beta weights and structure coefficients it appeared that acculturative stress was contributing the most to predicting anxiety ($\beta = .39$, $p < .01$), followed by age ($\beta = -.36$, $p < .01$), and Anglo marginalization ($\beta = .17$, $p < .05$). Structure coefficients were also calculated to examine what part each variable had in explaining the effect. Results suggested the same organization of variables, with acculturative stress explaining 56% of the effect, followed by age explaining about 30% and finally Anglo marginalization explaining about 24% of the effect (see Table 16).

DISCUSSION

The intent of the current study was to analyze the relationships between acculturation, acculturative stress, socio-economic status, and symptoms of anxiety among first-generation college students of Hispanic origin. Results of this study were largely inconclusive while exploratory analyses provided statistically significant results. Overall, this study has provided some hints about first-generation college students of Hispanic origin, a growing and overlooked population. It has also raised a number of directions for future research.

One of the main goals of the present research was to examine cultural influences on reported symptoms of anxiety. Culture was understood via acculturation and participants were divided into styles based on Berry's (1980) model which provided an idea of participants' dialogue between Hispanic culture and culture of the US. The current study included 39 participants who were classified as separated or traditional, 31 who were classified as assimilated, 30 classified as integrated or bicultural, and 25 classified as marginalized. In examining anxiety, it was determined that there were not statistically significant differences among these groups as hypothesized. Moreover there were only slight associations between acculturation and anxiety. Literature suggests that the association between mental health and acculturation is largely mixed as both positive and negative relationships have been supported (Rogler, Cortes, & Malgady, 2009). The current study sought to support the Hispanic paradox, which indicates that early immigrant generations report less distress than later immigrant generations. For this study that would have meant that those reporting a traditional style of acculturation reported low levels of anxiety. This study also aimed to support literature suggesting

that those who are bicultural experience low levels of symptomology. Interestingly, those who were classified as traditional often reported the relative highest levels of anxiety while those classified as bicultural often reported relatively low levels of anxiety. Individuals classified as marginalized or assimilated often reported moderate levels of symptomology. This pattern is reflected in pieces of previous research, which have examined general mental health as opposed to anxiety (Fernandez-Barillas & Morrison, 1984; Ghaffarian, 1998, Griffith, 1983; Ortiz & Arce, 1984). It is important to note that breaking anxiety into cognitive, affective, and physical symptomology did not support a clear pattern of anxiety among acculturation groups. This may be due partially to reported scores being highly similar and partially to unequal subsample sizes. Overall, the current study failed to provide firm conclusions about the relationship between acculturation and anxiety, ultimately rendering further questions about acculturation's influence on and relationship to anxiety among Hispanic college students.

Another objective of the study was to examine acculturative stress and how it relates to acculturation and anxiety. The present study found that those who reported higher levels of acculturation (being more assimilated) also reported lower levels of acculturative stress at a small to medium effect size. This finding is consistent with the constructs being assessed; acculturative stress is specifically related to the acculturation process – difficulty with regard to conflicting cultural practices, language use, and values. However, this study also found that there were not statistically significant differences among acculturation groups in acculturative stress; although as predicted, those who reported separated and marginalized styles of acculturation reported the relative highest level of acculturative stress and those reporting an

assimilated style reported the lowest level of acculturative stress. Contrary to rationale and what was expected, those reporting a bicultural style reported a relatively high level of acculturative stress. It is difficult to make comparisons of the present finding with other studies because this area examining the relationship between acculturative stress and acculturation is lacking in previous research.

When examining acculturative stress and anxiety, the current study found that individuals who reported higher levels of acculturative stress also reported elevated levels of anxiety (overall, cognitive, affective and physical). This positive association between acculturation and distress is consistent with previous literature (Crockett et al., 2007; Mejia & McCarthy, 2010). It is possible that elevated levels of acculturative stress lead to poorer psychological functioning yet this cannot be strictly stated due to the correlational design of this study.

Another objective of this study was to examine socio-economic status' relationship with acculturative stress and anxiety. As hypothesized, individuals who identified as separated or marginalized reported lower income (parents or guardians) and lower social status (community and US) than those who identified as integrated or assimilated. More specifically, those reporting a separated style of acculturation reported lowest social status (both within their chosen community and the US) while those who reported an integrated or bicultural style reported the highest social status (both within their chosen community and the US). In understanding these findings it is important to consider the relationships between subjective social status measures (Adler and Stewart, 2000) and income. The moderate positive relationship established between income and US social status suggests that participants may have had income

in mind when comparing their social status to the US but not to their chosen community. Within this sample, those who were traditional were also likely to be a first generation immigrant, which means that these individuals and their families are likely to be lower socio-economic status within the US. Overall, the findings relating lower socioeconomic status to lower levels of acculturation are consistent with previous research findings (Moyerman & Forman, 1992). Contrary to what was predicted, income and subjective status were not significantly related to acculturation.

This study included exploratory analyses which sought to compare the pattern of symptoms endorsed with a non-Hispanic sample and to examine knowledge of culture-bound syndromes. The first analysis examined the type of symptoms endorsed by Hispanic first generation college students. This exploration was rooted in understanding whether first-generation college students of Hispanic origin fit trends of a non-Hispanic sample. Participants within the current sample endorsed all symptoms more frequently than the non-Hispanic sample. These findings suggest that participants within the present study experience more anxiety. This is consistent with some studies supporting higher rates of distress in Hispanic samples than European American samples (Ginsburg & Silverman, 1996; Varela, Vernberg, Sanchez-Sosa, Riveros, Mitchell, & Mashunkashey, 2004). However, this is taken with caution since there was a large sizes differences between sample (PAI: *N* = 1051 and Current sample: *N* = 125).

When examining symptom patterns within the present sample, Hispanic first generation college students reported similar levels of cognitive, affective, and physical symptoms of anxiety. That is, somatic symptoms were not highly endorsed. The Hispanic first-generation college students in the current study did not fit cross-cultural

research which has suggested that somatic symptoms are more prominent expressions of anxiety in cultures outside the European-influenced West (Barlow, 2002; Friedman, 1997). Part of this finding might be due to a majority of the participants being born in the US and attending college which may have influenced symptoms endorsed. Previous research has often compared a sample from the US with a sample from cultures outside European influence (Barlow, 2002; Friedman, 1997). Consequently, the current sample may not be as far removed from European influence as previous studies.

Three culture-bound syndromes, *ataque de nervios, nervios,* and *susto* have been linked to Hispanic cultures. A considerable majority of participants reported having heard of the three culture-bound syndromes. This finding suggests some prior experience or interaction with these constructs. Literature suggests that the negative connotations of mental illness within Hispanic cultures might encourage those of Hispanic origin to use benign terms and idioms (Friedman, 1997). However, a marginal portion of participants endorsed symptoms consistent with culture-bound syndromes. Within the college student population which has been influenced by European American culture it is possible that participants, although familiar with idiom of distress and culture-bound syndromes, do not use such idioms or culture-bound syndromes to express their own distress. It is difficult to compare the current findings with previous literature given the sparse research published on culture-bound syndromes within the Hispanic population.

Final analyses sought to examine predictors of anxiety. Acculturative stress appeared to be the best predictor of anxiety. This finding is consistent with previous literature linking these constructs (Crockett et al, 2007; Hovey & Magana, 2002a, b, c).

Two other predictors of anxiety were age and Anglo marginalization. Older individuals generally reported less anxiety. This may be partly due to maturation and development of coping strategies. Individuals who endorsed feeling marginalized from the Anglo culture also reported higher levels of anxiety and stress. This suggests that those who experience difficulty accepting Anglo ideas, behaviors, and values are also experiencing distress. Conceptually, it is logical that having difficulty adapting to the dominant culture would be associated with acculturative stress and anxious feelings. However, this finding has not been found in previous research. If the current finding is replicated, this could assist treatment of Hispanic college students by focusing on difficulties experienced with Anglo culture as well as the balancing of Hispanic and European American cultures.

Limitations and Future Directions

The present study is not without limitation. First, Power analyses for the current study suggested that many of the statistical tests were underpowered. That is, the probability of rejecting the null when the alternative hypothesis is true was not as high as recommended for behavioral science research. There are a number of ways to increase power of a study, one of which is to increase sample size. Future research should consider collecting data from a larger sample and modifying the inclusion criteria.

The present sample is likely to be biased. First, the overall completion rate for the present study was low. It is possible that individuals who completed the study might have higher levels of resilience, motivation, sustained focus, attention, and lower levels of distress. They were also likely to have time to commit to completing the study as well

as access to the internet (since the study was internet based). It is difficult to draw firm conclusions about the characteristics of the present sample since it is unclear why some participants stopped. Additionally, the current sample consisted of participants who were primarily enrolled in psychology courses and majoring in social and behavioral sciences at a large university. Obtaining research credit or extra course credit was a lucrative incentive for the current sample while entering the raffle was peripheral. Future research should recruit students from differing majors as well as from community colleges. Recruiting from community colleges (where Hispanic students more often enroll) may be most important to increase variability of demographics and generalizabiliy of results. Additionally, other recruitment techniques could be employed. The current study relied heavily on an online posting which was only available to psychology students as well as flyers and emails. Future research examining a similar population might consider a snow-ball method of recruitment as well as including more appealing incentives.

Other limitations which influenced completion rate were the length and organization of the survey. The overall survey was estimated to take about 2 hours to complete and the design required participants to complete the study during one sitting. Furthermore, many of the questions were marked as “required” which made a response mandatory. It might be beneficial to allow participants to save responses and return at a later time. Additionally, it might be good to be more flexible on required questions, thus allowing participants to skip some questions more freely. In terms of organization, it appeared as though having seven Thematic Apperception Test like pictures in the beginning was taxing on participants. Of those who began the study just a little over half

completed seven stories. Another five percent stopped somewhere between the first demographics section and the final demographics section, suggesting that this middle portion was also long. Overall, future research might consider making the survey shorter, providing more flexibility within the survey, and evaluating the online format versus paper and pencil.

Another main area of limitations involves measures chosen and utilized during the present study. First, the present study adapted the ARSMA-II to be inclusive of all Hispanic subgroups. Although this was has been done in previous research (Cuéllar & Roberts, 1997) there has not been a published validation study. Aside from using a well validated measure, future research might consider using more than one acculturation measures in order to establish a composite of acculturation. Dana (1996) suggests using an interview format to gain additional acculturation information; however, additional questions or a second instrument could also provide a stronger indication of acculturation.

Second, the Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale (SAFE) as developed by Mena, Padilla, and Maldonado (1987) does not have established validity. The original study published on the scale does not include a factor analysis nor did it include which items were used for each scale. The current study conducted two factor analyses. The first, utilizing all items, failed to replicate the findings of Fuertes & Westbrook (1996) and contained a high number of crossloaded items. The second analysis resolved the issue with crossloading items yet the results were not similar to those of published research. A closer inspection of the items suggests measurement flaws and poor test construction. For example, some item are have a

poor fit and all items are negatively worded. Overall, this suggests that further examination of this measure is needed and could use some development and possible revisions.

Finally, the present study utilized the anxiety scale of the Personality Assessment Inventory (PAI) as a solitary measure. Although utilization of this scale apart from the entire PAI has been found in previous research (Hovey & Magana, 2002a, b, c; Kiang, et al.2010), the validation of isolating this scale has yet to be established. Additionally, there is some evidence of positive impression management and responding in a socially desirable manner on the PAI within Hispanic samples, which may be related to cultural factors (Correa & Rogers, 2010). Moreover, the PAI relies on the DSM conceptualization of anxiety and symptomology. As such this measure may be gauging pathological anxiety that is not as prevalent among college students who are well adjusted enough to be in college. Future research might consider alternative instruments to measure acculturative stress and the inclusion of a less pathological measure of anxiety.

Overall, this study has raised some awareness regarding a population that is growing and that needs more attention. Considering the sample limitations described above, the current sample is not believed to be the best representation of the Hispanic first generation college student population. Therefore, the generalizability of the current findings is suspect. There are many questions left unanswered regarding Hispanic college students who are the first to go to college. Specifically, does culture influence reported anxiety? Future research should examine other cultural variables aside from acculturation such as cultural values, enculturation, and value conflicts. Examining

culture more thoroughly may provide a better understanding of how it is related to and influences anxiety and other distress. Future research could also broaden the scope of distress to include areas outside anxiety such as symptoms of depression or substance use. Additionally, academic variables (academic stressors, achievement, or academic performance) might be included to increase understanding of the Hispanic college population. Examining culture-bound syndromes, although valuable, may not be relevant within a college sample and therefore should be explored with community samples where there may be more cultural variability.

As the Hispanic population continues to grow in the US, it becomes increasingly important to understand this populace. This is particularly true as it might help understand the disproportionate numbers of Hispanics enrolled in post-secondary education and under-utilizing mental health care. The field of psychology has acknowledged that attention needs to be placed in understanding multicultural populations and assessing how to best serve such populations. The current study, although not providing significant insight into first-generation college students of Hispanic origin, has provided some hints about a unique population. Moreover, it has provided numerous future directions and research considerations.

Table 1

Frequencies for Demographic Variables

Demographic variables	*n*	Percentage
Gender		
Female	90	72%
Male	35	28%
Marital Status		
Single	111	88.8%
Married	13	10.4%
Divorced	1	.8%
Living Situation		
Alone	14	11.2%
Parents	37	29.6%
Roommate/Friend/Significant other	74	59.2%
College Standing		
Freshman	52	41.6%
Sophomore	27	21.6%
Junior	25	20.0%
Senior or Beyond	21	16.8%
Participant Birth Place		
United States	104	83.2%
Mexico	19	15.2%
Central America	2	1.6%

(table continues)

Table 1 *(continued).*

Demographic variables	*n*	Percentage
Immigration Generational Status		
First Generation	21	16.8%
Second Generation	82	65.6%
Third Generation	6	4.8%
Fourth Generation or later	16	12.8%
Heritage		
Mexican	97	77.6%
Central American	17	13.6%
Other	11	8.8%
Acculturation Group		
Separated	39	31.2%
Marginalized	25	20%
Integrated	30	24%
Assimilated	31	24.8%
Father's/Paternal Guardian's Education		
Less than eighth grade	44	35.2%
Some high school	38	30.4%
High school graduate/GED	43	34.4%
Mother's/Maternal Guardian's Education		
Less than eighth grade	42	33.6%
Some high school	27	21.6%

(table continues)

Table 1 *(continued).*

Demographic variables	*n*	Percentage
High school graduate/GED	56	44.8%
Annual Income (Parents or guardians)		
$29,000 or less	41	34.2%
$30,000 - $44,999	40	32.0%
$45,000 and $59,000	21	16.8%
$60, 000 or more	18	14.4%
Religious Affiliation		
Catholic	71	56.8%
Christian/Protestant	31	24.8%
Agnostic	5	4.0%
None/Other	18	14.4%
Panic Attack		
No	106	84.8%
Yes	19	15.2%
Problem with alcohol		
No	110	88.0%
Yes	14	11.2%
Parent alcoholism or drug abuse		
No	88	70.4%
Yes	31	24.8%
Unsure	5	4%

Table 2

Culture-bound Syndrome Scales and Descriptive Statistics

Culture-bound Syndrome Items	Mean (SD)
Ataque de Nervios	
I cry often.	.82 (.90)
I sometimes intensely tremble.	.34 (.72)
I sometimes have bouts of uncontrollable screaming.	.22 (.49)
I often experience chest pain.	.39 (.73)
Sometimes when I am stressed, I feel as though I am losing control.	.82 (.99)
I worry so much that at times I feel like I am going to faint.	.35 (.71)
Nervios	
I frequently get headaches.	.98 (1.03)
I frequently have stomachaches.	.60 (.85)
I cry often.	.82 (.90)
I frequently have sleep disturbances.	.66 (.92)
I sometimes intensely tremble.	.34 (.72)
I am frequently irritable.	.65 (.82)
I often lack motivation.	.74 (.82)
I seldom feel nervous.	2.08 (.92)
Sometimes I feel dizzy when I've been under a lot of pressure.	.64 (.88)
Susto	
I frequently get headaches.	.98 (1.03)
I frequently have sleep disturbances.	.66 (.92)
I often have muscle aches and pains.	.90 (.96)

(table continues)

Table 2 *(continued).*

Culture-bound Syndrome Items	Mean (SD)
Susto	
I sometimes have diarrhea.	.38 (.67)
I often lack an appetite.	.48 (.70)
I frequently have stomachaches.	.60 (.85)
I frequently feel sad.	.74 (.90)
I often lack motivation.	.74 (.82)
I have low self-worth.	.62 (.82)

Table 3

Descriptive Statistics

Variables	*M*	*SD*	Range
Age	21.03	4.43	18-46
Acculturation Score	0.50	1.03	-1.79-3.49
Anglo Orientation Scale	4.01	.45	2.77-4.92
Hispanic Orientation Scale	3.51	0.84	1.35-5.00
Anglo Marginalization	13.78	5.22	6-30
Hispanic Marginalization	12.84	4.85	6-30
Hispanic American Marginalization	11.76	4.38	6-30
Subjective Social Status Community	5.82	1.93	1-10
Subjective Social Status United States	5.20	1.93	1-10
Acculturative Stress Total	1.98	0.70	1-3.79
Anxiety Total	1.03	0.52	.13-2.25
Cognitive Anxiety	1.11	0.63	0-2.50
Affective Anxiety	1.12	.57	0-2.50
Physical Anxiety	0.86	.52	0-2.25

Table 4

Component Loadings with Oblimin Rotation for Exploratory Factor Analysis of Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale (SAFE)

	Environmental	*Familial*	*Social*	*Attitudinal*	h^2
SAFE 23	**.86**	.12	-.01	-.14	.70
SAFE 24	**.82**	-.12	.14	.02	.73
SAFE 13	**.78**	-.27	.21	.08	.75
SAFE 22	**.74**	.24	-.16	-.08	.58
SAFE 18	**.74**	-.09	-.15	.13	.57
SAFE 21	**.67**	-.07	.15	.19	.64
SAFE 17	**.66**	.10	.08	.14	.61
SAFE 15	**.65**	.21	.04	.07	.59
SAFE 14	**.63**	-.08	.27	.21	.70
SAFE 16	**.58**	**.33**	.11	.06	.63
SAFE 4	.15	**.79**	-.06	.03	.68
SAFE 3	.02	**.74**	.12	.11	.69
SAFE 6	.14	**.63**	.28	-.09	.60
SAFE 5	-.14	**.54**	**.41**	.05	.56
SAFE 2	.09	**.54**	.08	**.38**	.64
SAFE 7	-.04	**.46**	-.07	**.35**	.40
SAFE 12	.20	.19	**.73**	-.11	.72
SAFE 8	-.17	.16	**.73**	.22	.68
SAFE 10	.22	.03	**.64**	-.08	.52

(table continues)

Table 4 (continued).

	Environmental	*Familial*	*Social*	*Attitudinal*	h^2
SAFE 9	.15	-.13	**.45**	**.43**	.54
SAFE 1	-.10	.13	.05	**.74**	.59
SAFE 19	.27	-.10	.12	**.65**	.65
SAFE 20	.27	.12	-.24	**.65**	.64
SAFE 11	.19	.18	.08	**.51**	.52

Note: Component loadings > .32 are in boldface; h^2 = Communality estimates after extraction.

Table 5

Component Correlation Matrix after Oblimin Rotation

Component	1.	2.	3.
1. Environmental	--		
2. Familial	.21	.--	
3. Social	.29	.26	--
4. Attitudinal	.39	.32	.24

Table 6

Component Loadings with Oblimin Rotation for Exploratory Factor Analysis of SAFE with Crossloaded Items Removed

	Environmental	*Familial*	*Social*	*Attitudinal*	h^2
SAFE 24	**.85**	-.07	-.11	.01	.75
SAFE 23	**.84**	.14	-.01	-.13	.70
SAFE 13	**.81**	-.24	-.22	.07	.76
SAFE 18	**.77**	-.09	.14	.10	.59
SAFE 22	**.73**	.25	.15	-.10	.59
SAFE 21	**.67**	.05	-.08	.16	.63
SAFE 17	**.63**	.10	-.12	.12	.59
SAFE 14	**.59**	-.06	-.27	.25	.69
SAFE 15	**.55**	.16	-.12	.18	.57
SAFE 4	.04	**.85**	.08	.07	.76
SAFE 3	-.08	**.80**	-.13	.15	.74
SAFE 6	.09	**.70**	-.23	-.07	.65
SAFE 12	.18	.16	**-.76**	-.08	.73
SAFE 8	-.18	.14	**-.74**	.24	.70
SAFE 10	.21	.01	**-.67**	-.05	.55
SAFE 1	-.15	.07	-.10	**.80**	.65
SAFE 19	.25	-.07	-.09	**.69**	.69
SAFE 20	.28	.12	.29	**.66**	.62
SAFE 11	.17	.24	-.05	**.50**	.52

Note: Component loadings > .32 are in boldface; h^2 = Communality estimates after extraction.

Table 7

Component Correlation Matrix after Oblimin Rotation with reduced SAFE

Component	1.	2.	3.
1. Environmental	--		
2. Familial	.26	--	
3. Social	-.26	-.27	--
4. Attitudinal	.39	.31	-.23

Table 8

Intercorrelations among Demographic Variables

Demographic	1	2	3	4	5	6	7	8	9	10	11
1. Age	--										
2. Gender[a]	.01	--									
3. Marital Status[b]	.61**	.01	--								
4. College Standing[c]	.42**	-.08	.25**	--							
5. Immigrant Gen Status[d]	.13	.02	.09	.25**	--						
6. Father Birth Place[e]	.13	.01	.08	.22*	.84**	--					
7. Mother Birth Place[e]	.18*	-.11	.09	.28**	.66**	.64**	--				
8. Father Education[f]	-.14	-.10	-.03	.08	.33**	.37**	.40**	--			
9. Mother Education[f]	.01	-.14	.07	.25**	.43**	.40**	.58**	.53**	--		
10. Income	.12	.01	.06	.27**	.14**	.105	.12	.16	.19*	--	
11. Social Status Community	.11	.12	.13	.01	-.10	-.05	.01	-.14	.02	.16	--
12. Social Status United States	-.04	.16	.03	-.07	-.04	.03	.03	.07	.14	.23*	.55**

Note: aCoded: 1= women, 2 = men; bCoded: 1= single, 2 = married, divorced, separated; cCoded: 1 = freshman, 2 = sophomore, 3 = junior, 4 = senior and beyond; dCoded: 1 = first generation immigrant , 2 = second generation, 3 = third generation, 4 = fourth generation or higher; eCoded: 0 = Outside the United States, 1 = United States; fCoded: 1= Less than eight grade, 2 = some high school, 3 = high school graduate or GED, 4 = Some college, 5 = Associate's Degree, 6 = Bachelor's degree, 7 = Master's degree, 8 = Professional Degree, 9 = Doctoral degree; * p < .05, **p < .01.

Table 9

Intercorrelations among Demographic Variables, Independent and Dependent Variables

Demographic	Acc	AOS	HOS	AM	HM	HAM	Total Anxiety	Cognitive Anxiety	Affective Anxiety	Physical Anxiety	Acc Stress
Age	.11	.16	-.04	.11	.12	.06	-.31**	-.28**	-.30**	-.29**	.07
Gender[a]	.02	-.08	-.07	-.16	-.01	.10	-.14	-.16	-.13	-.09	-.11
Marital Status[b]	-.01	.08	.05	.08	.01	-.08	-.26**	-.25**	-.24**	-.21*	.06
College Standing[c]	.20*	.18	-.15	.08	.04	.04	-.12	-.12	-.15	-.05	.03
Immigrant Gen Status[d]	.49**	.29**	-.44**	.07	.11	.07	-.03	-.02	-.10	.04	-.07
Father Education	.39**	.29**	-.32*	-.19*	-.11	-.05	-.04	.02	-.02	-.11	-.28**
Mother Education	.35**	.26**	-.30**	.04	.02	-.02	-.12	-.11	-.15	-.07	-.17
Income	.16	.19	-.09	.11	.13	.20*	-.12	-.08	-.134	-.13	-.19*
Social Status Community	-.02	.22*	.14	.01	.42	-.02	-.25**	-.25**	-.23	-.20*	-.24**
Social Status United States	.06	.18	.02	-.11	.03	.10	-.20*	-.19	-.15	-.21*	-.28**

Note: Acc = Acculturation Score, AOS = Anglo-Orientation, HOS = Hispanic Orientation, AM = Anglo Marginalization, HM = Hispanic-Marginalization, HAM = Hispanic American Marginalization, Acc Stress = Acculturative Stress:
Note: [a]Coded: 1= women, 2 = men; [b]Coded: 1= single, 2 = married, divorced, separated; [c]Coded: 1 = freshman, 2 = sophomore, 3 = junior, 4 = senior and beyond; [d]Coded: 1 = first generation immigrant, 2 = second generation, 3 = third generation, 4 = fourth generation or higher; * $p < .05$, ** $p < .01$.

Table 10

Intercorrelations among Independent Variables and Dependent Variables

Demographic	1	2	3	4	5	6	7	8	9	10	11
1. Social Status Community	--										
2. Social Status US	.55**	--									
3. Acculturation Score	-.02	.06	--								
4. Anglo Orientation	.22*	.18*	.59**	--							
5. Hispanic Orientation	.14	.02	-.90**	-.18*	--						
6. Anglo Marginality	.01	-.11	-.24**	-.07	.26**	--					
7. Hispanic Marginality	.04	.03	.17	.12	-.15	.40**	--				
8. Total Anxiety	-.25**	-.20*	-.08	-.09	.05	.28**	.05	--			
9. Cognitive Anxiety	-.25**	-.19*	-.02	-.04	-.01	.25**	.04	.94**	--		
10. Affective Anxiety	-.23*	-.15	-.09	-.12	.04	.23**	.01	.93**	.84**	--	
11. Physical Anxiety	-.21*	-.21*	-.19	-.09	.09	.29**	.08	.88**	.71**	.72**	--
12. Acculturative Stress	-.24**	-.28*	-.20*	-.09	.20*	.37**	.20*	.43**	.40**	.34**	.45**

Note: * $p < .05$, ** $p < .01$.

Table 11

Anxiety Descriptive Statistics by Acculturation Group

Anxiety	Acculturation Group (*n*)	Mean	SD	95% CI
Overall	*F*(3, 121) =.55, *p*=ns			
	Separated (*n*= 39)	1.11	.54	[.93, 1.28]
	Marginalized (*n*= 25)	.99	.48	[.79, 1.18]
	Integrated (*n*= 30)	.95	.47	[.78, 1.13]
	Assimilated (*n*= 31)	1.04	.60	[.82, 1.26]
Cognitive	*F*(3, 121) = 1.41, *p*=ns			
	Separated (*n*= 39)	1.23	.63	[1.03, 1.43]
	Marginalized (*n*= 25)	1.01	.59	[.76, 1.26]
	Integrated (*n*= 30)	.96	.51	[.74, 1.19]
	Assimilated (*n*= 31)	1.18	.73	[.96, 1.41]
Affective	*F*(3, 121) =.70, *p*=ns			
	Separated (*n*= 39)	1.22	.58	[1.04, 1.40]
	Marginalized (*n*= 25)	1.07	.47	[.84, 1.29]
	Integrated (*n*= 30)	1.03	.54	[.83, 1.24]
	Assimilated (*n*= 31)	1.14	.57	[.94, 1.34]
Physical	*F*(3, 121) =.14, *p*=ns			
	Separated (*n*= 39)	.88	.53	[.71, 1.04]
	Marginalized (*n*= 25)	.89	.54	[.68, 1.09]
	Integrated (*n*= 30)	.87	.50	[.68, 1.06]
	Assimilated (*n*= 31)	.86	.55	[.62, 1.00]

Table 12

Acculturative Stress Descriptive Statistics and F by Acculturation Group

Variable	Acculturation Group	Mean	SD	95% CI
Acculturative Stress				
F= 1.16, *p=ns*				
	Separated	2.11	.69	[1.89, 2.34]
	Marginalized	2.00	.76	[1.69, 2.31]
	Integrated	1.98	.69	[1.73, 2.24]
	Assimilated	1.80	.68	[1.55, 2.05]

Table 13

Socio-economic Status Descriptive Statistics and t by Acculturation Group

Variable	Acculturation Group	Mean	SD	95% CI
Community Social Status		*t* = 2.14*		[.05, .40]
	Integrated and Assimilated	6.19	1.88	
	Separated and Marginalized	5.46	1.93	
United States Social Status		*t* = 2.20*		[.06, .40]
	Integrated and Assimilated	5.57	1.88	
	Separated and Marginalized	4.84	1.92	
Income[a] (parents or guardians)		*t* = 2.20*		[.05, .92]
	Integrated and Assimilated	3.27	1.24	
	Separated and Marginalized	2.78	1.18	

Note: [a]Coded: 1 = $14,999 or less; 2 = $15,000 - $29,000; 3 = $30,000- $44,999; 4 = $45,000 and $59,000; 5 = $60, 000 or more; * $p < .05$.

Table 14.

Socio-economic Status Descriptive Statistics by Acculturation Group

Variable	Acculturation Group	Mean	SD
Income[a] (parents or guardians)			
	Separated	2.87	1.22
	Marginalized	2.64	1.11
	Integrated	3.29	1.33
	Assimilated	3.25	1.18
Community Social Status			
	Separated	5.40	1.91
	Marginalized	5.56	1.99
	Integrated	6.70	1.84
	Assimilated	5.70	1.80
United States Social Status			
	Separated	4.63	1.98
	Marginalized	5.18	1.82
	Integrated	6.00	2.03
	Assimilated	5.16	1.66

Note: [a]Coded: 1 = $14,999 or less; 2 = $15,000 - $29,000; 3 = $30,000- $44,999; 4 = $45,000 and $59,000; 5 = $60, 000 or more; * $p < .05$

Table 15

Anxiety Symptom Descriptive Statistics and t by Sample

Symptoms	Sample	Mean	SD	*t*
Cognitive				*t* = 4.01**
	Current	8.89	5.02	
	PAI Standardized	7.12	4.61	
Affective				*t* = 5.68**
	Current	8.98	4.54	
	PAI Standardized	6.87	3.86	
Physiological				*t* = 7.63**
	Current	6.86	4.19	
	PAI Standardized	4.48	3.18	

**$p < 0.01$.

Table 16

Predictors of Anxiety

	B	SE	β	r_s^2	95% CI
Acculturative Stress	.29	.06	.39	.56	[.18, .41]
Age	-.04	.01	-.36	.29	[-.06, -.03]
Anglo Marginalization	.11	.05	.17	.24	[.01, .20]
R^2				.33	
Adjusted R^2				.31	
Δ in R^2 (from R^2 to Adjusted R^2)				.02	
F (3, 121)				19.90**	

**$p < 0.01$.

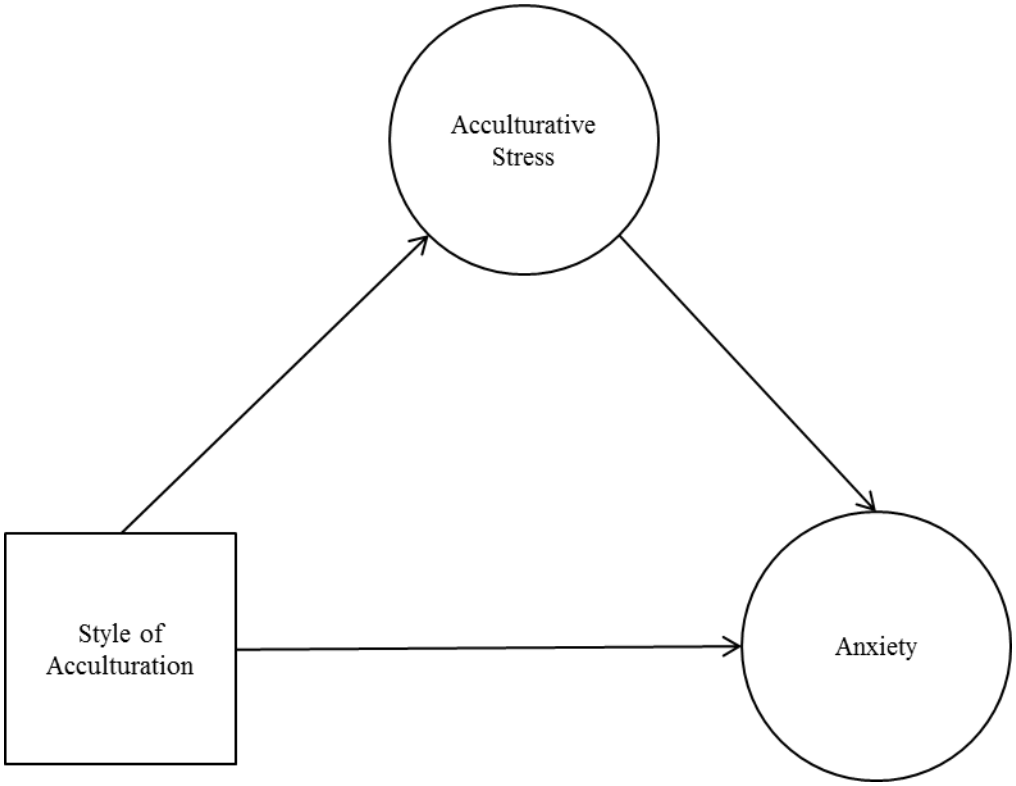

Figure 1. Structural model of acculturative stress mediating the relationship between style of acculturation and anxiety.

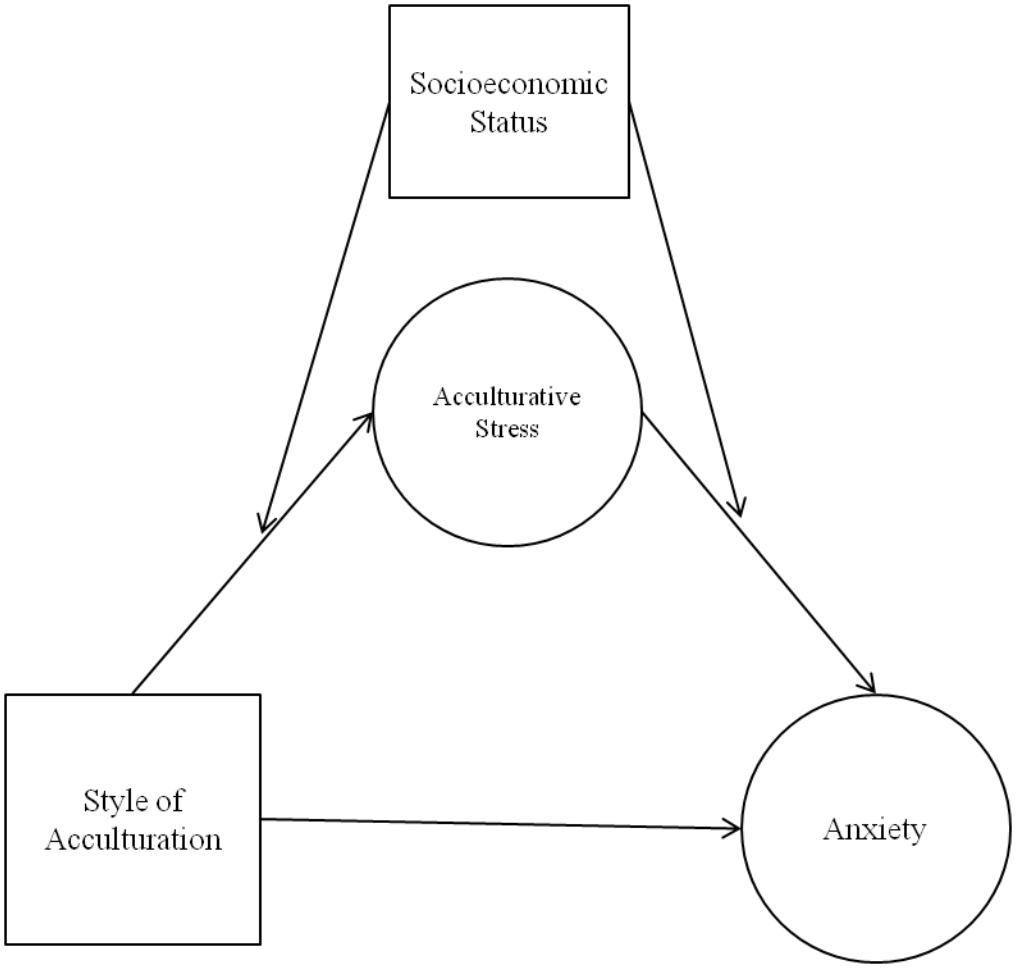

Figure 2. Structural model of socioeconomic status moderating the mediated relationship.

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