THE ROLE OF ACCULTURATION AND ENCULTURATION ON ALCOHOL

CONSUMPTION AMONG HISPANIC COLLEGE STUDENTS IN LATE

ADOLESCENCE

A Dissertation

by

MIGUEL ÁNGEL CANO

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2011

Major Subject: Counseling Psychology

The Role of Acculturation and Enculturation on Alcohol Consumption among

Hispanic College Students in Late Adolescence

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ABSTRACT

The Role of Acculturation and Enculturation on Alcohol Consumption among Hispanic

College Students in Late Adolescence. (August 2011)

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This dissertation presents a comprehensive literature review of the acculturation process and describes the following aspects: constructs, theoretical models, measurement instruments, limitation in research, and an emphasis on the acculturation process and its proposed relationship with alcohol consumption among Hispanics. Included are also findings from an study conducted on the relationship between the acculturation process and hazardous alcohol use among 180 Hispanic college students in late adolescences.

Final results from the study were obtained using a path analysis, a confirmatory approach to test hypothesis. Evaluation indices suggest the path analysis had good model fit, CFI, RMSEA and SRMR (1.00, 0.001, and .02, respectively). In regard to the first hypothesis, data show that behavioral enculturation was a statistically significant (β = .69, $p < .05$) predictor of greater alcohol consumption. Further, moderation analyses indicate that behavioral enculturation (β = .59, $p < .05$) was a greater risk factor of alcohol use for men than women.

Regarding hypothesis two and three, acculturative stress, intragroup marginalization, and depression did not mediate the indirect influence of acculturation and enculturation on alcohol use. However, higher scores of enculturation were associated to greater acculturative stress and higher score of acculturation were related to greater intragroup marginalization. In turn both acculturative stress and intragroup marginalization were statistically significant predictors of depression. In all, the model accounted for 31% of the variance in depression and 20% in alcohol consumption.

In view of these results, interventions should be designed to target segments of the Hispanic populations that are likely to be enculturated. Further, interventions should consider introducing gender socialization differences regarding attitudes toward alcohol use that directly attending to the moderating role of gender. Given that data also indicate that pressure from both the heritage culture and dominant culture may increase the risk of depression, mental health providers should be attune to these effects of the acculturation process to help adolescents negotiate expectations of both cultures. Lastly, interventions for alcohol use and depression may incorporate *family effectiveness training,* to attend to differential acculturation as a systemic family issue that needs to be addressed at the family interactional level.

DEDICATION

Dedico esta obra a Dios por darme la fortaleza necesaria para terminar mis estudios,

a mis queridos padres

Ana María Cano Chacón y Miguel Ángel Cano Barraza

por sus esfuerzos, inspiracion, y apoyo incondicional,

a mi hermano David Eli Cano,

y a toda persona que lucha por el progreso de la comunidad hispana.

I dedicate this work to God for giving me the strength to complete my studies,

to my dear parents

Ana María Cano Chacón and Miguel Ángel Cano Barraza

for their efforts, inspiration, and unconditional support,

my brother David Eli Cano

and everyone who fights for the advancement of the Hispanic community.

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CHAPTER I

INTRODUCTION AND PROBLEM

The Hispanic population of the United States has seen immense growth during the past 20 years, becoming the largest ethnic minority group (U.S. Census Bureau, 2009). In 2009, it was reported that approximately 48.3 million Hispanics were living in the U.S., making up 15.7% of the total population. The following estimates have been made for the Hispanic population of the U.S., 51% male, 49% female, 65.5% of Mexican descent, 9.1% Puerto Rican, 3.6% Salvadorian, and 3.5% Cuban. Approximately 62.6% of Hispanics are native born and the remainder are foreign born (Pew Hispanic Center, 2011; U.S. Census Bureau, 2008). However, newer generations accounts for a higher proportion of Hispanics, 47.9% are first generation, 41.2% are second generation, and 6.5% are third generation and higher (U.S. Census Bureau, 2008). Further, the Hispanic population is exceedingly younger than White Euro-Americans; 17.7% of Hispanic males were under the age of 18, compared to 10.6% of Whites. Among Hispanic women, 16.8% were under the age of 18, compared to 10.0% of Whites. In addition, the median age of Hispanics was 27 years, among White Euro-Americans it was 41years (Pew Hispanic Center, 2011). What is more, a report from the Substance Abuse and Mental Health Services Administration indicated (SAMHSA) that 41.7% of Hispanics in the U.S. currently used of alcohol (SAMHSA, 2010a). According

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This dissertation follows the style of *Addictive Behaviors*.

to a 2002 report National Institute on Alcohol Abuse and Alcoholism (NIAAA), Hispanic adolescents had the highest annual prevalence of heavy drinking. This is cause for concern, and given the rapid growth of the Hispanic population, it is likely that the incidence and prevalence of heavy drinking and alcohol use disorders will increase.

Alcohol consumption is the third leading lifestyle-related cause of death in the U.S. (CDC, 2010a). The misuse and abuse of alcohol is a public health concern due to the consequences it has on health and well-being. In general, the misuse of alcohol has been associated with other adverse health conditions such as: 1) unintentional injuries (e.g., car crashes, falls, burns, drowning), 2) intentional injuries (e.g., firearm injuries, sexual assault, domestic violence), 3) alcohol poisoning, 4) sexually transmitted infections, 5) children born with fetal alcohol spectrum disorders, 6) poor control of diabetes, 7) liver disease, 8) neurological damage, 9) sexual dysfunction, and 10) cardiovascular diseases (CDC, 2010b).

Most research among ethnic minorities and the effects of alcohol has focused on cirrhosis, a progressive and potentially fatal liver disease usually attributed to long-term heavy drinking (NIAAA, 2002). One striking finding is that Hispanics are nearly twice as likely as White Euro-Americans to die from cirrhosis, despite a lower prevalence of drinking and heavy drinking (NIAAA, 2002). Although it is unclear why there are more cases of cirrhosis among Hispanics, research suggests that Hispanics tend to consume alcohol in higher quantities per drinking occasion than do White Euro-Americans, resulting in a higher cumulative dose of alcohol (NIAAA, 2002).

With these consequences in mind, it is critical that the research community work toward developing a better understanding of influential factors of alcohol use among Hispanics. Scholars have proposed that acculturation is a critical factor that must be included in the investigation of alcohol use among Hispanics (Markides, Krause, & Mendes de Leon, 1988; Rodriguez et al., 2007). Further, a 2004 panel from the Institute of Medicine indicated that acculturation plays a key role in understanding racial and ethnic disparities in health, making measures of acculturation just as important as measures of race and ethnicity (Ver Ploeg & Perrin, 2004).

Identifying and understanding psychological and cultural factors that are predictive of alcohol use may help reduce the incidence and prevalence of alcohol use disorders and other health outcomes associated with alcohol among Hispanics. In spite of the increasing examination of acculturation in relation to health-related behavior among Hispanics, there is disagreement about acculturation's influence on health behavior, including alcohol consumption (Guilamo-Ramos, Jaccard, Johansson, Turrisi, 2004; Zemore, 2007). Accordingly, the purpose of this study is to examine the influence of the acculturation process on hazardous alcohol consumption among Hispanic adolescents. *Hazardous alcohol consumption* is not an alcohol use disorder, rather "a pattern of alcohol consumption that increases the risk of harmful consequences for the user or others. Hazardous drinking patterns are of public health significance despite the absence of any current disorder in the individual user" (Babor, Higgins-Biddle, Saunders, & Monteiro, 1993, p. 5).

The following section presents a comprehensive review of acculturation and enculturation with the intent of demonstrating the complexity of the acculturation process. Moreover, this will serve as the backdrop the exhibits some of the shortcomings of acculturation measurement in alcohol use research.

History of the Construct of Acculturation

Dating back to ancient Greek philosophy, Plato may have been one of the first to discuss intercultural adaptation (Rudmin, 2003). However, Rudmin's (2003) thorough historical review of acculturation states that the term "acculturation" was first introduced in 1880 by anthropologist J. W. Powell, to "describe changes in Native American languages" (p. 10). Following Powell's work, anthropology continued to pioneer the study of acculturation. In 1898, anthropologist W. J. McGee made a distinction between piratical and amicable acculturation. McGee proposed that *piratical acculturation* had an antagonistic element in the exchange of ideas and customs that resulted from hostility and competition between two groups. Conversely, *amicable acculturation* came about from cordial and intentional exchange of ideas. In both instances, a key feature in these forms of acculturation relates to changes in customs, practices, and beliefs in different groups of people.

In 1935, Redfield, Linton, and Herskovits published a seminal piece in *American Anthropologist* that proposed the following definition of acculturation that is frequently used in social science:

_____

Note. Heritage culture and culture of origin are used interchangeably; host culture and dominant culture are used interchangeably

Acculturation comprehends those phenomena which result when groups of

individuals having different cultures come into continuous first-hand contact,

with subsequent changes in the original cultural patterns of either or both groups.

Under this definition, acculturation is to be distinguished from *culture-change*, of

which it is but one aspect, and *assimilation*, which is at times a phase of

acculturation. (p. 145-146)

The memorandum also aimed to address the following objectives: (a) outline an

approach to the study of acculturation, (b) describe the processes of acculturation, (c)

discuss psychological [individual] mechanisms involved in the process of acculturation,

and (d) describe the outcomes of acculturation; whereby groups can accept the host

culture; combine both cultures; or reject the host culture (Redfield, Linton, &

Herskovits, 1935).

In an effort to better develop the construct of acculturation, the Social Science

Research Council (SSRC) proposed the following definition in 1953:

Acculturation may be defined as culture change that is initiated by the

conjunction of two or more autonomous cultural systems. Acculturative change

may be the consequence of direct cultural transmission; it may be derived from

noncultural causes, such as ecological or demographic modifications induced by

an impinging culture; it may be delayed, as with internal adjustments following

upon the acceptance of alien traits or patterns; or it may be a reactive adaptation

of traditional modes of life. Its dynamics can be seen as the selective adaptation

of value systems, the processes of integration and differentiation, the generation

of developmental consequences, and the operation of role determinants and

personality factors. (Broom, Seigel, Vogt, & Watson, 1954, p. 974)

Much of the early literature on acculturation centered on collective acculturation;

however, some works did attend to acculturation at an individual level, known as

psychological acculturation. Although sociologist Theodore Graves (1967) is often cited

as one of the first to examine psychological acculturation, other studies on psychological

acculturation precede Graves' work. Hallowell (1951) examined the influence of

psychological acculturation on personality changes among Ojibwa American Indians. In

another study, Caudill (1952) examined whether psychological acculturation played a

role in interpretation of the Thematic Apperception Test among people of Japanese

heritage.

In more recent literature, psychology has emerged at the forefront in the study of

psychological acculturation. John Berry, arguably the most prominent figure in the study

of acculturation, defined *psychological acculturation* as "changes in behavior, values,

attitudes, and identity" (Williams & Berry, 1991, p. 633). Other notable scholars in the

field of psychology that have contributed to study of psychological acculturation are

José Szapocznik and Amado Padilla. Szapocznik, along with colleagues was one of the

first psychologists to study acculturation and acculturation measurement among

Hispanic immigrants (Szapocznik, Falletti, & Scopetta, 1979; Szapocznik & Kurtines,

1979). Shortly after, Padilla (1980) edited a book on acculturation largely comprised of

authors in the field of psychology. The book presented a thorough analysis of

acculturation theory, measurement, and application. Arguably, the greatest contribution of this book was spotlighting the value of examining acculturation at an individual level.

Since the publication of Padilla's (1980) book, the study of acculturation has flourished. In a 2009 literature search with the key term, "acculturation," in ProQuest databases including PsycINFO, ERIC, and MEDLINE, found 11,004 peer-reviewed articles; 950 book chapters or entries; 2,774 dissertations; and seven books since 2002 (Berry, Phinney, Sam, & Vedder, 2006; Bornstein & Cote, 2006; Castro, 2003; Chun, Organista, & Marin, 2003; McGough, 2007; Reichman, 2006; Sam & Berry, 2006). Acculturation research in the U.S. has been conducted among many ethnic groups, including African Americans, Arabs, Asians, Native Americans, and Hispanics (Chun, Organista, & Marin, 2003). The influence of acculturation has been examined in relation to many outcome variables, including life satisfaction (Edwards & Lopez, 2006), nutrition (Pérez-Escamilla & Putnik, 2007), academic achievement (López, Ehly, & García-Vásquez, 2002), diabetes mellitus (Pérez-Escamilla & Putnik, 2007), religion (Gans, 1994), and mental health (Castillo, Conoley, Brossart, 2004).

Models of Acculturation

Unidimensional Model

Much of the acculturation literature points to Milton Gordon (1964) as the key figure in formulating the unidimensional model of acculturation, also referred to as the *assimilation model*. According to Gordon's model, assimilation to the host culture is inevitable. Moreover, in the process of assimilating to the host culture, immigrants and

ethnic minorities ultimately lose connection with their heritage culture. It should be noted that this model makes no reference to the host culture adopting cultural characteristics of the acculturating group. LaFromboise, Coleman, and Gerton (1993) proposed that assimilation is an ongoing process of adopting the host culture. Furthermore, the assimilation process persists across generations until descendants of the acculturating group are culturally undifferentiated from the host culture (Ryder, Alden, & Paulhus, 2000). Although the basis of this acculturation model may appear simplistic, it remains invariable in the literature, with one exception. Contemporary scholars have proposed that the rate of acculturation may differ between domains of functioning (Triandis, Kashima, Shimada, & Villareal, 1986).

Building on Gordon's unidimensional model of acculturation, Padilla's (1980) unidimensional model of acculturation accounted for the degree to which individuals move along a continuum on two factors, (a) cultural awareness and (b) ethnic loyalty. In this model, *cultural awareness* refers to "an individual's knowledge of specific cultural material (e.g., language, values, history, art, and foods) of the cultural group of origin and/or the host culture" (p. 48). *Ethnic loyalty* refers to an "individual's preference of one cultural orientation over the other" (p. 48).

The primary weakness of the unidimensional model of acculturation has been its limited capacity. The model suggests that acculturating individuals or groups will inevitably lose ties to their culture of origin in the acquisition of new cultural values, attitudes, and behaviors. This zero-sum assumption leaves no room for the existence of

two cultures within an individual and provides an incomplete and fragmented conceptualization of this complex process (Cabassa, 2003).

Bidimensional Model

The bidimensional model of acculturation, also referred to as *bipolar model, bidirectional model, multidimensional model, bilinear model, orthogonal model,* or *two-dimension model,* addresses the key limitation of the unidimensional model. Berry (1979) was one of the first to develop a more encompassing and sophisticated model of acculturation. The tenets of the bidimensional model are that acculturation consists of two independent dimensions: (a) maintenance of the heritage culture and (b) adherence to the host culture (Berry, 1997, 1998; Berry & Sam, 1997; Cuéllar et al., 1995; Marín & Gamba, 1996). *Cultural maintenance* is operationalized as the degree to which an individual values and adheres to their culture of origin (Berry, 1997, 1998; Berry & Sam, 1997). In acculturation literature, the terms Hispanicism and enculturation are used in reference to cultural maintenance. *Hispanicism* refers to socialization to the Hispanic way of life and e*nculturation* is the process of socialization (or re-socialization) into and maintenance of the heritage culture norms (Kim & Abreu, 2001; Szapocznik & Kurtines, 1979). The value placed on cultural maintenance may range from a strong adherence to the heritage culture to rejection or opposition to maintaining this culture (Berry & Sam, 1997). The second dimension speaks to the level individuals adopt and value the host culture (Berry & Sam, 1997). As with cultural maintenance, adherence to the host culture ranges from complete assimilation to total rejection of values, attitudes, and behaviors. In measuring two dimensions separately, one may examine the degree that

individuals enculturate, maintaining their heritage culture, and acculturate, adopting the values, attitudes, and behaviors associated with the host culture.

This process of acculturation may occur across three separate domains of functioning, and the rate of acculturation may differ between domains (Kim & Abreu, 2001; Triandis, Kashima, Shimada, & Villareal, 1986). The first of these is the *behavioral domain of functioning* which encompasses behaviors and practices such participation in cultural activities, preference in media language, language use, and food choice (Kim & Abreu, 2001). The *cognitive domain of functioning* consists of the values, attitudes, and beliefs about social relations, cultural customs, and cultural traditions. This domain also includes knowledge about culturally specific information an individual holds about the heritage and host cultures; and the significance of culturally specific activities (Kim & Abreu, 2001). The *affective domain of functioning* is comprised of the ethnic identity that accounts for attitudes toward one's cultural identity, and attitudes toward the heritage culture and host culture (Kim & Abreu, 2001). Acculturation has been found to occur at various rates across domains (Yoon, Langrehr, & Ong, 2011); thus, levels of acculturation and enculturation in one domain do not indubitably translate to parallel levels in other domains (Cano & Castillo, 2010). Categorizing a person "acculturated" or "not acculturated" is likely an oversimplification of a complex phenomenon. As such, it is recommended that researchers specify what is meant by "acculturated" and identify the domains in which this acculturation has, or has not, occurred (Schwartz, Unger, Zamboanga & Szapocznik, 2010). Lastly, Berry (1980) proposed that acculturative stress [later defined] be considered a fourth domain of

acculturation. However, a review of the literature indicates that acculturative stress is typically examined as an entirely separate construct.

Extending the bidimensional model, Berry proposed four distinct acculturation strategies (assimilation, separation, integration, and marginalization), also referred to as *modes of acculturation* or *varieties of acculturation,* that classify how individuals adapt to a host culture (Berry & Sam, 1997). Berry and colleagues posit that individuals are free to choose their own acculturation strategies (Berry, 1997, 1998; Berry & Sam, 1997).

Assimilation characterizes individuals or groups that are highly acculturated. Assimilated individuals strongly identify with the host culture resulting in the loss of identity with the heritage cultural. Assimilated individuals who no longer identify with their culture of origin may behave in a manner that no longer reflects the behaviors of the heritage culture. For example, assimilated individuals may no longer speak the native language, listen to native music, take part in native dances, or follow the native culture's dating process (Cuéllar, Arnold, & Maldonado, 1995; Paniagua, 2005). Along with behavioral changes, assimilated individuals may shift their beliefs, values, and attitudes to match those of the host culture (Berry, 2003; Paniagua, 2005). Consequently, assimilation is occasionally referred to as *cultural shift* (Mendoza & Martinez, 1981).

Separation describes individuals or groups that maintain a strong identification with the culture of origin and do not accept the behaviors, attitudes, beliefs, or values of the host culture. Although individuals may be presented with opportunities to assimilate, the individual consciously chooses to maintain an adherence to the culture of origin

(Berry, 2003; Cuéllar, Arnold, & Maldonado, 1995). In this acculturation strategy, the individual only displays the behaviors, attitudes, beliefs, and values of the culture of origin (Paniagua, 2005). Mendoza and Martinez (1981) referred to this acculturation strategy as *cultural resistance*.

Integration, also referred to as *cultural incorporation* or *biculturalism*, is the fusion of the heritage and host culture (LaFromboise, Coleman, & Gerton, 1993; Mendoza & Martinez, 1981). Individuals in this acculturation strategy may successfully identify and display behaviors, attitudes, beliefs, and values from both cultures (Berry, 2003; Cuéllar, Arnold, & Maldonado, 1995; Paniagua, 2005).

Lastly, *marginalization* is described as a rejection or non-acceptance of behaviors, values, attitudes, and beliefs of the heritage and host cultures. It is important to keep in mind that a marginalized individual can maintain cultural competence with both groups and have marginal traits as well. Additionally, a degree of acculturation or identification with both cultures must occur before marginalization takes place (Berry, 2003; Cuéllar, Arnold, & Maldonado, 1995; Paniagua, 2005).

Berry (1980, 1997, 2003) suggests that each strategy of acculturation is associated with distinct adaptation outcomes, largely resulting from varied levels of acculturative stress. He proposed that the integration strategy is more likely to result in better adaptation than the other strategies. Conversely, marginalization is likely to result in poor adaptation outcomes. Lastly, the assimilation and separation strategies are believed to produce intermediate outcomes in adaptation.

Although Berry's bidimensional model led a more comprehensive conceptualization of the acculturation process it has also dawn it share of criticism. Most notably, the element of free choice has been recognized as a limitation of the model because in some instances, acculturating groups or individuals may be obligated to reject their culture of origin or conversely discouraged from interacting with the host culture. Another limitation of this model that has drawn attention is that it is assumes individuals coordinate themselves between two cultures when theoretically it is possible that an individual may actually prefer a third culture (Rudmin & Ahmadzadeh, 2001). Additionally, Schönpflug (1997) criticized Berry's model for failing to consider acculturation from a developmental standpoint.

In sum, the unidimensional model of acculturation set a theoretical framework to explain the acculturation process. Addressing the limitations of this model, a competing bidimensional model of acculturation was developed. Despite its limitations, the bidimensional model serves as a more comprehensive model of acculturation and affords improvement over the unidimensional model.

Measurement of Acculturation

The majority of acculturation measures may be placed into one of three categories: (a) proxy measures, (b) unidimensional measures of acculturation, (c) and bidimensional measures of acculturation. Proxy measures are considered linear measures of acculturation that generally assess acculturation level through a single item. Some proxy measures frequently used are place of birth (e.g., Mexico vs. U.S.), language preference (e.g., Spanish vs. English), and generation status. In public health research,

proxy measures are predominately used, and although these measures may serve as an approximate indicator of acceptance of the host culture, they do not fully capture the acculturation process (Guilamo-Ramos, Jaccard, Johansson, Turrisi, 2004). This argument has been made because acculturation is a complex process that is not captured by simple proxies (Nguyen, Meese, & Stollak, 1999).

In an effort to better measure the acculturation process, multi-item linear measures of acculturation, also referred to as measures of acculturation level, were developed and rooted in the undimensional model of acculturation (Zane & Mak, 2003). Such measures place individuals along a continuum, ranging from low to high levels of acculturation. In theory, individuals on the low end of the continuum have not adopted host culture. At the high of the continuum are individuals who have adopted the host culture to significant degree. A limitation of these measures is that they only assess the degree of assimilation into the host culture and do not account for the degree an individual maintains the heritage culture.

Although unidimensional measures are an improvement over proxy measures, the same limitations of the unidimensional model are inherent in these measures. To remedy the limited scope of unidimensional measures, bidimensional measures of acculturation, chiefly grounded on Berry's (1980, 1997) bidimensional model, were constructed. In contrast to unidimensional measures, bidimensional measures assess an individual's adherence to the host culture and heritage culture. The Acculturation Rating Scale for Mexican Americans-II (ARSMA-II; Cuéllar, Arnold, & Maldonado, 1995) is an acculturation measure based on Berry's model that has been used with Hispanic

groups of various nationalities. Measures such as this one afford researchers and others to (a) assess the degree of heritage culture maintenance, (b) assess the degree of host culture adherence, and (c) place respondents into one of the four acculturation strategies.

A limitation of unidimensional and bidimensional measures is that their distinct conceptualization of the acculturation process is often lost when the measurement instrument fail to capture their respective guiding model (Thompson & Hoffman-Goetz, 2009). Further, the application of cross-sectional research designs may hinder that ability to accurately measure the acculturation process. For instance, individuals entering the acculturation process early in life may adopt the host cultural values and behaviors and reject some aspects of their culture of origin in an effort to fit in (Schönpflug, 1997). Yet these same individuals may, later in life, resocialize into heritage culture and incorporate aspects of both cultures.

Another problem with the measurement of acculturation is that acculturation levels or strategies may be different in private and public contexts (Berry, 1997). Publicly, an individual may exhibit a higher degree of acculturation, but that same individual may embrace more separatist attitudes and/or behaviors in a private space (Navas et al., 2005).

Prevalence and Predictors of Alcohol Consumption

Prevalence

Among the adolescent population of the U.S., alcohol is the most commonly used and abused substance, causing serious and life-threatening problems. Although alcohol is often referred to as a "gateway drug" for adolescents because it often precedes the use

of other illicit substances, this classification is misleading. It may well be the case for some adolescents that alcohol use alone is the chief problem (NIAAA, 1997). In a 2002 report by NIAAA, Hispanic adolescents had the highest annual prevalence of heavy drinking. Further, more recent findings from the National Survey on Drug Use and Health (NSDUH, formally named the National Household Survey on Drug Abuse), show Hispanic adolescents aged 12 to 17 had the second highest rate (15.2%) of current alcohol use (SAMHSA, 2010a). In comparison to other ethnic groups, Hispanics in late adolescence and emerging adulthood tended to believe they had the "right" to drink heavily as they mature (NIAAA, 2006). Although the survey did not account for specific ethnocultural differences, national heritage was documented. Results from an NSDUH report indicate that Cuban adolescents consumed the most alcohol (21.2%) and Puerto Rican consumed the least alcohol (14.3%) during the past month (SAMHSA, 2005). According to this report, the proportion of alcohol use among Hispanic male and female adolescents was similar in regard to their past month use (16.3% and 16.6% respectively) and binge alcohol use (10.7% and 9.2 % respectively; SAMHSA, 2005).

A 2004 report from the World Health Organization (WHO) on international prevalence of heavy drinking found that among Mexican residents, 18.1% men and 11.6% of women met criteria for heavy drinking. Conversely, among U.S. residents, 6.4% of men and 5.0% of women met criteria. In part, this disparity can be explained because Mexican families were more likely to encourage youth to drink alcohol (boys were more encouraged than girls) and drinking was considered to be part of an urban lifestyle (WHO, 2005). However, this finding should be interpreted cautiously for

several reasons. First, Mexican data used in the report are from 2000-2001, while U.S. data are from 1996. Second, the population in the U.S. is more ethnically diverse than Mexico's; thus, disparities in drinking patterns cannot be purely attributed to ethnocultural differences. Third, legal drinking age varies between both countries, as well as the definition of heavy drinking (WHO, 2004).

College Status and Late Adolescence

Historically, few published studies have investigated how acculturation affects alcohol use among Hispanic college students (Raffaelli et al., 2007). However, college students aged 18 to 22 and enrolled full time were more likely than their peers not enrolled full time (i.e., part-time college students or not currently enrolled in college) to have consumed alcohol in the past month, binge drink, and drink heavily. Past month alcohol use was reported by 63.9 % of full-time college students compared to 43.5% not enrolled full time. Binge drinking and heavy use rates for full time college students were 43.5% and 16.0%, respectively. Conversely, binge drinking and heavy drinking rates for individuals not enrolled full time in college were 37.8 % and 11.7%, respectively (SAMHSA, 2010a).

Late adolescence is a period spanning ages 18 to 21. This period roughly corresponds to the college years and is marked as a period of transition from adolescence to emerging adulthood (Steinberg, 2008). Research on substance use has established that late adolescence is a period in life marked with high prevalence rates for the use of nearly all substances, including alcohol (APA, 2000). In fact, findings consistently show that people drink the heaviest during late adolescence (NIAAA, 2006). Some reasons

that adolescents use alcohol include to feel good, reduce stress and relax, feel older, and fit in socially or submit to peer pressure. Research findings also suggest that alcohol advertising may influence adolescents to be more favorably predisposed to drinking (NIAAA, 1997). Further, late adolescence is psychosocial stage of development marked with increasing emotional distress that may increase the risk of alcohol consumption (Schulenberg & Maggs, 2002).

Given the rapid growth of Hispanic youth in the U.S., this population is frequently at the center of public debates regarding risk of adolescent alcohol use (Wahl & Eitle, 2010). Yet most research examining the relationship between acculturation and alcohol use has focused on adults (Epstein, Botvin, & Diaz, 2001). To better comprehend the influence of acculturation process on alcohol use behavior, more research during adolescence could be a key in understanding the relationship between these two constructs (Epstein, Botvin, & Diaz, 2000).

Depression

The 2009 NSDUH found that Major Depressive Episodes in the past year were associated with past year alcohol dependence or abuse. Among individuals 18 or older diagnosed with a Major Depressive Episode, 18.3% were dependent or abused alcohol, compared to 7.0% of adults without a Major Depressive Episode. Similarly, the rates of past month heavy alcohol use were higher for individuals with a Major Depressive Episode (9.2%) than for those who did not report a Major Depressive Episode (7.2%; SAMHSA, 2010b).

Hispanics attending college, particularly female Hispanics, may be at greater risk of experiencing adverse mental health outcomes. Hispanic college students may experience added psychological distress due cultural differences between the university environment, which often reflects White Euro-American values that may conflict with values of heritage culture (Castillo, Conoley, & Brossart, 2004). Further, female Hispanic college students may have to negotiate between the traditional gender-role expectations of family caretaker and the pursuit of a college education (Castillo & Hill, 2004). Such cases are referred to as a "double-bind" because family relatives expect women to be academically successful and uphold traditional cultural values such as *familismo* (Vásquez, 1997). This may occur more frequently in second generations because they acculturate at a faster rate than their immigrant parents (Miranda, Bilot, Peluso, Berman, & Van Meek, 2006). In turn, differences in cultural values and expectations between the academic environment and heritage culture can be emotionally taxing and create family tension (Gloria, 2001), leading to psychological distress (Castillo & Hill, 2004).

Socioeconomic Status

Prior studies that examined the role of socioeconomic status (SES) have produced conflicting findings. For instance, Ennett, Flewelling, Lindrooth, and Norton (1997) found that residing in an affluent neighborhood increased substance use in adolescents. These finding is consistent with more recent research that found the same relationship (Hanson & Chen, 2007). However, Smart, Adlaf, and Walsh (1994) found divergent results, suggesting that living in neighborhoods with lower SES was associated

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with increased substance use among adolescents. It should be noted that across different levels of income, education, age, and ethnicity, the proportion of alcohol use is higher among men than women (SAMHSA, 2007).

Familial Factors

Using data from the 1990 NSDUH, Gfroerer and De la Rosa (1993) examined familial factors that could influence alcohol use. When looking at the number of parents present in the household, they found that children who live in one-parent households are at a higher risk for using drugs than those who live in two-parent households. More frequent alcohol use in adolescents was associated with less educated mothers, mothers with fewer children, mothers who smoked cigarettes, and mothers who did not attribute great risk to drinking alcohol.

It has been suggested that the mothers' low level of education may also be indicative of emerging cultural differences between the mother and child. These differences may have a negative impact on the relationship quality between the mother and child during a critical developmental period when Hispanic adolescents may need to have a closer relationship with their parents. The stress that may result from cultural differences between the Hispanic parents and their children has been found to be an additional risk factor associated with substance use among Hispanic adolescents (Gfroerer & De la Rosa, 1993).

Findings from father-child pairs show more frequent use of alcohol among adolescents whose fathers completed the interview in English. This finding suggests that adolescents whose fathers are more acculturated into mainstream U.S. culture are at

higher risk for consuming alcohol than those whose fathers have less acculturated. Also, fathers that did not perceive great risk to drinking alcohol significantly predicted alcohol use (Gfroerer & De la Rosa, 1993).

Another study shows there is a strong relationship between family and alcohol use among Hispanic adolescents. Results indicate the adolescents who feel strongly connected to their family; live in homes with strong familial supervision; and had parents that disapproved of alcohol use; reported using alcohol less frequently. In homes with low family connectedness, adolescents were nearly twice as likely to report alcohol use compared to adolescents in a home with a greater degree of connectedness. Also, adolescents in homes with low supervision were three times more likely to use alcohol; and adolescents in homes with a low degree of parental disapproval were approximately 3½ times more likely to report using alcohol. Moreover, this study found that parental disapproval of alcohol use played a more significant protective factor for males (Sale et al., 2005)

Acculturation and Alcohol Consumption

As previously stated, the acculturation process is a factor that must be included in the examination of Hispanic alcohol use to deepen our understanding of alcohol use in this population (Markides, Krause, & Mendes de Leon, 1988; Rodriguez et al., 2007). To date, two dominant theories have been proposed to explain the relationship between acculturation and alcohol, (a) increase in quantity and frequency results from changes in drinking norms (Caetano, 1987; Zemore, 2007), and (b) it is a response to stress associated with adapting to the host culture (Graves, 1967; Vega & Gil, 1999; Vega, Gil,

Warheit, Zimmerman, & Apospori, 1993; Zemore, 2007). Although there has been growing interest in the examination of the acculturation process in relation to health-related behavior of Hispanics, there is disagreement on how the acculturation process affects drinking behavior among Hispanics (Guilamo-Ramos, Jaccard, Johansson, Turrisi, 2004; Zemore, 2007).

Acculturation and Alcohol among Hispanic Adults

In their study, Markides, Krause, and Mendes de Leon (1988) examined the influence of age in relation to acculturation and alcohol consumption among Mexican Americans families. Their findings indicate that in the older generation (ages 65-80) there was no association between acculturation and alcohol. For the middle generation (average age of 49), acculturation was linked to lower alcohol consumption among men. In the young generation (average age of 26), there was no relationship between acculturation and alcohol consumption among men. However, higher acculturation was associated with greater alcohol use in women across all ages. This is a notable finding because previous research has found that being male is one of the best predictors of alcohol use among Hispanics, regardless of age (Gfroerer & De la Rosa, 1993).

In a similar study with a more representative sample of Mexican Americans, the relationship between acculturation and alcohol consumption was examined in three age groups: 20-39, 40-64, and 65-74 years old (Markides, Ray, Stroup-Benham & Treviño, 1990). Among men, no relationship between level of acculturation and alcohol use was found for any of the three age groups. In contrast, acculturation was positively correlated with alcohol consumption among women in all age groups. Similar results were obtained

in a study that only included Puerto Rican, Cuban American, and Mexican American women (Black & Markides, 1993) and in a mixed gender sample of Mexican Americans (Alaniz, Treno, & Saltz, 1999).

In another study, results indicated that the less acculturated participants were more likely to abstain from alcohol than more acculturated participants. The sample is this study was comprised of men and women of Mexican and Central American heritage (Marín & Posner, 1995). Consistent with Marín and Posner's (1995) study, Polednak (1997) found a positive relationship between acculturation and alcohol use among Hispanic women, but found no association among Hispanic men. In what is perhaps the most comprehensive literature review on acculturation and alcohol use among Hispanic adults, Zemore (2007) suggests that acculturating to the host culture [regardless of national heritage] was consistently associated with a greater probability of alcohol consumption among women. However, among men, findings were not consistent, but there is evidence to support a weak positive relationship between acculturation to the host culture and greater probability of alcohol consumption.

Cultural Drinking Norms

It has been suggested that "acculturation is positively associated with alcohol consumption, especially among women" (Caetano & Clark, 2003, p. 225). Yet, as noted above, the relationship between acculturation and alcohol use among Hispanic men is somewhat inconclusive (Epstein, Botvin, & Diaz, 2000; Zemore, 2007). The divergent effect of acculturation on alcohol use between genders can be partly explained by women's greater propensity to change their drinking patterns relative to men. This

tendency could be a result of adopting mainstream U.S. gender roles and drinking norms (Wahl & Eitle, 2010; Wilsnack, 1996). Most researchers in this field of study contend that Hispanic culture traditionally discourages and sanctions drinking among women but not men (Flores-Ortiz, 1994; Gilbert & Collins, 1997). As such, it has been suggested that Hispanic men do not change drinking patterns much to match those of other men in the United States (Caetano & Clark, 2003; Gilbert & Collins, 1997).

Still, we should keep in mind that data on international drinking patterns indicate that men and women people living in some Latin American counties (e.g., Mexico) drink more than men and women living in the U.S. To this end, Zamboanga, Raffaelli, and Horton (2006) suggest that if there are few cultural sanctions against alcohol consumption among culturally traditional Hispanic men, one might infer that less acculturated men would engage in more drinking behaviors than their acculturated counterparts. Thus, one would expect that enculturation, not acculturation, would be associated with greater alcohol use.

Acculturation in Hispanic Adolescents and College Students

In one study, lower prevalence of alcohol use initiation was found in monolingual Spanish-speaking male adolescents than in bilingual or monolingual English-speaking male adolescents, suggesting that the probability of alcohol use increases with [linguistic] acculturation (Vega, Gil & Zimmerman, 1993). A more recent study found a similar association among college students of Mexican heritage. However, in this study linguistic acculturation was associated with increased alcohol use and misuse among women but not men. This relationship was mediated by social facilitation

and family drinking (Raffaelli et al., 2007). Another study among Hispanic high school students found linguistic acculturation to be associated with an increased risk of lifetime alcohol use. This relation was mediated by peer social influence (Myer, Chou, Baezconde-Garbanati, Pachon, Valente, 2009).

Epstein, Botvin, and Diaz (2000) found that among Hispanic adolescents in sixth and seventh grade, a greater proportion of those who spoke both English and Spanish with their peers were more likely to consume alcohol than those who only spoke English with their peers. Further, adolescents who spoke English and Spanish with their parents were more likely to have tried alcohol and been intoxicated than those who only spoke Spanish with their parents. Thus, no definite conclusion can be made in regard to the influence of language preference, a proxy measure of acculturation, and alcohol consumption.

A more recent study using generation status for a proxy measure found that generation level was associated with greater alcohol consumption among men and women. That is, later generations had a higher probability of consuming alcohol and binge drinking. Furthermore, gender moderated this relationship, and generation status has a greater influence on alcohol use among women (Wahl & Eitle, 2010).

Lastly, one study that did not rely on a proxy measure and examined ethnic identity [affective acculturation and enculturation] among Mexican American college students found a positive association between identification with heritage culture [affective enculturation] and frequency of alcohol use among men. Conversely, there was weak relationship between ethnic identity and frequency of alcohol use for women

(Zamboanga et al., 2006). Strengths of this study are that it was not limited to global measure of acculturation level, which was found not to have a statistically significant effect on drinking for either gender. Second, it conducted a moderation analysis that indicated ethnic identity had greater influence on alcohol consumption among men.

Mediating Factors

Acculturative Stress

Another factor that may help explain alcohol use among Hispanics is acculturative stress. *Acculturative stress* is operationalized as the difficulty and stress that occurs during the acculturation process (Berry, 1998). One dominant theory is that alcohol consumption is a response to the stress of adapting to a new culture (Graves, 1967; Zemore, 2007). Research previously suggests that immigrants are most likely to experience acculturative stress (Mena, Padilla, & Maldonado, 1987; Padilla, Alvarez, & Lindholm, 1986); however, a more recent study found that it is also experienced by later generations, including college students (Castillo, Cano, Chen, Blucker, & Olds, 2008)

Acculturation strain theory, offers an explanation on the relationship between acculturative stress and alcohol use (Vega & Gil, 1999; Vega, Zimmerman, Warheit, Apospori, & Gil 1993). This theory proposes that heavy drinking may be the product of cumulative effects of stress-inducing factors that lead to the development of problem behaviors. The risk for alcohol use may augment by the stress associated with the acculturation process if it is not buffered by personal resources (Gil, Wagner, & Vega, 2000; Vega, Zimmerman, et al., 1993). Consequently, high levels of acculturative stress with minimal personal resources are thought to increase the risk of heavy drinking.

Hispanic adolescents may face the challenge of having to meet cultural expectations of White Euro-American culture while continuing to adhere to the cultural expectations of the heritage culture. Regardless if the adolescent was born in the U.S., he or she has to accommodate multiple sets of cultural expectations as conveyed by social, familial, community, and regional contexts in which he or she resides. As previously illustrated, this may be particularly true of Hispanic college students (Castillo et al., 2004).

Intragroup Marginalization

Another stressor that could result from the acculturation process may be experienced in the form of intragroup marginalization when cultural norms of the heritage culture are not met. *Intragroup marginalization* is the perceived interpersonal distancing exhibited by people from the culture of origin when the acculturated individual develops cultural characteristics of the host culture. Colloquially people of Mexican descent who are more oriented toward the heritage culture often refer to people who are highly acculturated or "Americanized" as *pocho*. Interpersonal distancing may manifest itself as a social sanctions imposed on the acculturated individual who displays behavior different from the norms of the culture of origin (Castillo, Conoley, Brossart, & Quiros, 2007). Social sanctions may transpire through criticism or teasing. One example is the use of the disparaging term "coconut" in association to acculturation. In this instance, "coconut" refers to a dark complexion on the exterior and internal adopting White Euro-American values and behaviors. Additionally, acculturated individuals may

be perceived or accused of not being loyal to their ethnic group and labeled a "sell out" or *vendido* (Castillo et al., 2007).

As with the host culture, the culture of origin maintains the authority to accept or reject an individual's desire or claim to be part of a particular cultural group. Theoretically, intragroup marginalization is partly explained by social identity theory. This theory posits that social groups have a desire to portray a positive view of the group. The positive perception is developed through comparisons between group members and others outside the group. When similarities between groups are significant, the groups will attempt to distinguish themselves by emphasizing their differences in an effort to enhance or improve the status of their respective group (Tafel & Turner, 1986). Consequently, when a group member takes on characteristics or behaviors that threaten the identity of the group, that group member is likely to be marginalized by others that affiliate with the group (Marques, Abrams, & Serôdio 2001; Ojala & Nesdale, 2004).

Research shows that intragroup marginalization is positively correlated with family conflict, and predictive of acculturative stress (Castillo & Cano, 2008). Greater level of differential acculturation between parents and youth was associated with a greater probability of future substance use among youth (Martinez, 2006). Intergenerational family conflict has also been associated with alcohol use as a method of coping with the conflict (Lee & Liu, 2001). Building on existing stress response theory, which mainly focuses on adapting to the host culture, this study will explore if intragroup marginalization functions a stressor rooted in interaction with the heritage culture.

Limitations in Acculturation Research

In a recent systemic review of public health research among Hispanics, the ARSMA-II, used in this study, was one of two measures used in 134 articles that reflect an existing model of acculturation (Thomson & Hoffman-Goetz, 2009). Although there are multiple measures of acculturation, public health research predominately utilizes proxy measures such nationality, generational status, length of residence in the U. S., or focuses on behavioral aspects of acculturation. Relying purely on proxy measures or language preference may serve as approximate indicators of acceptance of the host culture, but they not provide a thorough assessment of acculturation (Guilamo-Ramos, Jaccard, Johansson, and Turrisi, 2004; Schwartz et al., 2010). Acculturation is a complex process that cannot be captured by such simple proxies (Nguyen, Meese, & Stollak, 1999; Schwartz et al., 2010). Such measures can be useful for describing the heterogeneity of Hispanics, but are limited in their ability to account for the degree of acceptance of White Euro-American culture (Abraído-Lanza, Armbrister, Flórez, & Aguirre, 2006).

In Zemore's (2007) review of alcohol research among Hispanics, she suggests that researchers' disregard of validated acculturation measures may have played a role in producing mixed findings. Furthermore, it is suggested that proxy measures largely reflect a unidimensional model of acculturation (Abraído-Lanza et al., 2006). Accordingly, it is recommended that health research examining the effects of acculturation move away from a unidimensional model of acculturation and implement a more comprehensive model that accounts for multiple domains. In doing so, this may

shed more light on our understanding of the relationship between the acculturation

process and health behavior (Abraído-Lanza et al., 2006).

A recent content analysis of acculturation research spanning 22 years, not limited

to alcohol outcomes, found that 44% of studies conceptualized acculturation as a

unidimensional construct; 29.6% conceptualized acculturation as a bidimensional

construct; 62.3% used a total score across dimensions; and 28.4% calculated scores for

specific dimensions (Yoon, Langrehr & Ong, 2011). Another limitation highlighted in

Yoon's (2011) review is that 86.2% of the studies reviewed were conducted in English

only, potentially resulting in an over-representation of individuals that are behaviorally

[linguistically] acculturated.

Other concerns with research on acculturation and alcohol use among Hispanic

adults include the (a) predominate use of cross-sectional research design that does not

permit researchers to draw conclusions about causal or directional order of association;

(b) approximately one-third of research studies only include participants of Mexican

heritage; (c) approximately 53% of studies were conducted exclusively in Texas or

California; (d) nonlinear trends have only been tested in one study; (e) moderator effects

are scarcely tested; and (f) drinkers are aggregated with nondrinkers in data analyses

(Zemore, 2007).

Aggregating drinkers with nondrinkers is appropriate to describe overall drinking

patterns and rates (Zemore, 2007). However, researchers are cautioned that doing so may

also confound the relationship between acculturation and drinking, making it difficult to

accurately assess the association between these constructs. Excluding nondrinkers from

analyses of any drinking outcomes other than abstinence is essential to detect the unique effect(s) of acculturation on alcohol consumption among drinkers (Zemore, 2007).

It has been proposed that a moderating effect, the interaction of two or more variables, "is at the heart of theory testing in the social sciences" (Cohen, Cohen, West, & Aikin, 2003, p. 255). However, the importance of moderating effects is not reflected in the existing literature. Only 8.1% of acculturation studies tested for moderating effects (Yoon et al., 2011). Lastly, the role of mediating variables in acculturation research is often neglected (Schwartz, Zamboanga, & Hernandez-Jarvis, 2007; Zemore, 2007). One review of acculturation literature found that only 2.0% of quantitative research examined mediating variables (Yoon et al., 2011). Equally troubling is that only 6.6% performed path analysis or structural equation modeling to (Yoon et al., 2011). Schwartz et al. (2007) contend that research tends to focus on direct relationships and the indirect mechanisms by which acculturation constructs may exert influence on outcomes are examined less frequently. By placing a greater emphasis on indirect effects, a better understanding may be gained of "how" and "why" distinct domains of acculturation and enculturation affect outcome variables (Schwartz et al., 2007).

Present Study

By examining behavioral and cognitive domains of acculturation and enculturation; this study is intended to deepen the understanding on the relationship between the acculturation process and alcohol use among Hispanics in late adolescence. Further, the study seeks to extend the stress response theory, which mainly focuses on stress caused by interaction with host culture as a risk factor for alcohol use. As such,

this study will investigate if a stress response also originates from interaction with heritage culture in the manner that family responds to the acculturating individual. This proposed extension of the stress response theory will be accomplished by testing the mediating role of intragroup marginalization, acculturative stress, and depression in relation to hazardous alcohol use. Concurrently, the moderating role of gender on acculturation and enculturation constructs was tested.

Hypothesis 1

Direct paths from behavioral and cognitive enculturation will be associated with greater hazardous alcohol consumption. Moderation tests are expected to show that enculturation constructs have a greater influence on alcohol consumption among men.

Hypothesis 2

Indirect paths from behavioral and cognitive enculturation will be associated with greater hazardous alcohol consumption. This hypothesis is intended to test a traditional stress response model, whereby difficulty interacting with host culture increasing the use of alcohol. It is predicted that higher scores of behavioral enculturation and host culture marginalization [cognitive enculturation] will be associated with higher scores of acculturative stress, in turn resulting in higher scores of depression and greater alcohol consumption. Acculturative stress and depression will function as mediators between enculturation constructs and hazardous alcohol consumption.

Hypothesis 3

Indirect paths from behavioral and cognitive acculturation will also be associated with greater hazardous alcohol consumption. This hypothesis is intended to demonstrate that a stress response increasing the use of alcohol, may also be rooted in interaction with heritage culture. It is predicted that higher scores of behavioral acculturation and heritage culture marginalization [cognitive acculturation] will be associated with higher scores of [family] intragroup marginalization, in turn resulting in higher scores of depression and greater alcohol consumption. Intragroup marginalization and depression will function as mediators between acculturation constructs and hazardous alcohol consumption.

CHAPTER II

METHOD

Participants

Participants were recruited via an email announcement and all data were collected through an anonymous online survey in 2008. Eligible participants had to self-identify as Hispanic or Latino and be currently enrolled in a two-year or four-year institution of higher learning. A total of 341 participants completed the survey. The sample consisted of undergraduate and graduate students in public and private institutions. However, only students in late adolescence, ages 18 to 21 were included in the data analyses. After limiting cases to late adolescence, the sample was reduced to 180 participants. Of those participants, approximately 38% met criteria for hazardous alcohol consumption. Further, 29 participants reported complete alcohol abstinence and four were at high risk for alcohol dependence. In regard to severity of depressive symptoms, 21.2% of participants reported none or minimal symptoms of depression, 46.4% reported mild symptoms, 13.4% reported moderate symptoms, and 18.4% reported moderate to severe symptoms.

The age distribution was the following, 24.6% were 18 years of age, 24.0% aged 19, 27.4% aged 20, and 24.0% were aged 21. There were more female respondents

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Note. In this study heritage culture and culture of origin are used interchangeably in relation to Hispanic culture; host culture and dominant culture are used interchangeably in relation to White Euro-American culture of the U.S.

(*n*=133) than male (*n*=47), a majority of the participants (91.5%) were single/never married, and 48.1% lived at home with their parents. A large proportion of participants (79.1%) attended public institutions and were enrolled in four-year universities (96.1%). Forty percent of the participants were freshmen, 27.7% sophomores, 19.2% juniors, and 12.3% were seniors in college.

Proportions of generation status were as follows: 27.7% first-generation, 50.0% second-generation, 10.0% third-generation, 6.9% fourth-generation, and 5.4% fifth-generation. Approximately 75% of respondents primarily identified as being Mexican descent. Distributions on acculturation level were as follows: 5.2% were very Hispanic oriented, 28.4% Hispanic oriented/bicultural, 56.1% Anglo oriented/bicultural, 7.7% strongly Anglo oriented, and 2.6% very assimilated/Anglo.

Measures

Hazardous Alcohol Consumption

Participants completed the Alcohol Use Disorder Identification Test (AUDIT; Babor et al., 1993), a 10 item self-report measure of alcohol use developed by the World Health Organization. Hazardous alcohol use is a subscale composed of the first three items in the measure. Each of the three items has varied responses choices on a likert scale ranging from zero to four. Selecting a response of one or greater on any two of the three items met criteria for hazardous alcohol consumption. A sample item is, "How often do you have six or more drinks on one occasion." The coefficient alpha for hazardous drinking was (.86).

Acculturation Proxy

Generation status was used as a proxy measure of acculturation because it is widely used as a single item measure (Abraído-Lanza, Chao, & Florez, 2005; Phinney, 2003), and a recent study comparing multiple proxy measures found that it had the strongest correlation with a validated multi-item measure of acculturation (Cruz, Marshall, Bowling, & Villaveces, 2008). Using the generation identification section of Acculturation Rating Scale for Mexican Americans-II (ARSMA-II; Cuéllar et al., 1995), respondents chose one of the following options: *first generation* (you were born in a Latin American/Ibero American country), *second generation* (you were born in USA; either parent born in a Latin American/Ibero American country), *third generation* (you were born in USA, both parents were born in the USA and all grandparents were born in a Latin American/Ibero American country), *fourth generation* (you and your parents born in USA and at least one grandparent was born in a Latin American/Ibero American country with remainder born in USA), or *fifth* generation (you and your parents were born in the USA and all grandparents born in the USA).

Behavioral Acculturation

Behavioral acculturation was measured using the Anglo orientation scale (AOS) of the Acculturation Rating Scale for Mexican Americans-II (ARSMA-II; Cuéllar et al., 1995). Test–retest reliability for the ARSMA-II was .96 and concurrent validity of the ARSMA-II with the original ARSMA was $r = .89$ (Cuéllar et al., 1995). All items in the ARSMA-II with the terms *Mexican* and *Mexican American* were modified to

Hispanic/Latino to make them more applicable to Hispanic respondents of various national origins. The AOS contains 13 items based on a five-point likert scale ranging from *not at all* (1) to *extremely often or almost always* (5). A sample item is, "I speak English." Higher scores are indicative of greater behavioral acculturation. The coefficient alpha for the AOS in this study was (.79).

Behavioral Enculturation

Behavioral enculturation was assessed with the Mexican orientation subscale (MOS) of the ARSMA-II. The MOS is composed of 17 items on a likert scale ranging from *not at all* (1) to *extremely often or almost always* (5). A sample item is, "I enjoy Spanish language TV." Higher scores are indicative of greater behavioral enculturation. The coefficient alpha for the MOS in this study was (.89).

Heritage Culture Marginalization [Cognitive Acculturation]

Difficulty accepting cognitive aspects (i.e., values, attitudes, and beliefs) of the heritage culture were measured with the Mexican marginalization scale (MEXMAR) of the ARSMA-II. This six-item measure corresponds to a five-point likert scale ranging from *not at all* (1) to *extremely often or almost always* (5). A sample item is, "I have difficulty accepting certain attitudes held by Hispanics." Higher scores are indicative of greater heritage culture marginalization. The coefficient alpha for the MEXMAR in this study was (.89).

Host Culture Marginalization [Cognitive Enculturation]

Difficulty accepting cognitive aspects of the host culture were evaluated with the Anglo marginalization scale (ANGMAR) of the ARSMA-II. This is a six-item scale is

scored on likert scale ranging from *not at all* (1) to *extremely often or almost always* (5). A sample item is, "I have difficulty accepting some values held by some Anglos." Higher scores are indicative of greater host culture marginalization. The coefficient alpha for the ANGMAR in this study was (.94).

Acculturative Stress

Acculturative stress was measured with the Social, Attitudinal, Familial, and Environmental Acculturation Stress Scale (S.A.F.E.; Mena, Padilla, & Maldonado, 1987). Composed of 24 self-report items, the S.A.F.E. assesses four domains of acculturative stress: social, attitudinal, familial, and environmental. The S.A.F.E. uses a 5-point likert scale ranging from *not stressful* (1) to *extremely stressful* (5). Sum scores range from 21 to 105, with higher scores indicating higher levels of acculturative stress. Studies have found the internal consistency estimate to range from .90 to .95 with Hispanic participants (Fuertes & Westbrook, 1996; Hovey, 2000). A sample item is, "People look down upon me if I practice customs of my culture." The coefficient alpha of the S.A.F.E. in this study was (.88). Coefficient alpha for social, attitudinal, familial, and environmental subscales were (.84, 77, .54, and .56 respectively).

Family Intragroup Marginalization

Perceived intragroup marginalization was measured using the Intragroup Marginalization Inventory-Family Scale (IMI-Family; Castillo et al., 2007). The IMI-Family consists of 12 self-report items assessing the degree to which an individual perceives interpersonal distancing by the family. The IMI-Family uses a 7-point likert

scale ranging from *never* or *does not apply* (1) to *extremely often* (7). Sum scores range from 12 to 84, with higher scores indicating a higher perception of intragroup marginalization. Construct validity with Hispanic college students found that it is moderately correlated with established measures of social negative exchange (Castillo et al., 2007). A sample item is, "My family has a hard time understanding why I do not take part in Latino cultural practices." The coefficient alpha for the IMI-Family in this study was (.84). Coefficient alpha for homeostatic pressure, linguistic expectations, accusation of assimilation, and discrepant values subscales were (.84, .82, .81, and .80, respectively).

Depression

Symptoms of depression were measured with the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). The CES-D has demonstrated to be a reliable measure of depression with Hispanic populations (Roosa, Tein, Reinholtz, & Angelini, 1997). The 20-item measure, asks respondents to self-report how they have felt during the past week using on a 4-point likert scale, with anchor points of *Rarely or none of the time* (0) to *Mostly or almost all of the time* (3). Scores greater than 16 are considered clinically significant and associated with major depression (Myers & Weissman, 1980; Radloff, 1977). A sample item is, "I felt sad." Higher scores are indicative of greater depressive symptoms. The coefficient alpha for the CES-D in this study was (.91). Coefficient alpha for negative affect, somatic symptoms, interpersonal relations, and positive affect subscales were (.64, .86, .79, and .48 respectively). All measure items used in the study are included in Appendix A.

CHAPTER III

RESULTS

Preliminary Analyses

Analyzing data via structural equation modeling or path analysis assumes that the multivariate distribution has a normal distribution. Violation of this assumption may yield inaccurate results (Weston, Gore, Chan, & Catalano, 2008). Multicollinearity, instances where variables are highly correlated, should also be evaluated because it may produce inaccurate model fit indices (Weston et al., 2008). Lastly, univariate and multivariate outliers should be screened (Weston et al., 2008). The presence of outliers may significantly affect correlation coefficients, resulting in an underestimate or overestimate of the true relationship (Pallant, 2007). In view of these assumptions, data were checked for homoscedasticity, normality, linearity, outliers, and multicollinearity. To evaluate the homoscedasticity, linearity, and normality, studentized residuals were plotted against the values of the predicted dependent variable (Tabachnick & Fidell, 1996; Venter & Maxwell, 2000). The residual scatter plot exhibited a concentration of residuals in the center of the plot and a normal distribution of residuals trailing off symmetrically from the center forming a rectangular shape. Further, it is recommended that skewness and kurtosis to checked to evaluate normality before performing structural equation modeling or a path analyses (Curran, West, & Finch, 1996). All variables had skewness and kurtosis values within acceptable ranges to proceed with analyses. Thus, no violation of these assumptions was detected. Using a $p = .001$ criterion for

Mahalanbois distance and a 5% trimmed mean, no multivariate or univariate outliers

were detected (Tabachnick & Fidell, 2001). Finally, to assess multicollinearity, bivariate

correlations were conducted to identity relationships with a coefficient value of (.85) or

higher. Results indicate none of the bivariate correlations met or exceeded the

recommended limit.

Table 1 presents the means, standard deviations and correlations for all variables

used in *a priori* structural equation model. It should be noted that gender was dummy

coding as follows: male = 0 and female = 1. Hazardous alcohol use was found to have a

statistically significant correlation with gender ($r = -.27$, $p = .01$), host culture

marginalization ($r = .15$, $p = .05$), and the social domain of acculturative stress ($r = .15$, p

$= 05$). Using a one-way analysis of variance (ANOVA) and independent samples t-test,

group differences on all endogenous variables were tested for generation status and

gender. These results indicate there were no statistically significant group differences

among generation status and gender in relation to endogenous variables, including

hazardous alcohol consumption. As such, no specific models were tested to examine the

influence of generation status and gender.

Model Evaluation

The relationship among exogenous and endogenous variables was initially

examined using structural equation modeling (SEM) on Mplus V. 5.2. SEM was utilized

due to its confirmatory nature (i.e., hypothesis testing) to analyze the structural influence

on a phenomenon and its ability to represent constructs with multiple measures more

Table 1. Intercorrleations, Means, and Standard Deviation for Twenty Observed Variables ($n = 180$).

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Hazardous Alcohol Consumption	-	.01	-.27**	.07	.14	.09	.13	.09	.15*	.12	.13	.09	.12	-.06	.09	.02	-.03	.05	.15*	.04
2. Age		-	-.07	-.11	-.03	-.04	-.04	.02	.00	-.07	-.08	.01	-.08	-.17*	-.06	.05	-.12	.01	.02	.02
3. Gender			-	-.10	.10	.06	.02	.04	-.01	.00	.07	.12	.00	.02	.12	-.04	.13	.07	.01	.16*
4. Generation Status				-	.06	-.02	.01	-.03	-.04	-.17	-.01	-.03	.06	.40**	.18*	.09	.38**	-.57**	-.10	-.01
5. CES-D Negative Affect					-	.73**	.51**	.63**	.38**	.36**	.31**	.41**	.25**	.14	.16*	.17*	-.02	.06	.07	.09
6. CES-D Somatic Symptoms						-	.73*	.76**	.53**	.43**	.35**	.42**	.32**	.09	.16*	.24**	.02	.00	.12	.19
7. CES-D Interpersonal Relations							-	.60**	.45**	.41**	.41**	.35**	.29**	.06	.14	.17*	.03	-.05	.14	.12
8. CES-D Positive Affect								-	.37**	.37**	.32**	.31**	.25**	-.01	.12	.20**	-.02	.03	.09	.13
9. SAFE Social									-	.60**	.34**	.61**	.31**	.05	.10	.12	-.23**	-.03	.25**	.18*
10. SAFE Attitudinal										-	.46**	.62**	.34**	-.06	.06	-.09	-.26**	.24**	.33**	.14
11. SAFE Familial											-	.44**	.69**	.16*	.14	.42**	-.06	-.06	.22**	.18*
12. SAFE Environmental												-	.30**	-.02	.14	.07	-.20**	.08	.31**	.21**
13. IMI-F Homeostatic													-	.34**	.29**	.42**	-.05	-.10	.19*	.25**
14. IMI-F Linguistic Expectations														-	.56**	.17*	.28**	-.44**	.01	.21**

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

Table 1. Continued.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
15. IMI-F Assimilation Accusation															-	.16	.27	-23	.11	.28
16. IMI-F Discrepant Values																-	.12	-29**	-.03	.10
17. Behavioral Acculturation																	-	-29**	-07	.12
18. Behavioral Enculturation																		-	.25**	-06
19. Host Culture Marginalization																			-	.49**
20. Heritage Culture Marginalization																				-
M	2.44	19.51	1.73	2.12	4.27	7.85	1.12	3.62	4.14	6.25	5.51	12.86	3.90	3.53	3.37	5.76	3.70	3.44	2.42	2.06
SD	2.23	1.11	.44	1.07	2.76	1.12	1.48	2.16	2.95	3.13	3.55	7.13	4.01	3.79	3.75	4.15	.46	.66	.83	.62

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

accurately (Byrne, 2001; Weston, Gore, Chan, Catalano, 2008). SEM accomplishes this by employing two statistical techniques: factor analysis and path analysis. Guidelines for SEM suggest the following steps be taken into account: model specification, identification, estimation, evaluation of fit, and modification (Kline, 2005; Weston, Gore, Chan, Catalano, 2008).

Model specification, refers to the hypothesized relationships among all variables shown in Figure 1. The test model was identified; however, the small sample size may have yielded an inaccurate evaluation of the model. It is recommended that a minimum of 10 participants be in the sample to support each observed variable. The model met assumptions of multicollinearity, outliers, and normality, detailed in the previous section. The *a priori* model was estimated using Full Information Maximum Likelihood (FIML), which accounted for missing data. The model was evaluated using four model fit indices: (a) chi-square test of model fit ($\chi 2$), (b) comparative fit index (CFI), (c) root mean square error of approximation (RMSEA), and (d) standardized root means square residual (SRMR). The RMSEA and SRMR were used as measures of absolute fit, and the CFI was used to measure incremental fit (Hu & Bentler, 1995). CFI scores of .90 or above are considered an indication of adequate fit between the model and the data, and good fit is indicated if scores are above .95 (Kline, 2005). For RMSEA and SRMR scores below .08 indicate adequate fit, and scores below .05 indicate good fit (Kline, 2005).

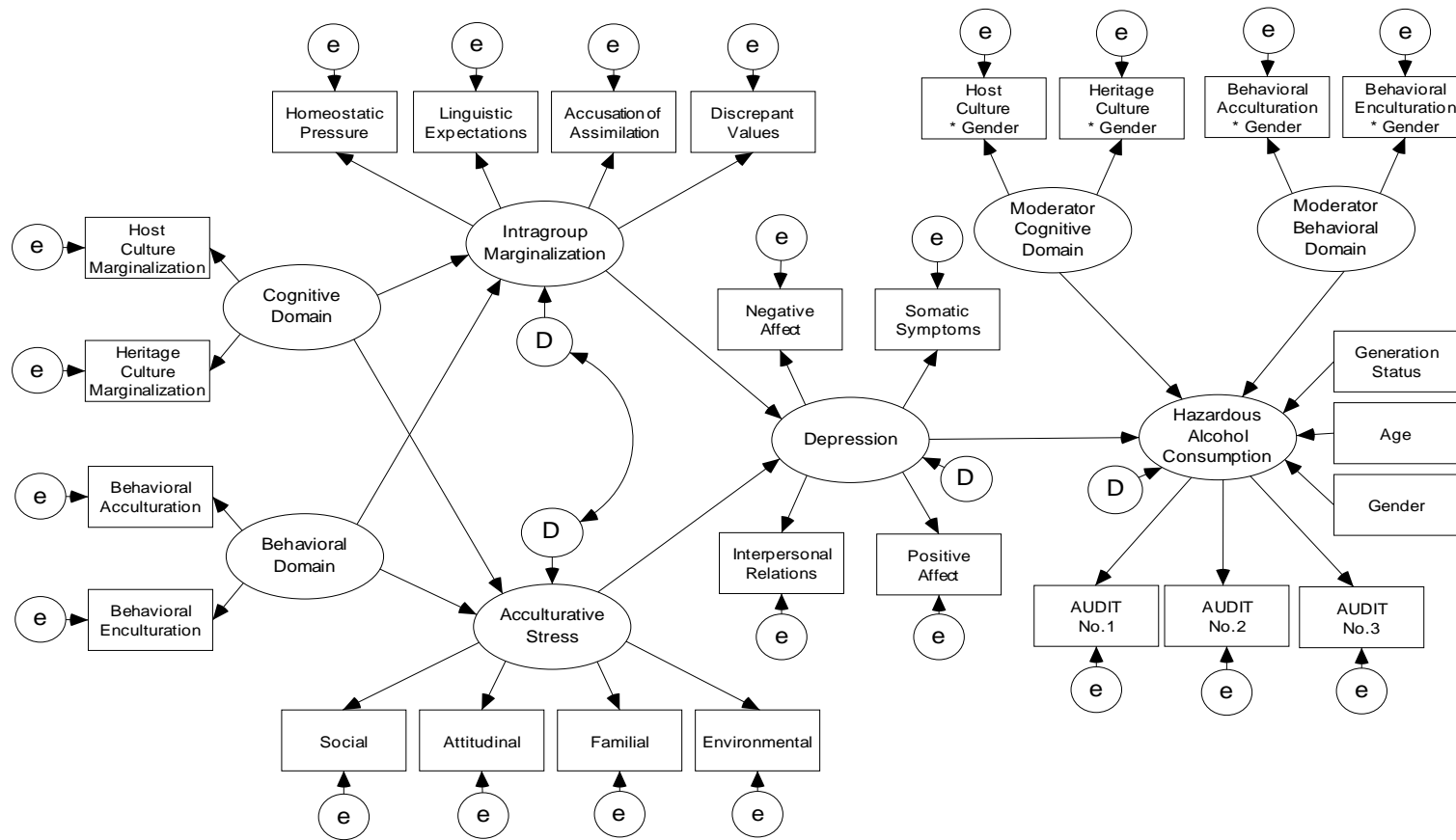Figure 1. *A priori* model with all subscale measures.

Note. The model tested direct and indirect paths from behavioral and cognitive domains to hazardous alcohol consumption, but are omitted from the figure to simplify the visual interpretation.

Chi-square test of model fit for the model was statistically significant, which suggests the model did not fit the data perfectly, $\chi 2(N = 179, df = 268) = 1561.60, p < .001$. However, this test is sensitive to small sample sizes, and this rejection of model fit is expected (Kline, 2005). The CFI, RMSEA and SRMR (.64, .16, and .11, respectively) were all found to have poor fit. Based on these results it was determined that the model had poor fit, not permitting suitable interpretation of the path coefficients. Lastly, no modification indices were suggested and thus no additional paths were specified in the model.

Path Analysis

Given the poor fit of the structural equation model and insufficient sample size, the same specified paths were tested using only observed variables in a path analysis, shown in Figure 2. Like SEM, a path analysis is confirmatory in nature but does not perform a factor analysis to evaluate the measurement accuracy of constructs, thus excluding the use of latent variables. The same guidelines used to test the structural equation model were utilized to analyze the new path model. The model was identified; meeting assumptions of multicollinearity, outliers, normality, and having adequate sample size. Again, no statistically significant differences were found between generation status and gender in relation to endogenous variables. Table 2 presents the means, standard deviations and correlations for all variables used in the path model. Hazardous alcohol consumption was found to have a statistically significant correlation with gender ($r = -.27, p = .01$) and host culture marginalization ($r = .15, p = .05$).
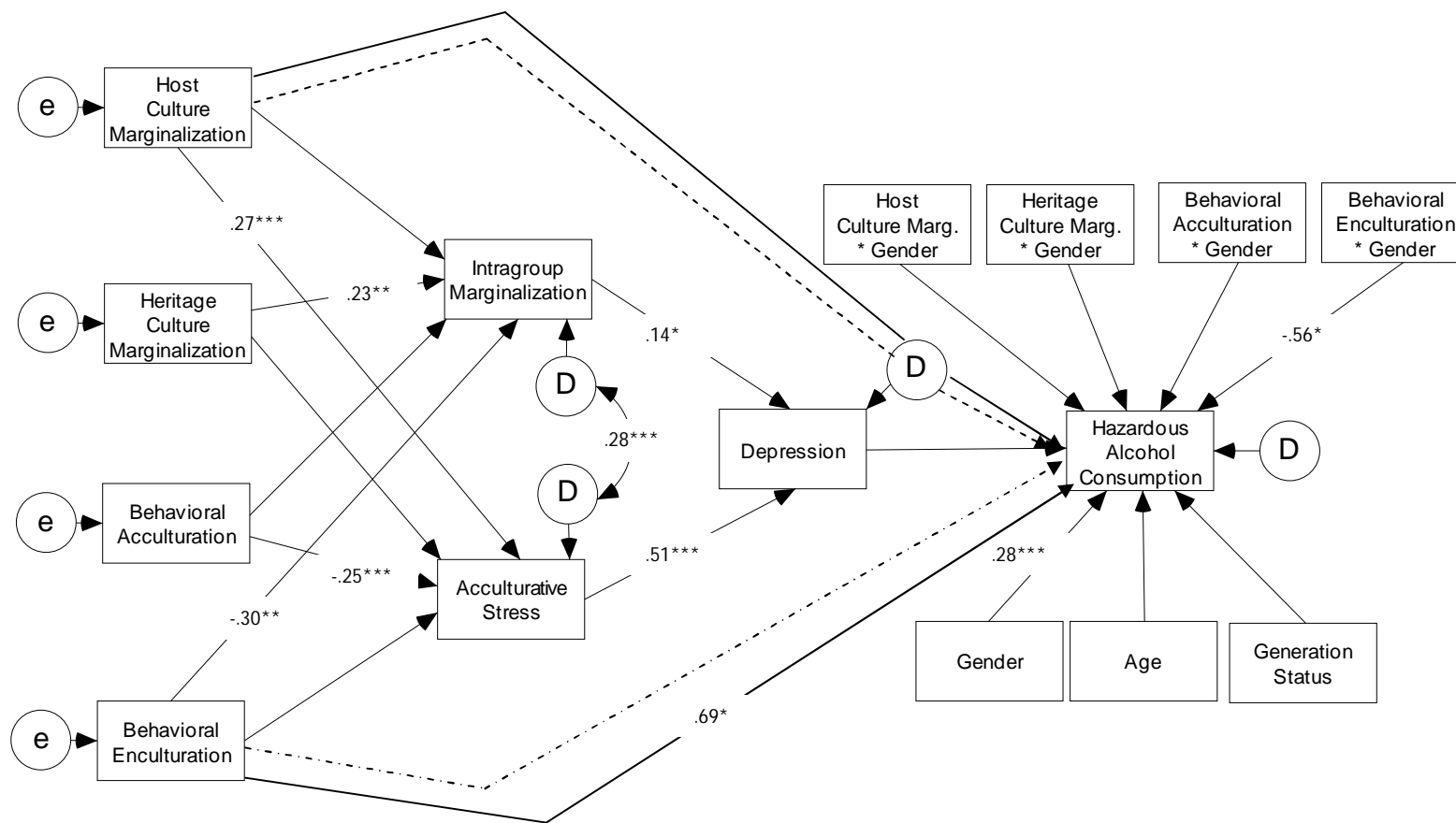
Figure 2. Final path model with statistically significant path coefficients.

Note. Dash line represents indirect effects. * *p* < .05. ** *p* < .01. *** *p* < .001.

Table 2. Intercorrleations, Means, and Standard Deviation for Eleven Observed Variables ($n = 180$).

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Hazardous Alcohol Consumption	-	.01	-.27**	.07	.12	.11	.06	-.03	.05	.15*	.04
2. Age		-	-.07	-.11	-.03	-.03	-.10	-12	.01	.02	.04
3. Gender			-	-.10	.07	.09	.24**	-.12	.01	.02	.16*
4. Generation Status				-	.00	-.08	.24**	.38**	-57**	-.10	-.01
5. Depression Score					-	.55**	.30**	.01	.01	.12	.17*
6. Acculturative Stress						-	.28**	-.24**	.08	.33**	.22**
7. Intragroup Marginalization – Family							-	.22*	-36**	.07	.29**
8. Behavioral Acculturation								-	-29**	-.07	.12
9. Behavioral Enculturation									-	.25**	-06
10. Host Culture Marginalization										-	.49**
11. Heritage Culture Marginalization											-
M	2.44	19.51	1.73	2.12	17.02	32.39	16.72	3.70	3.44	2.42	2.06
SD	2.23	1.11	-.44	1.07	10.53	14.74	12.94	.46	.66	.83	.62

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

FIML was used to estimate the model fit and evaluation indices indicate the path analysis had good model fit. Chi-square test of model fit was not statistically significant, suggesting that the model did fit the data, $\chi 2 (N = 179, df = 27) = 23.14, p > .05$. The CFI, RMSEA and SRMR (1.00, 0.00, and .02, respectively) all indicated good model fit. As such, it was determined that path coefficients could be interpreted appropriately. No modifications were suggested and thus no additional paths were specified.

All path coefficients and covariance statistics appear in Table 3. The following standardized path coefficients were statistically significant in the final path analysis. The results of this analysis indicate that individuals with lower scores of behavioral enculturation and higher scores of heritage culture marginalization had higher scores of perceived intragroup marginalization ($\beta = -.30, p < .001$ and $\beta = .23, p < .01$, respectively). Conversely, lower scores of behavioral acculturation and higher scores of host culture marginalization were associated with higher scores of acculturative stress ($\beta = -.25, p < .001$ and $\beta = .27, p = .001$, respectively). As predicted, both intragroup marginalization and acculturative stress were positively associated with depression ($\beta = .14, p < .05$ and $\beta = .51, p < .001$, respectively). Gender was a statistically significant predictor of hazardous alcohol consumption ($\beta = -.28, p < .001$), indicating the men were more likely to drink hazardously. Lastly, behavioral enculturation had a statistically significant relationship hazardous alcohol consumption ($\beta = .69, p < .05$), suggesting that individuals exhibiting a greater frequency or preference of behavior associated with Hispanic culture were more likely to drink hazardously. The additive effects of the model account for 18% of the variance in intragroup marginalization, 19% of

Table 3. Path Coefficient Estimates of Path Model (*n* = 180).

Direct Paths	*S*	*SE*
Behavioral Acculturation → Hazardous Alcohol Consumption	-.39	.25
Behavioral Acculturation → Acculturative Stress	-.25***	.07
Behavioral Acculturation → Intragroup Marginalization	.09	.07
Behavioral Enculturation → Hazardous Alcohol Consumption	.69*	.30
Behavioral Enculturation → Acculturative Stress	-.06	.08
Behavioral Enculturation → Intragroup Marginalization	-30***	.07
Host Culture Marginalization → Hazardous Alcohol Consumption	.38	.32
Host Culture Marginalization → Acculturative Stress	.27***	.08
Host Culture Marginalization → Intragroup Marginalization	.03	.09
Heritage Culture Marginalization → Hazardous Alcohol Consumption	.18	.33
Heritage Culture Marginalization → Acculturative Stress	.11	.08
Heritage Culture Marginalization → Intragroup Marginalization	.23**	.09
Acculturative Stress → Depression	.51***	.06
Intragroup Marginalization → Depression	.14*	.07
Depression → Hazardous Alcohol Consumption	.11	.07
Age → Hazardous Alcohol Consumption	-.02	.07
Gender → Hazardous Alcohol Consumption	-.28***	.07
Generation Status → Hazardous Alcohol Consumption	.15	.09

Note. S = Standardized Estimates. *p < .05. **p < .01. ***p < .001.

Table 3. Continued.

Indirect Paths	S	SE
Behavioral Acculturation → Hazardous Alcohol Consumption	-.01	.01
Behavioral Enculturation → Hazardous Alcohol Consumption	.01	.01
Host Culture Marginalization → Hazardous Alcohol Consumption	.02	.01
Heritage Culture Marginalization → Hazardous Alcohol Consumption	.01	.01
Moderation		
Behavioral Acculturation * Gender → Hazardous Alcohol Consumption	.42	.25
Behavioral Enculturation * Gender → Hazardous Alcohol Consumption	-59*	.29
Host Culture Marginalization * Gender → Hazardous Alcohol Consumption	.38	.31
Heritage Culture Marginalization * Gender → Hazardous Alcohol Consumption	.18	.33
Covariance Path		
Acculturative Stress ↔ Intragroup Marginalization	.28***	.07

Note. S = Standardized Estimates. *p < .05. **p < .01. ***p < .001.

acculturative stress, 31% of depression symptoms, and 20% of hazardous alcohol consumption (R^2 = .18, .19, .31, and .20 respectively).

Moderation and Mediation

Both moderation and mediation were tested simultaneously in the path analysis. Moderating effects, the interaction of variables, are calculated by multiplying two or more predictors. Moderation effects are multiplicative and synergistic, implying that the influence of the product between the predictors on the outcome variable is greater than the sum of the separate effects of each predictor. Moderation may also be synergistic in some instances. For example, when one predicator is low it diminishes the effect of the other predictor (Cohen et al., 2003).

Following Cohen's (2003) recommendations to test interaction effects, continuous variables included in the moderation analyses were centered to simplify the interpretation of the interaction and eliminate nonessential multicollinearity between predicators that carry out the interaction. Data were centered by subtracting the mean score of a scale from each corresponding observed score ($X_C = X - M_X$). Four interactions effects were tested between gender and the following continuous variables: behavioral acculturation, behavioral enculturation, host culture marginalization, and heritage culture marginalization. Of the four interactions, only the product between gender and behavioral enculturation was statistically significant (β = .59, p < .05). Keeping in mind the dummy coding for gender, this result suggests that behavioral enculturation led to greater alcohol use among men than women.

Mediation, also referred to as indirect effect, is the causal sequence between two or more variables. Mediation introduces a third variable to the X → Y relationship, whereby X causes the mediator, M, and M causes Y, so X→ M →Y (MacKinnon, Fairchild, & Fritz, 2007). The present study tested the indirect effects of behavioral acculturation, behavioral enculturation, host culture marginalization, and heritage culture marginalization on alcohol use. In this analysis intragroup marginalization, acculturative stress, and depression, were treated as potential mediating variables. However, results show that the indirect effect of acculturation and enculturation constructs on hazardous alcohol use was not mediated by the other predictors.

CHAPTER IV

CONCLUSION

The study of acculturation and alcohol use among Hispanics has produced mix findings, as such, no definitive association has been establish (Zemore, 2007). This study explored the effect of distinct domains of acculturation and enculturation on hazardous alcohol consumption by testing a stress response model (Graves, 1967, Vega & Gil, 1999). Unlike most research, this study tested the direct and indirect influence of behavioral acculturation, behavioral enculturation, heritage culture marginalization, and host culture marginalization; the last two construct serving as measures of cognitive acculturation and enculturation, respectively. The indirect effects of acculturation and enculturation constructs were tested by examining the mediating role of stressors believed to be associated with the acculturation process. This was accomplished by examining the influence of acculturative stress in response to difficulty adopting characteristics to the host culture; and the degree of perceived intragroup marginalization from the Hispanic culture as a function of acculturating to the White Euro-American culture. To better understand the role acculturative stress and intragroup marginalization on alcohol use, depression was introduced as an additional mediating stress response between acculturative stress, intragroup marginalization, and hazardous alcohol consumption.

Summary of Finding

Relationship between Predictor Variables

Among the demographic variables included in the analyses, only gender was statistically significant predictor. This finding demonstrates that male respondents were more apt to drink alcohol than female respondents, a finding that is consistent with U.S. and Mexican drinking patterns (SAMSA 2008; WHO, 2004).

Relationships among predictor variables show that respondents with higher scores of behavioral enculturation were less likely to experience intragroup marginalization. This finding suggests that maintaining behavior of the Hispanic [heritage] culture, such as speaking Spanish, led to a diminished perception of interpersonal distancing by family members of the heritage culture. Conversely, higher scores of heritage culture marginalization were associated with higher scores of intragroup marginalization. This finding was expected because previous research suggests that group members of the heritage culture pressure others to maintain group norms (Castillo et al., 2007). As such, difficulty accepting cultural values and attitudes of Hispanic culture may be perceived by the family as an effort by acculturating individual to assimilate to the host culture and lose connection with the heritage culture.

Behavioral acculturation, exhibiting greater use or comfort with behavior of White Euro-American [host] culture, was associated with lower scores of acculturative stress. This indicates that exhibiting behavior congruent with the host culture, such as speaking and writing in English, results in less acculturative stress. On the contrary, higher score of host culture marginalization, difficulty accepting cultural values and

attitudes of White Euro-American culture was associated with higher score of acculturative stress. Given that all participants were attending college, this finding supports the notation that differences in cultural values and expectations between the academic environment [thought to predominantly reflect values of Euro-American culture] and heritage culture can be emotionally taxing and lead to psychological distress (Castillo, et al., 2004; Castillo & Hill, 2004; Gloria, 2001).

Although intragroup marginalization and acculturative stress hold inverse relationships with distinct domains of acculturation and enculturation, both intragroup marginalization and acculturative stress had an adverse effect on depression. The relationship between acculturative stress and depression is consistent with previous research (Hovey, 2000.) While no prior study has examined the influence of intragroup marginalization on depression, it has been found to have an adverse effect on psychological well-being (Castillo et al., 2007). These findings may be indicative of a "double-bind," not appearing to be "Hispanic enough" for the heritage culture and not "American enough" for the host culture (Vasquez, 1997). The effect of negotiating expectation of two cultures may explain why intragroup marginalization and acculturative stress are both predicative of depression.

An unexpected finding was that depression was not a statistically significant predictor of alcohol use. However, it should be noted that these two constructs were found to be uncorrelated in another study with Hispanic college students (Raffaelli et al., 2007), and depression did not mediate the influence of acculturation and alcohol among Hispanic women (Zemore, 2005).

Acculturation, Enculturation, and Alcohol Consumption

Strengths of the present study include (a) being grounded in a bidimensional model of acculturation, (b) examining distinct domains of acculturation and enculturation, (c) utilizing a well-validated measure of acculturation, (d) testing an *a priori* conceptual model, (e) testing for mediation and moderation effects, (f) attending to a specific psychosocial stage of development, and (g) focusing on Hispanic college students which have been understudied. Further, all measures of acculturation and enculturation maintained their continuous scale to examine the degree of maintenance and adherence of a cultural group as opposed to arbitrary cutoff scores.

After controlling for gender, age, and generation status, behavioral enculturation was the only acculturation-related construct that was a statistically significant predictor of hazardous alcohol consumption. This finding suggests that Hispanics in late adolescence, regardless of gender, were more likely to participate in hazardous alcohol consumption if they exhibit a greater frequency or comfort with behavior associated with the heritage culture. This finding contradicts Zemore's (2007) review on the relationship between acculturation and alcohol use among Hispanics. However, that review was limited to U.S. participant samples and as previously noted, a report on patterns of alcohol consumption found that some Latin American countries, including Mexico, have higher rates of heavy drinking among adult men and women than in the U.S. (WHO, 2004). In the present study, the sample was predominately composed of individuals of

Mexican descent; thus it makes sense that enculturation to the heritage culture would result in greater alcohol consumption.

In a recent study, Schwartz et al. (2007) points out that indirect effects of acculturation and enculturation constructs are often neglected; consequently, leaving the mechanisms by which these constructs exert their influence on outcome variables unexplored. In view of this, analyses set out to test a stress response model that took into account interaction with the host culture, and the heritage culture which has been study less frequently in relation to alcohol use among Hispanics. To test the proposed extension of the stress response model the mediate role of intragroup marginalization, acculturative stress, and depression were tested. However, no strong mediation effects were detected, indicating that the indirect influence of acculturation and enculturation does not increase alcohol use. Further, moderation analyses were preformed to better understand the effects of acculturation and enculturation on the alcohol consumption among men and women. Findings demonstrate that behavioral enculturation was a greater risk factor of hazardous alcohol use for men than women.

In sum, the direct influence of behavioral enculturation on alcohol consumption was predicative of greater hazardous use of alcohol. Had the assessment of the acculturation and enculturation been limited to the proxy measure of generation status, results would have indicated that "acculturation" was not associated with alcohol use. This finding demonstrates the benefit of implementing a comprehensive model of the acculturation process because it specifies which domain of acculturation and/or enculturation has the greatest influence. Although this is a step forward in understanding

the relationship between these constructs, mediation analyses did not support the traditional stress response theory or the proposed extension. Consequently, these findings to not offer much insight into "how" and "why" distinct domains of acculturation and enculturation are associated with greater alcohol use. It should be noted stressors rooted in interactions with both the host and heritage cultures were associated higher scores of depression. Lastly, behavioral enculturation was found to have stronger association on alcohol use among men.

Limitations and Future Research

Although the study makes some contribution this field of research, it is important to recognize its limitations and discuss strategies to address them in future research. One limitation of the current study that should be highlighted is the absence of affective domain of acculturation and enculturation. In an effort to comprehensively investigate and understand the influence of acculturation and enculturation constructs on health behavior, including alcohol consumption, all domains of these constructs should be examined concurrently (Schwartz et al., 2011).

Second, the assessment of cognitive acculturation and enculturation consisted of global measures of discomfort with cultural values, attitudes, and beliefs associated with the host and heritage groups. Consequently, this required respondents to rate their discomfort with all values associated with a particular cultural group and not permitting them to endorse comfort or appreciation for specific values of that cultural group. One approach to address this limitation is to introduce measures that assess specific cultural

values, attitudes, and belief (i.e., machismo or fatalism) that have theoretical merit (Schwartz et al., 2011).

Third, mediation analyses did not yield much insight in explaining the mechanism why the acculturation process is associated with alcohol consumption. That does not signify the association between acculturation and enculturation in relation to alcohol use is not mediated. As such, future research should continue to examined mediation factors to develop more comprehensive models with the empirical support that help explain the relationship between the acculturation process and alcohol consumption.

Fourth, generalizability of the study is limited due to four key factors, 1) a majority of the sample was female, 2) a large number of the respondent identified being of Mexican descent, 3) the sample was solely composed of students currently attending college, and 4) the analyses only included respondents in late adolescence between the ages of 18 to 21.

Fifth, drinkers and nondrinkers were aggregated in the analyses to maintain sufficient statistical power and comply with guidelines to test the path model. Zemore (2007) suggests that by aggregating drinkers with nondrinkers, the relationship between acculturation and drinking patterns is difficult to establish because it may be confounded by drinking status. To detect the unique effect(s) of acculturation [and enculturation] on alcohol consumption, Zemore (2007) recommends excluding nondrinkers from analyses unless they abstain completely from alcohol.

Lastly, due to the cross-sectional design, conclusions about the causal or directional order of the associations found cannot be drawn. Additionally, the nature of

the data does not lend itself to examine the effect of changes in psychosocial stages of development on acculturation; likely hindering an accurate evaluation of the acculturation process and its influence on alcohol use (Schönpflug, 1997). Perhaps the most effective strategy to address these limitations is by implementing a longitudinal research design.

Recommendations and Implications

Taking into account results of the current study and previous research, the following recommendations are presented in an effort advance this field of study. Scholars suggest (a) the measurement of acculturation should move beyond proxy measures and utilize validated measures (Abraído-Lanza et al., 2006), (b) examine multiple domains of acculturation and enculturation to employ a comprehensive analysis of the bidimensional model of acculturation (Castillo & Caver, 2009), (c) explore the role of mediating variables to better understand the mechanisms by which distinct domains of acculturation and enculturation exert their influence on alcohol consumption (Schwartz et al., 2007), and (d) test the moderating role of acculturation and enculturation with other predictor variables to better understand their interaction effect in relation to alcohol use (Zemore, 2007).

Based on the finding that behavioral enculturation is associated with hazardous alcohol use, interventions should be designed to target segments of the Hispanic populations that are likely to be behaviorally enculturated. One approach is to introduce substance use prevention programs in classes for English language learners, especially during early and middle adolescence (Rodriguez et al., 2007). In instances when

adolescents are behaviorally enculturated, it is critical that programs and corresponding materials be presented in Spanish [assuming that is their primary language] to enhance their effectiveness. Future prevention programs may also consider in the inclusion to family members to account for the cultural value of *familismo*, (a) the obligation to provide material and emotional support to family; and (b) reliance on relatives for help and support (Castillo et al., 2008). An example of an intervention that incorporates family in an ethnocultural context is *family effectiveness training*, later described. Further, interventions should consider introducing gender socialization differences regarding attitudes toward alcohol use and directly attending to the moderating role of gender (Zamboanga, et al, 2006). However, scholars caution against using interventions that include strengthening of ethnic identity among Hispanic men because ethnic identification with the heritage culture was found to be a risk factor for alcohol use (Zamboanga et al., 2006).

Although depression was not associated with alcohol consumption in this study and the influence of acculturation and enculturation constructs were not mediated by depression, the following should be considered. First, a significant proportion of research shows a strong association between depression and alcohol use behavior (SAMHSA, 2010a). Second, acculturative stress and intragroup marginalization were statistically significant predictors of depression, accounting for 31% of the variance after acculturation and enculturation variables were introduced into the path model. As such, mental health providers, especially university counseling services, should be aware of these associations and their potential effect on alcohol use. Mental health providers

should also recognize that many university environments often reflect White Euro-American culture and may increase of the risk of psychological distress (Castillo et al., 2004). To address psychological distress and depressive symptoms that may result from cultural incongruity, mental health providers should implement interventions that help college students navigate expectations of both cultures (Cano & Castillo, 2010), in an effort to treat and prevent depression and alcohol related problems.

Conversely, individuals that experience intergenerational conflict with parents rooted in acculturation differences may benefit from family interventions that prevent substance use disorders (Martinez, 2006; Szapocznik et al., 1989). One such intervention, *family effectiveness training,* goes beyond addressing youth acculturating more rapidly than the parent(s). Instead, this program deals with differential acculturation as a systemic family issue that needs to be addressed at the family interactional level (Szapocznik et al., 1989).

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APPENDIX A

STUDY MEASURES AND CORRESPONDING ITEMS

Alcohol Use Disorder Identification Test, Second Edition (AUDIT)
(Babor, Higgins-Biddle, Saunders, & Monteiro, 1993)

Instructions:
Select the response that best describes you for each question. Your answers will remain anonymous so please be honest.

1. **How often do you have a drink containing alcohol?**
    (0) Never
    (1) Monthly or less
    (2) 2-4 times a month
    (3) 2-3 times a week
    (4) 4 or more times a week

2. **How many drinks containing alcohol do you have on a typical day when you are drinking?**
    (0) 1 or 2
    (1) 3 or 4
    (2) 5 or 6
    (3) 7 to 9
    (4) 10 or more

3. **How often do you have six or more drinks on one occasion?**
    (0) Never
    (1) Less than monthly
    (2) Monthly
    (3) Weekly
    (4) Daily or almost daily

4. **How often during the last year have you found that you were not able to stop drinking once you had started?**
    (0) Never
    (1) Less than monthly
    (2) Monthly
    (3) Weekly
    (4)Daily or almost daily

5. How often during the last year have you failed to do what was normally expected of you because of drinking?
    (0) Never
    (1) Less than monthly
    (2) Monthly
    (3) Weekly
    (4) Daily or almost daily

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
    (0) Never
    (1) Less than monthly
    (2) Monthly
    (3) Weekly
    (4) Daily or almost daily

7. How often during the last year have you had a feeling of guilt or remorse after drinking?
    (0) Never
    (1) Less than monthly
    (2) Monthly
    (3) Weekly
    (4) Daily or almost daily

8. How often during the last year have you been unable to remember what happened the night before because of your drinking?
    (0) Never
    (1) Less than monthly
    (2) Monthly
    (3) Weekly
    (4) Daily or almost daily

9. Have you or someone else been injured because of your drinking?
    (0) No
    (2) Yes, but not in the last year
    (4) Yes, during the last year

10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?
    (0) No
    (2) Yes, but not in the last year
    (4) Yes, during the last year

Acculturation Rating Scale for Mexican Americans-II (Generation Status)
(Cuéllar, Arnold & Maldonado, 1995)

What is the generation that best applies to you?
1st Generation = You were born in a Latin American/Ibero American country.

2nd Generation = You were born in USA; either parent born in a Latin American/Ibero American country.

3rd Generation = You were born in USA, both parents were born in the USA and all grandparents were born in a Latin American/Ibero American country.

4th Generation = You and your parents born in USA and at least one grandparent was born in a Latin American/Ibero American country with remainder born in USA.

5th Generation = You and your parents were born in the USA and all grandparents born in the USA.

Acculturation Rating Scale for Mexican Americans-II (ARSMA-II – Scale I)
(Cuéllar, Arnold & Maldonado, 1995)

Instructions:
Select the answer that most applies to you.

Rating Scale:

1	2	3	4	5
Not at All	Very Little or Not Very Often	Moderately	Much or Very Often	Extremely Often or Almost Always

1. I speak Spanish. [a]
2. I speak English. [b]
3. I enjoy speaking Spanish. [a]
4. I associate with Anglos. [b]
5. I associate with Hispanics/Latinos. [a]
6. I enjoy listening to Spanish language music. [a]
7. I enjoy listening to English language music. [b]
8. I enjoy Spanish language TV. [a]
9. I enjoy English language TV. [b]
10. I enjoy English language movies. [b]
11. I enjoy Spanish language movies. [a]
12. I enjoy reading (e.g., books in Spanish). [a]
13. I enjoy reading (e.g., books in English). [b]
14. I write (e.g., letters in Spanish). [a]
15. I write (e.g., letters in English). [b]
16. My thinking is done in the English language. [b]
17. My thinking is done in the Spanish language. [a]
18. My contact with Latin America has been. [a]
19. My contact with the U.S. has been. [b]
20. My father identifies or identified himself as "Hispanic/Latino". [a]
21. My mother identifies or identified herself as "Hispanic/Latina". [a]
22. My friends, while I was growing up, were of Hispanic/Latino origin. [a]
23. My friends, while I was growing up, were of Anglo origin. [b]
24. My family cooks traditional Hispanic/Latino foods. [a]
25. My friends now are of Anglo origin. [b]
26. My friends now are of Hispanic/Latino origin. [a]
27. I like to identify myself as an Anglo American. [b]
28. I like to identify myself as a Hispanic/Latino and American. [a]
29. I like to identify myself as a Mexican. [a]
30. I like to identify myself as an American. [b]

Note. a = behavioral enculturation, b = behavioral acculturation.

Acculturation Rating Scale for Mexican Americans-II (ARSMA-II – Scale II)
(Cuéllar, Arnold & Maldonado, 1995)

Instructions:
Select the answer that most applies to you.

Rating Scale:

1	2	3	4	5
Not at All	Very Little or Not Very Often	Moderately	Much or Very Often	Extremely Often or Almost Always

1. I have difficulty accepting some ideas held by Anglos. [a]
2. I have difficulty accepting certain attitudes held by Anglos. [a]
3. I have difficulty accepting certain some behaviors exhibited be Anglos. [a]
4. I have difficulty accepting some values held by some Anglos. [a]
5. I have difficulty accepting certain practices and customs commonly found in some Anglos. [a]
6. I have, or think I would have, difficulty accepting Anglos as close personal friends. [b]
7. I have difficulty accepting ideas held by some Hispanics/Latinos. [b]
8. I have difficulty accepting certain attitudes held by Hispanics/Latinos. [b]
9. I have difficulty accepting certain behaviors exhibited by Hispanics/Latinos. [b]
10. I have difficulty accepting some values held by some Hispanics/Latinos. [b]
11. I have difficulty accepting certain practices and customs commonly found in some Hispanics/Latinos. [b]
12. I have, or think I would have, difficulty accepting Hispanics/Latinos as close personal friends. [b]
13. I have difficulty accepting ideas held by some Hispanic-Americans. [c]
14. I have difficulty accepting certain attitudes held by Hispanic-Americans. [c]
15. I have difficulty accepting some behaviors exhibited by Hispanic-Americans. [c]
16. I have difficulty accepting some values exhibited by Mexican Americans. [c]
17. I have difficulty accepting certain practices and customs commonly found in some Hispanic-Americans. [c]
18. I have, or think I would have, difficulty accepting Hispanic-Americans as close personal friends. [c]

Note. a = host culture marginalization, b = heritage culture marginalization, c = Hispanic-American marginalization.

Acculturative Stress | Social, Attitudinal, Familial, and Environmental (S.A.F.E.)
(Mena, Padilla, & Maldonado, 1987)

Instructions:
Use the scale below to rate the amount of stress you feel over the following experiences.

Rating Scale:

1	2	3	4	5	6
Have Not Experienced	Not Stressful	Somewhat Stressful	Moderately Stressful	Very Stressful	Extremely Stressful

1. I feel uncomfortable when others make jokes about or put down people of my own ethnic background. [a]
2. I have more barriers to overcome than most people. [a]
3. It bothers me that family members I am close to do not understand my new values. [c]
4. Close family members and I have conflicting expectations about my future. [c]
5. It is hard to express to my friends how I really feel. [d]
6. My family does not want me to move away but I would like to. [c]
7. It bothers me to think that so many people use drugs.
8. It bothers me that I cannot be with my family. [d]
9. In looking for a good job, I sometimes feel that my ethnicity is a limitation. [a]
10. I don't have any close friends. [b]
11. Many people have stereotypes about my culture or ethnic group and treat me as if they are true. [a]
12. I don't feel at home. [b]
13. People think I am unsociable, when in fact I have trouble communicating in English. [b]
14. I often feel that people actively try to stop me from advancing. [b]
15. It bothers me when people pressure me to assimilate. [a]
16. I often feel ignored by people who are supposed to assist me. [a]
17. Because I am so different, I do not get enough credit for the work I do. [a]
18. It bothers me that I have an accent.
19. Loosening ties with my country is difficult. [d]
20. I often think about my cultural background. [d]
21. Because of my ethnic background, I feel that others often exclude me from participating in their activities. [a]
22. It is difficult for me to "show off" my family. [a]
23. People look down upon me if I practice customs of my culture. [a]
24. I have trouble understanding others when they speak.

Note. a = environmental scale, b = social scale, c = attitudinal scale, d = familial scale.

Intragroup Marginalization Inventory - Family Scale (Latino Version)
(Castillo, Conoley, Brossart & Quiros 2007)

Instructions:
For each of the following, indicate the extent to which you experience the situation with members of your family.

Use the Following Rating:

Never/   Extremely
Does not Apply   Often

1	2	3	4	5	6	7

1. My family has a hard time accepting my new values. [a]
2. My family wants me to act the way I used to act. [a]
3. My family has a hard time understanding why I do not take part in Latino cultural practices. [a]
4. My family has the same hopes and dreams about my future as me. [b]
5. My family is accepting of my work/career goals. [b]
6. My success in work/school has made my family closer to me. [b]
7. Family members tease me because I don't know how to speak Spanish. [c]
8. Family members tell me that I "act White." [c]
9. Family members tell me that I have too many White friends. [c]
10. Family members criticize me because I don't speak Spanish well. [d]
11. Family members tell me that I am "brown on the outside but white on the inside." [d]
12. Family members laugh at me when I try to speak Spanish. [d]

Note. a = homeostatic scale, b = discrepant values scale, c = assimilation accusation scale, d = linguistic expectations scale.

Center for Epidemiological Studies Depression Scale (CES-D)
(Radloff, 1977)

Instructions:
Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way during the past week.

Rating Scale:
(1) Rarely or none of the time (less than 1 day)
(2) Some of little of the time (1-2 days)
(3) Occasionally or a moderate amount of time (3-4 days)
(4) Most or all of the time (5-7 days)

1. I was bothered by things that usually don't bother me. [a]
2. I did not feel like eating; my appetite was poor. [a]
3. I felt that I could not shake off the blues even with help from my family or friends. [a]
4. I felt I was just as good as other people. [a]
5. I had trouble keeping my mind on what I was doing. [a]
6. I felt depressed. [b]
7. I felt that everything I did was an effort. [b]
8. I felt hopeful about the future. [b]
9. I thought my life had been a failure. [b]
10. I felt fearful. [c]
11. My sleep was restless. [c]
12. I was happy. [c]
13. I talked less than usual. [c]
14. I felt lonely. [c]
15. People were unfriendly. [c]
16. I enjoyed life. [c]
17. I had crying spells. [c]
18. I felt sad. [c]
19. I felt that people dislike me. [d]
20. I could not get "going." [d]

Note. a = negative affective scale, b = positive affect scale, c = somatic complaints, d = interpersonal relationships.

APPENDIX B

KEY TERMS

Culture. The values, beliefs, behaviors, and material objects that together form a people's way of life.

Collective Acculturation. Collective acculturation, occurs when groups of individuals having distinct cultures come into continuous contact with the dominant cultural group that results in changes in the original cultural patterns of either or both groups.

Psychological Acculturation. Psychological acculturation is the process of acculturation at an individual level, encompassing changes in attitudes, behaviors, beliefs, and values that results when an individual from one culture comes in contact with a new culture.

Acculturation Level. Acculturation level, also referred to as *degree of acculturation*, is the placement of an individual along a linear acculturation continuum that ranges from low to high acculturation whereby a person moves away from there culture of origin and move toward the host culture.

Acculturation Strategy. Acculturation strategies, also referred to as *modes of acculturation* or *varieties of acculturation*, are the various ways that acculturation can manifest in individuals and groups of people. The following acculturation strategies have been proposed: assimilation, separation, integration, and marginalization.

Assimilation. Assimilation characterizes individuals or groups that are highly acculturated; assimilated individuals strongly identify with the dominant or host culture resulting in the loss of the original cultural identity. Assimilated individuals who no longer identify with their culture of origin may behave in a manner that no longer reflects the behaviors of the original culture. It should be noted that assimilation is occasionally referred to as *cultural shift*.

Separation. Separation characterizes individuals or groups that maintain a strong identification with the culture of origin and do not accept the behaviors, attitudes, beliefs, or values of the host culture. Although individuals may be presented with opportunities to acculturate, the individual consciously chooses to maintain an adherence to the culture of origin. In this acculturation strategy, the individual only displays the behaviors, attitudes, beliefs, and values of the culture of origin. It should be noted that separation is also referred to as *cultural resistance*.

Integration. Integration, also referred to as *cultural incorporation* or *biculturalism*, is the fusion of the culture of origin and the new host culture. Individuals in this acculturation strategy may successfully identify and display behaviors, attitudes, beliefs, and values from both cultures.

Marginalization. Marginalization is described as a rejection or non-acceptance of the behaviors, attitudes, beliefs, and values of both the culture of origin and the host culture. It is important to keep in mind that a marginalized individual can maintain cultural competence with both groups and have marginal traits as well. Additionally, a degree of acculturation or identification with both cultures must occur before marginalization takes place.

Unidimensional Model of Acculturation. The unidimensional model of acculturation, also referred to as *assimilation model*, is theoretical framework that presumes that as an individual adopts the host culture, the association with the culture of origin weakens correspondingly.

Bidimensional Model of Acculturation. Bidimensional model of acculturation, also referred to as *bipolar model*, *bidirectional model*, *multidimensional*, *bilinear model*, *orthogonal model*, or *two-dimension model*, is theoretical framework that posits acculturation process being composed of two independent dimensions so that adherence to the values, beliefs, and practices if the culture of origin are independent of the values, beliefs, and behaviors that adhere to the host culture.

Enculturation. Process of socialization (or re-socialization) into and maintenance of the heritage culture norms.

Hispanicism. Socialization to the Hispanic way of life.

Americanism. Acculturation to the Anglo-American way of life.

Behavioral Domain of Functioning. Encompasses the behavioral dimension of acculturation, consisting of behaviors such participation in cultural activities, preference in media language, language use, and food choice.

Cognitive Domain of Functioning. Accounts for the values and knowledge dimensions of acculturation. The values dimension consists of attitudes and beliefs in regard to social relations, cultural customs, and cultural traditions. The knowledge dimension speaks to culturally specific information about the cultural of origin and host culture. This dimension is inclusive to the significance of culturally specific activities.

Affective Domain of Functioning. Comprised of the ethnic identity dimension that accounts for attitudes toward one's cultural identity; attitudes toward the culture of origin and host culture; and level of comfort toward the culture of origin and host culture.

Acculturation Stress. The difficulties and stressors that arise during the acculturation process.

Intragroup marginalization. Perceived interpersonal distancing created by people from the culture of origin when the acculturated individual develops cultural characteristics of the host culture.

Hispanic. According to the U. S. Census Bureau, Hispanic "refers to people whose origin is Mexican, Puerto Rican, Cuban, Spanish-speaking Central or South American countries, or other Hispanic/Latino, regardless of race."

One drink. Half an ounce of ethanol (e.g., one 12oz. beer, one 5oz. glass of wine, or one 1.5oz. shot of distilled spirits).

Binge drinking. A pattern of consuming alcohol that brings blood alcohol concentration (BAC) to 0.08 gram percent or above. For adult men, this pattern corresponds to consuming five or more drinks or four or more drinks among women within two hours.

Heavy drinking. Binge drinking on at least 5 days in the past 30 days.

Alcohol intoxication. The development of a reversible syndrome resulting from recent ingestion or exposure to alcohol. Alcohol intoxication may result in clinically significant maladaptive behavioral or psychological changes caused by the effect of the alcohol on the central nervous system. One or more of the following symptoms has to present, during or shortly after alcohol use: (1) slurred speech, (2) incoordination, (3) unsteady gait, (4) nystagmus, (5) impairment in attention, (6) or stupor or coma. It should be noted that these symptoms should not be caused by a general medical condition and are not better accounted for by another mental disorder.

Hazardous drinking. A pattern of alcohol consumption that increases the risk of harmful consequences for the user or others.

Harmful drinking. A pattern of alcohol consumption that results in consequences to physical and mental health.

Alcohol abuse. A maladaptive pattern of alcohol use that leads to clinically significant impairment or distress. Additionally, the user has to display one or more the following within a 12 month period: (1) fails to fulfill a major role at work, school, or home, (2) uses in situations that are physically hazardous, (3) recurrent substance related legal problems, and (4) continues use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of alcohol. The term alcohol abuse should not be used synonymously with "alcohol use," "hazardous use," or "alcohol misuse."

Alcohol dependence. A collection of cognitive, behavioral or physiological symptoms that result from continued alcohol use in spite of significant alcohol-related problems. Two key characteristics of alcohol dependence are tolerance and withdrawal. Tolerance is the need for increased amounts of alcohol being used to achieve intoxication. The second characteristic is withdrawal, which is a maladaptive behavioral change concurrent with physiological and cognitive changes that transpire when blood and tissue concentrations of alcohol decline in an individual who has continued prolonged heavy use of alcohol.

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