

Ethnic Pride as a Predictor of Self-Efficacy to Avoid Drugs  
Following Substance Abuse Treatment

by

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## ABSTRACT

Specific cultural variables have been found to protect against the onset of alcohol, tobacco and drug use among Latino adolescents. It has been suggested that targeting similar cultural components during the treatment of drug dependence and abuse for Latino adults may also enhance the effectiveness of the intervention, although few studies have explored this hypothesis. The current study attempted to remedy this disparity by exploring the potentially protective influence of two cultural variables, ethnic pride and family traditionalism, on self-efficacy to avoid drug use following residential substance abuse treatment among 99 Hispanic and 85 non-Hispanic White males.

Results of the study indicate that higher levels of ethnic pride predict greater confidence to remain abstinent from drugs following substance abuse treatment, and that this relationship is stronger among Hispanic participants than non-Hispanic White participants. Family traditionalism was not a significant predictor of drug avoidance self-efficacy for either group, suggesting that some specific cultural variables may be better targets for substance abuse treatment than others. Study limitations and future directions for research and clinical practice are discussed.

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## Chapter 1

### INTRODUCTION

During the past year, 1.9 million adults received substance abuse treatment for the use of illicit drugs in the United States. Of these, nearly 600,000 (31.6 percent) identified as belonging to a minority racial or ethnic group (SAMHSA, 2008). Most researchers, policy makers, and clinicians agree that existing mental health programs, including those for the treatment of substance abuse, are best tailored for racial/ethnic minorities by integrating cultural components into the treatment process, suggesting that aspects of one's culture may operate as a mechanism for enacting and maintaining change that is consistent with recovery from drug dependence (U.S. Department of Health and Human Services [DHHS], 2001; Castro & Garfinkle, 2003). Despite this suggestion, the majority of substance abuse treatment programs in the United States have yet to incorporate into treatment the potentially protective influences of cultural and ethnic variables in preventing relapse (Castro, Nichols, Kater, 2007). Furthermore, much remains unknown as to the specific cultural components and processes that may aid or interfere with the treatment process (Gil & Vega, 2001).

In the past, research that examines the relationship between race, ethnicity, and substance abuse has done so in a superficial manner by comparing racial or ethnic minority groups to a White non-Hispanic reference group without examining the sources of any potential

discrepancies and without considering possible variations that may occur within and between groups (Barrera, Castro, & Biglan, 1999). There remains a paucity of research on the effects of specific cultural variables as predictors or moderators of treatment outcomes (Castro & Hernandez-Alarcon, 2002). Recently, however, greater emphasis has been devoted to identifying the key components necessary for developing culturally relevant substance abuse treatment programs for minority populations. Castro and Garfinkle (2003) generated a list of 14 cultural variables or concepts that may enhance the effectiveness of substance abuse treatment for minority populations, including ethnic identity and pride, acculturation, spirituality, and traditionalism. While the authors acknowledge that this list is not comprehensive, it clearly indicates the need for utilizing a multi-faceted approach to understanding the cultural implications of substance abuse treatment with minority populations. The present study aims to expand upon this growing body of research by looking at two aspects of cultural and ethnic identity found among Latinos living in the United States, ethnic pride and traditionalism, and how these cultural variables may influence confidence in remaining drug-free post-treatment.

### *Cultural Identity and Substance Use*

Drug dependent men who enter treatment programs often undergo a process of identity reformation in which they develop a new or revised self-concept that emphasizes avoidance of illicit substances. The concept

of identity, or how one defines oneself, is multidimensional and includes components such as social, ethnic, religious, and familial identity (Chao & Moon, 2005). Ethnic identity, as defined by Phinney (1996), is a subjective sense of membership in one's ethnic group, which includes knowledge of and participation in cultural events and traditions (Brook, Whiteman, Balka, Win, & Gursen, 1998). Brook et al. (1998) have further segmented ethnic identity into two components, "ethnic identification" and "ethnic affiliation." Ethnic identification refers to the extent to which one identifies as a member of a specific ethnic group. Ethnic affiliation refers to an affective element of belonging that includes ethnic pride, but also the extent to which one selects individuals from their own cultural or ethnic group as friends. Williams, Spencer & Jackson (1999) suggest that ethnic identity involves viewing one's ethnic group in positive terms, and as a central component of one's self-image. This definition appears consistent with Castro and Hernandez-Alaron's (2002) conceptualization of ethnic pride as positive feelings towards one's own ethnic group and gratification in belonging to that group.

Among minority members receiving treatment for substance abuse, programs that address issues of cultural and ethnic identity may contribute important ideas that forge aspects of this new self-concept that may aid in remaining drug free. Prior research has indicated that cultural variables can serve as protective factors against several negative health outcomes, including the onset of depression and the negative effects of

perceived discrimination (Umaña-Taylor & Updegraff, 2006). Among Latino adolescents, cultural and ethnic identity may also operate as moderators of drug-related risk factors, thus reducing the likelihood and/or extent of alcohol, tobacco, and illicit drug use (Brook, et al., 1998; Marsiglia, Kulis, Hecht, 2001; Marsiglia, Kulis, Hecht, & Sills, 2004). Results such as these support the notion that a positive ethnic identity can serve as a protective factor against health disparities in adolescent minority populations. Given that much of the research on ethnic identity development has been conducted with children and adolescents, there remains little knowledge at present about how these effects manifest in adults (Williams et al., 1999).

Pride in one's ethnicity has been shown to be a part of the general esteem development process that occurs among minority adolescents and continues into adulthood (Hartner, 1999). In general, higher levels of self-esteem are associated with increased ethnic pride (Marsiglia et al., 2001). While the causal relationship remains unclear, increased involvement and immersion in the ethnic culture has been shown to correlate with higher levels of self-esteem (Speight, Vera, & Derrickson, 1996). It is generally assumed that a negative relationship exists between drug use and self-esteem, that is, individuals with poor evaluations of themselves and a negative self-concept are more inclined to engage in alcohol, tobacco, and illicit drug use. On par with this widely held belief, many drug prevention and treatment programs have been developed that target and attempt to

enhance self-esteem (Moore, Laflin & Weis, 1996). The empirical support for this claim that self-esteem predicts drug use, however, is inconclusive. While some studies have identified a relationship between self-esteem and drug use (De Hart, Tennen, Armeli, Todd, & Affleck, 2007; Howard, Walker, Walker, Cottler, & Compton, 1999; Resincrow, Soler, Braithwaite, Selassie, & Smith 1999), others have found no such correlation (Felix-Ortiz & Newcomb, 1992; Moore, Laflin, & Weis, 1996).

Few studies have specifically examined the relationship between ethnic pride and drug use, however, there is some evidence to suggest increased levels of pride in one's ethnic or cultural heritage may curb the initiation of drug use among minority adolescents. In a study of 408 adolescents living in the southwestern United States, higher levels of ethnic pride among African American, Mexican American, and mixed-ethnicity students were associated with less drug use and exposure to drugs, especially among low income students. Interestingly, ethnically proud White students in this same study reported more drug use than White students who reported lower levels of ethnic pride (Marsiglia et al., 2001). These results suggest that the relationship between ethnic pride and drug use may differ as the result of other moderating variables.

Ethnic pride has also been indicated as a predictor of reductions in alcohol use in adolescents following treatment of alcohol abuse. In a study of minority juvenile offenders receiving treatment for drug and alcohol abuse, Hispanic youth who reported higher levels of ethnic pride

reported greater reductions in alcohol use following treatment (Gil, Wagner, & Tubman, 2004). Whereas certain cultural variables may protect against drug use among adolescents, other cultural variables may confer self-confidence in the capacity to abstain from the use of drugs among adults who are already dependent on illegal substances, that is, this self-confidence may aid in preventing or avoiding relapse.

### *Self-efficacy and Avoiding Drugs*

Self-efficacy is a cognitive-affective construct that identifies one's self-confidence and expectancy for obtaining a desired goal (Castro, Stein, & Bentler, 2009). Self-efficacy has been shown to predict motivation and persistence in achieving the desired health behavior (Ramirez, Valez, Chalela, Grussendorf, & McAlister, 2006). In this case, the goal is to abstain from illicit substance use. Self-efficacy ratings have been shown to predict smoking cessation (Condiotte & Lichtenstein, 1981) and drinking behavior (McKay, Maisto, & O'Farrell, 1993). Resistance or avoidance self-efficacy has been shown to predict relapse following treatment for drug or alcohol dependence (Goldbeck, Myatt, and Aitchison, 1997). Accordingly, treatment for drug and alcohol dependence has focused on enhancing the perceived self-efficacy of clients as part of the treatment process (Burlison & Kaminer, 2005). Over the course of treatment, self-efficacy in avoiding drugs during high-risk situations increases among all clients; however, clients who remain abstinent post-treatment show greater levels of self-efficacy than those who relapse

(Solomon & Annis, 1990). Clearly, enhanced self-efficacy for avoiding drug use is associated with better treatment outcomes following treatment for alcohol and substance abuse. What remains unclear is how cultural variables, such as ethnic pride and traditionalism, may influence self-efficacy.

### *Family Traditionalism as a Protective Factor*

#### *Against Negative Health Outcomes*

Attempting to conceptualize and understand Latino culture is an inherently difficult task, in part because a single homogeneous Latino culture does not exist. This is not to say that “culture” and its effects are unimportant. It is to say that a more insightful “deep-structure” conceptualization of cultural effects on specific health-related outcomes is paramount (Resnicow, Soler, Braithwaite, Ahluwalia & Butler, 2000). The tendency to overgeneralize ethnicity as homogeneous groups is referred to as “ethnic glossing” (Collins, 1995; Trimble, 1990-1991). The process of “ethnic glossing” ignores the variation found within groups, creating overinclusive categories that result in inaccurate generalizations.

Cultural traditions are the result of learned behaviors that are passed on from adults to children (Harwood, 1981). Latin America, however, consists of over 20 different countries, each with its own unique sub-groups and communities. Nonetheless, based on historical events, such as the Spanish conquest of Latin America in the 1500’s which infused Spanish language, Catholic religion and Hispanic cultural



traditions throughout Central and South America, common customs and traditions do exist. This is not to say, however that “Hispanic/Latino culture” and Hispanic/Latino ethnicity are homogeneous entities within Hispanic communities. Take for example the two largest groups of Latinos living in the United States: Mexicans and Puerto Ricans. While many commonalities exist among Mexicans and Puerto Ricans, including a shared language and religion (mostly Catholicism), these two groups differ substantially in other respects, including immigration status (i.e., Mexican nationals are non-citizens who must apply for citizenship to the US, whereas Puerto Ricans are natural born citizens), and areas of concentration throughout the United States (i.e., more than 55% of Mexicans reside in the West, whereas 61% of Puerto Ricans live in the Northeast; Guzman, 2001). These differences undoubtedly influence the development and formation of ethnic identity among Latinos from these two ethnic/national groups, and highlight the heterogeneity of the many subcultural groups found within Latin America. Despite these known differences, and the extensive within-group variability that exists between and within these Latino groups, many studies continue to mistakenly treat Latinos as a single homogenous group. In order to remedy this problem it is necessary to conceptualize and operationally define traditionalism as a distinct cultural variable that is associated with ethnicity, but that contributes distinct cultural information that is relevant to variation within and between Latino ethnic groups.

Castro and Gutierrez (1997) defined traditionalism among Mexican-Americans and other Hispanics as a “set of beliefs, attitudes, and values that reflect conservative and often agrarian life views.” These traditional life ways can be characterized by a strong sense of loyalty and devotion to family, community and church (especially Catholicism), as well as clear expectations and guidelines for gender roles. Traditional values such as these are more commonly associated with life in rural areas, whereas urban environments are typically viewed as more modernistic or non-traditional (Ramirez, 1991). Within the United States, the ability to maintain traditional life ways is challenged by pressures to acculturate and assimilate into American society (Ramirez, 1999). Whereas the process of loss of traditions with increases in levels of acculturation has not been examined nor well conceptualized within Latino research, it is evident that greater levels of acculturation are associated with lower levels of traditionalism. For example, in a study of Latino women in Arizona, the correlation between Level of Acculturation and Family Traditionalism was  $r = -.33, p < .01$  (Castro & Coe, 2007). From a related perspective, research in cross-cultural health disparities has identified a Hispanic Paradox among low-aculturated Mexican immigrants. In comparison to their more acculturated Mexican-American peers, the least acculturated Mexican immigrants have exhibited unexpectedly lower rates of negative health outcomes, including low-birth weight infants (Gould, Madan, Qin, & Chavez, 2003), psychiatric disorder (Alderete, Vega, Kolody, & Aguilar-

Gaxiola, 2000), and cardiovascular disease (Vega, Kolody, Aguilar-Gaxiola, Catalano, & Caraveo-Anduaga, 1998). While many studies have examined the effects of acculturative stress on health outcomes, few have investigated the deeper aspects of culture, as conceptualized above, which may account for these positive results in recovery from dependence on illegal drugs. In an attempt to more fully understand the cause of this Hispanic Paradox, the present study will go beyond level of acculturation by investigating the role that maintaining traditional customs and values may play in curbing negative health outcomes, such as the relapse of illicit drugs.

#### *The Interaction of Cultural Variables on Health Related Outcomes*

It should not be assumed, however, that a simple direct relationship exists between any ethnic or cultural variable and health related outcomes. Indeed, it is much more likely that the influence of culture on health behavior and risk is due to a complex interaction of many variables. In the present study, it is hypothesized that the relationship between ethnic pride and confidence in remaining drug-free will be moderated by both ethnic identification and affiliation with traditional customs and beliefs. Consistent with results from previous research, it is hypothesized that the influence of ethnic pride will differ depending on whether the individual is a member of the dominant culture (Marsiglia et al., 2001). It is expected that higher levels of ethnic pride will be present among Hispanic participants, than among non-Hispanic White participants. Furthermore, it is

anticipated that an interaction exists between ethnic pride and ethnic affiliation; such that high levels of ethnic pride among Hispanic participants are associated with higher levels of drug avoidance self-efficacy, compared to non-Hispanic White participants with similar levels of ethnic pride.

An interaction is also expected between ethnic pride and family traditionalism, where the influence of family traditionalism moderates the effect of ethnic pride on the outcome variable. It is expected that a larger discrepancy exists between those with high and low levels of ethnic pride that identify with and engage in traditional beliefs and customs, than those who identify with more modernistic or less traditional life ways. When an individual is engaged in traditional cultural activities, and also exhibits pride and satisfaction in their ethnic or cultural heritage, there is an agreement between behaviors and attitudes toward those behaviors, which may result in greater confidence to avoid unwanted behaviors. If, however, a discord exists between the behaviors one engages in and their attitudes regarding those behaviors, then the individual may feel disconnected from their culture and make the individual more susceptible to negative outcomes.

Self-efficacy beliefs are an important component of an individual's self-concept, or the mental representations that individuals hold about themselves. Among men seeking treatment for SUDs, their self-concept may be largely defined by their drug use. Research has shown that those

who are motivated to change their identity to one in which drug use is not a factor are more likely to achieve long-term abstinence (Downey, Rosengren, & Donovan, 2000). One's ethnic or cultural identity may be one target for facilitating this process of identity reformation.

### *Present Study*

The present study attempted to expand upon previous research that has identified differential outcomes of substance abuse treatment among racial or ethnic groups in the United States by exploring specific cultural or ethnic components that may explain these differences. The influence of two variables of ethnicity, ethnic pride and family traditionalism, will be explored as potential predictors of self-efficacy to avoid drugs following residential treatment for substance abuse. Specifically, the study aims to test the following hypotheses.

### *Hypotheses*

1. Hispanic participants will exhibit higher levels of ethnic pride than Non-Hispanic White participants.
2. Hispanic participants will also exhibit higher levels of family traditionalism than the Non-Hispanic White participants.
3. Higher Ethnic Pride will be associated with higher Self-efficacy in Avoiding Drug Use among both Non-Hispanic White and Hispanic drug dependent males, suggesting that protective effects provided by pride in one's ethnic or cultural background.

4. Similarly, higher Family Traditionalism will be associated with higher Self-efficacy in Avoiding Drug Use among both Non-Hispanic White and Hispanic participants, suggesting a protective effect provided by more traditional or conservative cultural and familial values.
5. Higher levels of ethnic pride among Hispanic participants will be associated with higher levels of drug avoidance self-efficacy compared to similarly high levels of ethnic pride among Non-Hispanic Whites.
6. Family Traditionalism will operate as a moderator of the effect of Ethnic Pride on Self-efficacy in Avoiding Drug Use. High levels of ethnic pride coupled with high traditionalism will be associated with the highest self-efficacy to avoid drug use (See Figures 1 and 2 for the hypothesized model and anticipated direction of this interaction).

## Chapter 2

### METHODS

#### *Participants*

The sub-sample for the current study was drawn from a larger dataset collected and maintained by Dr. Felipe González Castro, Department of Psychology at Arizona State University. The current study consisted only of participants who identified as Hispanic/Latino (n=99) or White American (n=85), thus constituting a sub-sample of 184 cases from the larger dataset containing 216 cases. All participants were undergoing drug abuse treatment at Proyecto Corazón, a residential therapeutic community located in the western region of the city of Phoenix. Participants entered this drug abuse treatment program because they had engaged in heavy alcohol and/or illicit drug use (primarily methamphetamine and cocaine) and needed intensive treatment. Participants either underwent treatment voluntarily or as a condition of their probation. Table 1 presents background characteristics for each subsamples. Participants ranged in age from 18 to 59 years, with a mean age of 35.6 years. While the non-Hispanic White participants were slightly older with a mean age of 36.5 years, compared to a mean age of 34.9 years for the Hispanic/Latino participants, the two groups did not differ significantly based on age (See Table 7). The mean level of income among the participants was \$30,000-\$35,000 per year; 26 percent of participants had a total household income of less than \$20,000. Half of

the participants in the sample had at least some college education; nearly one-fourth of the participants did not complete high school.

### *Procedures*

Data collection was based on the use of an integrative mixed-methods approach (Castro & Coe, 2007), which consisted of structured quantitative questionnaires as well as open-ended prompts used to elicit qualitative narrative responses. Data analysis for the current study utilized data from the quantitative structured interview only; however qualitative responses from the open-ended interview were used to provide substantive content to aid interpretation. The protocol for the two-hour interview was developed for two studies prior to the current study, and was available in both English and Spanish. Each interview began with a 30- to 45-minute audio recorded session, known as a *platica* (“a chat”). The *platica* consisted of prompts designed to illicit narrative responses to six *focus questions* that relate to: 1) ethnic identity and pride, 2) close relationships, 3) gender identity, 4) group norms, 5) risk behaviors, and 6) resilience response to a “Difficult Problem.” The current study utilized responses from the first section, ethnic identity and pride, to augment the results of the quantitative analysis.

Following the *platica* section a structured interview was administered consisting of demographic questions, a developmental history from three life periods: 1) elementary school (grades 3 to 5, ages 8 to 10), 2) middle school (grades 6-8, ages 11 to 13), and 3) high school



(grades 9 to 12, ages 14 to 18), bicultural acculturation, a section on family rules and expectations, gender issues, resilience, stress, health behaviors, and drug use history. The administration of the interviews lasted approximately 2 ½ hours and participants were paid \$25 in compensation.

Informed consent was obtained from all participants in accordance with institutional and federal guidelines based on the protocol approved by Arizona State University's institutional review board for the protection of human subjects. All subjects were given a subject number. Participants' data are kept separate from their consent forms so that their recorded *platica* and structured interview are not associated with the person to whom the number was assigned. All items are kept in a locked cabinet and once an interview is conducted all items are promptly returned to the secure lab and placed in the cabinet.

### *Measures*

The questionnaire consisted of 379 individual items. Scales employed to measure the individual constructs used in the proposed model are described below. The text below refers to specific sections of the structured interview.

#### *Participant demographics: Age, ethnicity, income, and education.*

Participants were asked to report on their age, ethnicity, income, and education. Continuous age scores were calculated based on the time since their date of birth. Participants were asked to select the term that

best described their ethnic, cultural or national identity from the following options: White American (non-Hispanic white, Anglo American); White American with mixed cultural backgrounds; African American/Black; Hispanic/Latino; American Indian/Native American; Asian American; and Other. Participants who identified as Hispanic/Latino were asked to further specify their ethnic or national identity from the following options: Mexican; Mexican American; Chicano; Puerto Rican; Cuban American; Other Hispanic. Nearly two-fifths of the participants who identified as Hispanic/Latino (39.4%) were Mexican Nationals, that is, Mexicans who were born in Mexico and who have not obtained US citizenship. An additional two-fifths identified as Mexican American (13%) or Chicano (25%). One participant identified as Cuban American (1%). The remaining Hispanic/Latino participants identified as Other Hispanic (17%).

Income was defined as total household income for the last year with options ranging from under \$4,000 up to \$75,000 or more.

Participants were asked to identify their level of education by selecting one of the following options: (1) Did not complete grade school; (2) Completed grade school or less; (3) Some high school; (4) Completed high school or GED; (5) Technical, nursing or business school after high school; (6) Some college; (7) Completed college; or (8) Other.

#### *Scales Included in the Model – Independent Variables*

*Ethnic Pride.* The Ethnic Pride scale consists of four items that assess the level of pride and interest in one's cultural or ethnic heritage.

Three of the scale items were derived from a larger scale that assessed identity issues, including identification as a drug user and as a member of the community. Each of the three questions used in the Ethnic Pride sub-scale included the following stem, “How much do you agree or disagree with the following?” A representative item is “I am very proud of my family/cultural heritage.” Items were rated on a 5-point dimension, from 1 = “Strongly disagree” to 5 = “Strongly agree.” The final item of the Ethnic Pride sub-scale was originally used in a scale to assess current level of acculturation into the mainstream society. That acculturation scale included questions regarding language preference and current living situation. The question used for the Ethnic Pride sub-scale asked, “Regarding your own cultural or ethnic heritage, such as being an Hispanic/Latino or being a White American, etc., today, at this point in your life, you feel:” Participants responded on a 5-item dimension, from 1 = “Very Proud” to 5 = “Ashamed”. The range of scores of this item was reverse coded to maintain consistency with the dimension of the first three scale items. Higher scores on the Ethnic Pride scale indicate stronger pride in one’s cultural or ethnic heritage. For the total sample, including both the Hispanic and Non-Hispanic White groups, the scale exhibited a Cronbach alpha reliability coefficient of  $\alpha = .71$ . Cronbach alpha reliability coefficients were also computed for the two groups separately. A Cronbach alpha reliability coefficient of  $\alpha = .72$  was observed for the Non-Hispanic White sample, indicating that this construct was measured

reliably in this group. For the Hispanic group, the Ethnic Pride scale exhibited a coefficient of  $\alpha = .59$ . See Appendix A for scale items.

*Family traditionalism.* The Family Traditionalism scale is a 12-item scale that asks about traditional family beliefs and behaviors (Castro & Gutierrez, 1997). The original items were drawn and expanded from the Traditionalism-Modernism Scale developed by Ramirez (1991). In a prior community-based study, this Family Traditionalism scale was translated into Spanish and was tested in a sample of 571 Hispanic women (Castro, Elder, Coe, Tafoya-Barraza, Moratto, Campbell, & Talavera, 1995). Equivalent Spanish and English versions of this scale as developed from this community sample were used in the present study. A representative item is, "Traditional celebrations, such as baptisms, weddings, or graduation ceremonies add meaning to life." Items were rated on a 5-point dimension on which 1 = "Disagree a lot," 3 = "No opinion," and 5 = "Agree a lot". For the total sample, a Cronbach alpha reliability coefficient of  $\alpha = .75$  was observed. A Cronbach reliability coefficient of  $\alpha = .75$  was observed for the Hispanic/Latino sample, and  $\alpha = .68$  for the White American sample, thus indicating that this construct was measured reliably in both ethnic groups. See Appendix B for scale items.

#### *Outcome Measure*

*Self-efficacy in Avoiding Drugs.* Drug use avoidance self-efficacy was measured with a 10-item scale that measured each participant's perceived capability for avoiding drug use. Each item had a stem that

asked, “After leaving treatment, how confident will you be that during the following two weeks you could...” followed by a specific action, such as, “Avoid situations that put you at risk for substance use.” Each item was rated on a dimension of: 1 = “Not at all” to 6 = “Entirely.” Higher scores indicate greater self-efficacy for avoiding substance use. See Appendix C for scale items.

## Chapter 3

### DATA ANALYSIS

#### *Psychometric Analysis of Scales*

There are three scales that were used in the present study. The unidimensionality of each scale was explored using a multi-group confirmatory factor analysis with maximum likelihood estimation. The model fit was assessed using a chi-square goodness of fit test, and the following fit indices: the comparative fit index (CFI; Bentler, 1990) and the standardized root mean square residual (SRMR). Good fit was assessed according to recommendations by Hu and Bentler (1998). Based on their recommendations, models with a CFI of .95 or higher, an SRMR of .08 or lower, and factor loadings of .40 or greater are indicative of good model fit. Results of the single-factor multi-group confirmatory factor analysis are included in Tables 2 through 4, which indicate the standardized factor loadings for each item separated by group. The three scales are:

- 1) Ethnic pride (k = 4)
- 2) Family traditionalism (k = 12)
- 3) Self-efficacy to avoid drugs following treatment (k = 10)

After examining the factor structure of each scale, individual items were removed from each construct, except the ethnic pride scale. One item was removed from the self-efficacy scale, while four items were removed from the family traditionalism scale. Further explanation of the modifications made to each scale are described in detail below. The

resulting scales from the single factor confirmatory factor analysis were then examined for measurement invariance using multigroup confirmatory factor analysis.

#### *Multigroup Confirmatory Factor Analysis*

When comparing psychological measures across groups an assumption is made that the latent constructs being assessed are similarly captured by the same measure (Geiser, Crayen, and Enders, in preparation). The present study is interested in comparing the influence of cultural variables on confidence to remain abstinent from drugs among Hispanic and non-Hispanic White men. In order to accurately answer this research question, the individual scales used in the proposed model must be tested for measurement invariance to ensure that the three latent constructs are measuring the same concept across both groups. Measurement invariance was assessed in each scale using multiple group covariance structure analysis, according to recommendations by Meredith (1991) and Geiser et al. (in preparation). Multiple group covariance structure analysis is a process of comparing the mean structure of two groups in which a series of equality constraints are placed on the model in a hierarchical fashion. Models with more restrictions are compared to less restricted models using likelihood ratio tests. Restrictions are imposed on the model to achieve the highest possible level of measurement invariance.

Widaman and Reise (1997) distinguish between four levels of measurement invariance: configural, weak factorial, strong factorial, and strict factorial invariance. The configural model is the weakest form of measurement invariance, and serves as the baseline model (see Figure 10 for configural model specification for the Ethnic Pride scale). The configural model simply specifies that the basic factor structure is identical across all groups. A single constraint is placed on the factor loading for one measured variable, which serves as the marker variable for the latent factor. Each scale has one marker variable, which is used for both the Hispanic and non-Hispanic White groups. No other constraints are placed on the model, allowing all other parameters to be freely estimated. In Figure 10, a dashed box is placed around the first factor loading for both samples, indicating the first scale item as the marker variable. In the current study, if configural invariance holds, then the items on each scale would load on the respective factors for both the Hispanic and non-Hispanic White samples taken separately.

Weak factorial invariance further specifies that the factor loadings be equivalent across the two groups (see Figure 11 for the weak factorial invariance model specification for the ethnic pride scale). For example, if weak factorial invariance holds for the ethnic pride scale, then the four items of the scale would load on the single factor for both Hispanic and non-Hispanic White participants and the factor loadings would be statistically equivalent for both groups. In Figure 11, a dashed box is



placed around the factor loadings in each group separately, indicating that the factor loadings are constrained to equivalence for both groups.

In addition to the model equivalence specified under weak factorial invariance, strong factorial invariance specifies that the intercepts are constant for all indicators across the groups (see Figure 12 for the strong factorial invariance model specification for the ethnic pride scale). Figure 12 introduces the mean structure of scale items by displaying the intercepts of the items. Because the variables are centered in MPlus, the item intercepts are the means for each item. A dashed box is placed around the item intercepts and factor loadings for both groups to show that these parameters are set to be equal.

The final and most stringent form of measurement invariance, strict factorial invariance, further specifies that in addition to the loadings and intercepts being equal, the residual variances are identical for all groups (Geiser et al., in preparation). Figure 13 displays the model specification for strict factorial invariance of the ethnic pride scale. In addition to the previous constraints placed on the model, Figure 13 adds a dashed box around the residual variances to indicate the error variance is equivalent in both groups.

While testing the configural model for each scale, modification indices were examined in MPlus to identify potential model misspecification. Modifications were made to the baseline model for each scale only if the manipulation was determined to be appropriate based on

the content of the items identified by the modification indices. Justification for any changes made to the model specification is provided in the results of the psychometric analyses below.

### *Statistical Analysis*

*Descriptive statistics.* All statistical analyses were conducted using SPSS Statistical Software version 17, unless otherwise noted. Descriptive data analyses were conducted for each scale to examine the data prior to the main regression analyses. Descriptive statistics were calculated for each variable, including measures of central tendency and variability (means and standard deviations), as well as indications of skewness and kurtosis for each scale. Frequency distributions were examined for all predictors and the outcome variable. Histograms were created for each variable to examine its frequency distributions and normality, and as a complement to the calculation of values for skewness and kurtosis. Frequencies were examined with box and whisker plots, which show the distribution of scores as well as identify potential outliers. See Figures 3 through 5 for boxplots of each predictor.

Consistent with recommendations from Cohen, Cohen, West, and Aiken (2003), all predictors were centered to aid in interpretation. A scatterplot of each centered predictor with the dependent variable was plotted with a superimposed regression line to examine the relationship between these variables and to detect curvilinear relationships (See Figures 6 and 7). The scatterplots were also be used to detect outliers in

the data that may need further examination. An additional scatterplot was created to assess the relationship between the ethnic pride and family traditionalism predictors (See Figure 8).

Power analyses were computed using the statistical software, G\*Power 3.0 (Erdfelder, Faul, & Buchner, 1996) for multiple linear regression to assess the sample size required to detect a change in the proportion of variance accounted for in the criterion by the predictors of interest, above and beyond the control variables. Under the assumption of a medium effect size, the results of this power analysis indicate that with three predictors and two control variables, a sample size of 77 would be needed to obtain statistical power of .80. Given this sample size of 172, it is possible to achieve this level of statistical power. If disaggregating this sample into its two ethnic groups, Hispanics and non-Hispanic White Americans, for both groups, the respective sample sizes are sufficient to detect a medium effect size with a power of .80.

*Scale reliabilities.* The internal consistency reliability of each scale used with this sample was assessed with Cronbach's coefficient alpha. This test statistic measures the extent to which a set of items measures a single unidimensional latent construct. Scores of .70 or higher are generally considered to indicate good internal consistency. Values of Cronbach's alpha below .70 may indicate possible decrements in the internal consistency of each scale for the two groups separately.

*Identification of covariates.* Conventional demographic/background variables including age, level of education, and income level can operate as covariates that can influence or confound the association between the proposed predictors and the outcome variable of interest. A correlational analysis was conducted to examine the potential confounding effects of these and similar background variables. Table 5 consists of the correlations of all predictors and the criterion. Three demographic variables, age, education and income, were also included in the correlational analysis to assess for a potential confounding effect. As would be expected, income was moderately correlated with education ( $r = .27$ ), however, income is not significantly correlated with any of the predictors or the outcome variable. This would seem to suggest that any confounding effect due to participant income would be captured by level of education. Accordingly, income was not controlled for in the present study. When considering the entire sample, age was found to be significantly correlated with both ethnic pride and traditionalism, but not the outcome variable drug avoidance self-efficacy. As age increases, both ethnic pride and traditionalism decrease. Interestingly, when correlations were computed for each ethnic group separately, the significant correlation between age and each of the predictors was found in only the Hispanic group (See Table 5). The present study controlled for the potential confounding effects of age and education by introducing these variables in the first step of the multiple regression model analyses, thus

partialing out the effects of the confounding variables on the outcome variable, prior to the analysis of the effect of interest.

*Multicollinearity, outliers and other influential cases.* Multicollinearity was assessed by examining VIF and Tolerance indices. An examination of regression diagnostics was conducted to assess for influential data points and outliers for each regression equation. DFFITS, a global measure of standardized change based on predicted scores, is a recommended measure of the influence of an individual case on the overall regression equation (Cohen, et al., 2003). Influential cases are indicated by a DFFITS score greater than 1.0 (Neter, Wasserman, & Kutner, 1989). In addition to examining DFFITS for each case, DFBETAS, a measure of standardized change in regression coefficients after a case has been deleted, were also examined for each regression coefficient. DFBETAS scores greater than 1.0 indicate influential cases (Neter, et al., 1989). Influential cases and data points were further assessed by examining a series of graphical representations of the data. Scatterplots, boxplots, histograms, and Q-Q plots were all examined for influential data points.

*Main Regression Analyses.* All predictors, covariates and the outcome variable were examined for their appropriateness for correlational and regression analyses, according to recommendations by Tabachnick and Fidell (2001). Table 5 presents the intercorrelations among the outcome variable, the ethnic pride and traditionalism predictors, and

potential covariates, education, income, age, and acculturation. As noted previously, only age and education were included in the final analyses as covariates.

A series of linear multiple regression analyses were conducted to assess the possible influences of three cultural variables (ethnic identification, ethnic pride and family traditionalism) on the outcome variable of interest (drug avoidance self-efficacy). Potential confounding variables, age and education, were entered into the first block of each regression analysis to control for the potential spurious effect of these variables on the criterion. Contrast codes were used to test ethnic group differences in the prediction of self-efficacy to avoid drugs (-0.5 = non-Hispanic White; +0.5 = Hispanic). Using contrast codes in this manner results in  $R^2$  and F values that are identical to those obtained for dummy coding. The advantage of using the contrast codes specified, as opposed to dummy codes, is that the contrast weights are centered, which allow for easier interpretation of the results. As noted previously, the remaining predictors were included in their centered form to aid in interpretation (Cohen, et al., 2003). All predictors and all interactions were entered into the second block of the first regression analysis to test the complete model, after partialling out the variance explained by the identified covariates. Following this complete model, two separate regression analyses were conducted to test for ethnic group differences of both the effect of ethnic pride and family traditionalism on drug avoidance self

efficacy. Finally, a fourth regression equation was conducted to test the moderation effect of family traditionalism on the relationship between ethnic pride and drug avoidance self-efficacy.

## RESULTS

### *Preliminary Analyses*

Levene's test was used to assess for violations of the assumption of homogeneity of variance. Results of this test indicate that the sample is robust against violations of the homogeneity of variance assumption, suggesting that the variance of drug avoidance self-efficacy scores is approximately equal for both the Hispanic and non-Hispanic White groups. The psychometric properties of the primary variables and potential covariates were examined. As shown in Table 6, the skewness and kurtosis of the predictors and covariates fell within the acceptable range (2.0 and 7.0, respectively; West, Finch, & Curran, 1995), although the distributional properties of the family traditionalism scale indicate that the scale has greater negative skew and greater kurtosis than the other predictors and covariates.

As noted previously, regression diagnostics were computed for each regression equation to assess influential data points that might compromise the results. Specifically, DFFITS and DFBETAS scores were computed to identify errant cases that should potentially be removed from the analysis. Absolute value scores greater than 1.0 for either of these regression case diagnostics would indicate an influential case. An examination of the regression diagnostics for each equation found no cases with DFFITS or DFBETAS scores greater than 1.0. Influential



cases were also assessed by examining Q-Q plots of the residuals for each regression equation. A Q-Q plot is a probability plot in which the residuals of the sample distribution are compared to a normal distribution to assess possible outliers. If the residual data points fall on a straight line, then the residuals are normally distributed. Data points that diverge from the imposed line indicate cases with large residuals (Cohen, et al, 2003). Figure 9 presents the Q-Q plot of the complete model. In this figure, one case (identified as case 91) appears to have a large residual. An examination of the case diagnostics confirms that this case has a large residual and may be adversely influencing the results of the regression analysis. The DFFITS score for this case is approaching the conventional cutoff score of 1.0, however, it is still below this threshold. The DFBETAS scores for each predictor did not exceed the cutoff of 1.0.

*Multigroup CFA of the ethnic pride scale.* Results of the multigroup confirmatory factor analysis testing the measurement invariance of the ethnic pride scale for the two groups indicate that the configural model provided adequate fit,  $\chi^2(4) = 10.39, p = .034$  (CFI = .944; SRMR = .049) (see Table 2 for factor loadings for each item and inter-item correlations by group). Although the  $\chi^2$  goodness of fit test does not indicate a good fit, the fit indices suggest an adequate fit. In addition to the overall  $\chi^2$ , MPlus also provides the contributions of each group which sum to equal the overall  $\chi^2$ . Results indicate that Hispanic participants contribute 7.188 and non-Hispanic White participants contribute 3.214  $\chi^2$  units to the overall  $\chi^2$ ,

indicating that the Hispanic participants contribute more to the misfit of the model. An examination of the modification indices for this scale indicated that the overall fit of the model could be improved by allowing the residual variance of items 1 and 2 to correlate. Item 1 of the ethnic pride scale states, "Regarding your own cultural or ethnic heritage, such as being an Hispanic/Latino or being a White American, etc., today, at this point in your life, you feel:" followed by a range of possible responses from "Ashamed" to "Very Proud." Item 2 states, "I am very proud of my family/cultural heritage," followed by responses ranging from "Strongly disagree" to "Strongly agree." It was determined that the substantive content of these two items was very similar, and the configural model was analyzed again allowing for correlations of the residual variances of these two items. Results of the respecified configural model allowing for correlated errors of the first two items indicated good model fit,  $\chi^2(2) = 4.329, p = .115$  (CFI = .980; SRMR = .029). The respecified model provided a significantly better fit compared to the baseline model,  $\Delta\chi^2(2) = 6.061, p = .048$ . The configural model maintained a good fit for both the Hispanic,  $\chi^2(1) = 1.299, p = .254$  (CFI = .995; SRMR = .026), and non-Hispanic White samples,  $\chi^2(1) = 3.03, p = .082$  (CFI = .966; SRMR = .031). While the respecified model suggests a better fit, an examination of the model parameters that the model allowing for correlated errors is questionable for the Hispanic group. When the residual errors of items 1 and 2 are allowed to correlate, the factor loadings for all items are no

longer significant. Furthermore, the variance of the latent ethnic pride variable is greatly reduced, suggesting the correlated errors of the two items accounts for the majority of the variance in the Hispanic group. Accordingly, the decision was made to use the initial baseline model as the baseline for assessing measurement invariance.

Given that the model of configural invariance showed adequate overall fit, the model was assessed further for weak factorial invariance. The fit of the weak factorial invariance model is also adequate,  $\chi^2(7) = 13.254$ ,  $p = .066$  (CFI = .946; SRMR = .054). The additional three degrees of freedom relative to the configural model are due to constraining three loading parameters to be equal across the two groups. The difference between the two models indicate that the weak factorial invariance model does not fit significantly worse than the configural model, and we can assume equality of factor loadings across the groups,  $\Delta\chi^2(3) = 2.864$ ,  $p = .413$ .

The fit indices for the strong factorial invariance model indicate that the model does not provide an adequate fit of the data,  $\chi^2(10) = 18.768$ ,  $p = .043$  (CFI = .924; SRMR = .072). Results of a  $\chi^2$  difference test indicate that the strong factorial invariance model provides a significantly worse fit of the data compared to the weak factorial model,  $\Delta\chi^2(3) = 8.378$ ,  $p = .038$ . Thus the assumption of strong factorial invariance is not upheld, and it can be assumed that the intercepts are not statistically equivalent for the two groups on the ethnic pride scale.

*Multigroup CFA of the family traditionalism scale.* Results of the multigroup confirmatory factor analysis testing the measurement invariance of the 12-item family traditionalism scale for the two groups indicate that the configural model provides a poor fit of the data,  $\chi^2(108) = 240.631, p < .001$  (CFI = .767; SRMR = .097). An examination of the standardized factor loadings for each group indicated four items with small loadings. Items 3, 8, 10, and 11 all resulted in standardized factor loadings of less than .40 in both groups. Further examination of the content of these items revealed that all items were related to traditional gender role expectations, and appeared to be fundamentally different from the other items which focused on familial bonding and loyalty, and engaging in traditional celebrations. The low factor loadings of these four items suggest that these items exhibit a factor structure that is quantitatively different than the other items on the scale. Thus, these four items were removed from the analysis and the remaining 8 items were then assessed for unidimensionality using MGCFA. The four items removed from the family traditionalism scale for the purpose of these analyses are as follows:

3. Mothers who have small children should not work outside the home.
8. A wife should always obey her husband, even if she disagrees with his wishes.

10. It is important that mothers teach their daughters how to cook traditional cultural foods.

11. Men have the right to be the total decision maker within their home.

It is quite possible, however, that the construct of family traditionalism represents a complex, multi-factorial structure that is not adequately captured by a scale with a single dimension. Removing these four items may be inappropriate as it ignores the complexity inherent in this construct. Although the current analyses were specifically interested in comparing ethnic groups on a unidimensional construct of family traditionalism, a more appropriate alternative would be to conduct an exploratory factor analysis of the scale to determine a multi-dimensional factor structure that better represents the data.

Fit indices provided by MPlus suggested that the fit of the model could be further improved by allowing for correlation of the residual variances of several of the items in the scale. After reviewing the content of the items specified, it was decided that several of identified modifications were acceptable. Three items on the family traditionalism scale are related to the transmission of cultural traditions to younger generations. The residual variances of these three items, listed below, were allowed to correlate in the final configural model.

1. You should know your family history so you can pass it along to your children.

4. Traditional celebrations such as baptisms, weddings or graduation ceremonies add meaning to life.
5. We should not change our customs and traditions as they contain the wisdom of generations of our forefathers.

Three additional items, related to displaying reverence to familial elders, were also allowed to correlate in the final configural model. These three items are as follows:

6. Adult children should visit their parents often as an expression of love and respect.
7. Children should always be respectful of their parents and grandparents.
9. It is important to always respect one's elders, such as parents and grandparents.

Following the model respecification outlined above, the new configural model was assessed for measurement invariance. Results of the multi-group confirmatory factor analysis of the 8-item scale allowing for correlated errors suggests that the configural model provides an adequate fit of the data,  $\chi^2(28) = 41.811$ ,  $p = .045$  (CFI = .970; SRMR = .049) (see Table 3 for factor loadings for each item and inter-item correlations by group). The new model provided a significantly better fit than the initial baseline model,  $\Delta\chi^2(80) = 198.82$ ,  $p < .001$ . The individual contribution of each group indicates that Hispanic participants contribute 32.516 and non-Hispanic White participants contribute 9.294  $\chi^2$  units to the overall  $\chi^2$ ,

indicating that the Hispanic participants contribute more to the misfit of the model. The configural model maintained an excellent fit for the non-Hispanic White group,  $\chi^2(14) = 9.294$ ,  $p = .812$  (CFI = 1.00; SRMR = .034), and an adequate fit for the Hispanic sample,  $\chi^2(14) = 32.516$ ,  $p = .003$  (CFI = .938; SRMR = .058). These results suggest that the scale is measuring a similar unidimensional construct of family traditionalism in both groups.

The fit of the weak factorial invariance model for the single factor family traditionalism scale remained adequate,  $\chi^2(35) = 49.417$ ,  $p = .054$  (CFI = .969; SRMR = .068). The results of a chi squared difference test indicated that the weak factorial model does not differ significantly from the configural model,  $\Delta\chi^2(7) = 7.606$ ,  $p = .369$ . Thus, we can assume equality of factor loadings across the groups.

The fit indices for the strong factorial invariance model provide mixed results, suggesting that the more heavily constrained model provides less than adequate fit of the data,  $\chi^2(42) = 61.139$ ,  $p < .028$  (CFI = .958; SRMR = .074). Results of a  $\chi^2$  difference test, however, indicate that the fit of the strong factorial invariance model does not differ significantly from the weak factorial model,  $\Delta\chi^2(7) = 11.722$ ,  $p = .11$ . Thus the decision was made to uphold the assumption of strong factorial invariance, and it can be assumed that the intercepts are equivalent for the two groups on the family traditionalism scale.

Strict factorial invariance was assessed by constraining the residual variances of the eight indicators to be equal across both groups. Similar to the strong factorial invariance model, the fit indices of the strict factorial invariance model suggest less than adequate fit,  $\chi^2(50) = 71.555$ ,  $p = .0244$  (CFI = .953; SRMR = .080). A chi-square difference test comparing the strict factorial model to the strong factorial model found that the strict factorial model did not provide a significantly worse overall fit of the data,  $\Delta\chi^2(8) = 10.416$ ,  $p = .237$ , suggesting that the residual variances of the individual items on this scale are equivalent for the two groups.

*Multigroup CFA of the drug avoidance self-efficacy scale.* A multigroup CFA was also conducted on the 10 items of self-efficacy scale to assess for unidimensionality as well as the measurement invariance of the scale across both groups. The configural model testing the fit of the single factor multigroup CFA for the 10-item scale was poor,  $\chi^2(88) = 178.998$ ,  $p < .001$  (CFI = .806; SRMR = .110). An examination of the standardized factor loading for this model indicated a small factor loading for item 6, which asked, “How confident will you be upon leaving this treatment program, that during the following two weeks, you could avoid entirely the use of cigarettes.” As the focus of the treatment at the Corazon facility is on alcohol and substance use, and does not necessarily discourage the use of cigarettes, it makes sense that this item does not match the other items on this scale. Further examination of the modification indices provided by MPlus suggests that the fit of the model



could be improved by allowing for correlated errors of several of the scale items. After reviewing the items indicated in the modification indices, it was determined that the residual variances of items 2 and 5 should be allowed to correlate. Item 2 and 5 both assessed confidence in attending additional drug prevention groups following treatment. Item 2 assessed confidence in attending self-help groups, like Alcoholics Anonymous. Item 5 assessed confidence in attending drug treatment or prevention programs. Due to the similarity of these two items, it was deemed justifiable to allow for correlated errors of these items. The fit indices also suggested that the model fit could be improved by allowing items 1 and 4 to correlate. Item 1 assesses confidence in “fighting off or overcoming any cravings to use drugs.” Item 4 asks how confident are you that you will be able to “avoid totally the use of heroin, cocaine, or other hard drugs.” The content of these two items also appear to be very similar, as both items assess the ability to inhibit the use of hard drugs.

The model was tested again with item 6 removed from the scale, and allowing for correlated errors of the items mentioned above. The model fit of this 9-item scale with correlated errors was adequate,  $\chi^2(50) = 70.186, p = .031$  (CFI = .956; SRMR = .058) (see Table 4 for factor loadings for each item and inter-item correlations by group). The 9-item scale significantly improved the overall model fit of the data compared to the 10-item scale,  $\Delta\chi^2(38) = 108.812, p < .001$ . The individual contribution of each group indicated that Hispanic participants contributed 43.243 and

non-Hispanic White participants contribute 26.943  $\chi^2$  units to the overall  $\chi^2$ , indicating that the Hispanic participants contributed more to the misfit of the model. The configural model maintained an excellent fit for the non-Hispanic White group,  $\chi^2(25) = 26.943$ ,  $p = .359$  (CFI = .990; SRMR = .048). The fit of the configural model for the Hispanic sample was less than adequate,  $\chi^2(25) = 43.243$ ,  $p = .013$  (CFI = .933; SRMR = .064). Modification indices were examined to identify potential manipulations to the model specification for the Hispanic sample to improve the overall fit for the drug avoidance self-efficacy scale. While MPlus indicated that several changes to the model specification could improve the fit of the data, it was not appropriate to further respecify the model based on the content of the items identified. Although the fit of the configural model for the 9-item drug avoidance self-efficacy scale was less than adequate for the Hispanic sample, the fit was not poor. Furthermore, the results of the multigroup CFA indicate that the factor structure is invariant across the two groups, and it can be determined that the scale is measuring a similar unidimensional construct of drug avoidance self-efficacy in both groups.

Given that the model of configural invariance showed adequate overall fit, the model was assessed further for weak factorial invariance. The fit of the weak factorial invariance model was poor,  $\chi^2(58) = 94.248$ ,  $p = .002$  (CFI = .921; SRMR = .095). The difference between the two models indicate that the weak factorial invariance model provides a significantly worse fit than the configural model,  $\Delta\chi^2(8) = 24.062$ ,  $p = .002$ .

These results suggest that the factor loadings of the respective items on the latent construct are not equivalent across the Hispanic and non-Hispanic White groups.

#### *Tests of Group Differences on Key Demographic Variables*

Group characteristics of key variables, and mean group differences for Hispanic and non-Hispanic White participants were tested using independent samples t-tests (see Table 7). Hispanic and non-Hispanic White participants did not differ significantly based on age, income, or number of days in treatment. Non-Hispanic White participants were significantly more educated ( $M = 3.38$ ,  $SD = .898$ ) than the Hispanic participants ( $M = 2.59$ ;  $SD = .993$ ),  $t(170) = 1.585$ ,  $p < .001$ . Non-Hispanic White participants also used a greater variety of drugs prior to treatment ( $M = 2.87$ ;  $SD = 1.04$ ) than the Hispanic participants ( $M = 2.26$ ,  $SD = .768$ ),  $t(170) = 4.355$ ,  $p < .001$ , and attended more substance abuse treatment programs prior to their current treatment ( $M = 1.79$ ;  $SD = 1.452$ ) than the Hispanic participants ( $M = .90$ ,  $SD = 1.024$ ),  $t(132) = 4.114$ ,  $p < .001$ . Consistent with our hypothesis, Hispanic participants indicated higher levels of ethnic pride ( $M = 4.48$ ,  $SD = .474$ ) than the non-Hispanic White participants ( $M = 4.07$ ;  $SD = .640$ ),  $t(170) = -4.770$ ,  $p < .001$ . Hispanic participants also endorsed higher levels of family traditionalism ( $M = 4.50$ ,  $SD = .501$ ) than the non-Hispanic White participants ( $M = 4.32$ ,  $SD = .459$ ),  $t(170) = -2.454$ ,  $p < .05$ .

*Test of Complete Model with All Predictors of Drug Avoidance Self-Efficacy*

Table 8 presents the multiple regression analysis for the total sample for the prediction of drug avoidance self-efficacy that included ethnicity, ethnic pride and family traditionalism as predictors. This total sample model also tested the interaction effects of all pairs of predictors, as well as the three-way interaction of ethnicity, ethnic pride, and family traditionalism. As noted previously, in this model, and all subsequent models, participant age and education were included in the first step as control variables. Age and education accounted for 5.4% of the variance,  $R^2 = .054$ ,  $F(2, 169) = 4.811$ ,  $p < .01$ . Age was not found to significantly predict self-efficacy scores, however, level of education was a significant predictor,  $\beta = .238$ ,  $t(171) = 3.095$ ,  $p < .001$ . After controlling for these covariates, the set of ethnic or cultural variables added an additional 12% of variance accounted for in the criterion,  $\Delta R^2 = .119$ ,  $F(7, 162) = 3.33$ ,  $p < .01$ . In this model, only ethnic pride was found to be a significant predictor of drug avoidance self-efficacy,  $\beta = .397$ ,  $t(171) = 4.389$ ,  $p < .001$ . Respondents who reported higher levels of ethnic pride indicated greater confidence in remaining drug-free following treatment, as measured by the drug avoidance self-efficacy scale.

*Ethnicity and Ethnic Pride as Predictors of Drug Avoidance Self-Efficacy*

Table 9 presents the multiple regression analysis testing ethnicity and ethnic pride as predictors of confidence in remaining drug-free post-

treatment. This set of predictors accounted for 11.4% of the variance in drug avoidance self-efficacy, over and above the effect due to the control variables,  $\Delta R^2 = .114$ ,  $F(3, 166) = 7.421$ ,  $p < .001$ . Ethnic identification did not significantly predict confidence in remaining drug free post-treatment,  $\beta = -.118$ ,  $t(171) = -1.447$ , *ns*. Ethnic pride did significantly predict confidence in remaining drug free,  $\beta = .377$ ,  $t(171) = 4.727$ ,  $p < .001$ . Higher levels of ethnic pride were associated with higher levels of drug avoidance self-efficacy. The regression coefficient for the interaction between ethnicity and ethnic pride did not exceed the traditional threshold for significance ( $p \leq .05$ ), however, the interaction approached significance,  $\beta = .136$ ,  $t(171) = 1.844$ ,  $p = .067$ . The regression coefficient reflects that the effect of ethnic pride on drug avoidance self-efficacy depends on whether the participant is Hispanic or not. Figure 6 shows a scatterplot of ethnic pride scores by drug avoidance self-efficacy score with superimposed OLS regression lines bifurcated for both Hispanic and non-Hispanic White participants. From this graph, a clearer indication of the direction of this interaction is presented. The effect of ethnic pride on the outcome variable is much more pronounced among the Hispanic participants. Lower levels of ethnic pride among Hispanic participants are related to lower levels of drug avoidance self-efficacy than similar levels of ethnic pride among non-Hispanic White participants. As ethnic pride increases, the positive change in self-efficacy scores is more apparent among Hispanic participants than the non-Hispanic White participants.

The discrepancy between these two ethnic groups in drug avoidance self-efficacy scores at the highest levels of ethnic pride appears negligible.

*Ethnicity and Family Traditionalism as Predictors of Drug Avoidance Self-Efficacy*

Table 10 presents the multiple regression analysis testing ethnicity and family traditionalism as predictors of confidence in remaining drug-free post-treatment. This set of predictors accounted for 1.7% of the variance in drug avoidance self-efficacy, over and above the effect due to the control variables. The variance accounted for by this set of predictors was not significant,  $\Delta R^2 = .017$ ,  $F(3, 166) = 1.029$ , *ns*. None of the predictors in this model were significant, however, the family traditionalism predictor approached significance,  $\beta = .132$ ,  $t(171) = 1.667$ ,  $p = .097$ .

*Ethnic Pride and Family Traditionalism as Predictors of Drug Avoidance Self-Efficacy*

Table 11 presents the multiple regression analysis testing ethnic pride and family traditionalism as predictors of confidence in remaining drug-free post-treatment. This set of predictors accounted for 9.1% of the variance in drug avoidance self-efficacy, over and above the effect due to the control variables,  $\Delta R^2 = .091$ ,  $F(3, 166) = 5.883$ ,  $p < .001$ . Once again, ethnic pride was found to significantly positively predict drug avoidance self-efficacy,  $\beta = .319$ ,  $t(171) = 3.802$ ,  $p < .001$ . Family traditionalism was not a significant predictor of confidence in remaining drug free in this model,  $\beta = .008$ ,  $t(171) = .093$ , *ns*. The interaction of

ethnic pride and traditionalism was also not significant, indicating that the effect of ethnic pride on drug avoidance self-efficacy is not moderated by family traditionalism,  $\beta = .058$ ,  $t(171) = .722$ , *ns*.

## Chapter 5

### DISCUSSION

A growing body of evidence has accumulated over recent years suggesting that specific cultural variables may serve as protective factors against the onset of alcohol, tobacco, and illicit drug use among minority adolescents. One such study, by Castro et al. (2009), found that pride in one's ethnic or cultural heritage and affiliation with traditional family values enhanced confidence and self-efficacy to avoid alcohol and cigarettes among male and female Latino adolescents, which in turn predicted attenuated rates of substance use. What remains less clear is whether similar cultural variables that may protect against the onset of minority adolescent substance use can also prevent relapse among minority adults who have already engaged in heavy alcohol or drug use and are attempting to quit. The current study sought to expand upon the Castro et al. (2009) study and remedy this void in the literature by exploring whether these same cultural variables, ethnic pride and family traditionalism, could also protect against relapse among adults receiving treatment for substance dependence. These relationships were further explored in a sample of non-Hispanic White drug users to see if the potential protective influence of these cultural variables are specific to individuals from minority ethnic groups, in this case Hispanic Americans.

*Ethnic Pride and Traditionalism in Hispanic and non-Hispanic White Americans*



Hypotheses 1 and 2 postulated that higher rates of both ethnic pride and family traditionalism would be reported by Hispanic participants, compared to non-Hispanic White participants. Results of an independent samples t-test comparing the means of both groups on ethnic pride and family traditionalism provided support for both of these hypotheses. Hispanic males reported greater pride in their ethnic or cultural heritage than their non-Hispanic White counterparts, and indicated greater affiliation with traditional family values. The finding that Hispanic participants were associated with more traditionalism was not surprising, as the scale used to assess traditionalism was developed with respect to the customs and beliefs that are often associated with traditional Hispanic lifeways which emphasize the importance of familial traditions, reverence for elders, and devotion to the church (Ramirez, 1999).

*Ethnic Pride and Family Traditionalism as Predictors of Self-Efficacy to Avoid Drugs*

Hypothesis 3, which stated that higher levels of ethnic pride will be associated with greater self-efficacy to avoid drugs, was supported. These results suggest that individuals who exhibit greater pride and appreciation of their ethnic or cultural heritage will feel more confidence in their ability to abstain from using drugs following treatment. The results also suggest, however, that the relationship between ethnic pride and drug avoidance self-efficacy may differ depending on the ethnic identification of the individual. Some researchers have suggested that the examination of

ethnic identity and ethnic pride among non-minority White Americans may be confounded by the extensive heterogeneity of culture in the mainstream society (Bonnett, 1998). McDermott and Samson (2005) further suggest that white racial identity is often invisible or taken for granted, and may be viewed as synonymous with social and economical privilege. Accordingly, having pride in being a White American may be fraught with negative connotations. Although the results of the multigroup confirmatory factor analysis for the ethnic pride scale indicate that the latent construct of ethnic pride is similarly captured in both the Hispanic and non-Hispanic White samples, a descriptive qualitative analysis of open-ended responses to a question assessing ethnic pride among participants reveals the varying degrees by which the two groups feel proud of their ethnic or cultural heritage. Compared to non-Hispanic White participants, Hispanic participants appear to place more value in their ethnic or cultural heritage and are more confident in their responses. A representative response to this prompt by a Hispanic participant is, "I'm very proud of being Hispanic, it is an honor to be a part of the Hispanic community." Conversely, non-Hispanic participants were more likely to be apathetic about their ethnic or cultural heritage, with a representative comment being, "I guess I haven't really thought about it. I feel good I guess," or "I don't think there is anything wrong with being anything. That's what I am, and I'm fine with it." These responses are presented here for purely descriptive purposes, and were not analyzed for group

differences; however, they clearly indicate the differing level of intensity by which these two groups exhibit affiliation with their ethnic or cultural group. It has been suggested that it may be more appropriate to assess national pride in White Americans. In a study comparing self-esteem among Latino, African American and White adolescents, Phinney et al. (1996) found that, although ethnic identity predicted self-esteem for all groups, American identity was the strongest predictor of self-esteem for White participants.

The fifth hypothesis, which examined the interaction between ethnic pride and ethnic identity on self-efficacy to avoid drugs, was partially supported. This interaction effect, shown in Figure 6, seems to indicate a stronger effect of ethnic pride on self-efficacy to avoid drugs among the Hispanic sample. Lower levels of ethnic pride among Hispanic participants is associated with considerably lower levels of drug avoidance self-efficacy compared to non-Hispanic White participants will similar levels of ethnic pride.

The fourth hypothesis, that family traditionalism will be related with greater perceived self-efficacy to avoid drugs, was not supported. This finding seems to suggest that, although greater family traditionalism may enhance self-efficacy to avoid drugs among adolescents (Castro et al., 2006), this cultural variable does not have an influence on drug avoidance self-efficacy in adults suffering from substance dependence who are seeking treatment for their illness. It should be noted, however, that

scores on the family traditionalism scale were within a restricted range and were relatively high for participants in both samples. This restricted range and negative skew of the scale may have limited the ability to find a significant relationship between these variables.

*Family Traditionalism as a Moderator of the Relationship Between Ethnic Pride and Self-Efficacy to Avoid Drugs Following Treatment for Substance Abuse*

Hypothesis 6, which postulated that family traditionalism will moderate the effect of ethnic pride on drug avoidance self-efficacy was not supported. As noted above, this null effect of the interaction between ethnic pride and traditionalism may be due, in part, to the limited range in family traditionalism scores in both the Hispanic and non-Hispanic White samples.

*Study Limitations*

The present study is limited by the use of cross-sectional data for testing the hypothesized effects of cultural variables on confidence to avoid relapse following treatment. Previous research has suggested a strong link between drug avoidance self-efficacy and drug use and subsequent relapse. Since participants were assessed during treatment, and no follow-up data was gathered post-treatment, we are unable to confirm that participants who reported greater self-efficacy to avoid drugs were actually able to refrain from using drugs following treatment. Although all participants were assessed while receiving treatment at the

residential facility, participants differed in the amount of time they had spent in treatment at the time of the interview. Accordingly, variation in participant self-efficacy scores may be due to the time spent in treatment or stage of recovery when the data was collected. Furthermore, all data gathered during the study relied on participant self-report and may not accurately capture traditional or conservative familial characteristics.

As noted previously, the psychometric properties of each scale was assessed using multigroup confirmatory factor analysis prior to running the primary analyses in order to determine if the underlying latent variables measured by the scales are consistent for the two ethnic groups. In order to make statistical comparisons between groups of individuals, it is necessary to first determine if the scales used to make such comparisons are equivalent for all groups (Geiser, Crayen, and Enders, in preparation). Based on the results of these psychometric analyses, it was determined that the scales used to assess the two latent cultural constructs, ethnic pride and family traditionalism, were robust against violations of measurement invariance, according to the guidelines proposed by Widaman and Reise (1997). While the results of the psychometric analyses suggest that it is appropriate to make comparisons between Hispanic and non-Hispanic White men on these two variables, the measurement invariance of the outcome variable, drug avoidance self-efficacy, across the two groups was not upheld. Although the factor structure for the self-efficacy scale appears equivalent for the two groups,

the factor loadings for the individual items on the scale differ for the Hispanic and non-Hispanic White groups. The configural model of the self-efficacy scale suggests that the latent self-efficacy variable is similar for the two groups, but not identical and may also indicate that the latent construct of drug avoidance self-efficacy has different meanings for the two groups.

### *Clinical Implications*

While numerous empirically supported treatments have been developed for substance use disorders (SUDs), no one treatment has consistently been found to be most effective at preventing relapse (Carroll et al, 1998). Despite this null finding, comparative studies of SUD treatments have indicated several common factors that are found in most treatments which appear to be most important for achieving and maintaining sobriety. These common factors include enhancing motivation to change and supporting self-efficacy to abstain from drug use (Litt et al, 2008). It has, therefore, been suggested that all treatment modalities for SUDs incorporate efforts to facilitate and maintain self-efficacy in treatment seeking clients.

According to social learning theory, individuals possess beliefs about themselves that allow them to exercise control over their thoughts, behaviors and emotions (Bandura, 1986). Self-efficacy is a cognitive-affective construct that can be defined as an individual's belief that they are capable of obtaining a desired goal. Self-efficacy beliefs may arise

from past experiences, direct and indirect observations of others performing the behavior, and encouragement from others (Reeve, 2005). A related construct to self-efficacy is one's self-concept, or the beliefs and assumptions that one has about themselves (Pajares & Schunk, 2001). Whereas self-efficacy asks the question, "Can I?" questions related to self-concept ask, "Who am I?" These intrinsic beliefs about the self may also enhance one's confidence and increase the likelihood of achieving a desired goal. When drug dependent men enter treatment for substance abuse, they often must undertake a process of reforming their self-concept such that they are no longer defined by their substance use. Through a long history of substance use and abuse, many clients enter treatment with a deteriorated self-concept, characterized by a loss of social relationships, financial burdens, and poor prospects for the future. Research has shown that those who are motivated to change their identity to one in which drug use is not a factor are more likely to achieve long-term abstinence (Downey, Rosengren, & Donovan, 2000). One's ethnic or cultural identity may be one avenue for facilitating this process of identity reformation. Furthermore, the results of the current study suggest that by encouraging clients to reconnect with their ethnic or cultural roots, and to acquire a greater affiliation and pride in belonging to that group they may feel greater confidence in their ability to abstain from drug use.

#### *Directions for Future Research*

As noted previously, a limitation of this research is the cross-sectional nature of the research design. In order to more accurately assess the relationship between cultural variables and health outcomes, including the success of substance abuse treatment, a longitudinal design is necessary. Such designs would allow researchers to explore the developmental pathways of cultural variables, such as ethnic pride, and how these pathways influence health related outcomes. The current study would have further benefited from follow-up data completed at several time-points post-treatment to assess the influence of the targeted cultural variables on drug using behavior.

Cultural variables, including ethnic pride and traditionalism, represent factorially complex constructs that are not adequately captured by rudimentary quantitative scales. Qualitative analysis of open-ended responses to focus questions regarding culture present an opportunity for more meaningful interpretation of the deeper structure of ethnicity and culture, however, strict qualitative analysis is often limited in its ability to integrate information across individual cases (Castro, Kellison, Boyd, & Kopak, 2010). Castro et al. (2010) suggest that a more meaningful approach to investigating culture would be to combine and integrate quantitative and qualitative data. This integrated mixed methods approach would allow researchers to examine the deeper meaning of culture within various ethnic and cultural groups, without compromising the scientific rigor that often accompanies qualitative analyses.



## *Conclusions*

Drug dependent men who enter treatment programs often undergo a dramatic process of identity reformation in which they must develop a new or revised self-concept that emphasizes the avoidance of illicit substances. This process of reconstructing one's identity or self-concept can be challenging for anyone, but may be especially difficult for individuals recovering from addiction who may have damaged social and occupational resources due to past drug use (McIntosh & McKeganey, 2000). In a review of qualitative responses from former addicts, Koski-Jannes (2002) found that the development of a non-addict identity is not limited to resocialization, but also involves an attempt to find more personally satisfying and authentic ways of relating to the world. Reconnecting with one's culture is one method by which a recovering addict can attempt to relate to the world and modify their self-concept in a way that does not necessarily involve the use of drugs. The extent to which the individual feels proud of their affiliation with their ethnic or cultural group will greatly influence how much their cultural identity influences their self-concept, and may have the added benefit of enhancing confidence and self-efficacy in remaining abstinent from drugs.

## Chapter 6

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APPENDIX A  
ETHNIC PRIDE SCALE ITEMS

1. Regarding your own cultural or ethnic heritage, such as being an Hispanic/Latino or being a White American, etc., today, at this point in your life, you feel:

1. *Very Proud*
2. *Proud*
3. *Never thought about it*
4. *Self-conscious*
5. *Ashamed*

The remaining items begin with the prompt: "How much do you agree or disagree with the following?"

Participants are instructed to answer using the following scale:

1. *Strongly disagree*
2. *Disagree*
3. *No opinion*
4. *Agree*
5. *Strongly Agree*

2. I am very proud of my family/cultural heritage.
3. It is important to me that I recognize my ethnic or cultural roots.
4. I'm proud of who I am.

APPENDIX B  
FAMILY TRADITIONALISM SCALE ITEMS

Please answer how you feel about these questions regarding life values.

There are no right or wrong answers. The best answer is how you feel.

Participants are instructed to answer using the following scale:

1. *Strongly disagree*

2. *Disagree*

3. *No opinion*

4. *Agree*

5. *Strongly Agree*

1. You should know your family history so you can pass it along to your children.
2. Children should be taught to be loyal to their family.
3. Mothers who have small children should not work outside the home.
4. Traditional celebrations such as baptisms, weddings or graduation ceremonies add meaning to life.
5. We should not change our customs and traditions as they contain the wisdom of generations of our forefathers.
6. Adult children should visit their parents often as an expression of love and respect.
7. Children should always be respectful of their parents and grandparents.
8. A wife should always obey her husband, even if she disagrees with his wishes.

9. It is important to always respect one's elders, such as parents and grandparents.
10. It is important that mothers teach their daughters how to cook traditional cultural foods.
11. Men have the right to be the total decision maker within their home.
12. It is very important to always remain close to your family, even when there is a fight between some members of the family.

APPENDIX C

DRUG AVOIDANCE SELF-EFFICACY SCALE ITEMS

Please answer these as you may feel after leaving treatment. How SURE (confident) will you be upon leaving this treatment program, that during the following two weeks, you could:

Participants are instructed to answer using the following scale:

1. *Not at all*
2. *A little*
3. *Somewhat*
4. *Very much*
5. *Almost entirely*
6. *Entirely*

1. Fight-off or overcome any cravings, inner feelings to use drugs that you may feel.
2. Attend all meetings of a self-help group, like Alcoholics Anonymous if told to do so.
3. Call on someone for help in staying away from drugs.
4. Avoid totally the use of heroin, cocaine, or other hard drugs.
5. Attend all meetings of a drug prevention or treatment program that you should attend.
6. Avoid entirely the use of cigarettes.
7. Control your anger in bad situations.
8. Avoid entirely the use of alcohol.
9. Say "no" to pressure from others to do something that you don't want to do.

10. Avoid situations that put you at risk for substance use.



Table 1

*Frequency Distributions for Background Characteristics by Ethnic Group*

Variable	Hispanic Sample	Non-Hispanic White Sample
Age (range: 18-59)		
18-25	14	16
26-35	34	20
36-45	31	30
46-60	11	16
Total household income for last year		
Less than \$10,000	21	20
\$10,000 – \$20,000	20	17
\$20,001 – \$40,000	26	23
\$40,001 - \$75,000	11	16
More than \$75,000	7	6
Level of education		
8 <sup>th</sup> grade or less	10	1
9 <sup>th</sup> – 11 <sup>th</sup> grade	36	14
Completed High School	29	26
Some College or Tech School	11	35
Completed College	4	6

Table 2

*Ethnic Pride Scale Item Correlations and Standardized Factor Loadings*

Item	Inter-Item Correlations				Standardized Factor Loading	
	1	2	3	4	Hispanic	Non-Hispanic White
1. How do you feel about your cultural or ethnic heritage?	--	.521**	.136	.165	.529	.676
2. I am very proud of my family/cultural heritage.	.425**	--	.409**	.205*	.981	.645
3. It is important to me that I recognize my ethnic or cultural roots.	.492**	.382**	--	.289**	.418	.657
4. I am proud of who I am.	.305**	.429**	.337**	--	.215	.537

*Note.* N=184; Hispanic sample correlations above the diagonal, non-Hispanic White sample correlations below the diagonal.

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

All factor loadings were significant at  $p < .001$ , except item 1 in the Hispanic sample,  $p = .126$

$X^2(2) = 4.329$ ,  $p = .115$ ; Model Fit Indices: CFI = 1.00; SRMR = .016.

Table 3

*Family Traditionalism Scale Item Correlations and Standardized Factor Loadings*

Traditionalism	1	2	3	4	5	6	7	8	Standardized Factor Loading	
									Hispanic	Non-Hispanic White
1. Know Family History	--	.280**	.464**	.450**	.410**	.476**	.463**	.362**	.549	.579
2. Children should be Loyal	.420**	--	.145	.356**	.444**	.589**	.590**	.415**	.687	.692
3. Traditional celebrations	.170	.367**	--	.070	.200*	.296**	.238*	.434**	.335	.571
4. Should not change customs	.121	.156	.234*	--	.501**	.477**	.326**	.169	.514	.309
5. Adult children should visit parents	.327**	.419**	.277*	.343**	--	.647**	.577**	.265**	.687	.580
6. Respectful to parents/grandparents	.409**	.461**	.337**	.196	.505**	--	.707**	.443**	.873	.652
7. Respectful to elders	.390**	.485**	.502**	.179	.330**	.544**	--	.399**	.796	.731
8. Remain close to family	.364**	.452**	.317**	.172	.336**	.377**	.427**	--	.516	.599

Note. N=184; Hispanic sample correlations on top diagonal, non-Hispanic White sample correlations on bottom diagonal.

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

All factor loadings were significant at  $p < .01$ ;  $X^2(28) = 41.811$ ,  $p = .045$ ; Model Fit Indices: CFI = .970; SRMR = .049.

Table 4

*Self-efficacy Scale Item Correlations and Standardized Factor Loadings*

Item										Standardized Factor Loading	
	1	2	3	4	5	6	7	8	9	Hispanic	Non-Hispanic White
1. Fight cravings	--	.267**	.192	.424**	.358**	.276**	.207*	.259**	.394**	.454	.391
2. Attend AA	.335**	--	.402**	.398**	.669**	.153	.244*	.210*	.335**	.443	.753
3. Call someone	.326**	.563	--	.320**	.469**	.249*	.247*	.275**	.529**	.576	.724
4. Avoid Drugs	.247*	.154	.211	--	.516**	.240*	.205*	.268**	.420**	.520	.258
5. Attend NA	.205	.736**	.599**	.163	--	.254*	.214*	.426**	.495**	.633	.796
6. Control Anger	.098	.197	.124	-.014	.286**	--	.351**	.472**	.422**	.531	.245
7. Avoid Alcohol	.167	.476**	.345**	.118	.517**	.098	--	.487**	.423**	.518	.574
8. Say "No" Situations	.268*	.396**	.362**	.248*	.340**	.057	.272*	--	.574**	.684	.511
9. Avoid Situations	.304**	.284**	.379**	.204	.409**	.139	.315**	.405**	--	.831	.529

Note. N=184; Hispanic sample correlations on top diagonal, non-Hispanic White sample correlations on bottom diagonal. \*  $p < .05$ ; \*\*  $p < .01$

All factor loadings were significant at  $p < .001$ , except items 4 and 7 in the non-Hispanic White sample,  $p < .05$ .  $\chi^2(50) = 70.186$ ,  $p = .031$ ; Model Fit Indices: CFI = .956; SRMR = .058.

Table 5

*Zero-order correlations for all predictors, covariates and the outcome variable*

Variable	1	2	3	4	5	6	7
1. Age		-.089	.264**	.116	-.232*	-.334**	-.113
2. Income	-.103		.214*	.163	.178	.159	.111
3. Education	.126	.327**			.302**	.120	.019
4. Current Acculturation	-.019	.079	.057		-.028	-.020	.039
5. Ethnic Pride	-.140	.135	-.027	.026		.387***	.409***
6. Family Traditionalism	-.137	.099	-.061	.012	.561**		.161
7. Drug Avoidance Self- Efficacy	.149	.076	.156	-.085	.257**	.090	

Note. \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Correlations for Hispanic sample above the diagonal; correlations for non-Hispanic White sample below the diagonal

Table 6

*Descriptive information for predictors and potential covariates*

Predictor/Covariate	N	Missing	M	Median SD	Range	Skewness	Kurtosis
Age	172	0	35.47	9.13	41	.134	-.640
Income <sup>†</sup>	167	5	7.86	4.28	14	.017	-1.026
Education <sup>†</sup>	172	0	2.97	1.03	4	.037	-.688
Ethnic Pride	185	0	4.29	.595	2.25	-.765	.271
Family Traditionalism	185	0	4.41	.488	1.75	-1.763	5.888

<sup>†</sup> See Table 1 for substantive labels for each level of the Income and Education variables

Table 7

*Mean Group Differences between Hispanic and Non-Hispanic White**Participants*

	Ethnicity		<i>t</i>	<i>df</i>
	Hispanic	Non-Hispanic		
Age	35.42 (8.927)	36.62 (9.265)	1.585	170
Education	2.59 (.993)	3.38 (.898)	5.448 <sup>***</sup>	170
Income	7.61 (4.091)	8.09 (4.426)	.730	170
Days in Treatment	22.54 (6.957)	24.17 (5.811)	1.465	131
Prior Programs	.90 (1.024)	1.79 (1.452)	4.114 <sup>***</sup>	132
Polydrug use	2.26 (.768)	2.87 (1.04)	4.355 <sup>***</sup>	170
Ethnic Pride	4.48 (.474)	4.07 (.640)	-4.770 <sup>***</sup>	170
Traditionalism	4.50 (.501)	4.32 (.459)	-2.454 <sup>*</sup>	170
Self-efficacy to Avoid Drugs	4.99 (.760)	5.10 (.674)	.998	170

*Note.* \* =  $p \leq .05$ ; \*\* =  $p \leq .01$ ; \*\*\*  $p \leq .05$ . Standard Deviations appear in parentheses below means.

Table 8

*Summary of regression analyses of Drug Avoidance Self-Efficacy variable on Ethnicity, Ethnic Pride and Family Traditionalism variables*

Regression step	<i>B</i>	<i>SE</i>	$\beta$
Step 1			
Age	-.003	.006	-.039
Education	.167	.054	.238**
Step 2			
Age	.004	.006	.047
Education	.132	.057	.188*
Ethnicity	-.138	.124	-.096
Ethnic Pride <sup>†</sup>	.481	.110	.397***
Family Traditionalism <sup>†</sup>	.007	.146	.004
Ethnicity x Ethnic Pride <sup>†</sup>	.305	.217	.118
Ethnicity x Family Traditionalism <sup>†</sup>	.024	.286	.008
Ethnic Pride x Family Traditionalism <sup>†</sup>	-.010	.195	-.004
Ethnicity x Ethnic Pride x Family Traditionalism <sup>†</sup>	-.344	.397	-.085

*Note.*  $N = 172$ .  $R^2 = .054^{**}$  for Step 1; and  $\Delta R^2 = .119^{**}$  for Step 2. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ . <sup>†</sup> Denotes centered variables



Table 9

*Summary of regression analyses of Drug Avoidance Self-Efficacy variable on Ethnic Pride variables*

Regression step	<i>B</i>	<i>SE</i>	$\beta$
Step 1			
Age	-.003	.006	-.039
Education	.167	.054	.238**
Step 2			
Age	.003	.006	.036
Education	.141	.055	.201*
Ethnicity <sup>†</sup>	-.170	.117	-.118
Ethnic Pride <sup>†</sup>	.457	.097	.377***
Ethnicity x Ethnic Pride <sup>†</sup>	.351	.190	.136 <sup>a</sup>

*Note.*  $N = 172$ .  $R^2 = .054^{**}$  for Step 1; and  $\Delta R^2 = .114^{***}$  for Step 2. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; <sup>a</sup>  $p = .067$ . <sup>†</sup> Denotes centered variables

Table 10

*Summary of regression analyses of Drug Avoidance Self-Efficacy variable on Family Traditionalism variables*

Regression step	<i>B</i>	<i>SE</i>	$\beta$
Step 1			
Age	-.003	.006	-.039
Education	.167	.054	.238**
Step 2			
Age	.000	.006	-.003
Education	.166	.058	.236**
Ethnicity <sup>†</sup>	-.013	.118	-.009
Family Traditionalism <sup>†</sup>	.194	.116	.132 <sup>a</sup>
Ethnicity x Family Traditionalism <sup>†</sup>	.086	.228	.029

*Note.*  $N = 172$ .  $R^2 = .054^{**}$  for Step 1; and  $\Delta R^2 = .017$  for Step 2. \* $p < .05$ ; \*\* $p < .01$ ; <sup>a</sup> $p = .097$ . <sup>†</sup> Denotes centered variables.

Table 11

*Summary of regression analyses of Drug Avoidance Self-Efficacy variable on Ethnic Pride and Family Traditionalism variables*

Regression step	<i>B</i>	<i>SE</i>	$\beta$
Step 1			
Age	-.003	.006	-.039
Education	.167	.054	.238**
Step 2			
Age	.002	.006	.024
Education	.178	.052	.253**
Ethnic Pride <sup>†</sup>	.386	.102	.319***
Family Traditionalism <sup>†</sup>	.012	.133	.008
Ethnic Pride x Family Traditionalism <sup>†</sup>	.128	.177	.058

*Note.*  $N = 172$ .  $R^2 = .054^{**}$  for Step 1; and  $\Delta R^2 = .091^{**}$  for Step 2. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ . <sup>†</sup> Denotes centered variables.

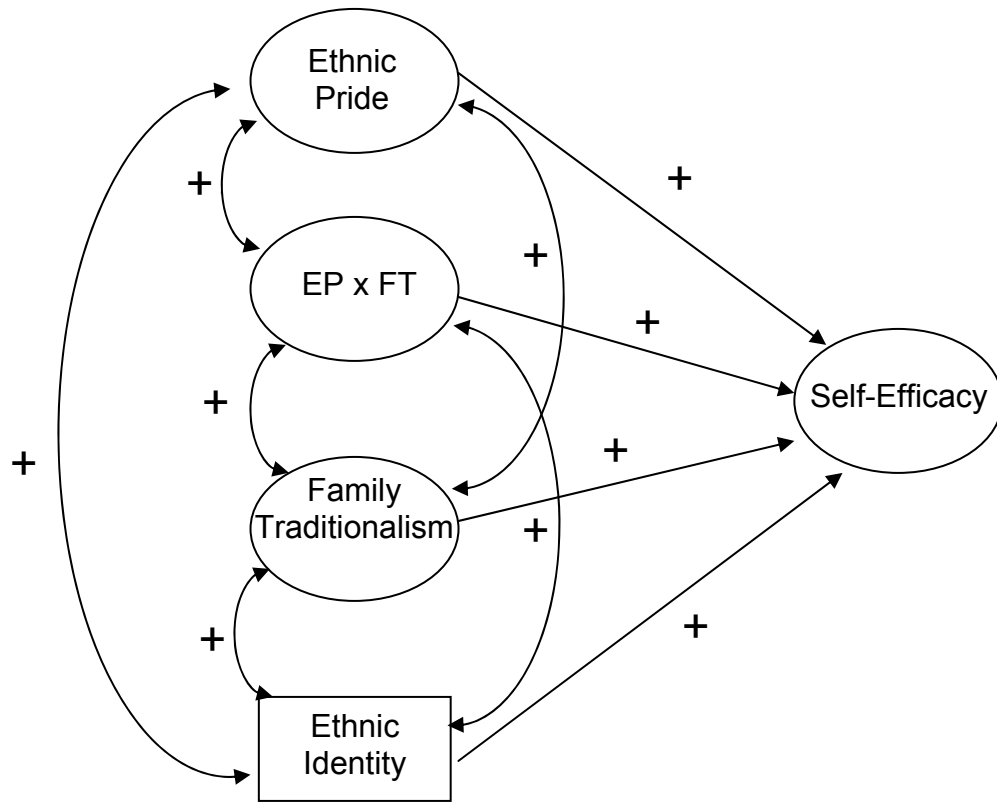


Figure 1. Proposed model showing moderation effect of family traditionalism.

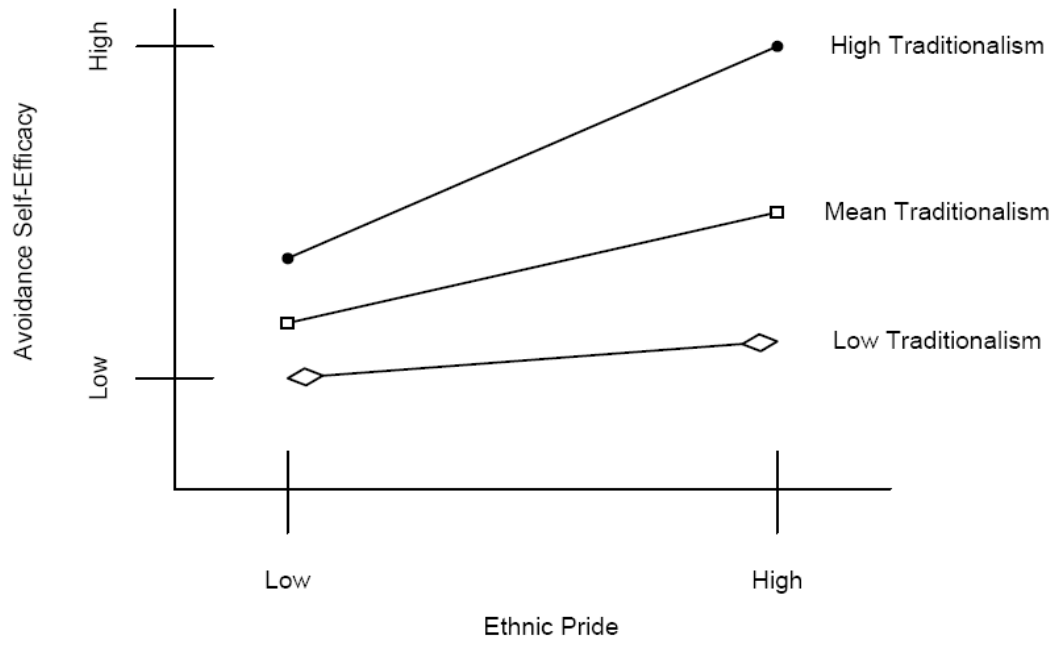


Figure 2. Hypothesized interaction effect.

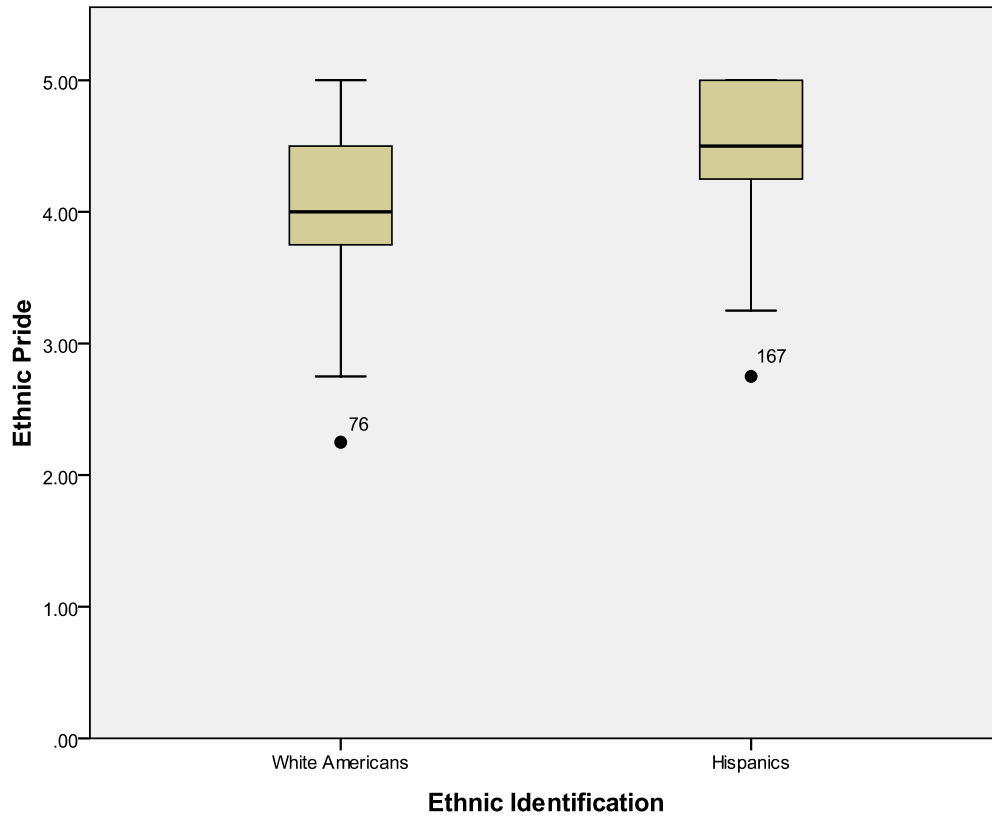


Figure 3. Boxplot of ethnic pride by ethnic identity.

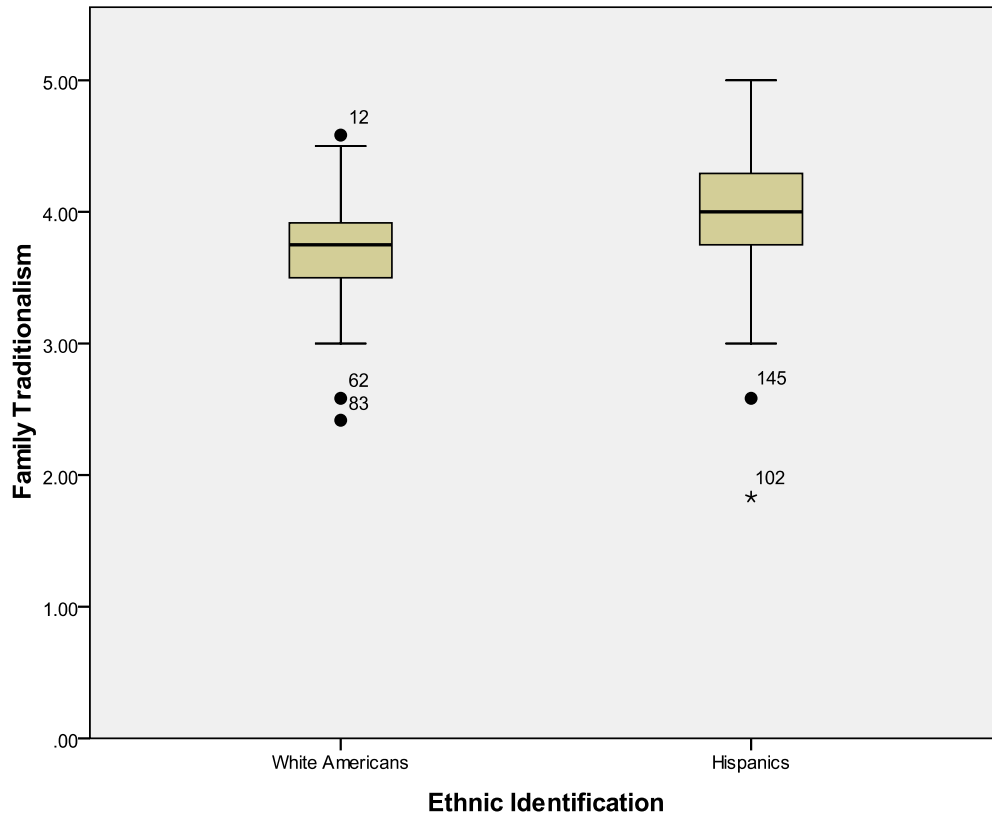


Figure 4. Boxplot of family traditionalism by ethnic identity.

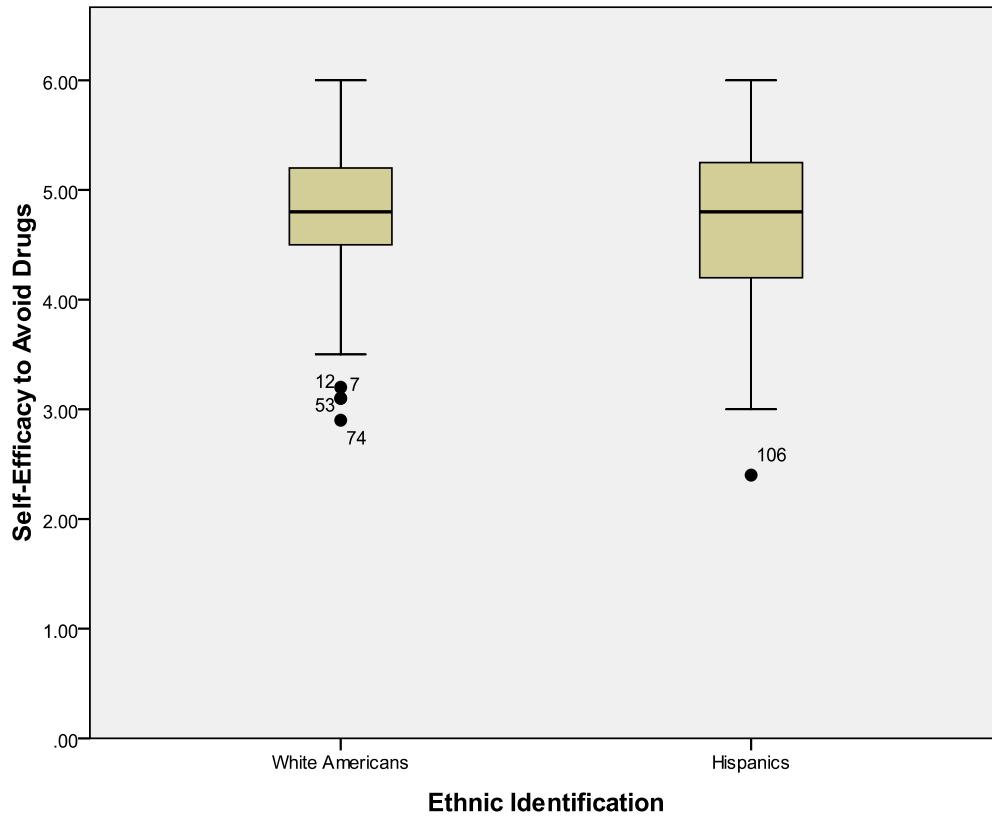


Figure 5. Boxplot of drug avoidance self-efficacy by ethnic identity.



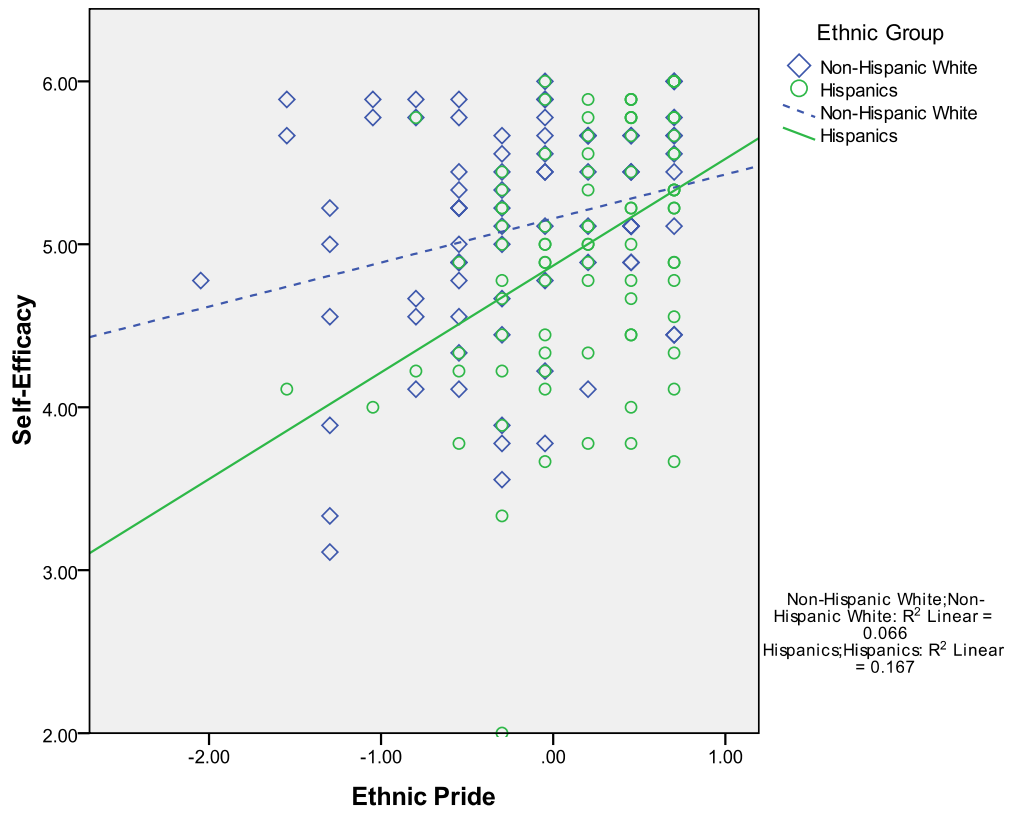


Figure 6. Scatterplot of ethnic pride by drug avoidance self-efficacy.

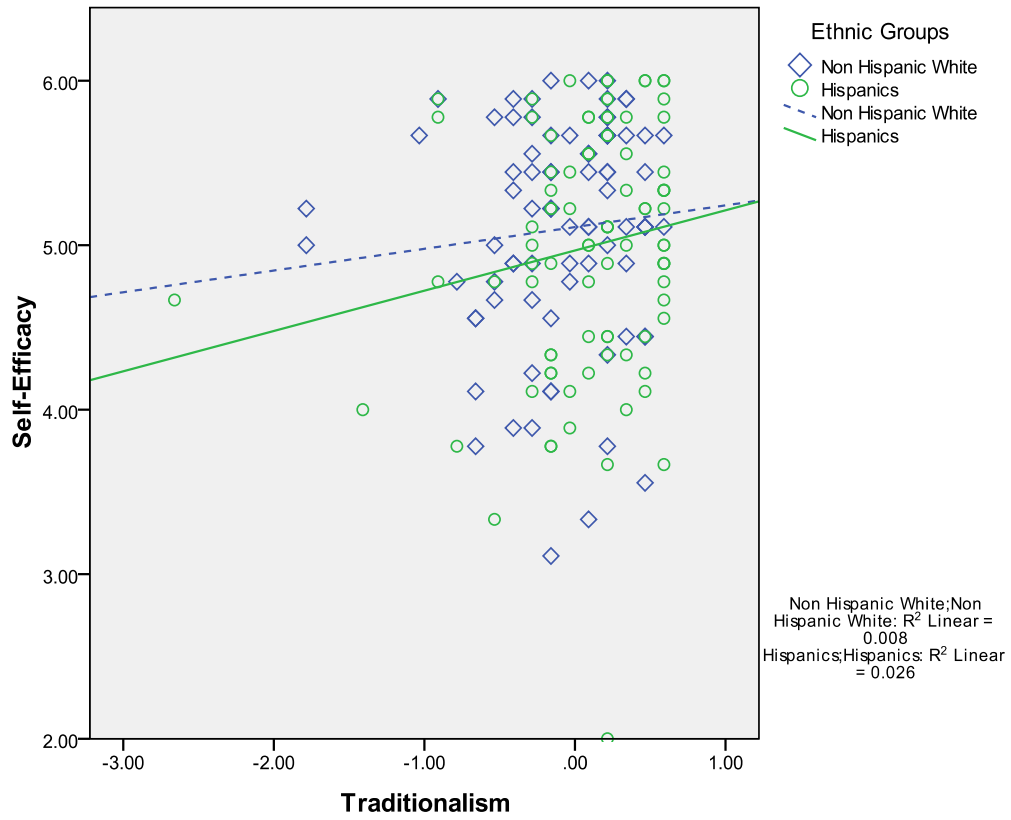


Figure 7. Scatterplot of family traditionalism by drug avoidance self-efficacy.

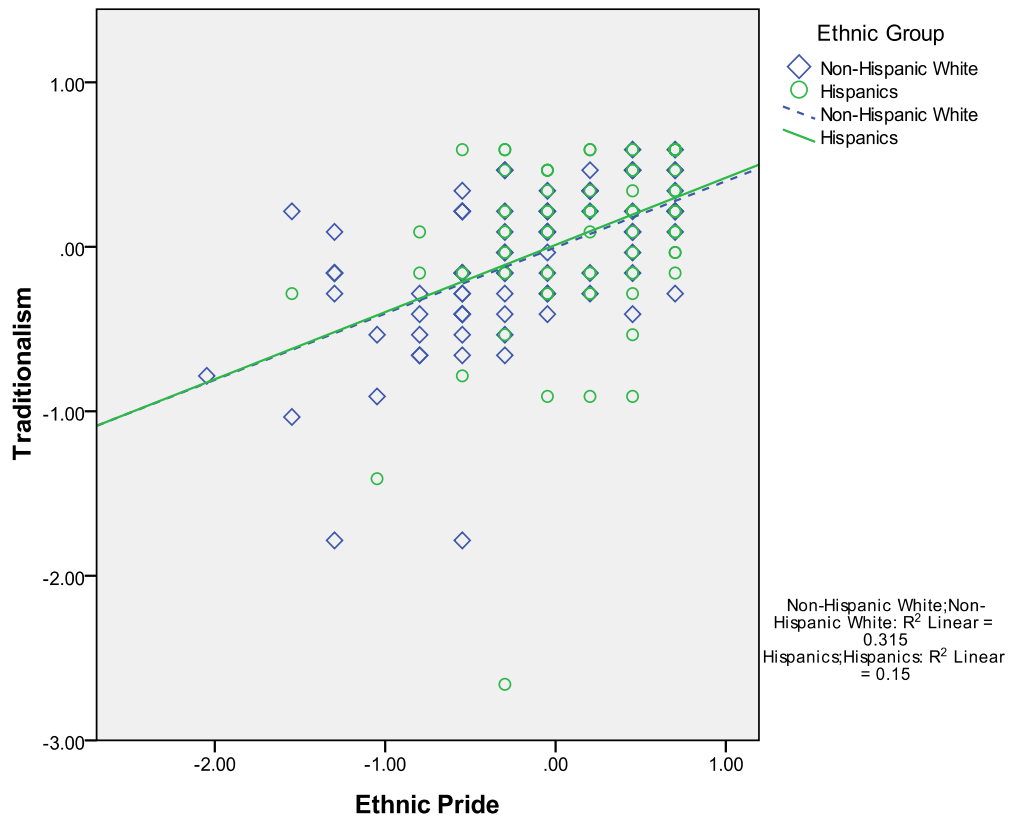


Figure 8. Scatterplot of ethnic pride by family traditionalism.

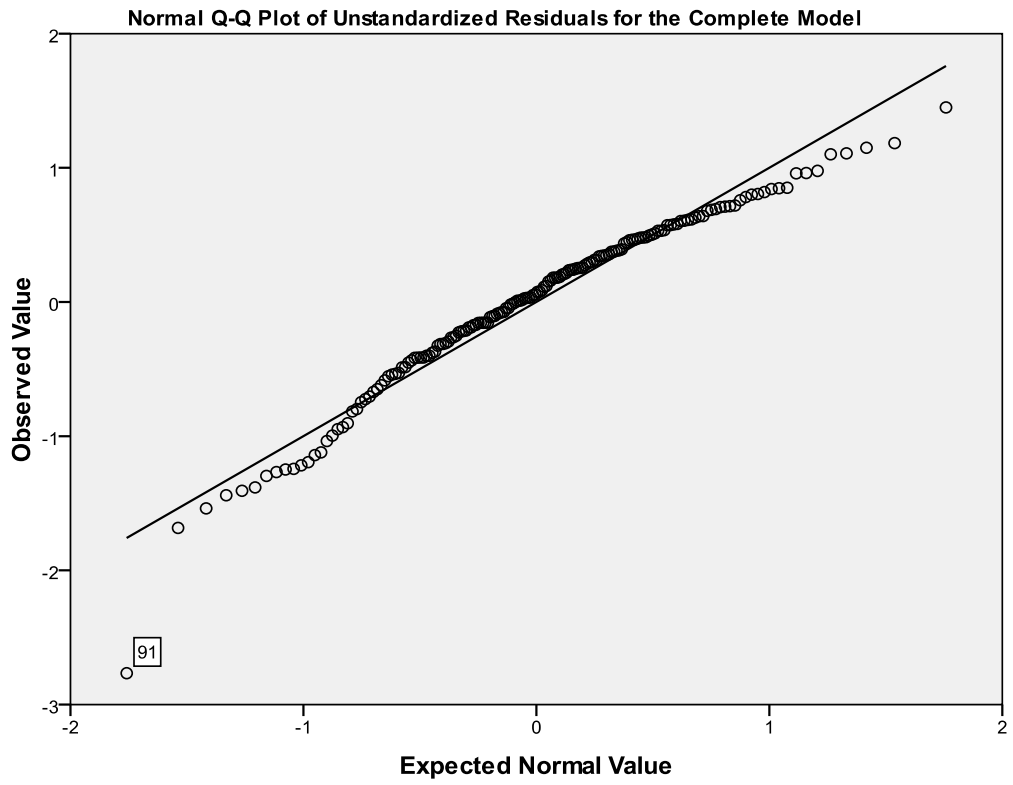


Figure 9. Q-Q plot of residual scores from the complete model.

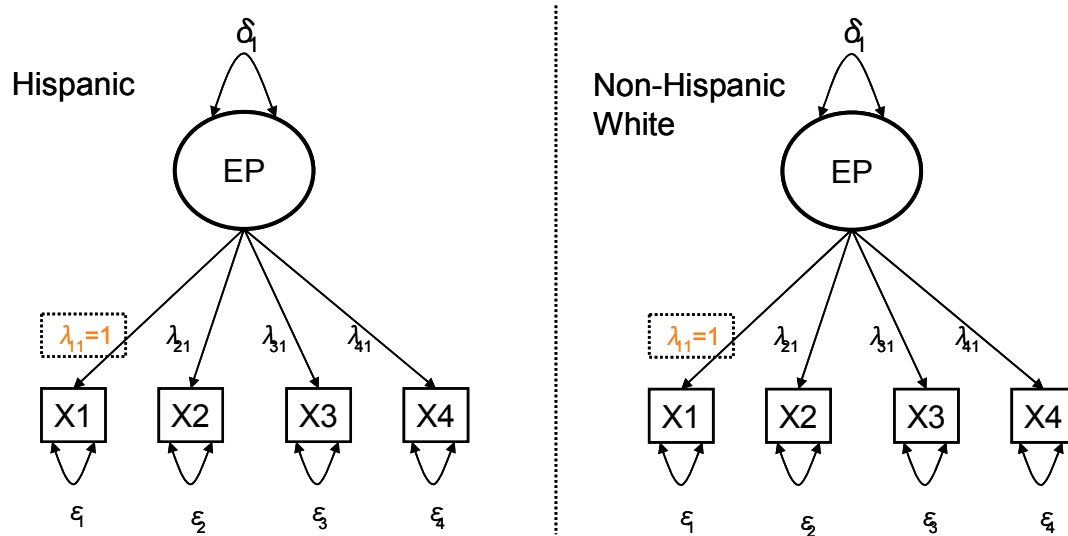


Figure 10. Model specification of the configural model for the MGCFA of the ethnic pride scale.

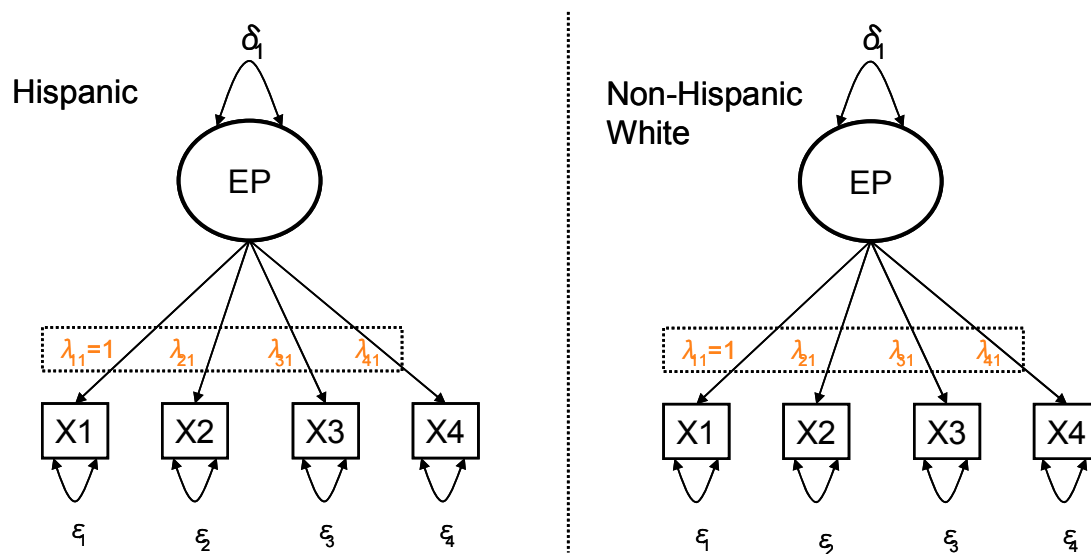


Figure 11. Model specification of the weak factorial invariance model for the MGCFA of the ethnic pride scale.

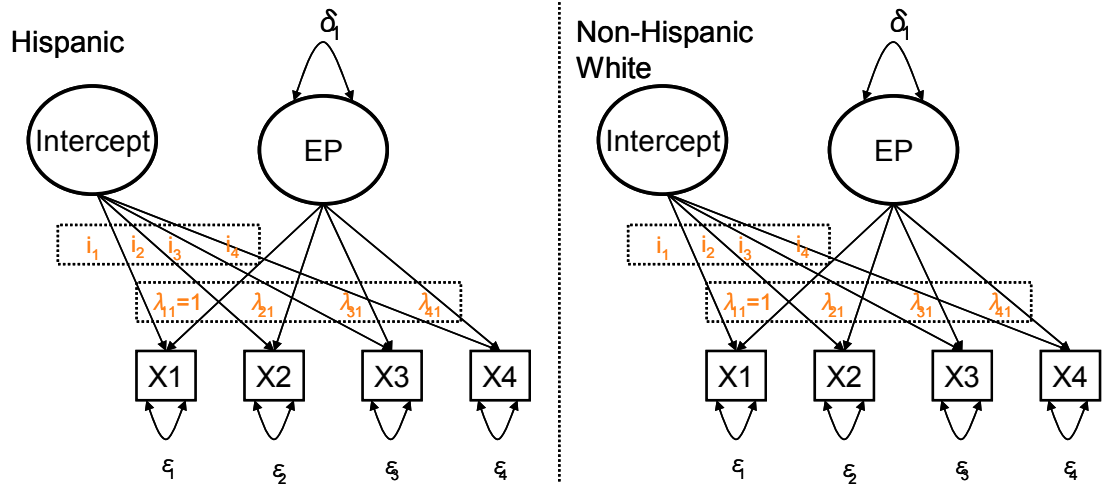


Figure 12. Model specification of the strong factorial invariance model for the MGCFA of the ethnic pride scale.

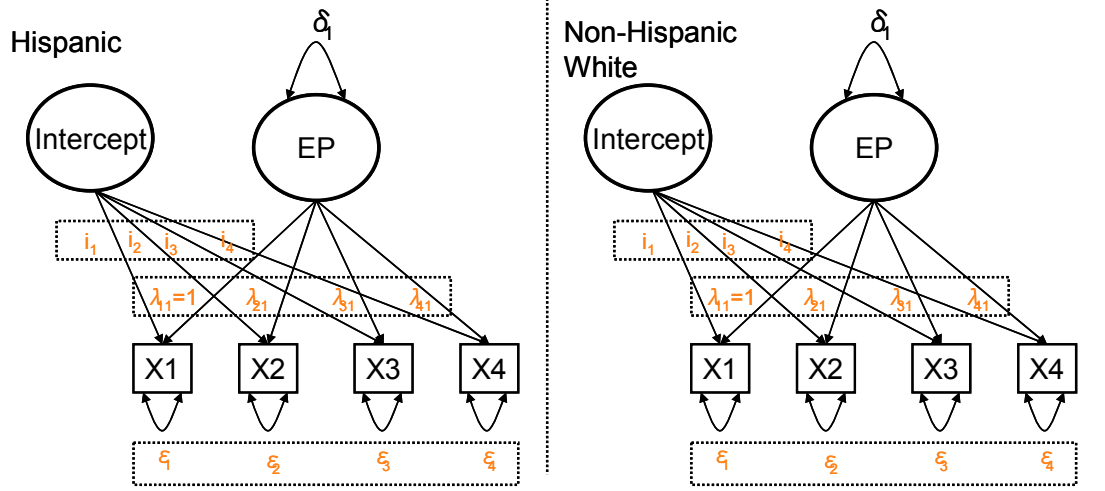


Figure 13. Model specification of the strict factorial invariance model for the MGCFA of the ethnic pride scale.