ABSTRACT

Title of Document: SUBSTANCE ABUSE IN TWO
GENERATIONS OF INDIAN-AMERICANS
AS A FUNCTION OF MARGINALIZATION
AND PERCEIVED DISCRIMINATION.

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Past studies using acculturation to predict substance use in immigrants have yielded mixed findings, suggesting support for both acculturative and assimilation theories of substance use in immigrants. In this investigation, two variables from the cross-cultural literature, Marginalization and Perceived Discrimination, were used to examine the predictions of these theories. First- and second-generation Indian-Americans were recruited and completed questionnaires measuring quantity, frequency, and negative consequences of drug / alcohol use, Perceived Discrimination, and Marginalization. Information on demographics and depressive symptoms were used as covariates. Hierarchical regression and correlation analyses indicated that lower levels of Marginalization significantly predicted higher rates Alcohol Use in the first-generation; conversely, higher levels of Perceived Discrimination were significantly associated with increased Drug Use in the second-generation. It was concluded that both assimilation and acculturative theories may have merit for identifying substance users in an Indian-American sample when generation is considered as a moderator.

SUBSTANCE ABUSE IN TWO GENERATIONS OF INDIAN-AMERICANS AS
A FUNCTION OF MARGINALIZATION AND PERCEIVED DISCRIMINATION.

By

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Dedication

For my parents, Girija, and Dipta, who continually help me reconcile my love for science with my love for helping others, and for Tehreema and TMDC for never letting me forget my first love.

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Chapter 1:

Introduction

In the cross-cultural literature, two theories currently are primarily used to explain substance use in ethnic and racial minorities and immigrants. The acculturative model (Alaniz, 2002; Berry, Kim, Minde, & Mok, 1987; Castillo & Henderson, 2002) suggests that substance use, abuse, and dependence occur in response to the stress that accompanies immigration. This model first assumes that individuals who have recently immigrated to a new culture are likely to experience a myriad of distressing experiences, such as problems in communication, feelings of social isolation, and perceived threats to cultural identity (Sandhu & Asrabadi, 1994; Verma, 2001). These difficulties are traditionally viewed as components of acculturative stress, a source of stress distinct from everyday and life stresses (Joiner & Walker, 2002) that is thought to diminish as an individual becomes more acculturated, or accustomed, to the "host" culture (Berry, 1980; Berry & Annis, 1974). The second assumption of acculturative theory holds that an immigrant who experiences higher levels of acculturative stress is more likely to use psychoactive substances as an escapist reaction. Thus, this theory implies that immigrants who have not lived in the host country long-term, experience high levels of acculturative stress, and have not yet been accepted into the dominant culture are at greater risk for engaging in alcohol and drug use.

There is scant evidence for this model, and it is difficult to locate direct tests of the theory in the literature. A recent study of Korean immigrants in California provided partial support for the acculturative theory by finding that less acculturated

males exhibited higher rates of cigarette smoking than more acculturated males (Hofstetter et al., 2004). The data, however, depicted an interaction between gender and acculturation - unlike the male sample, highly acculturated Korean females were more likely to smoke than their less acculturated counterparts, possibly due to the less restrictive climate of drug use of the United States. This finding suggests that the acculturative model alone is not enough to predict substance use reliably, and that other factors may also be involved.

A competing explanation, assimilation theory, suggests that substance use increases with acculturation (Johnson, 1996). According to this model, as immigrants acculturate to a new society, they tend to change their preferences and usage of drugs and alcohol to approximate the norms of the dominant culture. A critical feature of this theory is time: the longer an immigrant is in contact with the host culture, the more acculturated s/he becomes, and the more s/he adapts to the drug use behaviors of the new society. It is also theorized that protective cultural factors erode with increased acculturation. For example, a recent review of five major studies on the mental health of Mexican immigrants concluded that recent immigrants possess certain protective factors from their native culture that buffer them against substance use (Escobar, Nervi, & Gara, 2000). These protective factors diminish over time and as immigrants acculturate to the dominant society. In short, both the acculturative and assimilation theories identify within-group differences but in opposite ways. The prediction of assimilation theory is markedly different than that of the acculturative model because it classifies well-acculturated, long-term residents (rather than recent immigrants who have not had a chance to acculturate) as the vulnerable population.

Compared to the acculturative model, support for the assimilation model is considerable (Beauvais, 1998). A number of studies have looked at the relationship between number of years lived in the host country and substance use. Johnson, van Geest, & Cho (2002) used data from the U.S. National Health Interview Survey to demonstrate that the 15-year mark of living in a host culture is critical for the shift of drug patterns to match that of the host culture. Similarly, Westermeyer (1996) found a delayed onset of substance abuse of 5-10 years after migration. Finally, a study released last year found differences in tobacco and illicit drug usage in immigrants who had lived in the U.S. for fewer than five years compared to those who have lived here five or more years (Brown, Council, Penne, & Gfroerer, 2005). Support for assimilation theory is also derived from studies that explore the link between acculturation and substance use, as the model predicts that more acculturated individuals use drugs and alcohol more frequently. Among Latino youth, for example, drug rates are higher for bicultural youth who identify with both American and Hispanic cultures than for those who identify solely with the latter (Amaro et al., 1990), suggesting that biculturality may involve learned patterns of substance use. A study of second-generation South Sea Islanders in Australia found that youth who exhibited greater use of alcohol and drugs tended to come from families who adhered less strongly to their traditional culture (Kahn & Fua, 1995). Taken together, these findings suggest the possibility that greater experience with the dominant society may lead to increased substance use over time, and that identification with the majority culture may be the mechanism for this behavioral transmission. Although there is

evidence that intercultural contact does change the substance use patterns of immigrants, however, exactly how or why this occurs is not known (Beauvais, 1998).

In summary, findings are mixed as to whether the acculturative or assimilation models are accurate in describing minority and immigrant substance use. First, the models may not apply to all immigrant groups – for example, it may be important to consider motivation to migrate, as immigration for refugees is likely to be more stressful than for voluntary émigrés (O'Hare & van Tran, 1998). In this vein, confusing findings may abound when important differences between groups are ignored, such as ethnicity, religion, gender, and generation, and either model may not be sufficient to account for outcomes in a variety of groups. Second, it is probable that both theories are each too simplistic in their approaches, leading to sweeping predictions and ambiguous empirical findings. Unfortunately, there has been a dearth of research examining these theories together and in comprehensive detail. Often, these studies employ little more than a unidimensional measure of acculturation and demographic variables as predictors. One interpretation of these mixed findings is that both theories may be valid, but for different subgroups of a minority community. For example, whereas acculturative theory may accurately represent first-generation immigrants, assimilation theory may capture substance use patterns in the second-generation. If this is the case, it may be that other cross-cultural variables explain why generational differences emerge. Working in tandem, these theories and additional factors could create a more complete picture of how substance abuse varies between generations within a given ethnic minority group.

One example of a factor that could prove useful in determining which segments of a given ethnic minority group are at risk for increased substance use are acculturation strategies. The dominant theory of how immigrants adapt to their host cultures in relation to their native cultures has been proposed by John Berry (1980). He and his colleagues have attempted to substantiate the theory of acculturation strategies with a large number of studies conducted in various ethnic groups, including South Asians (Bhui et al., 2005; Kaul, 1983; Krishnan & Berry, 1992). According to Berry, the dilemma of choosing between these two cultures is resolved by choosing one of four possible outcomes, or acculturation strategies. Integration involves acceptance of the beliefs and behaviors of both native and host cultures. Assimilation rejects the native culture in favor of the host culture. Separation is the opposite of assimilation in that there is a rejection of the host culture in favor of the native culture. Lastly, individuals in the marginalization category reject both the native and host cultures. Integration has generally been found to be the most adaptive strategy and is empirically associated with beneficial outcomes (Berry, 1976; Mishra, Sinha, & Berry, 1996; Sam & Berry, 1995). In a study of Dutch migrant children, those who endorsed the integration strategy demonstrated a higher degree of cognitive acculturation, thereby exhibiting better performance scores on cognitive tasks (van de Vijver, Helms-Lorenz, & Feltzer, 1999). Biethnic students who maintain ties to both native and host cultures via education, language, friendships, work, and cognitive processes have been shown to be better adjusted (Kagan & Cohen, 1990). A study conducted on Bangladeshi and other immigrant students in the United Kingdom found that rates for depression were lowest in integrated and

separated individuals, suggesting a protective effect (Bhui et al., 2005). By contrast, marginalization is associated with poor outcomes in a variety of domains. As Caetano, Clark, & Tam (1998) suggest, when social cohesion is absent, as is the case for the marginalization strategy, individuals perceive a lack of behavioral norms (i.e., social codes for adaptive and appropriate behavior). Individuals may also experience emotional distress, such as feelings of not belonging and lack of social support, and may subsequently develop pathological or self-destructive behaviors, such as excessive substance use. In Latinos, for example, low bicultural / marginalized attitudes appears to be a better predictor of psychological distress than other acculturation types distress (Thoman & Suris, 2004). Another study found that immigrant children who endorsed strategies other than integration were also more likely to perform lower on an intelligence test normed for use in the larger host culture (van de Vijver et al., 1999). An investigation of Indian-Americans in the Los Angeles area found that marginalized and separated Indian-American parents reported more frequent and intense family conflict than those with a preference for integration and assimilation strategies (Farver, Narang, & Bhadha, 2002). Taken together, these findings indicate that identification with the larger, dominant culture is an important factor in mental health. The extant literature seems to indicate, therefore, that marginalization is an orientation of interest because of its clinical implications. As such, marginalization may help identify segments within a minority group that are susceptible to using drugs and alcohol. According to the acculturative theory of substance use, for example, high levels of marginalization may predict substance use

because of the subjective distress and lack of identification with behavioral norms that accompanies this acculturation strategy.

A second possible factor that may distinguish between high and low drug and alcohol users within an ethnic sample is perceived discrimination, which is considered to be one factor of acculturative stress (Berry & Annis, 1974; Mena, Padilla, & Maldonado, 1987; Padilla, Wagatsuma, & Lindholm, 1985; Sandhu & Asrabadi, 1994). Particularly because it is a salient, stressful experience in the lives of many immigrants, perceived discrimination is a variable of interest. For example, perceived discrimination has been found to be widespread in non-immigrant minorities such as African-Americans (Ancis, Sedlacek, & Mohr, 2000), as well in immigrants such as Asian-Americans and Latinos (Noh & Kaspar, 2003; Romero & Roberts, 2003). Additionally, perceived discrimination has been associated with a variety of noxious psychological outcomes, such as poor general health (Wiking, Johansson, & Sundquist, 2004), somatic symptoms (Moghaddam, Taylor, Ditto, Jacobs, & Bianchi, 2002), decreased scholastic performance (Stone & Han, 2005), and depression (Noh & Kaspar, 2003). A recent prospective study masterfully demonstrated the link between substance use and perceived discrimination in African-American adults and their children (Gibbons, Gerrard, Cleveland, Wills, & Brody, 2004). Perceived discrimination was shown to be the strongest predictor of substance use among the parents, at an average of twenty months later, even after controlling for base rates of substance use. Perceived discrimination also predicted an increase of substance use at follow-up in the children sampled. Other studies have also shown the link between discrimination and cigarette smoking (Guthrie, Young, Williams, Boyd,

& Kintner, 2002; Landrine & Klonoff, 2000), problem drinking (Martin, Tuch, & Roman, 2003), and alcohol abuse (Whitbeck, Chen, Hoyt, & Adams, 2004). To date, there has been only one investigation to date on the relationship between discrimination, acculturation, and substance use, which found that employment discrimination in Mexican migrant farmworkers was significantly related alcohol abuse and dependence (Finch, Catalano, Novaco, & Vega, 2003). However, this study examined a special portion of the general immigrant population (i.e., seasonal migrants), as well as a specific subset of discrimination (i.e., employment). Despite demonstrations to its powerful effects, perceived discrimination remains to be studied extensively, but may potentially underlie within-group differences in substance use. Because it is associated with psychopathology and maladjustment, high levels of perceived discrimination are likely associated with higher levels of substance use. Understanding whether perceived discrimination is a unique predictor of substance use may therefore identify individuals within a particular minority community that are vulnerable to drug and alcohol use.

The little existing research on substance use in ethnic minorities focuses on between-group differences among various ethnic minorities, such as East Asians, Hispanics, and Native Americans (National Institute on Alcohol Abuse & Alcoholism [NIAAA], 2002). The Substance Abuse and Mental Health Administration's National Household Survey on Drug Abuse (NHSDA; 2002) found that the prevalence rates of alcohol and illicit drug use are low in Indian-Americans as compared to other Asian-American groups and non-Asian groups. From a cross-cultural psychology viewpoint, there are several possible explanations for these seemingly low rates of use. First,

Indian-Americans may possess some protective factors that buffer them against high rates of drug use, such as social stigmas associated with heavy substance use or social support networks (Beauvais, 1998; Escobar et al., 2000). On the other hand, the rates may result from under-reporting due to cultural norms of abstinence that stigmatize high rates of consumption, specifically because Indian-Americans may feel compelled to adhere to the model minority status that they currently possess (Lee, Law, & Eo, 2003; McKeigue & Karmi, 1993). Substance abuse treatment rates are also telling in this regard: between 1994 and 1999, the proportion of Asian / Pacific Islanders seeking treatment for substance-related problems rose 37% even while the total rate of admissions decreased by 3% (Substance Abuse and Mental Health Services Administration [SAMHSA], 1999a). When considering only Asian / Pacific Islanders adolescents aged 12-17, this increase leaps to 52% (SAMHSA, 1999b). The incongruity of this relatively high treatment rate increase in comparison with low rates of use may indicate that underreporting is indeed occurring. Finally, low rates of abuse in the general Indian-American population may mask important within-group differences, which are often overlooked in minority substance use research (Caetano et al., 1998; NIAAA, 2002). For instance, the NHSDA does not report any information about which subgroups (e.g., generation, socioeconomic status, etc.) of Indian-Americans are engaging in these behaviors. To date, only a handful of studies regarding substance use have been conducted on the Indian-American population. These studies have focused on social and parental influences in substance use but have not systematically attempted to assess within-group differences (Bhattacharya, 1998, 2002; Lee et al., 2003; Sandhu & Malik, 2001). In conclusion, little is known

about the alcohol and drug use habits of Indian-Americans in the United States, and while the base rates of substance use among Indian-Americans appears to be consistently low (SAMHSA, 2002; 2003), "omnibus" epidemiological statistics may be masking important within-group differences. Strangely, research that examines rates of use in several different ethnicities often yields lower prevalence rates in Asians than when Asians are the primary focus of research (Lee et al., 2003), suggesting the need to study ethnic groups separately and in depth.

Therefore, exploring the drug and alcohol use habits of the Indian-American community represents an opportunity to test the acculturative and assimilation theories of substance use and to examine within-group differences. First, it is possible that within-group differences in drug and alcohol use can be explained by cultural factors, such as marginalization and perceived discrimination. Furthermore, it may be that both the acculturative and assimilation theories of substance are useful in understanding these differences because they explain generational differences. The acculturative theory of substance use predicts that new immigrants who face stressful challenges to acculturation, such as feelings of marginalization and perceived discrimination, are most apt to engage in substance use. Because this prediction focuses upon newer immigrants, it may be more applicable to first-generation individuals within a particular community. On the other hand, assimilation theory predicts that minorities who have more experience with the dominant, mainstream culture, such as second-generation individuals, are susceptible to substance use. These individuals, who are well-versed in the drug and alcohol use norms of the host society are probably less likely to experience marginalization and perceived

discrimination, and thus may find it easier to conform to American substance use practices. Based on the literature review above, it was hypothesized that:

• As per previous research findings (Andrade, 2003), first-generation Indian-Americans experience higher levels of marginalization and perceived discrimination than second-generation Indian-Americans.

• In line with the predictions of the acculturative model of substance use, higher levels of both marginalization and perceived discrimination are related to greater quantity / frequency of drug and alcohol use, and negative outcomes associated with alcohol and drug use, in first-generation Indian-Americans.

• In line with the predictions of the assimilation model of substance use, lower levels of both marginalization and perceived discrimination are related to higher quantity / frequency of drug and alcohol use, and negative outcomes associated with alcohol and drug use, in second-generation Indian-Americans.

Chapter 2:

Method

Participants

Power analysis using GPOWER software indicated that a minimum of seventy-six

participants were needed for this study with effect size $(f)^2 = .30$, significance level

$(\alpha) = .05$, and power $(1- \beta) = .90$. Female and male participants were recruited from

lower level psychology courses, ethnic and religious student groups, and academic

student organizations at the University of Maryland, College Park campus.

Participants were also recruited off campus using a variety of methods, Internet

website postings, listserve emails, and participant referral.

Inclusion criteria were:

- Age 18 or above

- An immigrant originating from India (i.e., first-generation), OR

- An American-born Indian-American, with at least one parent originating from
  India (i.e., second-generation)

Procedure

All advertisements for the study contained the link to the study webpage on

www.surveymonkey.com. Upon entering the site, the participant was given the

opportunity to read and electronically "sign" the consent form (IRB # 05-0503).

Questionnaires were administered sequentially in the same order for every

participant. At the conclusion of the questionnaires, participants were directed to click

on a link to be redirected to a second website on the same server. Participants were

told that this step was optional, but that they could enter personal contact information (e.g., name, phone number, and email address) on this webform if they would like to be entered into a raffle for cash prizes or receive extra credit for undergraduate courses via the University of Maryland Psychology 100 experimental pool. If a participant did not wish to provide contact information, they were asked to simply exit the website. All data was stored on the surveymonkey.com server, which is a secure and password-protected website. Data was backed up on a weekly basis by the principal investigator to her personal computer, which is also password-protected.

Measures

Copies of the questionnaires administered are available in Appendix B, and assessed the following variables: a) Marginalization b) Perceived Discrimination c) quantity / frequency of alcohol and drugs d) negative outcomes associated with use of alcohol and drugs e) demographic variables, and f) depressive symptoms. All instruments were administered in English.

Independent Variables

Marginalization. This construct was assessed using the Marginalization subscale of the East Asian Acculturation Measure (EAAM; Barry, 2001). To the author's knowledge, this is the only continuous measure of marginalization available to date. Because the scale was normed on East-Asian Americans, it was adapted with minor changes for use with a South-Asian American population. The scale contains four subscales for each of Berry's (1980) acculturation strategies: marginalization, separation, assimilation, and integration. Twenty nine items are divided amongst

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these four subscales and scored using a seven-point Likert scale (strongly disagree, disagree, disagree somewhat, neutral, agree somewhat, agree, agree strongly). The EAAM conceives of acculturation as a multidimensional construct, and each of the subscales employs questions assessing a wide range of marginalized behaviors and attitudes, such as "I sometimes feel that neither Americans nor Asians like me" and "I find that I do not feel comfortable when I am with other people." Because the subscales are orthogonal and tap into four different dimensions, it is appropriate to use only one subscale (D. Barry, personal communication). The EAAM Marginalization subscale showed satisfactory reliability (Cronbach's $\alpha = .91$).

Perceived discrimination. The Brief Perceived Ethnic Discrimination Questionnaire—Community Version (PEDQ; Brondolo et al., 2005) is a modification of the Perceived Ethnic Discrimination Questionnaire (Contrada et al., 2001) which was developed to assess exposure to everyday occurrences of ethnic discrimination among college students. As such, the PEDQ is appropriate for use in both college and community samples. Seventeen items assess perceived discrimination in a variety of situations including the media, public places, and the workplace. Items are scored on a five-point Likert scale. The PEDQ-CV was normed using a heterogeneous sample of minorities, including immigrants, and thus is acceptable for use with most or all samples. This measure demonstrated sufficient inter-item reliability (Cronbach's $\alpha = .90$).

Dependent Variables

Alcohol / drug use. In line with Sher, Walitzer, Wood, & Brent (1991) and Wood, Read, Palfai, & Stevenson (2001) the quantity and frequency of alcohol and drug use were measured using a nine-item survey. This set of questions inquires about alcohol and drug use in terms of quantity and frequency over the last three and twelve months. In the current sample, these items exhibited a satisfactory level of inter-item consistency (Cronbach's α = .70).

Alcohol / drug consequences. The Young Adult Alcohol Problems Screening Test (YAAPST; Hurlbut & Sher, 1992) assesses the consequences associated with alcohol and drug use in the past year. Twenty-four items contain two identical questions (one for alcohol use, the other for any other drug use) and nine choices represent frequency of negative outcomes, including legal problems, risky sexual behavior, and physical complaints. The YAAPST has demonstrated satisfactory internal consistency in the current study (Cronbach's α = .90).

Covariates

Demographic form. The items on this measure queried about a variety of demographic characteristics such as age, gender, immigrant status, socioeconomic status, and educational level.

Depressive symptoms. Because there is a close relationship between depressive symptoms and substance use (Goodwin & Hasin, 2002; Kirschner, et al., 2002), depressive symptoms were measured as a potential covariate. To this end, the Center for Epidemiological Studies – Depression Scale (CES-D; Radloff, 1977) was

also administered. The inter-item consistency of this scale was demonstrated to be

satisfactory in this sample (Cronbach's α = .87).

Chapter 3:

Results

Sample Demographics

A total of 94 participants completed the online survey. Participants included both those individuals who were enrolled from the UMCP campus community and those recruited from other sources, such as Internet sites and referrals from other study participants. Unexpectedly, some respondents (11.7%) identified themselves as third-generation Indian-Americans; however, this subsample was excluded from further analysis for two primary reasons. First, the sample size ($n = 11$) was very small in relation to the other generation subgroups. Second, as third-generation respondents were unanticipated, no a priori predictions were developed to address this group. Therefore, the data from these respondents were omitted from all descriptive and inferential analyses, reducing the total sample size to $N = 83$. In the remaining sample, the average participant was approximately 25 years old, was Hindu, was well-educated, and was in the upper middle-class socioeconomic bracket (Table 1).

Demographics by Generation

One-way analysis of variance (ANOVA) and χ^2 goodness-of-fit tests revealed significant demographic differences between the first- and second-generation subgroups in the sample. As Table 2 shows, second-generation Indian-Americans tended to have lived in the U.S. longer ($p < .001$) and endorse higher numbers of depressive symptoms ($p = .035$), but there were no significant differences in age ($p = .829$). Additionally, second-generation individuals tended to be less educated ($p =$

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.026) and have a higher annual household income ($p = .005$) than first-generation

individuals; however, there were no significant differences in religion ($p = .839$) or

sex ($p = .064$) between these groups (Table 3). Because demographic differences

between groups could potentially confound differences between and within the

generations, Years in U.S., Income, Education, and Depression were treated as

covariates in the analyses below.

Hypothesis Testing

Hypothesis 1: First-generation Indian-Americans experience higher levels of

Marginalization and Perceived Discrimination than do second-generation Indian-

Americans.

Two univariate analyses of covariance (ANCOVA) were conducted to address

this hypothesis. The results yielded significant generational differences in

Marginalization [$F(5, 77) = 5.68; p = .000, d = .45$] and Perceived Discrimination

[$F(5, 77) = 2.36, p = .047, d = .32$], indicating that the second-generation respondents

reported significantly more Marginalization and Perceived Discrimination than the

first-generation participants. Thus, the null hypothesis could be rejected at $\alpha = .05$.

However, the observed findings were the opposite of the hypothesized relationship.

Hypothesis 2: In first-generation Indian-Americans, higher levels of both

Marginalization and Perceived Discrimination are related to greater drug / alcohol use

and negative outcomes associated with alcohol / drug use.

Pearson correlations. To test the associations among Marginalization,

Perceived Discrimination, and the four dependent variables in first-generation

respondents, bivariate correlations were first calculated among the study variables (Table 5). In general, Marginalization and Perceived Discrimination showed small to moderate correlations with the dependent variables; however, the only significant correlation was between Marginalization and Alcohol Use ($r = -.49$, $p = .011$).

    Hierarchical linear regression. Because the only significant correlation occurred between Marginalization and Alcohol Use, regression models were limited to this relationship (Table 6). To this end, a hierarchical linear regression was chosen to determine whether Marginalization contributed significant unique variance to Alcohol Use. Covariates (Years in U.S., Depression, Income, and Education) were sequentially entered (Step 1), and no significant change in R^2 was observed ($p = .163$). In Step 2, Marginalization was added, and a significant change in R^2 was observed ($p = .036$). Thus, it appeared that Marginalization contributed significant, unique variance to the prediction of Alcohol Use. Therefore, the null hypothesis, in reference to Marginalization and Alcohol Use, was rejected at $\alpha = .05$. However, the results are in the opposite direction of the hypothesized relationship.

Hypothesis 3: In second-generation Indian-Americans, lower levels of both Marginalization and Perceived Discrimination are related to greater drug / alcohol use and negative outcomes associated with alcohol / drug use.

    Pearson correlations. Bivariate correlations were conducted in the manner described above for the first-generation. With respect to the dependent and independent variables, both Marginalization ($r = .39$, $p = .002$) and Perceived

Discrimination ($r = .37$, $p = .004$) were significantly associated with Drug Use only (Table 7).

      Hierarchical linear regression. Next, two regression models were constructed to test whether Perceived Discrimination and Marginalization were significant predictors of Drug Use, beyond the effects of the covariates (Table 8). In the first regression (Order 1), covariates were first entered hierarchically (Step 1), and the corresponding R^2 change was nonsignificant ($p = .424$). In Step 2, Perceived Discrimination was added and a significant change in R^2 was observed ($p = .039$). Finally, Marginalization was entered in Step 3, and the change in R^2 was again nonsignificant ($p = .224$). In the second regression, the order of the two independent variables was reversed - first, covariates were entered, followed by Marginalization and Perceived Discrimination respectively. There were no significant changes in the proportion of variance in this model. Collectively, these results indicated that Perceived Discrimination was a useful predictor of Drug Use in second-generation Americans, but did not contribute to any unique variance in this dependent variable when Marginalization is also present, possibly because of the high correlation between these two variables ($r = .47$, $p < .001$). Therefore, in reference to Perceived Discrimination and Drug Use, the null hypothesis was rejected at $\alpha = .05$. However, the results indicated that the relationship between Perceived Discrimination and Drug Use was the opposite of what was predicted.

Chapter 4:

Discussion

General Discussion

As far as is known, this is the first study to examine the relationships among discrimination, alcohol and substance use, and acculturation strategies in an Asian-American sample. The objective of this study was to test a series of hypotheses pertaining to within-group differences based on these cultural variables, thereby examining the application of two dominant theories of substance use in ethnic samples – acculturative and assimilation.

First, it was hypothesized that second-generation Indian-American individuals would report higher levels of Perceived Discrimination and Marginalization than second-generation individuals. Because emigrating to another culture is considered stressful and involves numerous adjustments to the host society's norms (Berry, 1980; Sandhu & Asrabadi, 1994; Verma, 2001), it was expected that first-generation individuals would experience more adverse consequences of interpersonal contact with the host society (i.e., Discrimination) and less subjective appraisals of acceptance into the host culture (i.e., Marginalization). Interestingly, the data collected in the present study yielded exactly the opposite results. That is, second-generation Indian-Americans actually suffer more discrimination and identify less with both Indian and American cultures. These results are surprising in the context of previous research (e.g., Andrade, 2003), which has found that first-generation individuals report experiencing more discrimination compared to subsequent

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generations. There are several potential explanations for this surprising finding. One explanation may be that second-generation individuals actually do experience more discrimination than first-generation individuals. For example, immigrants from India may draw heavily upon social networks of other recent immigrants for emotional and material resources, thus creating a sense of community for the individual. Indeed, it may be viewed as more appropriate for an immigrant to affiliate primarily with other immigrants than for an American-born minority individual to do so. Therefore, immigrants may not feel marginalized or may not experience discrimination from the dominant society because they are protected in social networks of relatively homogenous individuals. By contrast, second-generation individuals may be more exposed to individuals of a variety of racial / ethnic backgrounds, thereby increasing the probability of experiencing racial conflict and prejudice.

Other explanations for this result pertain to perception. Because second-generation individuals are, by definition, born and raised within a particular "host" country, they may have earlier life experiences pertaining to discrimination -- such experiences may have more salient effects on their current understanding of racism and prejudice. In this way, experiencing discrimination in childhood may shape an individual's lifelong understanding of race, ethnicity, and discrimination differently than for an individual who has experienced discrimination and / or marginalization in one recent phase of life (e.g., upon immigration). If this is the case, second-generation individuals may be more attuned to subtle cues of institutional and interpersonal discrimination in American life, and hence, they may be more likely to report it. Similarly, expectancies may play a role in how much discrimination Indian-American

individuals are likely to report. Second-generation individuals, who are raised amidst

the racial politics and conflicts of the United States, may expect to be treated unfairly

by members of the majority group. When asked questions about discrimination, these

individuals may be more likely to recall such instances. On the other hand, first-

generation individuals who have voluntarily decided to emigrate to the U.S. may have

more positive expectations about fair treatment, perhaps because they are unaware of

racial conflicts or because they attend to other benefits of immigration (e.g.,

economic opportunity). When faced with discriminatory behavior by others, first-

generation may be apt to reduce any cognitive dissonance that occurs between their

expectations and experiences by rationalizing that the discrimination is in fact, not

occurring. Furthermore, it is possible that they also offer alternative explanations for

discrimination, such as claiming personal responsibility. A recent immigrant may, for

example, place blame on herself for inviting criticism rather than on the perpetrator,

thereby reasoning that it is not "discrimination" as such.

     Although the reasons for these unexpected differences remain elusive, this

discussion leads to the belief that Indian-Americans may face special challenges in

becoming acculturated to mainstream American society, which may intensify, rather

than diminish, over subsequent generations. Therefore, cross-cultural psychologists

would do well to consider the unique phenomenologies of the various ethnic / racial

groups they study, as this likely has a bearing on psychological functioning.

     In reference to Hypotheses 2 and 3, generation was found to be a moderator of

the independent and dependent variables in this study. In the first-generation,

Marginalization was the only independent variable that was a significant predictor of

Alcohol Use above and beyond the effect of covariates. Based on the results of this

study, increased Alcohol Use was actually associated with lower levels of

Marginalization in this sample of first-generation of Indian-Americans. These

findings are contradictory to previous research, which has generally found that

Marginalization is associated with poorer psychological outcomes (Farver et al.,

2002; Thoman & Suris, 2004; van de Vijver et al., 1999; Wiking et al., 2004). In light

of the acculturative theory of substance use in immigrants, which predicts a positive

association between Marginalization and Alcohol Use, these findings are especially

noteworthy because they suggest that higher levels of Marginalization may actually

have a protective effect. To this end, the data are in line with the assimilation theory

of substance use, which predicts that immigrants will approximate the substance use

norms of the host society with increased contact and exposure. Given this theory, it is

therefore a possible explanation that first-generation immigrants may be more

susceptible to alcohol use when they are less marginalized because interacting with

the host society's drinking practices is a part of adapting to the new culture. For

example, being less marginalized may relate to increased social interaction with the

host society, which may in turn facilitate learning drinking norms, enable access to

alcohol, and / or increase opportunities to consume alcohol. It is reasonable to

imagine, furthermore, that decreased levels of Marginalization reflect an ability to

interact with peers and to engage in the normative practice of alcohol use. An

important point to draw here is that these respondents did not appear to be impaired

by their alcohol use (as indicated by scores of the YAAPST), which also supports the

hypothesis that drinking alcohol may actually be a reflection of age-appropriate social

norms. Unfortunately, data pertaining to this explanation were not collected, and it is not possible to demonstrate that decreased Marginalization is instrumental in providing access to alcohol through social networks within the host society using the current data. In conclusion, the data examined in this study have failed to substantiate the application of the acculturative stress theory of substance use in the first-generation (i.e., Hypothesis 3), but may provide support for the assimilation theory in this subsample.

Notably, the opposite effect occurred in the second-generation sample - Perceived Discrimination, but not Marginalization, was found to be a significant, but not unique, predictor of Drug Use. In this group, it appears that increased levels of Perceived Discrimination are associated with increased Drug Use frequency and quantity. This is the opposite of the hypothesized direction (i.e., Hypothesis 3), and as such, provides support for the acculturative, rather than assimilation, theory of substance use. Based on the data collected in this study, use of illicit substances by second-generation Indian-Americans may be associated with stressful acculturation experiences - of which experiencing prejudice is one part - rather than with the exposure to American drug use norms. Given the unexpected findings in the second-generation, therefore, it seems plausible that the acculturative theory of substance use is applicable to one particular segment (i.e., second-generation) of a larger Indian-American sample.

The differences in findings between the first- and second-generation are in and of themselves interesting. First, there were interesting demographic differences between generations. Second-generation Indian-Americans tended to be less educated

than their immigrant counterparts, but this may have been due to the fact that immigration to the United States is selective. Therefore, the available pool of first-generation respondents in general may have been more educated because less educated applicants for immigration are not granted entry into the U.S. as readily. The second-generation sample also exhibited more depressive symptoms, although it is not clear to what extent this is a result of reporting bias due to stigma (i.e., second-generation individuals may feel more comfortable reporting these symptoms) or cultural conceptions of mood pathology (i.e., second-generation individuals may be more acculturated to Western conceptions of depressive symptomatology). Of course, it may also reflect a true difference in the incidence of depressive symptoms between generations. It was also interesting that Alcohol Use appeared to be the dependent variable most associated with the independent variables in the first-generation but that Drug Use was most associated with the independent variables in the second-generation. This finding may speak to practical factors, such as availability of these respective substances to each generation. In other words, one part of acculturation may involve coming into contact with resources that encourage drug use, such as drug using peers, and this may be a lifelong process. By contrast, being an immigrant may restrict an individual to using alcohol because it is ubiquitous and easily purchased.

Although possible methodological reasons are discussed in Limitations (below), it is helpful to consider the theoretical reasons why Marginalization and Perceived Discrimination appear to exert unique effects specific to generation. First, it is arguable that increased Marginalization and Perceived Discrimination are qualitatively the same for both generations, but lead to different psychological

outcomes in each group. This suggests a lack of specificity of the effects of Marginalization and Perceived Discrimination and may mean that other variables (e.g., material resources, social networks) may figure heavily in determining a potential outcome. Because other outcomes, such as psychopathology, were not examined in this study it is not possible to verify this hypothesis, however.

Conversely, it may be that the constructs of Marginalization and Perceived Discrimination refer to different things by generation. For example, "marginalized" first-generation respondents may feel that, as a result of their emigration experience, they do not identify with any one particular culture, as has been argued by Rudmin and colleagues (Rudmin & Ahmadzadeh, 2001; Rudmin, 2003). In this case, Marginalization may refer to a sense of harmony with different peoples, and therefore, increases in Marginalization would not be associated any negative outcomes. On the other hand, "marginalized" second-generation Indian-Americans may perceive a greater imperative to "belong" to a particular community (or communities). For these respondents, the failure to do so may cause loss of social support and subsequent psychological distress. Again, this study did not conduct an in-depth investigation of these constructs, and therefore, it is impossible to verify that they share the same definitions in both generations. This question represents just one area of future research needed in this area.

Strengths & Limitations

As one of the first studies to date to investigate the impact of cultural variables on alcohol and drug use, this study has several strengths. First, the present data document the importance of considering generation as a moderator. Because

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outcomes can vary by generation for a variety of reasons, it is essential to explore the applicability of theories pertaining to minority psychopathology in various subgroups. This study is yet another reminder that ethnic groups are not homogenous, static entities, and that subgroups often can experience differential effects of cultural variables. In doing so, this study has also shown the utility of applying two competing theories of substance use in ethnic minority individuals – assimilation and acculturative – based on a particular characteristic of the sample, namely generation. To this end, the current investigation has fulfilled its purpose of examining the usefulness of each of these theories when the sample is well-specified.

As far as "unpacking" these cultural variables is concerned, this study has successfully demonstrated that underlying cultural constructs, such as Marginalization, can be used to differentiate outcomes within a given sample. Based on this data, Marginalization was able to distinguish between high and low drug users within the first-generation. The ability to do this is an advantage over simplistic epidemiologic data because it affords a richer representation of the sociocultural variables at work and also having the applied purpose of identifying specific segments within a given ethnic sample that may be at risk for problems associated with drug and alcohol use. Furthermore, differences between the first- and second-generation suggest that Marginalization and Perceived Discrimination are not simple variables and reinforces the view that the outcomes associated with acculturation strategies may depend upon several contextual variables, such as generation.

However, as mentioned above, there are notable limitations to this study. First, it should be noted that there were substantial differences in sample size between

the first- and second-generation groups, with the latter being over twice the size of the former. This may have reduced the power of our findings and thus may be one explanation for the lack of significant results for Perceived Discrimination in the first-generation. Another potential limitation is the fact that the Brief PEDQ does not differentiate between intra- and intergroup discrimination. Although it certainly displayed a high level of internal reliability in this study, it is difficult to assess whether the respondents were reporting discrimination from within or outside the Indian-American community. Third, a sample of third-generation respondents was not anticipated, which ultimately led to the decision to exclude them from the data analysis. However, had this subsample been planned for, the data collected from it may have yielded interesting results in comparison to the first- and second-generation groups. Fourth, an important limitation is that the general sample was highly educated and from a high socioeconomic stratum. This presumably limited the variability of responses in many of the constructs of interest, such as Perceived Discrimination and the four outcome variables, which may have reduced the likelihood of finding significant effects. At the same, it also limits the generalizability of the current findings, and makes it difficult to draw inferences about members from other socioeconomic groups. Finally, diagnostic data pertaining to substance use were not collected, and thus, assumptions about psychopathology based on these results cannot be made. It is unclear to what degree the same relationships would exist in a sample that meets criteria for Alcohol or Drug Dependence.

Future Directions

The results of this study raise several important questions for future researchers to address. This investigation was one of the first to test whether drug and alcohol use are associated with both an acculturative strategy as well as with a facet of acculturative stress, and as such, represents a preliminary study in this area. Because the data in this study cannot be used to examine causal relationships, future work should focus on creating ways to test these associations experimentally. For example, using social psychology paradigms, it may be possible to manipulate Marginalization and Perceived Discrimination in a laboratory setting. A potential method to study Marginalization, for instance, may involve negative evaluations by confederates from both the dominant and host cultures; Perceived Discrimination may be manipulated by presenting the participant with a "staged" situation for which s/he must rate the severity of the discriminatory event. Outcome variables, including (but not limited to) substance use may be measured to see whether Marginalization and Perceived Discrimination have a causal effect. Furthermore, it may be possible to test whether a variety of moderators (e.g., mood, gender, etc.) influence these associations.

Other future directions focus upon understanding the constructs of Marginalization and Perceived Discrimination in more detail. A key imperative would be to validate the construct of Marginalization by exploring whether, indeed, it holds distinct connotations for different segments of an ethnic community (e.g., generations), as may have been the case in the current sample. This may be accomplished by administering questionnaires such as the EAAM but following up

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with qualitative interviews with the same respondents. Doing so would help researchers clarify the definition of Marginalization and note its limitations when interpreting their results. Also, due to practical considerations, Perceived Discrimination was measured using a brief questionnaire in this study. It is suggested that future work in this area administer more comprehensive measures of Perceived Discrimination, such as the regular version of the PEDQ-CV to disentangle various aspects of this construct, such as intra- and intergroup discrimination.

Finally, it will be important to establish generalizability of these findings with other racial / ethnic groups. While it is certainly informative to learn about a particular ethnic group in detail, it is misleading to conclude that these results either do or do not apply to other groups. Therefore, it is essential that future research continue to focus on a variety of ethnic groups when studying alcohol and drug use. The production and dissemination of similar such studies may, in turn, inform both theory and potential public health and treatment considerations of substance use in minority and immigrant populations.

Chapter 5:

Summary

The current study has demonstrated the importance of studying within-group differences in cultural variables, such as Perceived Discrimination and Marginalization, and the different ways in which such variables are associated with substance use in an Indian-American sample. Data indicated that second-generation Indian-Americans reported significantly more Perceived Discrimination and Marginalization than first-generation Americans. In the first-generation subsample, less Marginalization was significantly associated with greater Alcohol Use, while greater Perceived Discrimination significantly predicted Drug Use in the second-generation. These findings have implications for future study of ethnic samples, which must take generational differences into account.

Table 1

Demographic and Study Variables by Generation

	Total (*N* = 83)	First (*n* = 26)	Second (*n* = 57)
	Demographics		
Age	24.76 (4.26)	25.92 (3.74)	24.23 (4.04)
Years in U.S.	17.63 (8.86)	8.15 (6.49)	21.95 (5.95)
Depression Score	18.17 (8.62)	15.23 (7.51)	19.51 (8.82)
Sex	Male (54.2%)	Male (69.2%)	Female (52.6%)
Religion	Hindu (77.1%)	Hindu (80.8%)	Hindu (75.4%)
Household Income	> $95,000 (38.6%)	$76,000 - 85,000 (19.2%)	> $95,000 (49.1%)
Education	Graduate (38.6%)	Graduate (53.8%)	Graduate (31.6%)
	Study variables		
Marginalization	23.39 (11.33)	20.12 (8.83)	24.88 (12.09)
Perceived Discrimination	30.06 (9.03)	28.12 (8.67)	30.95 (9.12)
Alcohol Use	16.04 (8.99)	14.77 (9.35)	16.61 (8.85)
Drug Use	10.83 (4.04)	9.85 (3.17)	11.28 (4.33)
Alcohol Consequences	34.72 (13.38)	29.27 (9.69)	37.21 (14.15)
Drug Consequences	23.65 (5.62)	22.58 (2.75)	24.14 (6.49)

Note. Mean values are reported with standard deviations in parentheses, except for the following variables: Sex, Religion, Income, and Education. For these variables, modal values instead of means are reported, with the percent endorsing the mode in parentheses.

Table 2

Oneway Analysis of Variance for Demographic Differences Between Generations

Source	df	F	d	p
Age	1, 81	.05	.06	.829
Years in U.S.	1, 81	90.69**	2.22	< .001
Depression	1, 81	4.59*	.52	.035

Note. Depression is reported as scores from the CES-D. *p < .05. **p < .01

Table 3

Goodness of fit Test for Demographic Differences Between Generations

Source	df	N	χ^2	p
Sex	1	83	3.44	.064
Religion	5	83	2.07	.839
Income	8	83	21.71**	.005
Education	7	83	15.88*	.026

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

Table 4

Univariate Analyses of Covariance for Differences in Independent and Dependent Variables by Generation

Source	df	F	d	p
Marginalization	5, 77	5.68**	.45	.000
Perceived Discrimination	5, 77	2.36*	.32	.047
Alcohol Use	5, 77	.65	.20	.664
Alcohol Consequences	5, 77	2.18	.38	.065
Drug Use	5, 77	2.38*	.65	.046
Drug Consequences	5, 77	1.07	.31	.385

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

Table 5

Correlations Among Study Variables in First-generation Indian-Americans

Measure	Alcohol Use	Drug Use	Alcohol Consequences	Drug Consequences
Marginalization	-.49*	- .29	-.34	-.24
Perceived Discrimination	-.04	- .06	.11	-.15

*p < .05

Table 6

Hierarchical Linear Regression with First-generation using Alcohol Use as the Dependent Variable (N = 26)

Variable	*df*	*F*	*R²Δ*	*B*	*SE*	β	*sr²*
Step 1	4, 21	1.25	.08				
Depression				.15	.25	.12	.01
Education				- .34	1.22	- .06	.00
Income				.35	.80	.10	.01
Years in U.S.				.48	.33	.33	.08
Step 2	5, 20	2.20	.16*				
Depression				.22	.23	.18	.03
Education				.27	1.15	.05	.00
Income				.18	.73	.05	.00
Years in U.S.				.37	.31	.25	.04
Marginalization				- .46	.21	-.44*	.16

* $p < .05$

Table 7

Correlations Among Study Variables in Second-generation Indian-Americans

Measure	Alcohol Use	Drug Use	Alcohol Consequences	Drug Consequences
Marginalization	- .01	.39**	- .05	.20
Perceived Discrimination	- .10	.37**	-.12	.19

** p < .01

Table 8

Hierarchical Linear Regression with Second-generation using Drug Use as the Dependent Variable, Order 1 (N = 57)

Variable	*df*	*F*	*R²Δ*	*B*	*SE*	*β*	*sr²*
Step 1	4,52	2.66	.01				
Depression				.18	.06	.36**	.12
Education				-4.2E02	.35	- .02	.00
Income				- .19	.27	- .09	.01
Years in U.S.				-8.8E02	.11	- .12	.01
Step 2	5,51	3.17	.07*				
Depression				.13	.07	.26	.06
Education				-6.7E02	.34	- .03	.00
Income				- .24	.26	- .11	.01
Years in U.S.				-8.3E02	.11	- .11	.01
Discrimination				.13	.06	.28*	.07
Step 3	6,50	2.92	.02				
Depression				9.9E-02	.07	.20	.03
Education				- .11	.34	- .05	.00
Income				- .26	.26	- .12	.01
Years in U.S.				-5.2E02	.11	- .07	.00
Discrimination				.10	.07	.22	.04
Marginalization				6.9E-02	.06	.19	.02

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

Table 9

Hierarchical Linear Regression with Second-generation using Drug Use as the Dependent Variable, Order 2 (N = 57)

Variable	*df*	*F*	*R²Δ*	*B*	*SE*	*β*	*sr²*
Step 1	4,52	2.66	.01				
Depression				.18	.06	.36**	.12
Education				-.04	.35	-.02	.00
Income				-.19	.27	-.09	.01
Years in U.S.				-.09	.11	-.12	.01
Step 2	5,51	2.97	.06				
Depression				.12	.07	.24	.22
Education				-.12	.34	-.05	-.04
Income				-.24	.26	-.11	-.11
Years in U.S.				-.04	.11	-.06	-.05
Marginalization				.10	.05	.28	.24
Step 3	6,50	2.92	.03				
Depression				.10	.07	.20	.05
Education				-.11	.34	-.05	.00
Income				-.26	.26	-.12	.01
Years in U.S.				-.05	.11	-.07	.00
Marginalization				.07	.06	.19	.02
Discrimination				.10	.07	.22	.04

** p < .01

Appendix A: Literature Review

Acculturation & Acculturative Strategies

Acculturation is typically characterized as the psychological change in customs, behaviors, and beliefs resulting from contact with another cultural group (Berry, 1990a; 1990b). Because immigration frequently entails this intercultural contact, acculturation research primarily studies immigrants in an effort to understand this process. Acculturation is considered to be an important topic of study because of increased cultural contact through technology; the numbers of migrants created as a result of war, political oppression, and economic and environmental disparities; globalization; and refocused attention to minority rights and redress of previous historical wrongs committed by regimes (Rudmin, 2003).

Historically, acculturation has been thought of as a bipolar construct, in which an immigrant begins at the lowest rung of the acculturation ladder and slowly acclimates to the dominant, host culture as a function of time and continued exposure to the new society. Because the changes are most profound in the emigrating individual, the relatively minor changes that may occur in the larger, host society are often viewed as secondary. As such, the focus of acculturation research is on the individual or group who is actually emigrating, but as Berry (2001) notes, the change is a reciprocal one that involves both the immigrant and the host culture. Some of these changes may include the introduction of customs, crops / foods, words, religious beliefs, and pastimes that are absorbed into the mainstream culture. The change may be more situational than material – an increase in crime rates or economic boosts within a larger community may serve as examples of the impact of

the immigrating group on the host society. Therefore, changes occur on both sides, and not just on an individual level, but on a group level as well.

In this bidimensional paradigm of acculturation, higher levels of acculturation are generally thought of as adaptive, healthy, and preferable; therefore, higher rates of acculturation connote a certain success in the immigration process. However, the picture is more complex, as the success or failure of acculturation is dependent upon a host of moderators and mediators, such as age, gender, social support, coping strategies and resources, cultural distance (the degree of similarity between host and native cultures), and personality (Verma, 2001).

Gutmann (1999) notes some problems with the construct of "acculturation." He remarks that the term is not clearly defined and is employed in research inquiries with a variety of uses. Second, measures of acculturation do not tease apart how much of an individual's changes are a result of migration versus changes that occur as a result of time. Third, he notes that in the modern world, there are often transnational identities as a result of rapid communication and sharing between cultures. Next, acculturation may simply equal the invention of new customs by the migrating group, not necessarily absorption of the host society's norms. Cultural comparisons of a construct such as acculturation also imply there is a norm to begin with, which can lead to stereotyping and racializing. Finally, and perhaps most importantly, utilizing a broad concept such as "acculturation" fails to take into account the heterogeneity of experiences that exists within any given culture. Clearly, the construct of acculturation is an important course of study in psychology, but one that can be

problematic and complex. It is best, therefore, to consider alternative definitions of the construct which take into the intricacies of transcultural migrations.

Berry (1980) conceived of acculturation as an exercise in which individuals relate to societies, and develop an understanding of where they stand in regard to two different ethnic societies. Confronted with the choice of adhering to their native culture's beliefs and behaviors or replacing them with newer ones belonging to the host culture, sojourners must decide how they will internally as well as externally relate to both worlds. Therefore, the dichotomy of host versus native culture represents a bidimensional conceptualization of the choices an immigrant is confronted with. Specifically, two questions are at the heart of this: 1) to what extent the native and host cultures will merge, and 2) to what extent the original culture will be maintained. In other words, considering the degrees of intergroup contact and cultural maintenance practiced by the nondominant, acculturating group are vital in understanding the nature of acculturation psychologically (Berry, 2001).

Berry (1980) coined the term acculturation strategies, or acculturation attitudes, to refer to the four possible outcomes of choosing between host and native cultures. Conceptually, integration is the only strategy which involves the acceptance of both native and host cultures; it literally involves "integrating" host and native cultures in daily life so that elements of both are present. Assimilation is an alliance with, or preference for, the host culture, while separation is a denial of the host culture in favor of the native culture; therefore, both of these strategies suggest rejection of one culture and acceptance of the other. Finally, marginalization is defined as the rejection of both cultures; these individuals do not relate to or feel a

sense of belongingness to either native or host cultures, and may feel isolated or lacking social support or identification. As in the general process of acculturation, acculturation strategies or attitudes can also be indicative of both individuals and groups (Berry, 2001). The same terms are used to describe group strategies, with the exception of marginalization, which has been renamed "deculturation" (Berry, 1984).

Helms' (1995) work on the racial attitudes of African-Americans yielded a similar categorization, but deals particularly with identity, a distinct but related concept. Here, internalization involves valuing one's (Black) racial identity while simultaneously identifying with the (White) dominant or other racial/ethnic groups; conformity can be thought of adhering to the dominant society's standards; resistance is characterized by overidentification with one's racial group; and dissonance entails confusion or ambivalence regarding one's identity in relation to White and Black groups. The overlap between this and Berry's (1980) fourfold paradigm is quite obvious; the underlying themes of the integration, assimilation, separation, and marginalization acculturation strategies respectively are apparent here.

It is important to realize that the adoption of a particular strategy is not always a matter of conscious choice; while often times, it can be thought of as an orientation toward the two cultures in question that is chosen because of its adaptive value, it is sometimes the result of a restrictive environment. For example, an individual or group may engage in separation or marginalization attitudes because the social climate of the host culture frowns upon integration or assimilation. According to Verma (2001), the three aspects that comprise any particular acculturative strategy are attitudes versus preferences toward each culture, behavioral shifts representing these

preferences, and acculturative stress which characterizes the choice. These strategies are also regarded as pervasive and affecting a wide variety of features of an individual's life, such as diet, language, and social interaction. One study, for example, found that the variation in strategies used across various life domains among Dutch migrant children was quite small (van de Vijver et al., 1999).

Integration is by far, the most popular strategy as per the psychological literature since the majority of most samples endorse the behaviors and attitudes associated with this orientation (e.g. Krishnan & Berry, 1992; van de Vijver et al., 1999). This may be due to the adaptive value of this particular strategy (Verma, 2001). Integration is typically followed by assimilation and separation, and marginalization is the least popular strategy. There is also some support to show that this pattern of preference is similar in second generation samples (van de Vijver et al., 1999).

Consistent with the literature on other immigrant and minority groups, there is evidence for the existence of Berry's (1980) acculturation strategies in Indian immigrants (Krishnan & Berry, 1992; Bhui et al., 2005), including subgroups such as castes (Hindu-based social stratifications) (Kaul, 1983). These investigations showed that integration was the most popular strategy, and that behaviors and attitudes associated with assimilation, separation, and marginalization were also endorsed. In addition, these strategies seem to be consistently employed across socioeconomic groups; a relatively early study conducted by Kaul (1983) on Indian-American immigrants in Ohio found for instance that the use of the integration strategy did not significantly differ between income groups. Psychologically speaking, separation is

associated with temporary immigrants who have been living in the U.S. for the shortest length of time (Krishnan & Berry, 1992), and with maintaining ties to India (Kaul, 1983). Marginalization is related to birth in India, lack of English fluency, and shorter stay in the U.S. (Krishnan & Berry, 1992), as well as low self-acceptance (Kaul, 1983).

Criticisms of this dominant paradigm of acculturation outcomes focus around its inability to capture the richness of the immigration experience. Specifically, the strategies have been critiqued for being too simplistic and unable to assess across situations (e.g. outside the home vs. at home) and dimensions (e.g. in reference to language, religion, political beliefs, etc.). For example, measures of acculturation strategies may conclude that an individual who repeatedly endorses integrationist principles as being integrated, however, one who alternates between separated and assimilated choices is rarely labeled as integrated, despite the fact that he/she is displaying the theoretical notion of integration, namely, choosing bicultural options. This is often the fault of the leading, double-barreled items (those that contain two clauses or phrases) that are frequently featured on acculturation questionnaires (Rudmin & Ahmadzadeh, 2001). Furthermore, the model implies a universalist perspective regardless of cultural group of origin or destination, and implies that the ultimate goal is to live in harmony between two cultures, when in fact, the goal may be to maintain a fluid identity which reacts to the demands of each specific situation an individual encounters (Bhatia, 2002).

More severe criticisms of the paradigm have been levied by Floyd Rudmin and colleagues (Rudmin & Ahmadzadeh, 2001; Rudmin, 2003). Among many

shortcomings noted in these papers, Rudmin and colleagues claim that a survey of the acculturation literature reveals there is inconsistent data indicating that integration is the most adaptive option, and that this frequently depends upon the community under study and its particular socioeconomic standing. There is also inconsistency within the four categories, which are ipsative and not mutually exclusive as Berry (1980) hypothesized. This is supported by a recent factor analysis reported, in which integration was found to load on a single factor, and assimilation, separation, and marginalization, onto another, suggesting that acculturation strategies are best represented on a bidimensional continuum with rejection as the factor involved (van de Vijver et al., 1999). Rudmin & Ahmadzadeh's (2001) most vocal criticisms are regarding the marginalization and integration strategies. Specifically, the concern here is that attitudes toward the host community are not always commensurate with behaviors, such that an individual may attitudinally prefer marginalization, but that the lack of affiliation with either the host or dominant culture indicated by this choice is more indicative of a general sense of kinship with humanity and identification with people of all cultures, rather than as a poor adaptation to the new environment. The idea inherent in this criticism is that the four acculturation strategies do not take into account the multitude of other cultures an individual is confronted with and may eventually embrace in a pluralistic society such as the United States. An alternate definition of marginality thus might be the degree to which one feels rejected by his/her preferred group.

Age

There appears to be an inverse relationship between age and acculturation. In a study of Dutch migrant children, it was found that older children were less likely to integrate, and theorized that children may prefer combining elements of both cultures when younger, only to ultimately choose between them at a later age, thereby employing a strategy such as assimilation or separation (van de Vijver et al., 1999). Age in this and other studies, however, may just account for the passage of time, a variable which may influence acculturation level and acculturation strategies.

Generation

Another interesting finding from the above study (van de Vijver et al., 1999) is that second-generation Dutch migrant children were less likely to use integration than their first-generation counterparts, perhaps as a function of the resources available. For example, first-generation children may deliberately choose integration in order to take advantage of the social, psychological, and material resources of the host community, while this is less of an imperative in the second-generation, where resources have presumably been secured by the previous generation. These second generation individuals would therefore be in a position to choose between host and native cultures.

Psychological outcomes

The literature linking acculturation or acculturation strategies to specific psychological outcomes is mixed, with varied findings depending upon the group and

outcomes studied. A large group of studies, for example, indicate that integration (also termed biculturality by other researchers) and higher levels of acculturation lead to better psychological functioning. Berry and his colleagues have shown systematically that integration and higher levels of acculturation are associated with the best psychological outcomes (e.g. Krishnan & Berry, 1992; Sam & Berry, 1995; Mishra et al., 1996, Berry, 1976). In Hispanics, low biculturalism appears to be a better predictor of psychological distress than other acculturation types, and is more clearly associated with higher rates of distress, however acculturation level did not predict distress any more than demographic variables such as SES, gender, and age (Thoman & Suris, 2004). In the aforementioned study of Dutch migrant children, those who chose the integration strategy also showed a higher degree of cognitive acculturation, thereby exhibiting better performance scores on cognitive tasks (van de Vijver et al., 1999). Biethnic students who maintain ties to both native and host cultures via education, language, friendships, work, and cognitive processes have been shown to be better adjusted, and that language fluency is the single defining factor in successful cultural adjustment (Kagan & Cohen, 1990). Marginalized and separated individuals in an Indian-American sample have been linked to higher family conflict (Farver et al., 2002). Poor acculturation, independent of SES, has also been shown to account for the association between ethnicity and poor self related general health (Wiking et al., 2004).

An emerging body of work, however, suggests just the opposite – that acculturation is related to more negative outcomes. A well-known study showed for example that Mexican migrant farmworkers, who were less acculturated than their

permanent immigrant counterparts, actually had lower lifetime prevalence of any psychiatric disorders also, including alcohol and drug disorders (Alderete, Vega, Kolody, & Aguilar-Gaxiola, 2000). The RELACHS study conducted on Bangladeshi and other immigrant students in the U.K. found that rates for depression were lowest in integrated and separated individuals, suggesting that adherence to the native culture can, to some extent, be a buffering factor (Bhui et al., 2005). However, integration or separation did not afford the Afro-Caribbean immigrants surveyed in this sample the same reduction in depressive symptoms, indicating that the ability of a particular culture to thwart negative psychological outcomes may vary widely among immigrant groups.

Acculturative Stress

Acculturative stress is generally regarded as the distress arising from the process of acculturation. Acculturative stress can comprise this distress in several ways, such as what we normally term "culture shock" (Berry, 1980), or stress arising from having to acculturate to the larger society (Berry & Annis, 1974). Additionally, acculturative stress is thought to arise from a multitude of situations that a new immigrant is faced with, such as perceived discrimination, limited social support, decrease in financial and material resources, language barriers (Verma, 2001), and feelings of not belonging within the dominant culture (Sandhu & Asrabadi, 1994).

According to Berry (1980), acculturative stress is a frequent but not inevitable occurrence amongst new immigrants. Several moderators of acculturative stress may include the nature of the acculturating group (e.g. voluntary immigrants vs. refugees), the attributes of the host culture, mode of acculturation, and psychological

characteristics of the acculturating individuals. Berry (1980) theorizes that acculturative stress is also inextricably linked to acculturative strategies: stress occurs most in marginalized individuals, to a lesser degree among the separated and assimilated, and the least among integrated individuals. One particular study has found that integration is correlated with the least amount stress, but also found that assimilation predicts psychological stress, separation predicts psychosomatic stress, and that integration, both (Krishnan & Berry, 1992). A related finding of this study is that strong adherence to either the native or host culture could be a protective factor against acute acculturative stress. Berry (1980) also suggests that acculturative stress decreases over the passage of time, such that recent immigrants have higher levels than long term immigrants.

<center>*Correlates of Acculturative Stress*</center>

Generation

A well-known study showed almost twenty years ago that acculturative stress is, as predicted by Berry's model, greatest in first-generation immigrants (Padilla et al., 1985). A recent study by Romero & Roberts (2003) found that the rates of acculturative stress were similar between first- and second-generation Latino children, however, the sources of this stress were different. First generation children were likely to report stress resulting from not being English proficient in school, while second generation children derive stress from losing proficiency in speaking Spanish at home.

Psychological outcomes

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There is evidence which indicates that acculturative stress may be more predictive of psychological outcomes than simply acculturation. Thoman & Suris (2004), for example, found that acculturative stress was a better predictor than acculturation, which was measured unidimensionally, but not when demographic variables are controlled for. To the contrary, another recent study found that stress is associated with depressive symptoms after controlling for self-esteem and demographic variables in bicultural Latino children (Romero & Roberts, 2003).

Social Support

In the only study of the interaction between social support and acculturative stress (Lee, Koeske, & Sales, 2004), acculturative stress was strongly correlated with general psychosomatic symptoms, and social support was demonstrated to buffer the effects of acculturative stress, but only at high levels of acculturation. However, at low levels of acculturation and high levels of acculturative stress, international students report significantly more symptoms of psychological distress. This indicates that social support may have an important bearing on the effective resolution of these potentially stressful circumstances.

Alcohol and Drug Use in Immigrants: Two Theories

Currently, two theories have been formulated to identify which groups of immigrants are most likely to use drugs and alcohol. The acculturative model (Berry et al., 1987; Alaniz, 2002; Castillo & Henderson, 2002) suggests that immigrants experiencing higher levels of acculturative stress are most likely to use psychoactive substances; the use of alcohol and drugs is considered an escapist reaction to the acute acculturative stress the individual is undergoing. Because Berry and colleagues

(1987) predicted that newer immigrants would experience higher levels of acculturative stress, those who have not lived in the host culture long-term are potentially more at risk for developing substance use disorders. An additional corollary of this theory is that less acculturated individuals will also experience greater levels of acculturative stress, thereby increasing their vulnerability for developing substance use disorders. Therefore, acculturation level and acculturative stress can both be viewed as inherent predictors of future substance use.

There is scant evidence for this model, and it is difficult to locate direct tests of the theory in the literature. A recent example is a study of Korean immigrants in California partially substantiated the acculturative theory in its finding that less acculturated males had higher rates of present and predicted future rates of cigarette smoking than more acculturated males (Hofstetter et al., 2004). The data, however, depicted an interaction between gender and acculturation; unlike men, more highly acculturated Korean females were more likely to smoke than less acculturated females, possibly due to the less restrictive climate of drug use and gender of the U.S.. Findings such as these suggest that acculturative stress alone is not enough to predict substance use reliably. Westermeyer (1996) has surmised a reverse effect whereby addiction existing at the time of migration subsequently hampers acculturation after arriving at the host society. This may explain, in part, certain groups of recent immigrants who exhibit patterns of both drug dependence and marginalization or separation from the larger society.

Support for the second theory of substance use in immigrants, the assimilation model (Johnson, 1996), is more considerable (Beauvais, 1998). This theory claims

that substance use behavior is acquired through the host culture by the immigrants as a function of time, such that the longer an immigrant has been in the host society, the more likely he/she is to conform to the drug usage patterns of the general society. Specifically, the longer an immigrant lives in the host culture, the more acculturated he/she becomes, thereby learning a new drug usage repertoire. This is markedly different than the acculturative model first because it does not consider acculturative stress as a factor. Interestingly, the former also predicts a different subset of immigrants will be susceptible to drug use, namely highly acculturated individuals who have been living in the host culture for a longer period of time. This is clearly in direct contrast with the predictions of the acculturative model.

The length of a substance using immigrant's stay in the new culture has been shown to be a vital piece in the larger picture of immigrants and substance use. Johnson et al. (2002) used data from the U.S. National Health Interview Survey to identify that the 15-year mark of living in a host culture is critical for the shift of drug patterns to match that of the host culture. In accordance with the assimilation theory, acculturative stress was not measured; however, this study still shows that newer immigrants are much less likely to use than those who have been living in the host culture for longer periods of time and have ostensibly had the opportunity to conform their substance usage to that of the new society. Westermeyer (1996) similarly found a delayed onset of substance abuse of 5-10 years after migration. A recent review of five major studies on the mental health of Mexican immigrants concluded that data support the assimilation model, and that recent immigrants possess certain protective factors from their native culture that buffer them against substance use (Escobar et al.,

2000). These protective factors diminish over time and as immigrants acculturate to the dominant society such that eventually all immigrants become susceptible to substance use and other mental health disorders. Finally, that a study released this year found no difference in alcohol usage in immigrants who had lived in the U.S. for fewer than five years compared to those who have lived here five or more years. However, differences were uncovered when past year illicit drug use and tobacco were inspected; new immigrants were more likely to exhibit the former, while older immigrants were more apt to use the latter (Brown et al., 2005). A collateral finding may also be of importance here: Wiewel et al. (2005) found that ethnic individuals residing in northern Thailand who had greater contact with the larger Thai culture were more likely to use intravenous drugs, in part, due to this cultural contact. This finding hints at the possibility that greater contact, which may lead to more opportunities to emulate the prevailing drug patterns of the dominant society, is a mechanism for greater substance usage.

Support for this model is also derived from studies that explore the link between acculturation and substance use; this model predicts that more acculturated individuals can be expected to use psychoactive substances more frequently. Westermeyer's (1996) review of the literature on addictions and immigrants notes that acculturation seems to be related to lower alcohol consumption in the second generation but higher consumption in the third generation. Among Latino youth, for example, higher levels of cultural identification with either host or native culture was associated with lower drug use, however, drug rates are higher for bicultural youth (Amaro et al., 1990), suggesting that biculturality may involve unique stressors or

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learned patterns of substance use from both native and host cultures, which act in tandem to produce higher base rates. A study of second-generation South Sea Islanders in Australia conducted ten years ago found that problem youth who exhibited greater use of alcohol and drugs tended to also have lower self-esteem, and come from families of lower SES who adhered less strongly to their traditional culture (Kahn & Fua, 1995). Findings such as these are essentially contradictory to empirical and theoretical suppositions that higher levels of acculturation, biculturality, and/or integration are related to the most adaptive and successful psychological outcomes. Moreover, there is also information to suggest that biculturality may be helpful to addictions recovery because of the wealth of resources it brings. The best response to alcoholism treatment occurs in bicultural individuals who are able to draw on resources from, and have a stake in both native and host cultures, as has been found in Navajo men (Ferguson, 1976).

Gutmann (1999) eschews the use of either model for four main reasons, which are representative of the current limitations of immigrant substance use research. Gutmann questions the assumptions that: changes in use patterns are primarily or solely a result of the host culture; intracultural diversity of native cultures is not an important factor; cultural identification to one's native culture decreases as length of stay increases; and unilineal models of migration are best. These general sentiments are echoed by Isralowitz's (2004) work on comparing Israeli native and immigrant heroin users; he found that immigrants in treatment do not tend to change their patterns of use after immigration, and indeed, can be identified because of them.

Nevertheless, it is probable that both the acculturative and assimilation models are too simplistic in their approach, leading to sweeping predictions and ambiguous empirical findings. As Beauvais (1998) notes, there generally is evidence that intercultural contact does change the substance use patterns of immigrants, but how or why this occurs is not well substantiated by the literature. It is important to realize that substance use is not a static concept and that there is need for nonlinear models to accommodate its complexity (Johnson, 1996). For example, the models may not apply to all immigrant groups, regardless of immigration status or ethnicity – it may be important to consider motivation to migrate, such as voluntary migration or to claim refugee status, because unique stressors are at play for each group (O'Hare & Van Tran, 1998). Similarly, the substances being studied are often lumped together in the analysis. Ramirez et al. (2004) illustrate this point well with the finding that low acculturation levels predicted higher rates of marijuana use, but lower inhalant use; this finding was reversed in the high acculturation level group. The subtleties of these findings may have been obscured had the findings been reported together in an "omnibus" fashion. Importantly, there has been a dearth of research in this area that utilize mediator and moderator variables to explain the relationship between substance use and immigration. Often these studies employ little more than a unidimensional measure of acculturation and demographic variables as predictors. It is probable that identifying such mediators and moderators may help elucidate these mixed findings and propel the literature towards a more comprehensive understanding of this phenomenon.

There is little work conducted on alcohol and drug use in immigrants, and existing research focuses on groups that have been resident in the U.S. for longer periods of time, and on between group differences among these ethnic minorities (NIAAA, 2002). The majority of immigrant research has focused upon East Asian, Hispanic, and Native American groups, despite the fact that the latter are not technically considered "immigrants." However, knowledge of substance use in Asians is limited, because research that examines rates of use in several different ethnicities often yields lower prevalence rates in Asians than when Asians are the primary focus of research (Lee et al., 2003). Also, it is likely that use of alcohol and drugs is minimized in Asian American groups due to the model minority bias that Asians do not engage in troublesome behaviors. Asian groups themselves may feel pressured to uphold this myth by underreporting substance use in self-report.

In Indian-Americans, the Substance Abuse and Mental Health Administration's (SAMHSA) National Household Survey on Drug Abuse (NHSDA; 2002) found that the prevalence rates of alcohol and illicit drug use are low in Indian-Americans as compared to other Asian-American groups and non-Asian groups. For example, the lifetime prevalence of illicit drug use in Indian-Americans ages 12+ is 15.7%; however, limiting the age range to 18-25 years causes the rate to rise to 27%. The 2000 & 2001 surveys indicate that alcohol use in this population is also lower than in other subgroups. However, the prevalence of heavy use (3.7%) and binge drinking (9.9%) in ages 12-20 may still be a cause for concern, especially because the NHSDA does not report any collateral information about which subgroups of Indian-Americans are engaging in these behaviors. In fact, a report issued by the NHSDA in

reference to these statistics points out the higher rates of binge drinking in Indian and Filipino youth in comparison to other Asian groups, such as Chinese-Americans (SAMHSA, 2002). Indeed, these base rates, however low, may be problematic if they are occurring in individuals who do not have the resources to seek professional help for these potential problems. As an aside, a cursory glance at the data presented in this survey suggest that immigrant groups who have historically been resident in the U.S. longer have higher rates of use, possibly implicating the assimilation model.

Bhattacharya (2002) has noted the unique stressors associated with second generation adolescents in her study of Indian Americans in the New York City area. Among those she cites are intergenerational conflict and communication deficits in Indian families. Data from this study led to the conclusion that adolescents were strongly influenced by parental guidance in their use of drugs and alcohol, which may be responsible for these low base rates. However, as Bhattacharya notes, based on research with second-generation Chinese- and Japanese-Americans, whose substance use has approached that of Caucasian youths, it is probable that alcohol and drug rates will rise in Indian-Americans also.

Additionally, social influence of peers and emotional problems are thought to have an effect on substance use in adolescent Indian-Americans. Lee and colleagues (2003) found that Indian-Americans in particular largely cited social influence as the main reason to drink or use drugs, and that self-help methods were preferred over professional methods. Approximately 33% of all the Asian-Americans polled agreed or strongly agreed than drinking is a serious problem in their respective communities.

More than ten years ago, a British study called to attention the high rates of alcohol-related morbidity in Asian Indian immigrants, which were strangely high given the low reported rates of alcohol consumption in Indo-British samples (McKeigue & Karmi, 1993). In addition, there was a 121% increase in alcohol related admission rates to medical facilities in Indian-born men as compared to British natives. Within the Sikh subset of the Indian sample (a religious, regional group), more heavy drinkers were older, Indian-born men who tended to drink alone at home.

Perceived Discrimination

This literature has examined mostly African-Americans, perhaps due to historical reasons, and in children and students, perhaps because of the attention toward developmental pathways in recent years. The rates of perceived discrimination are high, as can be evidenced by 30% of respondents endorsing all the items (Romero & Roberts, 2003; in Latino Americans) or 85% of respondents endorsing at least one of the items in a perceived discrimination scale (Noh & Kaspar, 2003; in Korean-Canadians). Segregation, arguably a form discrimination, as well as other forms of discrimination such as unfair treatment, disrespectful behavior or comments, and pressure to conform to stereotypes, have been demonstrated to exist on American campuses even today (Ancis et al., 2000). Furthermore, perceived discrimination has been linked to demographic variables, such as gender, age, and SES (Stone & Han, 2005). In Indian samples, the stress associated with discrimination is likely to lead to somatization rather than outright acknowledgement, especially when avoidant coping styles are used (Moghaddam et al., 2002).

Acculturation has been shown to also be involved in perceived discrimination. A sizable body of literature suggests that ethnic or racial identification is associated with lower levels of acculturation, as well as more adaptive coping strategies, which act to diffuse the harmful effects associated with perceived discrimination. The idea is that lower levels of acculturation are associated with lower levels of acceptance from the host culture, causing discrimination; this is consistent with data from a recent dissertation indicating that perceived discrimination is experienced more by first-generation immigrants than second-generation individuals, who are arguably more acculturated (Andrade, 2003). The odds of experiencing discrimination are higher for those who reject the host culture, and in a sample of second-generation Mexican-American children perceived discrimination was associated with perceptions of poor school quality, which subsequently led to decreased scholastic performance (Stone & Han, 2005). Identifying with one's social or ethnic group, for instance, can increase self-esteem along with experiences of discrimination, leading to better means of coping with it (Roberts & Romero, 1999). It has also been found that race-based socialized children (i.e. those who have become enculturated to their racial groups) used more effective strategies to cope with perceived discrimination. Additionally, there is probably also an interaction of personal coping styles, level of acculturation and acculturative stress, and social support. Noh & Kaspar (2003) found that there was a strong correlation between depression and perceived discrimination after demographic variables had been controlled for, however, when emotional response has been introduced as a moderator, the link between perceived discrimination and depression was reduced by almost 40%. The authors concluded that coping styles

used to deal with perceived discrimination were more effective when acculturative stress was low and that support by members of one's ethnic group can buffer the effects of perceived discrimination. Whitbeck, Chen, Hoyt, & Adams (2004) found that enculturation (acclimation to one's own native culture) was a significant resiliency factor among American Indians, suggesting that adherence or identification with one's native culture could be a protective factor.

Bourhis and colleagues (1997) have proposed an alternate theory about the cause of perceived discrimination. They theorize that both perceived discrimination as well as acculturative stress result from the discordance between the acculturation orientations of both immigrants and their host cultures. For instance, if a host society prefers its immigrants to be marginalized, yet the immigrants themselves seek to integrate, the discordance rate is high, resulting in high levels of conflict and aggression directed towards the immigrant group. While the theory has conceptual merit, it was not supported in a recent study of Finnish, Israeli, and German repatriates when their first choice acculturation strategies were used (Jasinskaja-Lahti, Liebkind, Horenczyk, & Schmitz, 2003). However, the theory fit well when the data were reanalyzed using the immigrants' second acculturation strategy choices. This suggests that perceived discrimination may in fact be due to the differences in what is viewed as "successful" or "desirable" acculturative adaptations between immigrants and their new communities. Further, this provides additional information about the complexity of acculturation and acculturation styles as constructs.

Perceived discrimination is important also because of the positive outcomes associated with its absence. Immigrants who experience lower levels of perceived

discrimination also experienced inversely proportional levels of life satisfaction, a measure of general psychological well-being (Vohra & Adair, 2000), and better general health (Wiking et al., 2004).

<center>Perceived Discrimination, Substance Use, and Acculturation</center>

A sizable portion of the perceived discrimination literature examines the outcome of substance use in immigrants and minorities, the idea inherent in this investigation being that perceived discrimination is a source of stress that ultimately leads to substance use, abuse, or dependence as a maladaptive means of coping. A recent prospective study masterfully demonstrated this link in African-American adults and their children (Gibbons et al., 2004). Perceived discrimination was shown to be the strongest predictor of substance use among the parents, even after controlling for base rates of substance use, at an average follow-up time of twenty months later. Level of perceived discrimination also predicted an increase of use in adults, and use and vulnerability to use in their children at follow-up. Other studies have also shown the link between discrimination and cigarette smoking (Guthrie et al., 2002), problem drinking (Martin et al., 2003), alcohol abuse (Whitbeck et al., 2004), or between segregation and cigarette smoking (Landrine & Klonoff, 2000).

However, there has been only one investigation to date on the relationship between discrimination, acculturation, and substance use. Finch and colleagues (2003) found that employment discrimination in Mexican migrant farmworkers was significantly related alcohol abuse and dependence in the past year. However, this study examined a special, uncommon portion of the general immigrant population

(i.e. seasonal migrants), as well as a specific subset of discrimination, that which is related to employment.

Appendix B: Instruments

East-Asian Acculturation Measure – Marginalization Subscale

Directions: Below are listed a number of statements. For each statement, select the appropriate choice to indicate your level of agreement or disagreement.

1 – strongly disagree
2 – disagree
3 – somewhat disagree
4 – don't agree or disagree
5 – agree somewhat
6 – agree
7 – strongly agree

1. Generally, I find it difficult to socialize with anybody, desi or American.
2. I sometimes feel that neither Americans nor desis like me
3. There are times when I think no one understands me.
4. I sometimes find it hard to communicate with people.
5. I sometimes find it hard to make friends.
6. Sometimes I feel that desis and Americans do not accept me.
7. Sometimes I find it hard to trust both Americans and desis.
8. I find that both desis and Americans often have difficulty understanding me.
9. I find that I do not feel comfortable when I am with other people.

Brief Perceived Ethnic Discrimination Questionnaire – Community Version

Directions: Think about your ethnicity / race as an Indian-American. How often have any of the things below happened to you because of your ethnicity?

1 – never
2 – rarely
3 – sometimes
4 – often
5 – very often

1. Have you been treated unfairly by teachers, principals, or other staff at school?
2. Have others thought you couldn't do things or handle a job?
3. Have others threatened to hurt you (ex: said they would hit you)?
4. Have others actually hurt you and tried to hurt you (ex: kicked or hit you)?
5. Have policemen or security officers been unfair to you?
6. Have others threatened to damage your property?
7. Have others actually damaged your property?
8. Have others made you feel like an outsider who doesn't fit in because of your dress, speech, or other characteristics related to your ethnicity?
9. Have you been treated unfairly by co-workers or classmates?
10. Have others hinted that you are dishonest or can't be trusted?
11. Have people been nice to you to your face, but said bad things about you behind your back?
12. Have people who speak a different language made you feel like an outsider?
13. Have others ignored you or not paid attention to you?
14. Has your boss or supervisor been unfair to you?
15. Have others hinted that you must not be clean?
16. Have people not trusted you?
17. Has it been hinted that you must be lazy?

Alcohol / Drug Use

Directions: For the following items, please indicate your answer by typing into the box or marking the circles provided. Please check your answers over for accuracy before submitting.

Note: "drink" refers to a drink of an alcoholic beverage.
1 drink =
* one 12 oz. beer or wine cooler
* one 4 oz. glass of wine
* one mixed drink
* one shot (1.25 oz.) of liquor

1. At what age did you begin regularly drinking alcohol (at least one drink per month)? If you have never been a regular drinker, please indicate this by typing an X in the blank.

2. In a typical two-week period over the past 12 months, how many times did you have five or more drinks in a row?

None
Once
Twice
Three to five times
Six to nine times
Ten or more times

3. In a typical two-week period over the past 3 months, how many times did you have five or more drinks in a row?

None
Once
Twice
Three to five times
Six to nine times
Ten or more times

4. Over the past 12 months, how often have you had some kind of beverage containing alcohol?

I didn't drink alcohol
1 time
2-3 times
About once a month
2-3 times a month
Once or twice a week

Alcohol / Drug Use (continued)

3-4 times a week
Nearly every day
Every day

5. Over the past 3 months, how often have you had some kind of beverage containing alcohol?

I didn't drink alcohol
1 time
2-3 times
About once a month
2-3 times a month
Once or twice a week
3-4 times a week
Nearly every day
Every day

6. In the past 12 months, when you were drinking alcohol, how many drinks did you usually have on any one occasion? If you did not drink alcohol in the past 12 months, please put a "0" in the blank.

7. In the past 3 months, when you were drinking alcohol, how many drinks did you usually have on any one occasion? If you did not drink alcohol in the past 3 months, please put a "0" in the blank.

8. In the past year, how many times have you used the following:

Cocaine (crack, rock, freebase, powder)
Marijuana
Opiates (heroin, methadone)
Hallucinogens (LSD, mescaline, PCP, peyote)
Designer drugs (ecstasy, MDMA)
Amphetamines (diet pills, crystal meth)
Sedatives, hypnotics, anxiolytics (barbiturates, downers, sleeping pills, Seconol, Quaaludes)
Other drugs (glue, inhalants, steroids, etc.)

0 times
1 time
2 times
3-5 times
6-9 times
10+ times

9. At what age did you first use any drug other than alcohol (for example, marijuana, etc)? If you have never used drugs other than alcohol, place a "0 in the blank.

10. Think of the all times in the past 12 months when you used drugs other than alcohol (e.g., marijuana, cocaine, etc). How often, on average, have you used any of these drugs (include all drugs together)?

I didn't use any drugs
1 time
2-3 times
About once a month
2-3 times a month
Once or twice a week
3-4 times a week
Nearly every day
Every day

Young Adult Alcohol Problems Screening Test (YAAPST)

Directions: Please answer the following questions in reference to the PAST YEAR ONLY. Note: "drug use" refers to any drug other than alcohol.

No, never
Yes, but not in the past year
Yes, 1 time in the past year
Yes, 2 times in the past year
Yes, 3 times in the past year
Yes, 4-6 times in the past year
Yes, 7-11 times in the past year
Yes, 12-20 times in the past year
Yes, 21-39 times in the past year
Yes, 40 times in the past year

1a. Have you driven a car when you knew you had too much to drink and drive safely?
1b. Have you driven a car when you knew you had used too much of one/several drug(s) to drive safely?
2a. Have you had a hangover (headache, sick to your stomach) the morning after you had been drinking?
2b. Have you felt sick the morning after you had been using drugs?
3a. Have you felt sick to your stomach or thrown up after drinking?
3b. Have you felt sick to your stomach or thrown after using drugs?
4a. Have you ever shown up late for work/school because of drinking, a hangover, or illness caused by drinking?
4b. Have you ever shown up late for work/school because of drug use, after-effects of drug use, or an illness caused by drug use?
5a. Have you not gone to work or missed classes at school because of drinking, a hangover, or an illness caused by drinking?
5b. Have you not gone to work or missed classes at school because of drug use, after-effects of drug use, or an illness caused by drug use?
6a. Have you gotten into physical fights drink drinking?
6b. Have you gotten into physical fights from drug use?
7a. Have you ever skipped an evening meal because you were drinking?
7b. Have you ever skipped an evening meal because you were using drugs?
8a. Have you become rude, obnoxious, or insulting after drinking?
8b. Have you become rude, obnoxious, or insulting after using drugs?
9. Have you participated in drinking contests or drinking games?
10a. Have you damaged property, set off a false alarm, or other things like that you have been drinking?
10b. Have you damaged property, set off a false alarm, or other things like that you have been using drugs?
11a. Has/have your significant other, parents, or other near relative ever complained to you about your drinking?

11b. Has/have your significant other, parents, or other near relative ever complained to you about your drug use?

12a. Has your drinking ever created problems between your significant other or another near relative?

12b. Has your drug use ever created problems between your significant other or another near relative?

13a. Have you said things while drinking that you later regretted?

13b. Have you said things while using drugs that you later regretted?

14a. Has drinking ever gotten you into sexual situation hat you later regretted?

14b. Has using drugs ever gotten you into sexual situation hat you later regretted?

15a. Because you had been drinking, had you ever neglected to use birth control or neglected to protect yourself from sexually transmitted diseases (do not count instances of unprotected sex when you were not drinking)?

15b. Because you had been using drugs, had you ever neglected to use birth control or neglected to protect yourself from sexually transmitted diseases (do not count instances of unprotected sex when you were not using drugs)?

16a. Because you had been drinking, have you ever had sex when you didn't want to (do not count instances of regretted sex when you were not drinking)?

16b. Because you had been using drugs, have you ever had sex when you didn't want to (do not count instances of regretted sex when you were not using drugs)?

17a. Because you had been drinking, have you ever had sex with someone you wouldn't ordinarily had sex with (do not count instances when you were not drinking)?

17b. Because you had been using drugs, have you ever had sex with someone you wouldn't ordinarily have had sex with (do not count instances when you were not using drugs)?

18a. Have you ever been pressured or forced to have sex with someone because you were too drunk to prevent it?

18b. Have you ever been pressured or forced to have sex with someone because you were too under the influence of drugs to prevent it (only include cases in which you voluntarily took the drugs)?

19a. Have you ever pressured or forced someone to have sex with you after you had been drinking?

19b. Have you ever pressured or forced someone to have sex with you after you had been using drugs?

20a. Have you ever received a lower grade on an exam or paper than you should have because of drinking?

20b. Have you ever received a lower grade on an exam or paper than you should have because of using drugs?

21a. Have you awakened the morning after a good bit of drinking and found that you could not remember a part of the evening before?

21b. Have you awakened the morning after a good bit of drug use and found that you could not remember a part of the evening before?

22a. Have you ever had "the shakes" after stopping or cutting down on drinking?

YAAPST (continued)

22b. Have you ever had any withdrawal symptoms after stopping or cutting down on drinking?

23a. Have you ever found you needed larger amounts of alcohol to feel any effect - or that you could no longer get drunk with the amount that used to get you drunk?

23b. Have you ever found you needed larger amounts of a drug to feel any effect?

24a. Have you ever felt guilty about your drinking?

24b. Have you ever felt guilty about your drug use?

Demographic Questionnaire

Directions: Please answer the following questions, and be as specific as possible.

1. Age: _____

2. Gender: Female   Male

3. Which best describes you?

I am first-generation American (I am living in the U.S., but my parents never have).
I am second-generation American (my parents immigrated to the United States, but I was born / raised here).
I am third of fourth-generation (my family has lived in the U.S. as least as far back as my grandparents).

4. How many years have you lived in the U.S.? Put your age if you lived here your whole life.

5. Regional identification (i.e., Marathi, UP, Tamilian, etc)?

6. How many of your parents of parents immigrated from India?   0   1   2

7. What is your highest level completed of education? You may count your current year in school as completed.

> High school or secondary school only
> Undergraduate – freshman (1st)
> Undergraduate – sophomore (2nd)
> Undergraduate – junior (3rd)
> Undergraduate – senior (4th)
> Some graduate (postgraduate) school
> Complete graduate (postgraduate) degree
> Other (specify)

8. Please circle the range below which corresponds to your family's combined annual income:
> < $25,000
> $25,000 - 35,000
> $36,000 - 45,000
> $46,000 - 55,000
> $56,000 - 65,000
> $66,000 - 75,000
> $76,000 - 85,000
> $86,000 - 95,000
> > $95,000

9. Which language are you most comfortable speaking?

10. What is your religious identification (check all that apply)?

Hindu
Christian (Catholic, Protestant, etc.)
Muslim
Jain
Sikh
Zoroastrian (Parsi)
Jewish
Other (specify)

Center for Epidemiologic Studies Depression Scale (CES-D)

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

Rarely / none of the time (< 1 day)
Some / little of the time (1-2 days)
Occasionally / moderate amount of the time (3-4 days)
Most / all of the time (5-7 days)

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

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