

Body Image, Acculturation, and Substance Abuse Among Boys and Girls in the Southwest

Tanya Nieri, Stephen Kulis, Verna M. Keith, and Donna Hurdle

Arizona State University, Tempe, Arizona, USA

Abstract: This study explored body image as measured by perceptions of weight and appearance and its impact on adolescent drug use among predominately Mexican American middle school students in the southwest. Outcomes analyzed included lifetime and recent alcohol, cigarette, and marijuana use and antidrug norms. Disliking one's looks was more of a risk factor for boys, whereas negative weight perceptions were more of a risk factor for girls. Relative to more acculturated (English-dominant) Latinos (N=903), non-Latino Whites (N=121), and other non-Latino youth (N=107), less acculturated (Spanish-dominant) Latino youth (N=212) reported the poorest body image. However, more acculturated Latino youth with poor body image had the greatest risk of substance use. More acculturated Latino boys who disliked their looks reported relatively greater amounts of recent alcohol use, and those who rated their bodies as too thin reported higher lifetime cigarette use, a greater amount and frequency of recent cigarette use, and weaker antidrug norms. More acculturated Latina girls who thought they were too fat reported a greater amount and frequency of recent cigarette use. These findings suggest that low levels of acculturation may protect some Latino youth with poor body image from coping via substance use. In addition, they suggest that poor body image among some Latinos may result less from adoption of American thinness ideals but rather from attitudes and behaviors that devalue the characteristics of Latino appearance.

Keywords: Body image, acculturation, substance abuse

This research was supported by National Institutes of Health/National Institute on Drug Abuse grants funding the Drug Resistance Strategies Project (5 R01 DA05629-07) and the Southwest Interdisciplinary Research Consortium (SIRC) at Arizona State University (R24 DA13937-01).

Address correspondence to Tanya Nieri, Southwest Interdisciplinary Research Consortium, Arizona State University, P.O. Box 873711, Tempe, AZ 85287-3711, USA; Fax: (480) 727-6058; E-mail: tnieri@asu.edu

INTRODUCTION

Poor body image has been identified as a risk factor for substance abuse. However, since studies linking body image to substance abuse predominately have used European American samples, there is a need to explore this relationship among Latinos, especially among Mexican Americans as they constitute the largest Hispanic subgroup (1). Furthermore, because some studies have found acculturation to negatively affect body image while others have found that it has no effect, additional research is needed to understand the influence of acculturation. Finally, since research on body image has largely focused on females, further study is needed to explore body image in boys and to assess gender differences in the relationship between body image and substance abuse. This article explores body image and its impact on adolescent substance use among a largely Mexican American sample of middle school students.

Body Image

Defined as “the cumulative set of images, fantasies, and meanings about the body, its parts and functions,” body image is an integral part of self-image and forms the basis of self-representation (2). Body image development is an important element of the developmental process. Perceptions of one’s body become increasingly important during adolescence as children experience multiple physical and social changes (3). Yet, many children have poor body image. Research on girls indicates that between 40 and 70% of adolescent girls are dissatisfied with 2 or more aspects of their body, between 50 and 80% want to be thinner, and between 20 and 60% report having dieted (4). Studies including boys are less prevalent. A Minnesota study of adolescents found that almost 46% of girls and 26% of boys reported low body satisfaction, although this study included only 6% Latino students (5). Another study, whose sample included 60% Latino students and took place in the southwest, found that 22% of girls and 11% of boys reported that they never felt satisfied with their body (6). Poor body image during adolescence puts youth at risk for a number of problems, including low self-esteem (7), depression (8), and substance use, as the next section illustrates.

Body Image and Substance Abuse

Poor body image among adolescents is associated with greater substance use. For adolescents with poor body image due to weight, substance use may be a weight control strategy. Croll, Neumark-Sztainer, Story, and Ireland (9) found in their study of almost 80,000 high school students that 18% of girls

and 10% of boys reported smoking cigarettes in the last year to lose or control their weight. French, Perry, Leon, and Fulkerson (10) found that boys with a strong desire to be thin were more likely to be current smokers than other boys; they also found that girls who reported a fear of weight gain or a strong wish to be thin were twice as likely as girls without these concerns to be current smokers. Boles and Johnson (11) found that female adolescent smokers were more likely than male adolescent smokers to believe that smoking controlled weight. Furthermore, while they found a relationship between girls' perceived weight and their smoking status, no such relationship was found among boys. Other studies show that smokers resist quitting for fear of weight gain (12, 13).

Substance use also may be a coping strategy for adolescents whose severe body image problems are manifest in eating disorders. Numerous studies have documented the co-occurrence of eating disorders and substance abuse (9, 14–16). Typically, the eating disorder is accompanied by poor body image (17) and precedes the substance use, and presence of the former tends to accelerate the development of the latter (15). Wilson (15) argued that eating disorders do not indicate an addiction to food or represent a larger problem of addictive behavior. Rather, substance use may be a coping strategy for dealing with the negative effects of eating disorders. For instance, binge eaters may use substances to alleviate their emotional distress and the physical discomfort associated with starvation between binges.

Substance use also has been found to accompany subclinical eating disorder symptoms, such as frequent dieting, which often coincide with low body esteem (5). For example, Croll et al. (9) found an association between cigarette and alcohol use and disordered eating for boys and girls and an association between binge drinking and disordered eating for boys. Krahn, Piper, King, Olson, Kurth, and Moberg (18) found that dieting in the sixth grade predicted alcohol use in the ninth grade in middle school boys and girls living in Wisconsin. In their study of over 33,000 adolescent boys and girls living in Minnesota, French, Story, Downes, Resnick, and Blum (19) found that weekly or daily alcohol or tobacco use was about one-and-a-half times more prevalent in youth who always dieted compared with youth who never dieted. The most frequent dieters had the poorest body image whereas the youth who never dieted had the most positive body image.

Granner and Black (14) also documented the presence of substance use among individuals with subclinical eating disorder symptoms. In their sample of Black and White college women, individuals with high levels of body dissatisfaction and a strong drive for thinness were more likely to report cigarette use and binge drinking. No racial differences were found in the relationship between eating disorder symptoms and substance use.

The findings from studies using subclinical samples suggest that substance use among adolescents with poor body image may be a more general coping strategy. This concept is supported by the findings of other studies linking poor body image to low self-esteem (7) and depression (8),

each of which are risk factors for substance use (20–22). Adolescents with poor body image may turn to substance use as an escape from their feelings of low self-worth and depression.

Substance use also may be a perceived avenue toward social acceptance. Youth who dislike their looks or body and assume that their peers feel the same about them may believe that using substances will make them more attractive socially. French et al. (19) made this argument to explain their findings of substance using, dieting adolescents. They suggested that these adolescents engage in risk behaviors to establish social contacts and win approval from peers.

Socio-cultural theories of physical attractiveness support this notion. According to these theories, there is agreement about what constitutes physical attractiveness, and many desirable traits, such as social competence, are attributed to attractive people, even in the absence of any demonstration of these attributes (23). Youth who perceive themselves as unattractive may modify their behavior to offset their perceived poor appearance, acting in ways that they believe reflect the positive attributes commonly associated with attractive people. Media images connecting various positive attributes to substance use may also influence youths' decisions to adopt substance use as an image-enhancing strategy.

Studies of the relationship between poor body image and substance abuse cited here tend to use predominately or exclusively White samples, and none account for differences due to acculturation. Therefore, an examination of this relationship among Latino adolescents is needed. Furthermore, in general, the emphasis in these studies and those from the eating disorder literature has been on females. With the exception of Croll et al.'s study, studies that have included boys examined boys and girls separately without testing for gender differences (18, 19). Therefore, an analysis of gender differences in the relationship between body image and substance abuse also is needed.

Body Image and Gender

Studies on gender differences in body image generally indicate that girls tend to have a more negative body image than boys (24–26). Yet, as Cohane and Pope (27) point out in their literature review on boys' body image, while boys generally display less overall body concern than girls, many boys of all ages report body dissatisfaction. Furthermore, while girls typically want to be thinner, boys often want to be bigger (i.e., more muscular). Many studies, however, do not adequately distinguish between these two desires, presuming that both boys and girls wish to avoid being big/fat (27). Because the dominant ideal male body shape is muscular and strong with broad shoulders (28) and not necessarily thin, it is important to explore boys' desires to gain weight to appear bigger and stronger.

Body Image Among Minority Ethnic Groups

Although research on body image and related disorders has a long history, recognition that ethnic subgroups are vulnerable to these problems is relatively recent (29). Historically, poor body image and eating disorders were viewed as White, middle- to upper-middle class problems (30). Yet numerous studies have shown that members of ethnic subgroups also experience these problems (30, 31). Smith and Krejci (6) found in their study of youth, for instance, that 24% of Native Americans, 19% of Whites, and 14% of Latinos reported that they were never satisfied with their body. Another study found that African American youth had the most positive body image, relative to White, Latino, and Asian American youth (8).

The relative risk of body image problems for Latinos remains unclear. Some research suggests that, like African Americans, Latinos are less vulnerable than Whites. For example, a review of studies by Crago, Shisslak, and Estes (31) revealed that Black and Latina women were less concerned about their weight than Whites. Yet, other research suggests that, like Whites, Latinos are vulnerable to risk-related thinness ideals (32). Still other research suggests that Latinos may be among the most vulnerable groups. Croll et al. (9), for instance, found that Latino and Native American youth reported the highest prevalence of unhealthy weight control behaviors and binge eating, significantly more than Whites, with Black youth reporting the lowest prevalence. The inconsistency in findings may be related to acculturation.

Body Image, Latinos, and Acculturation

The research linking acculturation to body image has been limited. The studies have tended to focus on eating disorders and on females, and results have been mixed. Typically, researchers have conceptualized acculturation as having a negative effect on body image; exposure to and adoption of Western, and specifically American, body ideals results in body dissatisfaction. Some evidence supports this notion. For instance, Cachelin, Veisel, Barzegarnezari, and Striegel-Moore (33) found that although Latina, Asian, Black, and White women were equally likely to demonstrate disordered eating, more acculturated women in these groups were more likely to suffer from eating problems than less acculturated women in these groups. Gowen, Hayward, Killen, Robinson, and Taylor (34) found that acculturation predicted body dissatisfaction for Latina girls but not for White or Asian girls. Silber (35) found in her in-depth study of 7 anorectic females that Latinas recently arrived in the United States sought social integration through the adoption of thin body ideals and rigid dieting. Pumariega (36) found a correlation between acculturation and unhealthy eating attitudes among Latinos. Dawson (37) found that

U.S.-born Latina women were more likely than the foreign born to consider themselves overweight. Similarly, Lopez, Blix, and Blix (38) discovered that U.S.-born Latinas, relative to immigrant Latinas, reported smaller ideal body sizes.

Yet, other studies have not found a relationship between acculturation and body image. For example, in their meta-analysis of studies on the role of culture and ethnicity, Wildes, Emery, and Simons (39) concluded that there were too few studies examining the relationship between acculturation and eating pathology to draw conclusions about acculturation's role. Joiner and Kashubeck (40) found no relationship between acculturation and body dissatisfaction or the thinness of body ideals for Mexican American adolescent girls.

The discrepant findings may be due to the possibility that the thinness ideal for women already exists in Latino culture, albeit for different reasons than it exists in White culture (32). Reflecting the influence of Catholicism in Latino culture, the thinness ideal may symbolize the self-sacrifice and restraint that constitute the Latina feminine ideal (41). A Latina youth's weight-related poor body image may not necessarily be a product of acculturation. Rather, it may reflect adherence to traditional gender roles. Another possibility is that Latino culture has adopted the American thinness ideal. Latin America is heavily influenced by American culture due to its geographic proximity to the United States, and evidence shows a rise in eating disorders there (32). Yet, another possibility is that as Latinos acculturate, they learn their "place" in American society as a minority group. Some Latinos may develop a poor body image, not because they have embraced a thin ideal, but because they have been exposed to negative stereotypes of Latinos. Root (42) suggested, for example, that Latina women may strive to be thin to counter the stereotype that Latina women are powerless, fat, obedient, and quiet.

Clearly, further study is needed to understand the relationship between body image and acculturation, especially since relatively little research has included boys or examined subclinical body image problems. To address the current gaps in the literature, this study will explore the body image of Latino and non-Latino middle school boys and girls and assess the relationship of body image to substance use.

METHOD

Data

Data came from 3,563 eighth grade students completing the final wave of data collection (Spring 2000) in a 2-year, 4-wave drug prevention study in a large southwestern city (43). The subsample for the current analysis consisted

of 1,343 students from 5 schools who completed both the standard wave 4 questionnaire that gathered data on drug use and drug attitudes and a brief supplemental survey that gathered data on gender identity and body image. The 5 schools had a majority of students of Mexican heritage and a minority of students who were non-Latino White; they served primarily lower income, center-city neighborhoods. Each eighth grader in these schools was selected as a study participant.

The larger study involved 35 schools from 9 school districts. Comparisons of the respondents from the 5 selected schools with those from the remaining 30 schools in the larger study indicated that the 2 groups were statistically indistinguishable in terms of gender and academic grades. The subsample was statistically significantly different from the larger study group in mean age: 14.5 years and 14 years, respectively. Latino students were more prevalent in the subsample, constituting 83% of students, compared to 63% in the larger study. Similarly, a greater proportion of subsample students received a free or reduced school lunch—90% relative to 73% in the larger study group. The groups differed on 2 substance use outcomes. Relative to the rest of the larger study sample, the subsample reported higher lifetime alcohol use and recent cigarette use. There were no significant differences between the subsample and the larger sample in lifetime cigarette and marijuana use, in recent alcohol and marijuana use, and in a composite measure of antidrug norms.

Prior to survey administration, school administrators sent letters to the parents of every student explaining the study and requesting their consent to have their child participate in the study and complete the study surveys. During regular school hours in either a science, health, or homeroom class, university-trained survey proctors administered a 45-minute written questionnaire, available back-to-back in either English or Spanish, to students. Proctors informed students that the survey was part of a voluntary university research project rather than a normal school activity and that their responses would remain confidential. To ensure students' anonymity, regular teachers were absent during survey administration. All students present the day of survey administration agreed to complete the questionnaire. Absent students were not contacted further.

Of the 1,343 students 645 (48%) were female and 698 (52%) were male. The average age was 14 years. Most of the students were from lower income families; 90% received either a free or reduced price school lunch. Students claiming some Latino heritage comprised 83% of the sample. Of these respondents 92% identified as either Mexican, Mexican American, or Chicano; 19% were Spanish-language dominant (they either took the survey in Spanish or reported that they spoke Spanish with friends all or most of the time). Nine percent of the sample identified as White or Anglo. The remaining 8% of students identified as African American or Black, American Indian, and Asian or Pacific Islander.

Measures

The outcomes examined in this study are Likert-type measures that capture student's behaviors and attitudes concerning alcohol, tobacco, and marijuana use. Additional variables measure students' body image and demographic characteristics.

Lifetime and Current Substance Use

Dependent variables were modeled on questionnaire items about the amounts and frequency of drug use created by Flannery, Flannery, Vazsonyi, Torquati, and Fridrich (44), and were chosen for their developmental appropriateness for the age group under study and for their similarity to measures used in other large studies of early adolescent drug use (45, 46). We measured the amounts of lifetime use for three substances. Students indicated how many drinks of alcohol, how many cigarettes, and how many times they had used marijuana in their entire life. Students also indicated the amounts of these substances they had consumed in the past 30 days and the frequency of consumption. Because the original Likert scale responses (e.g., 1=none to 10=over 100 drinks; 1=none to 10=more than 20 packs; and 1=never to 10=over 30 times) had highly skewed distributions toward low rates of drug use, we transformed the responses by calculating their natural log to improve model fit.

Antidrug Norms

Because antidrug norms were an outcome of the prevention program that formed the basis of the larger study, they are analyzed here as a dependent variable. Using 23 original questionnaire items, we created 7 additive scales to measure aspects of the student's drug use attitudes in terms of personal approval/disapproval, personal intention to use substances, expectation of injunctions by parents and friends in response to the respondent's drug use, expectation of positive consequences of drug use, and self-confidence in the ability to refuse drug offers. Two scales measured *antidrug personal norms*, the students' opinion on whether use of alcohol, cigarettes and marijuana is OK for someone their age and whether it is OK for anyone to use hard drugs (LSD, crack, cocaine) or inhalants. The 5 component items for these 2 scales were scored from 1=definitely OK to 4=definitely not OK. *Personal intentions* were measured by 3 items indicating the likelihood that the student would refuse future alcohol, cigarettes, or marijuana offers, each scored from 1=definitely yes to 4=definitely no. Two separate scales measured *antidrug injunctive norms*, focusing on 2 important reference groups for these students, parents and friends. The respondents reported how angry their parents would be if they discovered the respondent was using each of three substances (alcohol, cigarettes, and marijuana), with scores ranging from 1=not at all

angry to 4=very angry. They also reported how their best friends would react in the same situation, with scores ranging from 1=very friendly to 4=very unfriendly.

A 6-item scale measured the degree to which the respondent thought that alcohol, cigarette, or marijuana use had *positive consequences* for users, such as improving group acceptance, enlivening parties, having more fun decreasing nervousness, sharpening concentration, and making food taste better. Response options included 1=never, 2=almost never, 3=sometimes, 4=often, and 5=most of the time. The seventh and final drug norm scale measured the respondents' *confidence in their ability to resist* an offer of alcohol, cigarettes, or marijuana from a family member, from friends, and from a stranger, with the 3 component items scored from 1=not at all sure to 5=very sure. A maximum likelihood factor analysis revealed the 7 scales to cohere strongly around a single factor. Loadings ranged from an absolute value of 0.46 to 0.82. We used the resulting factor score as a measure of the degree to which the respondent subscribes to antidrug norms.

Body Image

Two variables captured body image information. The first item asked respondents to indicate how much they like the way they look: 1=very much, 2=somewhat, 3='a little bit, 4=not much, or 5=not at all. The second item asked respondents to rate their bodies on a scale from 1=very thin to 5=much too fat. To capture the distinct possibilities of desiring to be bigger and desiring to be smaller, this item was recoded into 2 separate variables, one capturing those who rated their bodies as thin (1) or very thin (2) and the other capturing those who rated their bodies as too fat (1) or much too fat (2). Students rating their bodies as "just right" had a zero value for both variables.

Ethnicity and Control Variables

Students identifying as Mexican, Mexican American, or Chicano/a or as other Latino/a or Hispanic in any survey wave constituted the Latino group. However, this group was further broken down by degree of acculturation into majority culture, using a proxy measure, Spanish-language predominance, which has been found in other studies to be associated with youth outcomes including substance use (47, 48). Spanish predominance was determined in two ways. Students who opted to complete a Spanish questionnaire and/or who indicated that they spoke Spanish with their friends all or most of the time were considered to be Spanish dominant and assigned to the *less acculturated Latino* category. Remaining members of the Latino group were assigned to the *more acculturated Latino* category. Non-Latino Whites constituted a third category and served as the reference group in multivariate analyses. Finally, *other non-Latinos* constituted a fourth category.

Several control variables were entered into the multivariate analyses. The student's age was measured in years. Socioeconomic status was captured by a dummy variable contrasting students who do and do not receive a free or reduced price school lunch. Academic performance was measured by the student's report of his/her "usual grades in school," on a Likert scale from 0 (mostly Fs) to 9 (mostly As).

Analysis Strategy

The results presented below examine the influence of body image on drug use norms and behaviors. The key findings are ordinary least squares regression results that predict the degree to which students have used drugs in their lifetime and in the recent past and the strength of their antidrug norms. Initially, we examined the influence of gender, exploring main effects on all cases, boys separately, and girls separately. Then we examined gender interaction effects. Subsequently, we examined the effects among each ethnic group separately, with Latinos further distinguished by acculturation status.

RESULTS

Descriptive statistics and selected correlations for all dependent and independent variables are presented in Table 1. The means suggest that the typical student had used alcohol in his or her lifetime more than any other substance, followed with decreasing frequency by cigarettes, then marijuana. In terms of body image, students on average reported liking their looks somewhat, and they rated their bodies as being closer to just right rather than to too fat or too thin. The correlations reveal that dislike of one's looks was positively associated with rating one's body as too fat or too thin and with higher grades. Rating one's body as too fat was positively associated with the amount of recent cigarette use and usual grades.

Group comparisons were made using t-tests and analyses of variance with post hoc multiple comparison tests (results not shown). Girls reported a poorer body image than boys: They had higher mean ratings of being too fat, being too thin, and disliking their looks. Less acculturated Latino students reported a greater dislike of their looks than more acculturated Latino, White, and other non-Latino students. More acculturated Latinos reported a greater dislike of their looks than other non-Latino students. There were no ethnic differences in the extent to which students rated their bodies as too fat. Less acculturated Latinos on average rated their bodies as too thin to a greater extent than more acculturated Latinos.

Separate analyses by gender revealed some statistically significant differences in body image by ethnicity/acculturation. As the means in Figure 1 illustrate, among girls ethnic/acculturation differences were present in the

Table 1. Means and selected correlations for dependent and independent variables

Measure	N	Mean	Standard deviation	Correlation with		
				Dislike looks	Too fat	Too thin
Dislike looks	1304	2.450	1.106	1.000		
Too fat	1306	0.234	0.472	0.345***	1.000	
Too thin	1306	0.197	0.448	0.055*	-0.218***	1.000
Lifetime alcohol use	1336	1.063	0.800	-0.009	0.025	-0.028
Lifetime cigarette use	1338	0.669	0.766	0.015	0.022	0.019
Lifetime marijuana use	1337	0.465	0.699	-0.041	-0.011	-0.039
Amount of recent alcohol use	1336	0.476	0.731	0.019	0.037	-0.017
Amount of recent cigarette use	1333	0.208	0.507	0.006	0.056*	-0.012
Amount of recent marijuana use	1332	0.293	0.633	-0.020	0.004	0.008
Frequency of recent alcohol use	1338	0.299	0.514	0.019	0.026	-0.010
Frequency of recent cigarette use	1333	0.158	0.413	-0.011	0.042	-0.000
Frequency of recent marijuana use	1331	0.218	0.495	-0.033	0.006	0.000
Antidrug norms	1290	-0.007	0.936	-0.003	-0.036	0.017
Less acculturated Latino	1343	0.157	0.364			
More acculturated Latino	1343	0.672	0.470			
Non-Latino White	1343	0.088	0.283			
Other non-Latino	1343	0.083	0.275			
Age in years	1343	14.464	0.556	-0.042	-0.041	-0.024
Usual grades	1325	3.579	1.752	0.080**	0.057*	-0.022
Free/reduced lunch participation	1343	0.900	0.302			
Gender (1 = male, 0 = female)	1343	0.520	0.500			

* $p < 0.05$.** $p < 0.01$.*** $p < 0.001$.

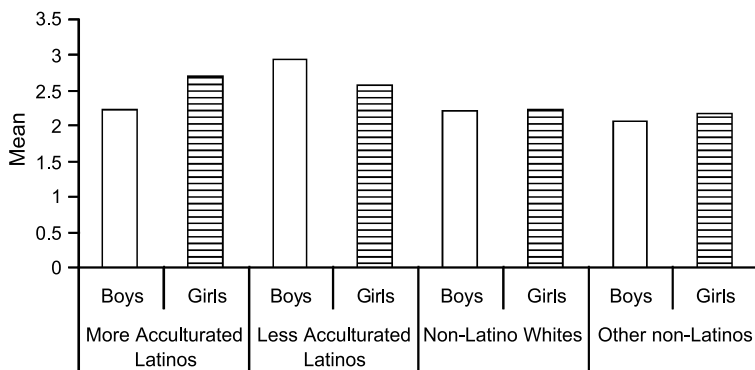


Figure 1. Disliking one's looks: means by ethnicity/acculturation and gender.

extent to which they disliked their looks. Latina girls, regardless of acculturation, disliked their looks more than White and other non-Latina girls. The difference between more and less acculturated Latina girls was not significant. In addition, less acculturated Latino boys disliked their looks more than more acculturated Latino and other non-Latino boys; however, the difference from White boys was not significant. As Figure 2 illustrates, among boys less acculturated Latinos reported being too thin more than more acculturated Latinos; this was the only statistically significant difference between groups. There were no statistically significant differences in weight-related body image among girls.

To explore how body image relates to substance use and attitudes, we estimated several ordinary least squares regression models. The models assessed the effect of disliking one's looks, rating one's body as too fat, and rating one's body as too thin on lifetime and recent alcohol, cigarette, and

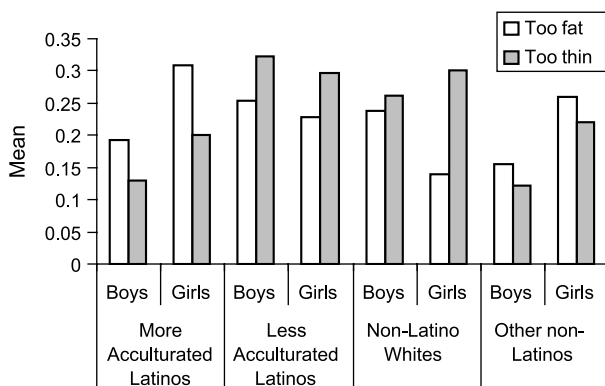


Figure 2. Rating one's body as too fat or too thin: means by ethnicity/acculturation and gender.

marijuana use and antidrug norms, controlling for demographic characteristics. No effects on marijuana use were found. Therefore, reported results are restricted to alcohol and cigarette use and antidrug norms.

Gender Effects

Preliminary analysis showed only one significant main effect due to body image when boys and girls were analyzed together: youth who rated their bodies as too fat reported higher amounts of recent cigarette use (results not shown). Therefore, we reestimated the models to include boys only and then girls only. An additional model, including all cases, tested for the interaction of gender with each body image measure. Analysis of each gender group separately yielded a complex pattern of effects, one that was similar for both lifetime and recent substance use. For this reason, although we discuss all results in the text, we present results only for recent alcohol and cigarette use (see Table 2; we also present the results for antidrug norms).

Disliking one's looks had opposite effects for boys and girls. Boys disliking their looks reported recently using greater amounts of alcohol while girls disliking their looks reported less use. The interaction of gender with disliking one's looks showed that there was a significant gender difference in the way that disliking one's looks related to recent alcohol use. A similar pattern of effects on the amount of recent cigarette use was found. The effect of disliking one's looks was negative for girls and positive, although not significant, for boys. The gender difference was again significant, as evidenced by the interaction term. Girls rating their bodies as too fat reported greater amounts of recent cigarette use. Boys rating their bodies as too fat or as too thin reported weaker antidrug norms. The effect of rating one's body as too thin was positive but not significant for girls. However, the gender difference in the effect of rating one's body as too thin on antidrug norms was statistically significant.

Although not presented in the table, similar patterns were found when examining as outcomes lifetime alcohol and cigarette use and the frequency, rather than amount, of recent alcohol and cigarette use. For example, disliking one's looks was associated with a greater frequency of recent alcohol use for boys and a lower frequency for girls, although the latter effect was not significant. The difference between genders, however, was statistically significant. In addition, a significant gender interaction was found for the effect of disliking one's looks on the frequency of recent cigarette use: negative for girls and positive for boys. Girls disliking their looks reported less frequent use, and boys disliking their looks reported more frequent use. Finally, rating one's body as too thin also was associated with greater lifetime cigarette use for boys.

Turning now to controls, as indicated in Table 2, a student's usual grades was a consistent predictor; higher grades predicted less substance use and

Table 2. Effect of body image on amount of recent alcohol use, amount of recent cigarette use, and antidrug norms—unstandardized regression coefficients

	Amount of recent alcohol use			Amount of recent cigarette use			Antidrug norms		
	Boys and girls		Boys and girls	Boys and girls		Boys and girls	Boys and girls		Boys and girls
	Boys	Girls		Boys	Girls		Boys	Girls	
Dislike looks	0.062*	-0.057*	-0.051	0.038	-0.044**	-0.044*	-0.019	0.017	0.013
Too fat	0.029	0.070	0.072	0.048	0.090*	0.088*	-0.203*	0.015	0.009
Too thin	-0.050	0.075	0.075	0.074	-0.017	-0.011	-0.258**	0.070	0.067
More accult. Latino ^a	0.136	0.088	0.112	0.089	-0.130	-0.011	-0.311*	-0.167	-0.244*
Less accult. Latino ^b	-0.145	-0.190	-0.166	-0.043	-0.160*	-0.090	0.226	0.332*	0.274*
Other non-Latino	-0.023	-0.203	-0.112	-0.021	-0.153	-0.080	-0.269	-0.053	-0.167
Usual grades	-0.044**	-0.091***	-0.065***	-0.037**	-0.060***	-0.047***	0.097***	0.162***	0.126***
Low SES	-0.169	-0.186	-0.175*	-0.033	0.025	-0.008	0.118	0.348*	0.215*
Age	0.050	0.027	0.039	0.062	0.033	0.046	-0.110	-0.109	-0.105*
Male			-0.025			0.053			-0.159**
Male* dislike looks			0.109**			0.080**			-0.028
Male* too fat			-0.047			-0.042			-0.208
Male* too thin			-0.127			0.076			-0.321**
Adjusted r-squared	0.036	0.071	0.053	0.027	0.058	0.042	0.099	0.132	0.126

* $p < 0.05$.
 ** $p < 0.01$.
 *** $p < 0.001$.
^aMore acculturated Latino.
^bLess acculturated Latino.

stronger antidrug norms. Low socioeconomic status predicted less recent alcohol use and stronger antidrug norms. Older students reported weaker antidrug norms than younger students. Males reported weaker antidrug norms than females. Being a more acculturated Latino was associated with weaker antidrug norms for boys, while being a less acculturated Latino was associated with stronger antidrug norms for girls. Less acculturated Latina girls also reported less recent cigarette use.

Overall, a small to modest amount of variance in the substance use outcomes was explained by these models. The adjusted r-squared values, reported in Table 2, ranged from 0.036 to 0.132. The models in which body image predicted antidrug norms had the greatest explanatory power, explaining 13.2% of the variance in norms. The next section summarizes results of analyses of each ethnic group separately by gender.

Ethnicity/Acculturation Effects

To explore the influence of ethnicity/acculturation, separate equations were produced for each ethnic group by gender. The strongest pattern appeared for more acculturated Latinos, the most numerous group, and among these, for boys. As shown in Table 3's top panel, when more acculturated Latino boys disliked their looks, they reported a greater amount of recent alcohol use. When they rated their bodies as too thin, they reported higher lifetime cigarette use, a greater amount and frequency of recent cigarette use, and weaker antidrug norms. Older more acculturated boys reported more lifetime cigarette use and greater amounts of recent cigarette use than their younger counterparts. The effect of age on antidrug norms was not significant, as it had been when boys and girls were combined. In addition, age had no effect for girls or other ethnic groups of boys.

The effects for more acculturated girls are shown in the bottom panel of Table 3. Among more acculturated Latina girls those who disliked their looks reported a lower frequency of recent cigarette use. Those who rated their bodies as too fat reported a greater amount and frequency of recent cigarette use. Unlike boys, body image had no effect on the amount of recent alcohol use, lifetime cigarette use, and antidrug norms for more acculturated Latina girls. For both boys and girls there were no significant effects on lifetime alcohol use or the frequency of recent alcohol use (results not shown).

The adjusted r-squared values for the models in Table 3 indicate small to modest amounts of explained variance. The models in which body image predicted antidrug norms again had the greatest explanatory power.

The equations for the other ethnic groups yielded only scattered body image effects, but in patterns that were generally consistent with results already presented. Other non-Latino youth who rated their bodies as too thin reported relatively greater lifetime alcohol use, and those who rated their bodies as too fat reported weaker antidrug norms. White youth who rated

Table 3. Effect of body image on selected drug use and norm outcomes—unstandardized regression coefficients for more acculturated Latino/-a boys and girls

	Amount of recent alcohol use	Lifetime cigarette use	Frequency of recent cigarette use	Amount of recent cigarette use	Antidrug norms
<i>Boys</i>					
Dislike looks	0.073*	-0.008	0.010	0.031	-0.017
Too fat	-0.043	0.045	0.014	0.028	-0.062
Too thin	0.018	0.303**	0.153*	0.176*	-0.356**
Usual grades	-0.046*	-0.066**	-0.028*	-0.035*	0.122***
Low SES	-0.293*	-0.106	0.010	-0.004	0.230
Age	0.076	0.168*	0.074	0.120*	-0.151
Adjusted r-squared	0.025	0.048	0.022	0.030	0.082
<i>Girls</i>					
Dislike looks	-0.044	0.021	-0.033*	-0.034	0.006
Too fat	0.125	0.032	0.081*	0.108*	-0.003
Too thin	0.052	-0.072	-0.004	-0.016	0.183
Usual grades	-0.086***	-0.099***	-0.043***	-0.052***	0.169***
Low SES	-0.176	-0.268	-0.063	-0.029	0.263
Age	0.007	0.066	0.024	0.021	-0.129
Adjusted r-squared	0.037	0.061	0.053	0.048	0.104

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

their bodies as either too fat or too thin reported weaker antidrug norms. Body image had no significant effects for less acculturated Latino youth when analyzed separately.

DISCUSSION

This study explored the relationship between body image and substance use and attitudes among middle school students. We found significant gender differences and a pattern of substance use risk for more acculturated Latino students. In keeping with previous research, girls reported poorer body image than boys, regardless of the dimension measured. Furthermore, gender differences were found in the relationship between body image and drug use and norms. Effects varied for boys and girls according to the aspect of body image measured. Disliking one's looks appears to be more of a risk factor for boys than for girls. Boys may turn to substance use to compensate for their perceived unattractiveness. Certainly, the pervasive media images, such as in the alcohol advertising geared toward males, associate substance use with a variety of positive traits, including male attractiveness, especially toward the other gender. Some boys may believe or hope that substance use can enhance their image. Alternatively, these boys may simply use substances to ease their discomfort with their appearance during social interactions.

For girls, on the other hand, weight-related body image appears to be a more salient predictor of substance use. Not surprisingly, the substance associated with body image for girls is cigarettes, which are commonly believed to control weight. This finding supports the notion that some girls may use substances as a weight-control strategy. Although boys who viewed themselves as too thin reported greater lifetime cigarette use and weaker antidrug norms, their concerns may be less about weight than about size or build. By smoking these boys may believe they project a tough, masculine image, sufficient to compensate for what they perceive to be lacking physically in stature or musculature. These results are consistent with previous research suggesting that weight-related concerns are more common among girls and size/build concerns are more common among boys. Future studies, however, should incorporate clearly distinct measures of weight-related and size/build-related body image.

Analyses of ethnicity/acculturation revealed significant differences in body image. Latinos disliked their looks more than other ethnic groups, and less acculturated Latino boys reported the highest levels of dissatisfaction with their looks. The choice of body image measure may explain this finding. Students may have interpreted "looks" broadly, defining it in terms of personal style (e.g., clothing or hairstyle) in addition to, or rather than, physical features. If so, less acculturated Latinos would be expected to have less familiarity with mainstream American styles. Even if familiar with mainstream styles, they may not have the resources to incorporate such styles

into their self-presentation. A recent Latino/a immigrant boy, for instance, is unlikely to be able to simply buy a new wardrobe upon arrival to dress similarly to and receive approval from his or her American peers. Furthermore, he may not want to modify his looks but, nonetheless, have negative feelings about them as a consequence of teasing or harassment by peers. Even more acculturated Latinos may be subject to ridicule based on the devaluing of stereotypical “Latino looks” in mainstream American society. Although in this study Latinos form the majority ethnic group in most of their schools, which arguably might insulate them from such treatment, they are vulnerable to discrimination based on appearance as members of a minority ethnic group.

Counter to some prior research, less, rather than more, acculturation was associated with poorer body image. Relatively large proportions of less acculturated Latinos, especially boys, described themselves as too thin. Since these youth report low levels of acculturation, it is unlikely that their negative body perceptions are the result of the internalization of White body ideals via acculturation. However, as these youth attempt to reconcile two different cultures, they may experience acculturation stress (49). Their poor body image may reflect feelings of being in between 2 cultures and, therefore, an outsider to both.

Further research should explore the sources of poor body image among both more and less acculturated Latinos. Historically, the research on Latinos and other ethnic minorities has assumed that the source is acculturation to Western culture. Although results from this study do not rule out this possibility, they suggest that other sources of poor body image, including discrimination and acculturation stress, may exist for Latinos.

Despite their vulnerability to poor body image as a group, Latinos showed within group variation in the effects of body image on substance use. Here, more acculturated Latino boys with poor body image appear to be at greatest risk for substance use and weak antidrug norms. More acculturated Latina girls who think they are too fat also appear to be at risk. These boys and girls appear to be vulnerable to mainstream body ideals: The boys do not want to be thin and the girls do not want to be fat. At the same time, as acculturated youth, these boys and girls are vulnerable to the less conservative mainstream substance use norms. Consequently, they may view substance use as an acceptable avenue for dealing with their body image problem.

No effects of body image on substance use were found among less acculturated Latinos. This absence of effects may seem surprising in light of the bivariate results showing that less acculturated Latinos on average had the poorest body image. For this group low acculturation may operate initially as a protective factor against substance use but not body image. Later, as acculturation progresses in this group, youth with poor body image may become more vulnerable to substance use. Other research on youth substance use has shown that low acculturation can protect against substance use (47).

This study also produced evidence of this effect. In many of the regression equations with all cases, the coefficients of the less acculturated Latino dummy term indicated more desirable outcomes relative to Whites, while the coefficients of the more acculturated Latino dummy term indicated relatively less desirable outcomes. These results suggest that less acculturated Latinos with poor body image may simply deal with their problem in a way other than through substance use. Future research should explore how poor body image relates to other risks for less acculturated Latinos.

The question remains as to why few effects on drug use and drug norms were found for body image in White or other non-Latino youth. The few effects that did appear for these groups were due to weight-related body image. No effects appeared for disliking one's looks. More acculturated Latino youth may be more susceptible than youth from other ethnic groups to disliking their looks. In the Southwest, Latinos constitute the predominant minority group and are, therefore, an easy target for stereotyping. More acculturated Latino youth are likely to be well acquainted with the stereotypes about them, and their body image and coping may suffer as a result. Furthermore, these youth may have difficulty separating race/ethnicity from mainstream body ideals. They may associate having the ideal body with being White. If so, they may experience even greater frustration in attempting to achieve the already nearly impossible mainstream body ideals, and may consequently, consume substances to cope. Future research should explore how the experience of minority status may influence body image.

More acculturated Latinos constituted the largest group in the sample. It is possible that the findings were influenced by their dominance in the sample. Lack of power may explain the absence of some effects for other groups. However, comparisons of coefficients across groups revealed differences in magnitude and direction for many effects, suggesting that the relationship between body image and substance use varies across groups.

One incongruent finding was that more acculturated Latina girls who disliked their looks actually reported less substance use, specifically, less cigarette use. Although more acculturated Latina girls may view cigarettes as acceptable for weight control, they may not view them as globally acceptable for use. Alternatively, more acculturated Latina girls who dislike their looks may not feel capable of living up to the media's images of female smokers, who are commonly presented as White in addition to beautiful, thin, sexy, and rich. Or, perhaps these girls do see themselves in the media images and they like their looks because they smoke.

The absence of any effect of body image on marijuana use merits attention. The overall low rates of marijuana use in the sample may serve as one explanation. Another possibility is that relative to alcohol and cigarettes, there are fewer media images of marijuana to give students ideas about what it means to be a marijuana smoker. Is she good looking like the Virginia Slims model? Is he as attractive as the man in the bar in the beer commercial? Without an image to associate with marijuana use, students may be less likely

to believe that use can influence one's appearance as perceived by others and therefore less likely to rely on use as an image-enhancing strategy. Similarly, marijuana lacks the weight-control characteristics that cigarettes possess; in fact, marijuana is commonly known as an appetite stimulant, and therefore, youth who believe they are too fat may avoid marijuana use for fear of its negative impact on weight. It is still possible, however, that some youth with poor body image could use marijuana to offset their negative feelings or enhance their image as a "partier" or "risk taker," and it is not clear from the results here why no such use appeared. Further study is needed to understand whether and how a relationship between body image and marijuana use exists.

This study yields several implications for prevention, particularly for Latino youth. Substance use prevention programs should address body image as motivation for use and take into account the gender differences in substance-specific use as a function of body image. The relationship between cigarette use and weight control and between alcohol use and *machismo*, for example, could form part of the discussions about youth's decisions about substance use. Similarly, the myths perpetuated in peer and media culture that associate substance use with desirable physical and personality characteristics also could be addressed.

Other programs besides those that focus on drug prevention, such as body image or nutrition programs, could also intervene. They could address the connections between body image, dieting, and substance use. For less acculturated Latinos in particular, these programs also could address acculturation stress and the possible relationships between body image and other risks. Finally, cultural diversity and campus environment programs that typically address tolerance of differences could help to counter negative ethnic stereotypes and foster acceptance of cultural differences in appearance.

This study helped fill gaps in the research literature on the body image of Latino boys and girls across levels of acculturation. It also offered information on the relationship between body image and substance use for youth of all ethnic backgrounds. Continued study is needed to better understand the possible diverse sources of poor body image across ethnic groups and the pathways from body image to substance use.

REFERENCES

1. US Census Bureau, American Fact Finder. QT_P3. Race and Hispanic or Latino: 2000, Census 2000 Summary File 1 (SF 1), United States. Available online at <http://factfinder.census.gov> accessed 12/19/03.
2. Krueger DW. Psychodynamic perspectives on body image. In: Cash TF, Pruzinsky T, eds. *Body Image: A Handbook of Theory, Research, and Clinical Practice*. New York: Guilford Press, 2002:30–37.
3. Sweeney MM, Zionts P. The 'second skin': perceptions of disturbed and

- nondisturbed early adolescents on clothing, self-concept, and body image. *Adolescence* 1989; 2:411–420.
4. Levine MP, Smolak L. Body image development in adolescence. In: Cash TF, Pruzinsky T, eds. *Body Image: A Handbook of Theory, Research, and Clinical Practice*. New York: Guilford Press, 2002: 74–82.
 5. Neumark-Sztainer D, Story M, Hannan PJ, Perry CL, Irving LM. Weight-related concerns and behaviors among overweight and non-overweight adolescents. *Arch Pediatr Adolesc Med* 2002; 156:171–178.
 6. Smith JE, Krejci J. Minorities join the majority: eating disturbances among Hispanic and Native American youth. *Int J Eat Disord* 1991; 10(2):179–186.
 7. Guinn B, Semper T, Jorgenson L. Mexican American female adolescent self-esteem: the effect of body image, exercise behavior, and body fatness. *Hisp J Behav Sci* 1997; 19(4):517–526.
 8. Siegel JM. Body image change and adolescent depressive symptoms. *J Adolesc Res* 2002; 17(1):27–41.
 9. Croll J, Neumark-Sztainer D, Story M, Ireland M. Prevalence and risk and protective factors related to disordered eating behaviors among adolescents: relationship to gender and ethnicity. *J Adolesc Health* 2002; 31:166–175.
 10. French SA, Perry CL, Leon GR, Fulkerson JA. Weight concerns, dieting behavior, and smoking initiation among adolescents: a prospective study. *Am J Public Health* 1994; 84(11):1818–1820.
 11. Boles SM, Johnson PB. Gender, weight concerns, and adolescent smoking. *J Addict Dis* 2001; 20(2):5–14.
 12. Bowen DJ, McTiernan A, Powers D, Feng Z. Recruiting women in to a smoking cessation program: who might quit? *Women Health* 2000; 31(4):41–58.
 13. Crisp A, Sedgewick P, Halek C, Joughin N, Humphrey H. Why teenage girls persist in smoking. *J Adolesc* 1999; 22:657–672.
 14. Granner ML, Black DR. Racial differences in eating disorder attitudes, cigarette and alcohol use. *Am J Health Behav* 2001; 25(2):83–99.
 15. Wilson TG. Eating disorders and addiction. *Drugs Soc* 2000; 15(1/2):87–101.
 16. Ross-Durow PL, Boyd CJ. Sexual abuse, depression, and eating disorders in African American women who smoke cocaine. *J Subst Abuse* 2000; 18:79–81.
 17. Rosen JC. Body image disturbances in eating disorders. In: Cash TF, Pruzinsky T, eds. *Body Images: Development, Deviance, and Change*. New York: Guilford Press, 1990:190–214.
 18. Krahn D, Piper D, King M, Olson L, Kurth C, Moberg CP. Dieting in sixth grade predicts alcohol use in ninth grade. *J Subst Abuse* 1996; 8(3):293–301.
 19. French SA, Story M, Downes B, Resnick MD, Blum RW. Frequent

- dieting among adolescents: psychosocial and health behavior correlates. *Am J Public Health* 1995; 85(5):695–701.
20. Kline A. Pathways into drug user treatment: the influence of gender and racial/ethnic identity. *Subst Use Misuse* 1996; 31(3):323–342.
 21. Scheier LM, Botvin GJ, Griffin KW, Diaz T. Dynamic growth models of self-esteem and adolescent alcohol use. *J Early Adolesc* 2000; 20(2):178–209.
 22. Kinnier RT, Metha AT, Okey JL, Keim J. Adolescent substance use and psychological health. *J Alcohol Drug* 1994; 40(1):51–56.
 23. Jackson LA. Physical attractiveness: a sociocultural perspective. In: Cash TF, Pruzinsky T, eds. *Body Image: A Handbook of Theory, Research, and Clinical Practice*. New York: Guilford Press, 2002:13–21.
 24. Benjet C, Hernandez-Guzman L. Gender differences in psychological well-being of Mexican early adolescents. *Adolescence* 2001; 36(141): 47–66.
 25. Siegel JM, Yancey AK, Aneshensel CS, Schuler R. *J Adolesc Health* 1999; 25:155–165.
 26. Richards MH, Boxer AM, Peterson AC, Albrecht R. Relation of weight to body image in pubertal girls and boys from two communities. *Dev Psychol* 1990; 26(2):313–321.
 27. Cohane GH, Pope HP Jr. Body image in boys: a review of the literature. *Int J Eat Disord* 2001; 2:373–379.
 28. Raudenbush B, Zellner DA. Nobody's satisfied: effects of abnormal eating behaviors and actual and perceived weight status on body image in males and females. *J Soc Clin* 1997; 16:95–110.
 29. Doyle J, Bryant-Waugh R. In: Doyle J, Bryant-Waugh R, eds. *Anorexia Nervosa and Related Eating Disorders in Childhood and Adolescence*. 2nd ed. Hove, UK: Psychology Press, 2000:41–61.
 30. Pate JE, Pumariega AJ, Hester C, Garner DM. Cross-cultural patterns in eating disorders: a review. *J Am Acad Child Psych* 1992; 31(5):802–809.
 31. Crago M, Shisslak CM, Estes LS. Eating disturbances among American minority groups: a review. *Int J Eat Disord* 1996; 19(3):239–248.
 32. Altabe M, O'Garro KN. Hispanic body images. In: Cash TF, Pruzinsky T, eds. *Body Image: A Handbook of Theory, Research, and Clinical Practice*. New York: Guilford Press, 2002:250–256.
 33. Cachelin FM, Veisel C, Barzegarnazari E, Striegel-Moore RH. Disordered eating, acculturation, and treatment-seeking in a community sample of Hispanic, Asian, Black, and White women. *Psychol Women* 2000; 24(3):233–244.
 34. Gowen LK, Hayward C, Killen JD, Robinson TD, Barr Taylor C. Acculturation and eating disorder symptoms in adolescent girls. *J Res Adolesc* 1999; 9(1):67–83.
 35. Silber TJ. Anorexia nervosa in Blacks and Hispanics. *Int J Eat Disord* 1986; 5(1):121–128.

36. Pumariega AJ. Acculturation and eating attitudes in adolescent girls: a comparative and correlational study. *J Am Acad Child Psych* 1986; 25(2):276–279.
37. Dawson DA. Ethnic differences in female overweight: data from the 1985 National Health Interview Survey. *Am J Public Health* 1988; 78:1326–1329.
38. Lopez E, Blix GG, Blix AG. Body image of Latinas compared to body image of non-Latina White women. *Health Values* 1995; 19:3–10.
39. Wildes JE, Emery RE, Simons AD. The roles of ethnicity and culture in the development of eating disturbance and body dissatisfaction: a meta-analytic review. *Clin Psychol* 2001; 21(4):521–551.
40. Joiner GW, Kashubeck S. Acculturation, body image, self-esteem, and eating-disorder symptomatology in adolescent Mexican American women. *Psychol Women* 1996; 20:419–435.
41. Rieger E, Touyz SW, Swain T, Beumont PJV. Cross-cultural research on anorexia nervosa: assumptions regarding the role of body weight. *Int J Eat Disord* 2001; 29(2):205–215.
42. Root MP. Disordered eating in women of color. *Sex Roles* 1990; 22(7/8):525–536.
43. Hecht ML, Marsiglia FF, Elek-Fisk E, Wagstaff DA, Kulis S, Dustman P. Culturally grounded substance use prevention: an evaluation of the keepin' it R.E.A.L. curriculum. *Prev Sci* 2003; 4(4):233–248.
44. Flannery DJ, Flannery A, Vazsonyi AT, Torquati J, Fridrich A. Ethnic and gender differences in risk for early adolescent substance use. *J Youth Adolesc* 1994; 23:195–213.
45. Kandel DB, Wu P. The contribution of mothers and fathers to the intergenerational transmission of cigarette smoking in adolescence. *J Res Adolesc* 1995; 5(2):1–104.
46. Newcomb MD, Bentler P. Substance use and ethnicity: differential impact of peer and adult models. *J Psychol* 1986; 120(1):83–95.
47. Marsiglia FF, Waller M. Language preference and drug use among Southwestern Mexican American middle school students. *Child Sch* 2002; 24(3):145–158.
48. Plunkett SW, Bámaca-Gómez MY. The relationship between parenting, acculturation, and adolescent academics in Mexican-Origin immigrant families in Los Angeles. *Hisp J Behav Sci* 2003; 25(2):222–239.
49. Bryant-Waugh R, Lask B. Anorexia nervosa in a group of Asian children living in Britain. *Br J Psychiatry* 1991; 158:229–233.