

# **Chapter 9.**

## **Acculturation, Stress and Latino Adolescent Drug Use\***

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*Our integrated social learning and stress process model of acculturative stress and drug use is generally supported by the findings presented in this chapter. Higher levels of parental acculturation and related stress portend higher levels of adolescent acculturation and acculturative stress. When these factors co-exist, they contribute to more adolescent exposures to drug-using role models among parents and peers. Since increased acculturative stress of parents and adolescents decreases available family support for Latino adolescents, they lose family protective effects and their drug use is higher as a result. Higher acculturation and stress experiences in early adolescence are also linked to early experimental drug use, which in turn will have a reinforcing effect on later illicit drug use. Surprisingly, these findings represent one of the few examples of empirical studies that have examined these relationships among Latino adolescents (Gilbert & Cervantes, 1986). As children mature from mid to late adolescence, weak family support will probably have an even stronger relationship to illicit drug use among Latinos.*

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Acculturation and acculturative stress effects on licit and illicit drug use by adolescents are the focus of this chapter. Several recent empirical studies have shown that Latinos born in the United States are much more likely to use illicit drugs than immigrants are, and illicit drug use increases with loss of ethnic group cultural knowledge and practices (i.e., deculturation; Berry & Kim, 1988) and assimilation into mainstream American culture (Amaro, Whitaker, Coffman, & Heeren, 1990). Since immigration and culture change can produce psychosocial stresses of extended duration, they are natural subjects of stress process research (Vega, Hough, & Miranda, 1985). Nevertheless, knowledge about how, and for whom, acculturation increases vulnerability to personal problems such as drug use remains conjectural and preliminary for several reasons. Theory and research have been limited by the inadequate conceptualization of acculturation, a lack of good measures, and the reliance on empirical designs and survey instruments whose primary purpose was something other than the study of acculturation stress (Rogler, Cortes, & Malgady, 1991).

Most studies have relied on only one type of acculturation instrument: bipolar acculturation scales that juxtapose Latin American and American cultural behaviors as opposite poles of a continuum (Cuellar, Harris, & Jasso, 1980). These scales assess levels of culture change primarily by language use patterns, demographic factors, and awareness and participation in either ethnic group or mainstream cultural practices (Marin & Marin, 1991). Conceptually, these scales are based on the assumption that acculturation is continuous and progressive, although the rate and extent of acculturation over time varies from person to person. Moreover, a number of recent studies have made the inference that acculturation is an adequate indicator of other experientially based beliefs and behaviors that are not assessed by these scales. Included among these are constructs such as lifestyle behaviors, cultural beliefs, cultural conflicts, frustrated expectations, and familism.

For example, Burnam, Hough, Karno, Escobar, and Telles (1987) reported that high-acculturation rather than low-acculturation Latino adults in the Los Angeles Epidemiologic Catchment Area Project were more likely to have a history of *DSM-III* (American Psychiatric Association, 1980, *Diagnostic and Statistical Manual of Mental Disorders*) substance abuse problems at some time in their lives. These authors interpreted these findings as indicating greater cultural conflict in the high-acculturation group and among low-acculturation native-born Latinos. The authors offered two explanations: a higher level of frustrated social expectations experienced by the native-born Latinos, and social selection favoring immigrants as an unusually robust population. However, these explanations were really conjectures, as this rare and important study measured no specific aspects of acculturative strain or frustrated expectations that could clarify its results.

In another example, Kaplan and Marks (1990) used data from the Hispanic Health and Nutrition Examination Survey to show that depressive symptoms increased with acculturation among young Mexican American adults. The authors suggested that a higher degree of perceived discrimination and alienation among high-acculturation Mexican Americans was responsible for the variance in depressive symptoms. However, these potential explanatory factors were never measured in the study. The mediating factors remain untested and speculative, and the authors call for longitudinal studies that include the appropriate measured variables to advance an understanding of adverse effects of acculturation.

The data from cross-sectional field surveys on the relationships between acculturation processes and their psychosocial impacts, including mental health, span several decades. In general, they indicate areas of agreement and disagreement with no single pattern in evidence, even for the same ethnic group. Undoubtedly, many of the variations are the result of different research designs, sample sizes, and methodologies while others probably are related to differences in race or ethnicity, socioeconomic status, language and other cultural characteristics, country of origin, pre-immigration stresses or reasons prompting immigration, sources of social support, attitudes and behaviors of the host populations, and economic opportunities available in the new environment. In short, the literature on acculturation processes and their consequences is so confounded by uncontrolled factors that it is impossible to make definitive statements regarding the current state of knowledge on this important issue.

Additional research based on sufficiently large probability samples and longitudinal

designs is needed. Moreover, future research should strive to use standardized definitions of the dependent and independent variables and the instruments used in measuring them. There is little research about children and adolescents even though Mead (1949) and others have viewed second-generation immigrants-- referred to by Thomas and Znaniecki (1920) as “half-second generation”-- as being at inordinate risk for cultural conflicts and marginality. Recent migrations have included large numbers of children and adolescents, and psychosocial research on them is beginning to appear in the literature. However, most of it does not address the mental health or substance abuse consequences of acculturation but, rather, has tended to focus on school issues (Caplan, Choy, & Whitmore, 1991; Cropley, 1983; Matute-Bianchi, 1991; Suarez-Orozco & Suarez-Orozco, 1995); self-identity and self-esteem (Espiritu, 1992; Matute-Bianchi, 1986; Phinney, 1991; Rumbaut, 1995); and perceptions of prejudice and racial mistrust (Biafora et al., 1993; Taylor, Biafora, & Warheit, 1994).

## **Theoretical Assumptions and Models**

The theoretical assumptions and models underlying most early social science research on immigration, acculturation, and social adjustments have their origins in the seminal work of scholars at the University of Chicago. It is not surprising that these researchers were interested in the social integration of immigrant groups, given that Chicago, as other large American cities, had just experienced the largest in-migration of foreign-born persons in the history of the country. It was logical for these researchers with their interest in social organization, social disorganization, and the processes of acculturation, adaptation, and assimilation to develop *the theory of the marginal man*. Stonequist (1937) conceptualized marginal persons as being “condemned” to live in two societies that are not only different but often antagonistic toward one another. Moreover, as described by Park (1928), theories of marginality are anchored in both psychosocial and sociocultural theories. *Marginality emerged from individuals having contact and adapting to multiple and differing cultural groups (often of different social statuses) and social learning contexts. Acculturation implies learning and incorporating new cultural information; marginality involves a challenging cognitive and emotional process of selecting appropriate responses to social situations based on the interplay, and sometimes conflict, of*

*group and individual expectations. These interactions could have positive and negative outcomes (Gordon, 1964; Madsen, 1964).*

*Stonequist (1937) postulated that individuals encountering these inconsistencies could resolve them by fully assimilating toward the new culture, by taking refuge in the old culture (e.g., the “turtle approach”), or by becoming a “marginal man.” The “marginal man” functions on the periphery of multiple sociocultural worlds. This situation produces individuals who may feel confused, frustrated, and inferior as well as individuals who actually become more creative due to improved psychological and social functioning (McFee, 1968; Stonequist, 1937).*

*The process of acculturation and marginality implies role strains, cognitive manipulations, and affective states that are potentially stressful. Acculturating individuals are subjected to group pressures to validate their competency and loyalties in differing cultural contexts. In essence, acculturating individuals are repeatedly stressed through social testing. The information received from social contacts about the worth of their ethnic origins, and tensions between cultural groups with which they have contact, may force cultural preferences and ethnic identities to become solidified with less than free will or neutral decision-making. This tug-of-war is especially likely when ethnic groups are also minority groups against whom prejudicial behaviors are routinely practiced.*

*A second theoretical foundation for theories of acculturation stresses and conflicts and adaptive behaviors is that of reference group behavior. Merton (1957) recognizes that the term “reference group” was coined by Hyman (1942) and attributes systematic contributions to an empirically based theory of the concept by Newcomb (1950) and Sherif and Sherif (1951). However, he traces the origins of this notion to the authors of *Adjustment to Army Life* (Stouffer, Suchman, DeVinney, Star, & Williams, 1949) who, along with other colleagues, conducted a number of groundbreaking studies with troops during World War II. Relying on materials on relative deprivation derived from these studies, Merton (1957) concluded that there are times when individuals use their in-groups of friends and close associates as a basis for self-reference, and at other times the frame of reference is yielded by social categories of people with whom they have had no sustained social relations. And, in discussing the functions of anticipatory socialization as part of the process of movement from one group to another, he writes:*

*...Anticipatory socialization is functional for the individual only within a relatively open social structure providing for mobility.*

...Anticipatory socialization would be dysfunctional for the individual in a relatively closed social structure, where he would not find acceptance by the group to which he aspires and would probably lose acceptance, because of his outgroup orientation, by the group to which he belongs. This latter type of case will be recognized as that of the marginal man, poised on the edge of several groups but fully accepted by none of them. (p. 265)

His observations led him to posit this empirical question, which is of value to those interested in the phenomenon of marginality: “Under what conditions are associates within one’s own group taken as a frame of reference for self-evaluation and attitude-formation, and under which conditions do outgroups or non-membership groups provide the significant frame of reference?” (p. 233).

*A third source for many of the theoretical assumptions underlying theories of acculturation stress and non-adaptive behaviors is the literature on culture conflict and strain.* Mead (1955) outlined in detail the personal and social disruptions occasioned by the incursion of technologically superior cultures on less developed ones; and, in an important work on cultural adaptation and mental health, Opler (1959) and a diverse group of scholars outlined the psychological adjustments and conflicts confronting individuals caught in the throes of cultural change.

*Theories of psychosocial stress constitute a fourth theoretical foundation used by researchers studying the relationship between immigration and acculturation and nonadaptive behaviors.* Although researchers have, for the most part, not made their theoretical orientations or guiding hypotheses explicit, the underlying theoretical assumptions used to guide most studies and to explain their findings are grounded in stress theories. *Many researchers have assumed that acculturation processes and the conflicts, stresses, and hassles associated with them are responsible for the non-adaptive attitudes and behaviors of immigrants. Rarely have they specified the dimensions of their paradigms.* As a consequence, these omissions have blurred their findings and made them non-comparable with those of others.

*Another major focus of the research literature has been on the disorganizing effects of cultural changes on subgroups and individuals. This research has also taken many forms but generally postulates that profound cultural changes have negative effects, especially when accompanied by inferior social, political, and economic circumstances. Moreover, involuntary cultural changes occurring to minority groups serve as the classic instance of group-level and individual-level social marginality and personal vulnerability. For example, many decades ago anthropologists wrote about the negative impacts of forced acculturation on American Indians. More recently, refugees have been studied to determine what vulnerability they acquired through traumatic departures from nations of origin, as well as factors responsible for differences in social adaptation (Rumbaut, 1995; Vega & Rumbaut, 1991).*

Despite the apparent link between acculturation transitions, including the hardships implied by immigration, and social psychological stress, *the stress process literature has few empirical studies of acculturative stress. Although both acculturative stress and stress process studies focus on traumatic and persistent stressors, stress process research has produced more fully elaborated empirical models that account for temporal effects, protective factors, categories of stressors, and multiple outcomes. Stress process researchers have concentrated on delineating mediated transactions between individuals, situations, and environments (Cannon, 1929; Dohrenwend & Dohrenwend, 1980; Holmes & Rahe, 1967; Kessler & Cleary, 1980; Lazarus & Folkman, 1984; Lin, Dean, & Ensel, 1986; Pearlin, 1983, 1989; Selye, 1956; Warheit, 1979). This is a central weakness of current acculturation theory: it fails to adequately specify contingencies that mediate stress-outcome relationships (Vega et.al., 1985).*

*An important premise of stress process theory is that stressors are harmful only when coping resources are inadequate for solving problems; demands must exceed resources to produce a negative outcome. Drug use is one possible negative outcome. Drug use can also be seen as a coping strategy used when social support fails to adequately buffer life stressors. Both possibilities are logically supported by the abundant risk factor studies showing clear linear relationships between risk factors and adolescent drug use (Newcomb, Maddahian, & Bentler, 1986; Vega, Zimmerman, Warheit, Apospori, & Gil, 1993). The risk factors in these studies included many indicators of stressful life situations. A central premise of the present study is that understanding of the effects of acculturation stress on adolescent drug use can be improved through stress process theory and analytical strategies.*

## **Acculturation Stresses and Conflicts Among Adolescents**

*Two dominant hypotheses are embedded in the literature about acculturation and Latino adolescent drug use. One hypothesis is that exposure to U.S. culture brings with it increasing familiarity with the social contexts of drug use, as well as opportunities for drug use in peer group situations that are not commonly found in Latin America (Burnam et al., 1987). Adolescent and adult illicit drug use rates in Latin America are low compared with those in the United States. Therefore, drug use is a by-product of socialization into American culture. The second hypothesis is that intergenerational conflicts between minimally acculturated parents and highly acculturated adolescent children are producing drug use (Szapocznik, Ladner, & Scopetta, 1979; Szapocznik, Santisteban, Kurtines, Perez-Vidal, & Hervis, 1984; Szapocznik, Santisteban, Rio, & Perez-Vidal, 1989). These acculturation gaps are postulated to weaken the quality of parent-child communication and create overreaction by parents to perceived loss of control over adolescent children. The end point of this process is adolescent resistance to parental expectations, personal distress, rebellion, and possibly acting out through delinquency and drug use.*

*Despite the plausibility of both explanations, they are neither satisfactory nor comprehensive.* Becoming a drug user or a depressed adolescent is a complex, multipath process that has no unitary explanation. Nor can acculturation factors be isolated from a number of non-acculturation factors that have been shown in many studies to be linked to adolescent problems; these two types of factors are interactive and synergistic. *While it is evident that Latino youth who have greater exposure to American culture may be more delinquent or use more illicit drugs, this fact alone cannot explain which youth are susceptible among all youth so exposed. Similarly, the argument that intergenerational gaps in acculturation increase adolescent drug use is nonspecific, failing to identify the factors or conditions that differentiate users from nonusers.*

## **Recent Acculturation Stress Research About Latino Adolescents**

Most of the acculturation literature on children and adolescents has come from two sources: field surveys that have included immigrant groups and studies with persons being treated in public clinics. Each of these will be summarized briefly.

Vega and his colleagues have produced a number of articles reporting data on the relationships between acculturation strains and conflicts and a variety of adaptive/nonadaptive behaviors. The details of the design, methods, and procedures of this research are outlined elsewhere in this article. However, it is of value to note some of the early findings of this research that are related to non-adaptive acculturation behaviors.

Vega, Gil, and Zimmerman (1993) reported *findings on the prevalence of substance use among Cuban heritage, African-American, and white non-Hispanic middle school students enrolled in the Dade County, Florida, public schools (N = 6,760)*. Acculturation levels for Cuban background students were assessed using a measure adapted from the work of Cuellar et al. (1980). *They found a significant relationship between increased levels of acculturation and alcohol and cigarette use.* Vega, Gil, Zimmerman, and Warheit (1993) have reported the *results of a study that examined the relationships between 13 risk factors and the prevalence of suicidal ideation and behaviors among boys from three Hispanic subgroups (Cuban, Nicaraguan, and an "other" inclusive category)*. *They found that boys with high levels of acculturation in any of the three groups reported more suicide attempts than those with low acculturation levels, among*

*both foreign-born and native-born adolescents.* However, they did not find significant relationships between acculturation and higher levels of suicidal ideation. The investigators concluded that racial and ethnic groups varied in their exposure to different risk factors and in their vulnerability to suicidality as a consequence of exposure to those factors.

In another study with a sample of 1,843 boys and girls of Cuban heritage, Vega, Gil, Warheit, Zimmerman, and Apospori (1993) *explored the relationships between intergenerational acculturation-related strains and delinquent behaviors.* Slightly more than one fourth of the students had been born in Cuba (27%) and approximately 80 percent of them came from families in which both parents were of Cuban birth. The results indicated that, at a macrolevel, factors such as a weakening of family pride, family respect, and parental support were more instrumental in producing a vulnerability to delinquent behaviors than were acculturation strains. However, once that vulnerability was created, acculturation-related strains were significant predictors of delinquent acts.

Gil, Vega, and Dimas (1994) provided the most detailed assessment of the distribution of acculturative strains among Latino youth. Their study assessed several types of acculturative strain among immigrant and native-born adolescents controlling for acculturation level. Findings clearly showed that the patterning of acculturative strains varied widely because low-acculturation immigrants and native-born adolescents were more likely to report language problems and perceive low life chances, but high-acculturation adolescents from both groups were most likely to report low family pride and perceive acculturation gaps with parents. However, the most unfavorable situation occurred in the instance of the low-acculturation native-born group because they reported high frequencies of all types of acculturative strains. The lowest stress situation occurred with bicultural native-born adolescents. Acculturative stresses reported by native-born adolescents explained more variance in low self-esteem than those reported by immigrants, and this was true regardless of acculturation level.

In another study, Gil and Vega (1996) found that Nicaraguan parents and adolescents reported a greater prevalence of acculturative stress than Cubans in Miami did. *The authors attributed these results to differences in social power among the two groups, since Cubans have a well-developed social, cultural, and economic enclave in Miami. A second major finding was that adolescents tend to experience acculturative stresses almost immediately after immigration and tend to adjust more rapidly as well, whereas their parents have a delayed reaction with longer acculturative stresses intergenerationally.*

Although little systematic empirical data on acculturation processes and their mental health correlates are presented in treatment studies, a common theme runs through them, namely that persons providing mental health services to immigrant children should be aware of the importance of acculturation-related problems in the lives of the children and their families. Chambon (1989), using *data from a statewide mental health-need survey, suggested that institutional responses to the mental health problems of refugees often contribute to family fragmentation, trauma, and acculturation conflicts within the family.* Programs designed to facilitate acculturation are seen as having the potential to create the kinds of intergenerational conflicts and mental health problems described by Szapocznik et al. (1979, 1984, 1989). Curtis (1990) also found that *of acculturation conflicts regarding the speaking of English and Spanish in the family were a source of psychosocial stress among 50 Hispanic children being treated in a mental health center.* There are other fragments of data scattered throughout the literature, but *little empirical data with probability samples of immigrant children and adolescents are extant even though nearly every article and book dealing with the treatment of mental health problems among these groups identifies acculturation strains and conflicts as precipitants of mental health problems (Kopala, Esquivel, & Baptiste, 1994; Westermeyer, 1989).*

Despite a body of findings that is abundant and consistent, *today's adolescent drug and mental health research consists of clusters of semirelated theories that require integration. The stress process model we present below is an initial step toward theoretical synthesis. It facilitates inclusion of key factors known to be associated with adolescent psychological and behavioral problems within a stress process multipath model.* In this manner, acculturation and acculturative stresses of both parents and children can be used as explanatory factors along with other factors known to predispose adolescents toward personal problems: low family support, drug beliefs and attitudes, family drug problems, drug-using peers, early drug use, and parental smoking and alcohol use (Petraitis, Flay, & Miller, 1995). The framework is useful for testing longitudinal hypotheses because the direct and mediated effects of stressors (through social support) can be determined.

*Previous research has shown that Latinos are highly familistic; they assign a high value to frequent, in-person contact with nuclear and extended family members living nearby. Therefore, we believed it necessary to include latent variables that assess different aspects of family life, emotional support, and parental cultural adjustment. Our own studies indicate that Latinos are less likely than other ethnic youth to report low family pride, and their families tend toward high cohesiveness. We have found that among Latino adolescents who report low family pride, possibilities of early adolescent drug use are much greater than among non-Latinos (Vega, Zimmerman, Warheit, et al., 1993).*

*We have written about social stress process and models (Vega et al., 1985; Warheit, 1979) and specifically their application to acculturative stresses among Latino adolescents (Vega, Koury, Zimmerman, Gil, & Warheit, 1995; Vega, Zimmerman, Gil, et al., 1993). Consistent with this work, and the work of Barrera and Reese (1993) who have suggested a similar heuristic model, we present our model (Figure 1). This model includes exogenous factors such as demographic features and parental acculturation and acculturative stress; nested factors consisting of adolescent acculturation and acculturative stress, as well as family and peer drug use; perceived family social support as a mediator; and licit and illicit drug use as outcomes. Therefore, antecedent parent acculturation and acculturative stress factors are influencing family drug problems and adolescent associations with drug-using peers—factors known from previous research (Hansen, Graham, Sobel, Shelton, Flay, & Johnson, 1987; Huba, Wingard, &*

*Bentler, 1980; Jessor & Jessor, 1980; Newcomb & Bentler, 1986; Oetting, Edwards, & Beauvais, 1988) to have strong influences on adolescent drug use. Family social support in this model is presumed to have both stress buffering effects and social learning effects by providing (a) role models discouraging drug use, (b) conventional social influences, and (c) increased adolescent self-esteem (Barrera & Reese, 1993). Socioeconomic status is included as an important contextual factor. (See Figure 1)*

Without a comprehensive model or theoretical framework to facilitate a processual explanation of acculturation effects on drug use, it will be impossible to move beyond conjecture. This article presents a longitudinal model based on a three-wave study conducted in Miami, Florida, which was designed to overcome some of these limitations, in particular, cross-sectional studies inadequately designed to take into account factors known to have an etiological relationship to drug use, and exclusive reliance on acculturation scales as surrogates for acculturative strains such as cultural conflicts and other adjustment problems.

## **Methods**

The data are derived from a three-wave longitudinal study of adolescent boys attending middle schools in Dade County (greater Miami), Florida. More detailed descriptions of sample recruitment, consent rates, and attrition analyses are presented in earlier articles (Vega, Gil, & Zimmerman, 1993; Vega, Zimmerman, Warheit, et al., 1993). The data were collected from the students through questionnaires completed at school during fall 1990, fall 1991, and spring 1993 ( $N = 5,370$  over the three waves). In addition, for a 45 percent random sample, parent telephone interviews were conducted during fall 1990/winter 1991 and fall 1991/winter 1992, concurrent with the first two waves of student data collection ( $N = 2,600$  over the two waves). Teacher surveys were also completed for the random sample group. Data used in the current analysis were linked from all three waves of student data collection, and the first wave of parent and teacher data, to Hispanic students in the sample. This resulted in an initial sample of 1,016 students.

A two-stage procedure was used to reduce problems of missing data. First, individuals were dropped from the analysis if they had more than four missing variables to be used in the analyses presented here. Then, multiple regression techniques were used to estimate missing values, based on other variables measured simultaneously but not in the model, when possible, and then based on variables measured at other times but still not otherwise in the model. These procedures resulted in 876 cases for the analyses (or approximately 14% of cases being dropped due to missing data). Analyses indicated that, adjusting alpha for the multiple (69) comparisons conducted (to 0.0007), those dropped because of missing data were different from those included in the analysis on only one variable: individuals dropped because of too much missing data had used inhalants significantly fewer times than those included in the analyses (although there was no difference in the proportions of individuals who had ever used inhalants).

## **Analysis**

The Linear Structural Relations (LISREL) VII program (Joreskog & Sorbom, 1989) was used to perform covariance structure analysis. Covariance structure analysis, including the method used by LISREL VII, enables researchers to assess series of simultaneous regression equations (as in ordinary least squares–based path analysis) that can both include non-recursive systems, that is, causal arrows in both directions simultaneously, and account for measurement error. The maximum-likelihood estimates derived from the LISREL program are also more robust than ordinary least squares estimates to conditions other than multivariate normality.

The factor analytic structure is part of the overall, tested model. Structural relationships are assessed between the latent constructs, rather than between the measured variables as is the practice in standard regression procedures. Structural coefficients are interpretable as standardized path coefficients, and unexplained variances (i.e., structural error) can be correlated among the endogenous variables. Individual factor loadings, measurement error, structural coefficients, and regression residuals are tested individually with *t* tests, and the overall model is tested with a chi-square goodness of fit test. Type 1 error (alpha) has been set to 0.05 for all analyses. Higher values of this chi-square indicate a poorer fit. However, the goodness of fit measure is highly influenced by the sample size, and as a consequence large samples such as the one used in this study almost always result in a large chi-square. Therefore,

it is important to note that one can inappropriately conclude that there is a poor fit of the model to the data. An adjusted goodness of fit index (AGFI) is also computed, which largely corrects for this problem but whose properties are otherwise not well known. The values range from 0 to 1.0; models having an AGFI value of 0.90 or greater are generally considered adequate.

The process used for testing LISREL models in this article involved the following steps: (a) assessing the hypothesized measurement model (i.e., set of factor structures) based on the literature and our past analysis experience; (b) modifying the measurement model based on empirical findings (only factor loadings of .40 or greater remained in the model) and conceptual meaningfulness; (c) assessing the hypothesized structural model, based on the literature and our earlier analyses; (d) modifying the structural model by dropping non-significant causal paths; (e) further modifying the structural model by adding paths where meaningful and consistent with theory based on “modification indices,” that is, estimates about improvement in model chi-square as a result of additional “free” (nonzero) model parameters; and (f) dropping variables with no direct or indirect effect on the ultimate dependent variable and re-estimating the model.

The LISREL VII program was used to assess both factor structures of measured variables and structural relationships among variables. While some scales were used as measured variables, in other cases several individual items were used in the analysis, with the LISREL program assessing the factor structure and measurement error. In these cases, summative scales were not used.

Five purely exogenous variables (without antecedents in the model, unexplained with the model) were assessed: immigration experience, parent acculturation, student’s age, parent acculturation-related stress, and family situation. Ten other mediating variables were assessed at Time 1: socioeconomic status, religiosity, parent alcohol use, student acculturation, student acculturation conflicts, family substance abuse problems, parent smoking, peer substance use, and Time licit and illicit drug use. Social support was assessed only at Time 2.

## Results

### Measurement Model

This section analyzes the structure of latent variables (factors) comprising the measurement model for background, mediating, and outcome variables. Among the background variables, the immigration experience factor (IMMIG) was composed of the length of time the student had been in the United States, whether or not the student was U.S.-born, whether or not the interviewed parent was U.S.-born, and whether or not the student was Cuban (see Table 1). Cuban ethnicity was included because of the higher level of U.S. nativity among adolescents and the longer residence of Cuban parents in the United States as contrasted with other major Latino ethnic groups in Miami, such as Nicaraguans. Parent's level of acculturation (PACCULT) was indicated by parent's language use and language conflicts and was measured with a presumption of no measurement error. Parent's acculturative stress (PACCSTR) consisted of one scale about perceived discrimination. Family situation (FAMSIT) was measured by the parent's marital status and household composition (number of parents). Age was measured by one variable presumed to be without measurement error.

Among the mediating variables, the latent variable for socioeconomic status (SES) was composed of two measured variables: parent's education and household income for the most recent year (see Table 2). Religiosity (RELIG) was indicated by the student's reported spirituality and regularity of attendance at religious services. Parent alcohol use (PALC) was composed of four measures: frequency and typical volume (number of drinks) of alcohol consumption as observed for self and spouse over the past 30 days. Parent smoking (PSMOKE) was indicated by one index composed of regularity of cigarette smoking for each parent.

Student acculturation (ACCULT) was measured by one scale assessing student's language use. The student's acculturation conflicts (ACCSTR) were measured by three scales: the first assessing family-related acculturation conflicts, the second measuring conflicts concerning difficulty in making choices between American and Latino customs, and the third measuring perceived discrimination on the basis of being Latino or Hispanic. The variable for family drug problems (FAMDRUG) was assessed as an index based on two variables, each asking whether the student had observed problems related to alcohol use or to other drug use among family members. Peer substance use (PEERUSE) comprised one scale, itself composed of four items asking about perceived peer use of cigarettes, marijuana, alcohol, and cocaine. Social support at Time 2 (SOCSUPP2) was composed of three indicators: a family cohesion (pride) scale, an item asking about the importance of talking with family members, and a family loyalty scale.

Among the outcome variables, licit substance use at Time 1 (LICIT1) was composed of two measured variables: frequency (from 0 to 40+) of lifetime alcohol use and frequency (on a 6-point ordinal scale from *never* to *once or twice* to *2 packs or more per day*) of lifetime cigarette use (see Table 3). Illicit substance use at Time 1 (ILLICIT1) was measured by three variables: frequency of lifetime marijuana use (0 to 40+ times), frequency of cocaine use (the sum of frequencies of crack cocaine and cocaine other than crack), and lifetime inhalant use (*yes* or *no*). Time 3 substance use variables focused on more recent use at or near Time 3. Number of times using alcohol in the past 12 months, number of drinks of alcohol the last time of use, and lifetime frequency of cigarette use were the indicators of licit substance use at Time 3 (LICIT3). Frequency of marijuana use, cocaine use (summed as above), and inhalant use were each assessed for the past 12 months as were the indicators of illicit substance use at Time 3 (ILLICIT3).

## Structural Model

***Immigration experience.*** Immigration experience had direct effects on religiosity, adolescent acculturation level and acculturation stress, as well as illicit drug use at Time. The strongest effects of immigration experience were on the acculturation level of the students ( $\beta = .61$ ). Furthermore, immigration experience had positive effects on illicit drug use at Time 1 ( $\beta = .10$ ) and negative effects on religiosity ( $\beta = -.10$ ). *These findings indicate that adolescents who had been in the United States longer reported higher levels of acculturation, earlier illicit drug use, and less religiosity.*

*Immigration experience had negative direct effects on adolescent acculturation stress ( $\beta = -.33$ ). Given that immigration experience had positive effects on level of acculturation, it appears that adolescent acculturation stress has a curvilinear relationship with immigration experience as reported elsewhere (Rumbaut, 1995; Vega & Rumbaut, 1991), and as we found in these data previously (Gil & Vega, 1996). Moreover, the positive relationship of immigration experience on acculturation level, and the positive effects of acculturation level on acculturation stress ( $\beta = .47$ ) indicates that for many of the respondents immigrant experience or U.S. nativity increased acculturation stress through its effects on acculturation level. Finally, immigrant experience constitutes a different concept than acculturation level. Some parents and adolescents had lived in the United States for extended periods of time, but their acculturation into U.S. society had been slow. We reported such findings, in which acculturation stress was highest among adolescents born in the United States who had low acculturation levels (Gil, Vega, & Dimas, 1994).*

***Parent acculturation and parent acculturation stress.*** Parent's acculturation was related to parental alcohol use, family drug use problems, and SES. *More acculturated parents had higher SES scores ( $\beta = .68$ ), possibly indicating greater ability to find well-compensated employment. However, more acculturated parents were more likely to use alcohol ( $\beta = .16$ ) and to have more drug use problems within the family ( $\beta = .22$ ) reported by the adolescent.*

*Parent-reported acculturation stress was also positively related to parent alcohol use ( $\beta = .22$ ) and to the acculturation level of the adolescent ( $\beta = .20$ ). This finding indicates that parents who experienced greater acculturative stress had children who were more acculturated. We also examined the correlation between *parental acculturation and parental acculturation stress and found that they were positively related*. This set of relationships is distinct from the intergenerational acculturation gap interpretation of Szapocznik and colleagues (1984) in that *parental acculturative stress in this analysis is not due to an absolute difference in acculturation between parents and children*. We are not suggesting that such intergenerational differences do not exist or do not cause parental stress, but they do not appear to be the fundamental dynamic in this model.*

***Family situation, age, and socioeconomic status.*** Family situation consisted of parents' marital status and household composition as measured by the number of parents in the household, which often is one rather than two as a result of difficulties with the immigration of "complete" or reconstituted families. Positive values indicated *the more traditional structure of married status with both parents present*. This family situation measure was positively related to SES ( $\beta = .31$ ) and social support ( $\beta = .12$ ) and negatively related to acculturation level ( $\beta = -.16$ ). *These results indicate that among more traditional families, economic conditions were better and social support was more readily available; such families also were more likely to have adolescents who were lower in acculturation.*

Adolescent's age was related to licit drug use at Time 1 and to social support. *Adolescents who were older were more likely to use licit drugs at Time 1 ( $\beta = .16$ ) and to report less family support ( $\beta = -.09$ ).*

Family SES had a positive impact on adolescent acculturation level ( $\beta = .32$ ). More acculturated parents had both higher income and more acculturated children. On the other hand, higher SES attenuated family drug use problems ( $\beta = -.23$ ) and social support ( $\beta = -.20$ ). *Higher SES seems to operate as a resource to reduce the possibility of socialization into drug use by parents. However, higher SES does increase the long-term prospects of drug use by increasing the likelihood of early licit drug use experimentation and ultimately decreasing available family support.*

**Family situation and parent substance use.** Family situation was related to parent smoking ( $\beta = -.25$ ). In turn, parent smoking was positively related to parent alcohol use ( $\beta = .53$ ). Parent alcohol use was then positively related to family drug use problems ( $\beta = .14$ ).

The family drug use problems variable was an important explanatory factor because parent acculturation level was positively related to it, as well as to SES, which was negatively related to family drug use problem scores. Furthermore, adolescent acculturation stress was positively related to family drug use problems ( $\beta = .13$ ). *These findings indicate greater family drug use problems when parents were high in acculturation, the adolescents were high in acculturation stress, and the family had lower SES. In this context, family drug use problems were positively associated with peer drug use ( $\beta = .09$ ) and with licit drug use at Time 1 ( $\beta = .11$ ) and negatively related to social support ( $\beta = -.09$ ).*

**Adolescent acculturation stress.** *The results of this study clearly point to indirect effects of adolescent acculturation stress on Time 3 licit and illicit drug use. Adolescent-reported acculturation stress was positively related to peer drug use ( $\beta = .18$ ), to family drug use problems ( $\beta = .13$ ), and to licit drug use at Time 1 ( $\beta = .12$ ).* These effects of acculturation stress on substance use were compounded by the finding that acculturation stress was negatively related to social support ( $\beta = -.28$ ). *The negative path between adolescent acculturation stress and social support indicated that, among the adolescents who were experiencing the highest levels of difficulties adjusting to their new cultural and social milieu, family support was less available. We have reported similar results in the context of delinquency: family support was effective in preventing the formation of attitudes favoring deviance, but acculturative strains had more influence on delinquent behavior itself (Vega, Gil, Warheit, et al., 1993).*

***Social support.*** Social support was negatively related to licit drug use at Time 3 ( $\beta = -.20$ ), as well as to illicit drug use at Time 3 ( $\beta = -.12$ ). This finding indicates that *among adolescents with low levels of social support, both licit and illicit drug use was higher. These relationships were particularly important in the context of the complex effects of acculturation stress, family drug use problems, and SES.* As stated above, adolescent acculturation stress, SES, and family drug use problems were all negatively related to social support. Inasmuch as social support was negatively related to licit and illicit drug use at Time 3, *the results point to the pernicious indirect effects of parental and adolescent acculturative stress on adolescent substance use in the absence of adequate social support.*

## **Discussion**

Acculturation and acculturative stress are part of Latino adolescent socialization and development. Most Latino adolescents move through adolescence by quickly acculturating and finding a suitable fit in multicultural American society. However, many researchers believe increasing acculturation decreases the protective qualities of the culture of origin, including family network support, and increases risk of poor social integration, impaired self-image and feelings of inferiority, a perception of poor life chances and discrimination, and deteriorating health practices (Rogler et al., 1991; Vega & Amaro, 1994). Consistent with the work of Park (1928) and Stonequist (1937), “successful” cultural adaptation is a cognitive and emotional balancing act requiring the social skills to transcend ethnic lines and SES differences in daily interaction and to be effective in these multiple domains of cultural competency. It also requires the psychological resilience to resist damaging depictions of one’s ethnic group or group pressures to remain loyal to one culture to the exclusion of the other. Acculturation increases vulnerability only to the extent that it increases stresses such as culturally based conflicts in the family and elsewhere that overwhelm the coping resources available to the adolescent. When this occurs, we anticipate negative personal outcomes.

The empirical challenge is to detect and accurately interpret complex acculturation effects for adolescents and parents in the context of other known risk factors for drug use. We have used a stress process model because it better explains how stress creates vulnerability to drug use and how family factors such as perceived support can potentially protect against adolescent drug use. Moreover, the stress process formulation is also useful for integrating aspects of social learning, a central factor in any heuristic model of adolescent drug use. Because of the importance of family in Latino adolescent socialization and the demonstrated role of low familism in creating a disposition to drug use among Latinos, a variety of family and parental factors were treated as both antecedents and consequences of adolescent acculturation and acculturative strain. It is worthwhile to highlight what appear to be the most important effects of parental and child acculturation and stress in our structural model.

*Parent acculturation increased income, family drug use, and parent alcohol problems, suggesting a greater likelihood of adolescent socialization into drug use in higher acculturation family settings. Parent acculturative stress increased adolescent acculturation. In turn, adolescent acculturation increased adolescent acculturative stress. Adolescents reporting acculturative stresses are more likely to perceive family drug use problems. Therefore, family drug problems, or at least the perception that such problems are occurring, are likely to be found in a social context that includes adolescents and parents experiencing acculturative stress, a situation that may be characterized by increased family conflict or disassociation and may facilitate the drift of adolescents into association with drug-using peers. Family drug problems and peer drug use increased the use of gateway drugs (e.g., alcohol and cigarettes), and peer drug use increased illicit drug use in earliest adolescence (Time 1).*

Social support is isolated as a mediator of Time 3 drug use to maintain fidelity with psychosocial stress theory. It is our supposition that social support will reduce stress and increase self-esteem, which should reduce drug use, especially gateway drug use. Our results seem at least partially to confirm this supposition. However, we believe it unlikely that social support can reduce drug use as dramatically as in models predicting depressive symptoms because experimental drug use is socially constructed behavior and not necessarily considered serious deviancy among many 15-year-olds in the United States. Consequently, the effects of social support can be expected to be very different for mediating initiation into drug use compared with heavy use or addiction, and the illegality and self-reinforcing physiological effects of illicit drugs are additional factors that make them unique (Barrera & Reese, 1993). Therefore, *the contingencies associated with stress, social support, and drug use are not analogous to mental health stress process models, and outcomes (e.g., type of drugs or stage of drug use) need careful specification for accurate interpretation of antecedent relationships. Nevertheless, we are convinced that perceived family support is an important protective factor against Latino drug use in early to mid-adolescence (Vega, Zimmerman, Warheit, et al., 1993), and acculturative stressors markedly increase the likelihood of low self-esteem in the context of weak family ties (Gil et al., 1994).*

Very importantly, the model demonstrates that family support at Time 2 mediates relationships between Time 1 antecedent factors and Time 3 drug use. In the context of acculturative stress effects on later drug use, adolescent acculturative stress reduced family support at Time 2 and, therefore, increased the likelihood of later adolescent licit and illicit drug use. However, higher adolescent acculturation increased Time 3 licit drug use unmediated by family support, and adolescent acculturative stress increased Time 1 licit drug use; and both factors indirectly increased Time 3 illicit drug use unmediated by social support. Therefore, *family support is clearly influenced by adolescent acculturative stress, but family support cannot wholly mediate the acculturation stress–drug use relationships.*

*The longitudinal effects of acculturation and acculturative stress on drug use in our empirical model are mostly indirect, occurring through the process of bi-generational cultural change and acculturative stress experienced by both parents and children. Rather than conflicts between low-acculturation parents and high-acculturation children producing drug use, as advanced by Szapocznik and colleagues (1979, 1984), this model suggests that higher parental acculturation and acculturative stresses predispose adolescents toward drug use through exposures to more family drug problems, weakened family ties, increased associations with drug-using peers, and increased early experimentation primarily with gateway drugs. Some of these effects are attributable to the finding that higher parent acculturation and stress portends higher adolescent acculturation and stress. However, our findings pose no inherent conflict with those of Szapocznik et al. (1984) that low-acculturation parents with high-acculturation male adolescent offspring will experience higher drug-use levels. The major qualifier underlying our model is that adolescent drug use is higher with or without a parent-child acculturation gap as long as adolescents are of higher acculturation levels. Logically, the chances that adolescents will have higher acculturation levels depend partially on parent acculturation levels. Since the inevitable historical trend is for both parent and adolescent acculturation to continue progressing over time, we believe our model has external validity for depicting the long-range effects of acculturation on adolescent drug use in the U.S. Latino population.*

*The limitation of our model for explanatory purposes is that most of the latent variables in the model are assessed at Time 1, so the causal direction of relationships antecedent to social support and early drug use is predicated on theory. Many more data points would be needed to adequately resolve the problem of temporal ordering in causal factors. It is also our assumption that stressful life circumstances, such as family drug use problems, are a powerful basis of social learning about drug use. Therefore, it is difficult, perhaps impossible, to disentangle the temporal associations. We have included variables that are needed for an integrated social learning model of adolescent drug use and acculturative stress and configured them to be consistent with these explanations. Arguably, other possibilities exist for rearranging these latent variables that could alter parameter estimates, and ultimately our interpretations.*

Perhaps the most precarious assumptions we make are: (a) parental acculturative stress causes adolescent acculturation, which could certainly be argued in the opposite direction as Szapocznik

and colleagues (1979) have done; and (b) acculturative stress of adolescents causes family drug problems and early drug use, which we posit as a relationship that emerges from a convergent parent-child acculturative stress process producing an environment more conducive to socialization into drug use. It is possible that early drug experimentation itself increases stress, including acculturative stress, because of the sanctions engendered and directed toward the adolescent. However, because the adolescents in our study are only 12 years old at Time 1 of this study, and their drug use at that data point is minimal, we believe a developmental model of acculturative stress and cultural adjustment causing drug use is theoretically and empirically more tenable.

*Two factors dropped out of our model that normally play an important role in social learning explanations of adolescent drug use: attitudes and beliefs about drugs held by the adolescent, and school and academic factors. Attitudes and beliefs usually have strong proximal associations with adolescent drug use. School or academic failure is usually a precursor to increasing development of attitudes favoring deviant behavior and drift into drug-using peer groups. The insignificance of these factors probably reflects the fact that our respondents were only 12 years old at Time 1 of the study. Therefore the cognitive and social processes linking these school experiences and attitudes to drug behaviors had not unfolded. The relative immaturity of the sample, the immediacy of their cultural adjustments, and Latino familism would accentuate the role of family factors as the primary pathway to drug use.*

## Conclusion

Our empirical model does not constitute a test of a mature integrated, social learning and stress process theory of acculturative stress and drug use. We believe that step is premature until much more work is completed using acculturation and acculturative stress constructs to determine their relative value in general explanatory models of Latino adolescent drug use. We have borrowed from the logic of stress process research to test a model that is a summary of other examples in the literature and submodels we have tested (Barrera & Reese, 1993). Nonetheless, from our previous work we acknowledge that different types of acculturative stresses have quite different temporal effects and very different distributions in the Latino population. This diversity makes the use of linear models with these data a cautious and conditional undertaking. We have arrived at our model through an incremental process of combining social learning and acculturative stress theory in an empirical model that, we believe, fits the U.S. Latino experience and has the power to detect longitudinal effects and historical trends.

Acculturation and acculturative stress are linked through complex processes and their effects at the individual level reflect broader contextual issues such as ethnic group history, enclave development, political organization, and a host of other factors that ultimately filter down to the adolescent through personal socialization experiences. Further, the wide variance among Latino ethnic groups in the amount of stress they report and the specific effects of acculturative stress on families and drug use are linked to differential social power and opportunity among the groups (Gil & Vega, 1996). These are the broader contextual factors that must be included in an integrated theory of acculturative stress and Latino adolescent drug use.

## Implications for Prevention

The most common drug use prevention programs have consisted of education, either providing information about the harmful effects of tobacco, alcohol, and other drugs or what has been referred to as “affective” education, which targets enhancing self-esteem and responsible decision making. Such programs have proven largely ineffective in stemming the tide of adolescent drug use (Berberian, Gross, Lovejoy, & Parapella, 1976; Goodstadt, 1974; Schaps, Bartolo, Moskowitz, Palley, & Churgin, 1981), which from the perspective of this article is not surprising. First, they do not address the environmental factors leading to drug use and abuse. Second, they often do not address the psychosocial factors leading to drug use, such a peer pressure (Botvin & Botvin, 1992). Third, they often lack a developmental perspective that accounts for the particular idiosyncracies of adolescent thought processes and behaviors. Finally, they do not address the specific sociocultural factors presented above.

The findings in this study suggest specific implications for future drug prevention programs for Latino adolescents. Such programs must deal with the environmental stress of acculturation on the parents, the children, and the family as a whole. For example, while the family can be a protective factor against involvement in drug use, the acculturation process for the family members can have damaging effects on the family’s cohesion and on the maintenance of traditional Latino cultural values. The stressors of acculturation affect children directly through their personal experiences and indirectly through their parent’s reaction.

Immigration must be viewed as a process of change that challenges the survival mechanisms of all families, regardless of their socioeconomic resources. Theoretical approaches designed for family intervention point to the fact that changes such as those imposed by immigration weaken family structures in part by undermining parental authority and control. If we consider the family to be a system (Minuchin, 1984), it becomes evident that the disruptions of immigration and the acculturation process must be confronted systematically to address cultural adjustment problems, perceived discrimination, environmental hazards, loss of family network support and social status, and the stressors involved in the reestablishment of homeostasis for the family.

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**Table 1.**  
**Factor Structure of Exogenous Variables**

<b>Latent Construct</b>	<b>Measured Variables</b>	<b>Respondent</b>	<b>Factor Loading</b>
Immigration experience	Time in United States	Student	.78
	U.S. born	Student	.84
	Parent's birthplace	Parent	.82
	Cuban	Student	.44
Parent acculturation	Parent's language use+	Parent	.85
	Parent's language conflicts+	Parent	-.52
Age	Age	Student	1.00
Parent acculturation stress	Parent acculturation stress+	Parent	.49
Family situation	Parent's marital status	Parent	.98
	Household composition	Student	-.70

*Note:* + indicates a multiple-item measure.

**Table 2.**  
**Factor Structure of Mediating Variables**

<b>Latent Construct</b>	<b>Measured Variables</b>	<b>Respondent</b>	<b>Factor Loading</b>
Socioeconomic status	Parent's education	Parent	.44
	Household income	Parent	.86
Religiosity	Spirituality	Student	.57
	Attendance	Student	.74
Parent alcohol use	Frequency (Parent 1)	Parent	.56
	Volume (Parent 1)	Parent	.67
	Frequency (Parent 2)	Parent	.42
	Volume (Parent 2)	Parent	.51
Parent smoking	Parent smoking+	Parent	.49
Student acculturation	Student's language use+	Student	.56
Student acculturation conflicts	Family conflicts+	Student	.67
	Bicultural conflicts+	Student	.49
	Perceived discrimination+	Student	.46
Family drug problems	Family alcohol/other drug problems+	Student	1.00
Peer substance use	Peer use of cigarettes, marijuana, alcohol, cocaine+	Student	.92
Social support, Time 2	Family cohesion+	Student	.85
	Importance of talking with family	Student	.62
	Family loyalty+	Student	.74

*Note:* + indicates a multiple-item measure.

**Table 3.**  
**Factor Structure of Outcome Variables**

<b>Latent Construct</b>	<b>Measured Variable</b>	<b>Respondent</b>	<b>Factor Loading</b>
Licit substance use, Time 1	Frequency of lifetime alcohol use	Student	.55
	Frequency of lifetime cigarette use	Student	.68
Illicit substance use, Time 1	Frequency of lifetime marijuana use	Student	.71
	Frequency of lifetime cocaine use+	Student	.55
	Lifetime inhalant use	Student	.44
Licit substance use, Time 3	Frequency of lifetime cigarette use	Student	.75
	Past 12 month alcohol use	Student	.71
	Number of drinks, last time	Student	.74
Illicit substance use, Time 3	Past 12 month marijuana use	Student	.67
	Past 12 month cocaine use+	Student	.78
	Past 12 month inhalant use	Student	.66

*Note:* + indicates multiple-item measure