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ORIGINAL ARTICLE

Structural Equation Socialization Model of Substance Use Among Mexican-American and White Non-Hispanic School Dropouts

RANDALL C. SWAIM, Ph.D., SCOTT C. BATES, M.S., AND ERNEST L. CHAVEZ, Ph.D.

Purpose: **To test a socialization model of polydrug use among Mexican-American and white non-Hispanic school dropouts.**

Methods: **A sample of 910 Mexican-American and white non-Hispanic school dropouts were surveyed regarding their use of alcohol, marijuana, and other drugs, and socialization characteristics that have previously been shown to be predictive of adolescent substance use. A structural equation model based on peer cluster theory was evaluated for goodness of fit and for differences in model characteristics by ethnicity and gender.**

Results: **Results partially confirmed peer cluster theory among school dropouts in that association with drug-using peers was the most powerful direct predictor of substance use. The effects of a number of other socializing influences were indirect, mediated through association with drug-using peers. Some differences were present between Mexican-American and white non-Hispanic subgroups.**

Conclusions: **Results were similar to those obtained from previous tests of this model among youth who remain in school, suggesting that social influences on drug use are similar across students and school dropouts. Association with drug-using peers dominates the prediction of substance use among school dropouts. However, family communication of drug use sanctions helps to both limit substance use and strengthen family bonds. Prior school adjustment is likely to be an important protective factor in limiting substance use among Mexican-American dropouts.** © ***Society for Adolescent Medicine, 1998***

From the Tri-Ethnic Center for Prevention Research, Department of Psychology, Colorado State University, Fort Collins, Colorado.

Address reprint requests to: Randall C. Swaim, Tri-Ethnic Center for Prevention Research, Department of Psychology, Colorado State University, Fort Collins, CO 80523-1876.

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Socialization influences have been demonstrated to be effective and powerful predictors of adolescent substance use. Among the many active social influences during adolescence, parents, peers, and the school system are primary (1). For some youth, identification with religion also serves as a key socializing influence during this developmental period (2). Each of these factors can serve as risk or protective factors that either promote or discourage the emergence of substance use.

The effects of these socialization influences on deviant behavior have been explained theoretically through various perspectives (3). By deviant behavior, we refer to those behaviors that are viewed by prevailing societal norms as generally unacceptable and that are non-normative. Therefore, the same behavior might be viewed as deviant within one cultural group and nondeviant within another. Throughout most Western cultures, adolescent substance abuse is considered to be deviant. Within their review, Petraitis et al. (3) pointed out that although the emphasis on social influence is common across a number of theories of deviant behavior, different mechanisms of socialization are emphasized. For example, considered within social control theory

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(4,5), weak attachment to family, school, and religion leads to association with deviant peers, which in turn directly relates to substance use. Similarly, problem behavior theory (6) posits that weak attachment to family and school and strong attachment to deviant peers predict not only adolescent substance use, but a constellation of related deviant behaviors including delinquency and precocious sexuality. Other theories have focused on interaction with others and development of beliefs through contact with social models. Differential association theory (7) has been advanced to account for criminal behavior, asserting that association with deviant role models alone is sufficient to lead to deviance of various forms. The mechanisms of social learning that take place in the context of peer relationships have been described more fully within social learning theory (8) and social cognitive/learning theory (9), explicating the development of attitudes and beliefs toward deviant behavior and the role of self-efficacy in promoting use or refusal of illicit substances.

The current study is based on peer cluster theory (10), which emphasizes the socializing influences of peers, family, and other interpersonal factors. Peer clusters are small sets of peer relationships that consist of closely knit groups of friends, best-friend dyads, or even boyfriend/girlfriend dyads. The theory proposes that it is within these close-knit groups that information and ideas are exchanged and attitudes and beliefs are formed and altered. Members of peer clusters are not passive participants subject only to the influence of others, but themselves contribute to the development of peer cluster norms and behaviors. The theory is similar to those emphasizing attachment to socializing agents. Attachment, then, to deviant peers, is likely to lead to deviant attitudes and behaviors through processes of social learning and attitude formation. Conversely, attachment to nondeviant peers and strong bonds to prosocial influences such as family, school, and religion is likely to lead to nondeviant attitudes and behaviors (4,5).

It can be argued that the prediction of deviant behavior following association with deviant peers is self-evident. It is clear that this relationship is well established within the adolescent literature. What is not entirely clear is how the effects of association with deviant peers interacts with other socialization influences, especially for school dropouts. One unique aspect of peer cluster theory is its specification of the relationship among socialization influences. Association with peers is hypothesized to be a direct influence on adolescent behavior. The influences of family and school, along with other socializing agents such as religion, the community, and media, are hypothesized to be indirect. Figure 1 illustrates how direct and indirect influences can be modeled. Three alternative models are depicted, each representing different direct and indirect effects. The first model (a) includes only direct effects. The two variables A and B each have direct effects on C. In Model b, B has a direct effect on C, but the effects of A on C are only indirect, mediated through B. Finally, in Model c, the effects of A on C are both direct and indirect. Within peer cluster theory, the effects of peers on adolescent substance use are proposed as direct. The effects of other socialization influences are hypothesized to be indirect, mediated by association with substance-using peers, as in Model b.

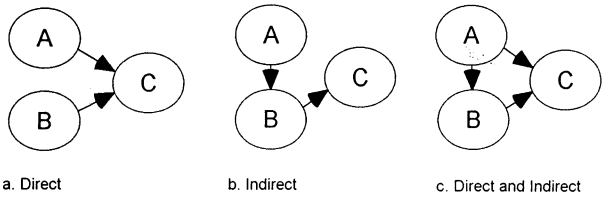

Figure 1. *Direct and indirect effects in structural equation models.*

A socialization model based on peer cluster theory, which incorporates the effects of peers, family sanctions against substance use, family strength, school adjustment, and religious identification, has been shown in past studies among students to effectively account for variation in levels of drug use among white non-Hispanic adolescents (11), drug use among American Indian adolescents (12), alcohol use among Hungarian adolescents (13), and cigarette use among migrant and nonmigrant Mexican-American youth (14). Each of these studies supported the direct influence of peers and the indirect influence of other socialization influences through peers, in the prediction of adolescent substance use. For example, as in Model b above, among a largely white non-Hispanic sample of adolescents (11), family sanctions against substance use did not directly influence substance use. Rather, family sanctions altered the types of peer relationships youth had, which in turn directly affected substance use behavior. Association with drug-using peers was directly related to level of drug use. School adjustment also contributed a small, negative, direct effect on substance use. That is, better school adjustment was associated with lower levels of substance use. The effects of school adjustment, then, were both direct and indirect as in

Model c above. What is important from this and other studies of this model is not the rather apparent finding that association with drug-using peers predicts drug use, but that effects of other socialization variables are more clearly explicated. These other variables, including religious identification, school adjustment, and family strength, were indirectly related to drug use, mediated by peer drug associations, within these multivariate models. Within univariate models, these other variables show strong relationships to drug use. However, when the effects of peers are controlled, their influence becomes indirect.

The current study applies this socialization model to a sample of Mexican-American and white non-Hispanic school dropouts. It is important to evaluate this model among school dropouts, for two critical reasons. First, school dropouts are rarely studied. Essentially all of the theories described above have been developed based on data obtained from students. It is not clear whether the same relationships apply to school dropouts as among students. School dropouts are likely to use various illicit substances and alcohol at rates that range anywhere from 1.2 to 6.4 times higher than students (15,16). Given this higher rate of use, it is of theoretical importance to determine whether risk and protective factors for substance use vary between students and dropouts. The second compelling reason for examining school dropouts is that if significant variations do exist, differential prevention programs must be developed for this group of youth for prevention efforts to be successful. In addition to potential differences between students and dropouts, previous studies that have examined this model have identified potentially important differences by ethnicity. Specifically, family influences in the form of family sanctions against substance use have been direct protective factors among minority youth (12), whereas this influence has been only indirect among white non-Hispanic youth (11).

Methods

Participants

School dropouts were from three school districts from three communities in the southwestern United States, including an urban community (population 350,000), a midsized community (population 90,000), and a small community (population 30,000). Mexican-American and white non-Hispanic dropouts were recruited from each of these communities. These school dropouts are therefore reasonably representative of Mexican-American and white non-Hispanic dropouts who reside in communities across a broad range of population densities within the Southwest. Dropouts were identified as 7th- through 12th-grade students who had a period of absence from school lasting for 1 month or longer, with no contact with the school district. At the time they were surveyed they were not enrolled in any school, thus meeting the criterion for status dropouts. The status dropout rate refers to the number of youth at a given time who have not completed high school and are not enrolled in any school. This is in contrast to the event dropout rate, which is based on the proportion of students who quit school each year but may include those youth who enroll in school elsewhere. Field locators identified dropouts from school records or personal contact with teachers and administrators who confirmed dropout status from a search of school records. Participation was voluntary and completion of survey materials was conducted anonymously. Surveys were completed at various community sites selected by the dropout and the field locator. Because dropouts were often reluctant to return to their schools, none of the surveys were completed on school grounds. Participants were paid $20 for their participation. For a complete description of procedures, see (16). All procedures followed for this project were approved by the university's internal review board.

A total of 910 participants comprised the sample, of whom 57% were male and 65.8% were Mexican-American (Mexican-American males = 359; Mexican-American females = 240; white non-Hispanic males = 160; white non-Hispanic females = 151). Among the initial number of dropouts identified as eligible, 4.5% of Mexican-Americans and 6.8% of white non-Hispanics refused to participate. Of 52 refusals, 67% were males, which is somewhat higher than the percentage of males surveyed.

Instruments

The Clinical Drug Assessment Scale (17) is an instrument developed for clinical assessment of substance use from which the American Drug and Alcohol Survey (18) was derived. It has been tested among minority and majority youth with reliabilities of substance involvement scales that range from 0.78 to 0.96 for white non-Hispanic youth, and 0.74–0.92 for Mexican-American youth (18). The drug involvement scales assess current involvement with a substance and are composite measures that ask about

use of a substance during the previous month (e.g., "How often in the last month have you used marijuana?" measured on a six-point scale ranging from "none" to "50 or more times"), self-identification as a user of a substance (e.g., "In using alcohol, are you a . . . " measured on a six-point scale ranging from "nonuser" to "very heavy user"), and how a substance is used (e.g., "How do you like to drink?" measured on a five-point scale ranging from "I don't drink" to "until I get really drunk"). The latent factor for polydrug use was measured by three indicators of substance involvement: alcohol, marijuana, and other drugs. The other drug substance involvement scale is a summative composite of scales for cocaine, heroin, LSD, PCP, barbituates, and stimulants. The five latent socialization variables (family strength, family sanctions, religious identification, school adjustment, and peer drug associations) have been used in previous studies in which the following Cronbach alpha reliabilities were obtained: family caring/strength, (0.72–0.80), (religious identification, 0.69–0.88), family sanctions, (0.86–0.87), school adjustment, (0.77–0.85), and peer drug associations, (0.85–0.91) (11,12,14). With the exception of school performance, the following measures were each assessed by items that were measured on a four-point scale ranging from "not at all" to "a lot." Family strength was measured by three indicator variables: family caring, family monitoring, and get along with parents. Family caring is a two-item scale with questions that inquire whether the youth perceives his or her family to be caring and whether the youth cares about his or her family. Family monitoring is a two-item scale with questions that inquire whether the family cares what the youth does. "Get along with parents" is a two-item scale that asks how well the youth gets along with his or her mother and father. Youths who did not live with one or more biological parents were asked to respond based on current parenting figures. Family sanctions against substance use were measured by three substance-specific indicators: family sanctions against alcohol use, marijuana use, and other drug use (e.g., "How much does your family care if you use drugs other than marijuana?").

School adjustment was measured by three indicators: attitude toward school, attitude toward teachers, and self-reported school performance. Attitude toward school is a two-item scale with questions that ask if the youth likes school and if school is fun. Attitude toward teachers is a two-item scale with questions that ask if the youth likes her or his teachers and if teachers like her or him. School performance is a two-item scale with questions that ask what kinds of grades he or she gets and what kind of student the youth is, measured on a four-point scale ranging from "poor" to "very good." Religious identification was measured by three indicators with survey items that asked, "Are you religious?" "Do you take part in your religion?" and "How important is religion in your life?"

Peer drug associations were measured by three substance-specific indicators: peer alcohol associations, peer marijuana associations, and peer other drug associations. Each of the substance association indicators is a composite of low peer sanctions against substance use as measured by questions inquiring to what extent friends would go to stop the youth from using substances, and high peer encouragement to use the substance, measured by questions asking how many friends use various substances and how often friends have asked the youth to use a substance.

Model Evaluation

The study used structural equation modeling (SEM) as the primary method of analysis. SEM is a multivariate statistical method that evaluates both the measurement quality of a set of variables used to measure a latent construct (the measurement model) and the relationships among the latent constructs (the structural model). A latent construct is a variable that is not directly measured. For example, in this study, school adjustment (not directly measured) is a latent variable that was measured by three variables: attitude toward teachers, attitude toward school, and school performance. A confirmatory factor analysis is used to assess how well a set of variables measures their respective latent variables. Figure 2 depicts each of the indicator variables (rectangles) that were hypothesized to measure each of the latent variables (ellipses).

Once it is established that latent variables are adequately measured, the structural model tests hypothesized relationships among the latent variables. Figure 2 also depicts the structural relationships between the latent variables, represented by arrows among ellipses. These paths among the latent variables are regression coefficients, indicating both the strength of relationship between the latent variables and whether the relationship is positive or negative.

Table 1 presents descriptive statistics for each indicator variable, as described above, used to measure latent constructs in the socialization model. The model in Figure 2 is consistent with peer cluster

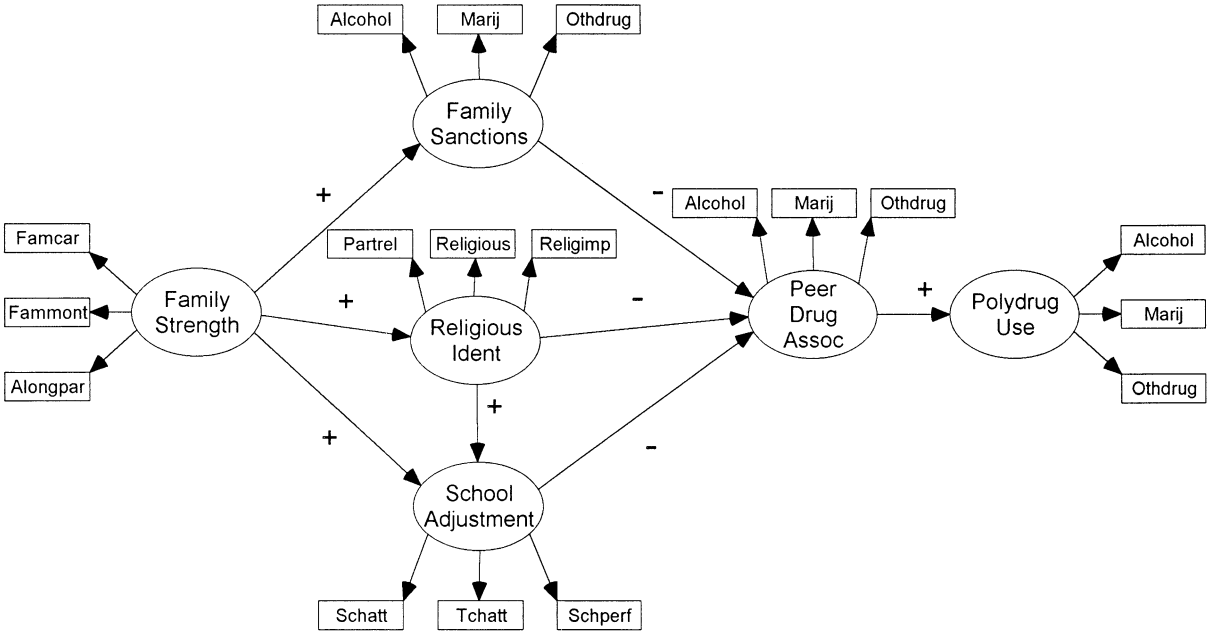

Figure 2. *Hypothesized socialization model. Famcar = family caring; Fammont = family monitoring; Marij = marijuana; Othdrug = other drugs; Religious = Are you religious?; Partrel = Do you participate in your religion?; Religimp = How important is religion to you?; Tchatt = like teachers; Schatt = like school; Schperf = school performance.*

theory. Polydrug use, the outcome variable, is at the far right of the model. Peer substance associations is a direct predictor of polydrug use, and it mediates the indirect effects of the remaining socialization variables. The relationship between peer drug associations and polydrug use is hypothesized to be positive, whereas the relationships among family sanctions, religious identification, and school adjustment are hypothesized to be negative. That is, higher levels of family sanctions, religious identification, and school adjustment will be associated with lower levels of peer drug associations. Finally, family strength is hypothesized to be positively related to family sanctions, religious identification, and school adjustment, and religious identification will be positively related to school adjustment.

Models were evaluated in a stepwise procedure using the EQS (Version 5.1) program for SEM (19). Maximum likelihood estimation was used for all models. To account for the non-normal distribution of substance use and other model variables, robust statistics were run which yield revised standard errors for model parameters (20), a revised Satorra–Bentler Chi-square statistic (21), and a robust comparative fit index (RCFI). The measurement model was evaluated first using confirmatory factor analysis (CFA), followed by assessment of the structural model.

Fit of models was assessed with multiple indices. Chi-square and degrees of freedom (*df*) are reported for each model. Although a nonsignificant standard Chi-square is indicative of good fit, it is highly sensitive to number of subjects and complexity of models (22). Four measures of fit were used to supplement Chi-square: the Chi-square/degrees of freedom ratio, the comparative fit index (CFI) (23), the normed fit index (NFI), and the RCFI. Models that met the criteria of a Chi-square/*df* ratio of <2.00 or an NFI/CFI/RCFI of >0.90 were judged to be good fits (24).

Results

The mean age of participants at the time of school dropout across the four subgroups was mean (M) = 16.54, standard deviation (SD) = 1.37 for Mexican-American females; $M = 16.68$, $SD = 1.22$ for Mexican American males; $M = 16.66$, $SD = 1.14$ for white non-Hispanic females; and $M = 16.90$, $SD = 1.19$ for white non-Hispanic males. A 2×2 analysis of variance (ANOVA) (Ethnicity $\times$ Gender) was conducted to determine differences in mean age across groups. There were significant main effects for gender, with females dropping out of school at a younger age than males, $F(1, 892) = 4.719$, $p = 0.03$,

Table 1. Means and Standard Deviations of Observed Variables in the Socialization Model (by Ethnicity and Gender)

Latent Variable [Observed (Range)]	Mexican-American				White Non-Hispanic			
	Females		Males		Females		Males	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Family strength								
Family caring (1–4)	3.80	0.49	3.76	0.52	3.81	0.43	3.75	0.50
Family monitoring (1–4)	3.75	0.55	3.67	0.63	3.68	0.64	3.64	0.67
Get along with parents (1–4)	3.21	0.74	3.46	0.62	3.13	0.68	3.18	0.70
Family sanctions								
Alcohol (3–12)	10.73	2.08	10.28	2.41	10.23	2.63	9.76	2.48
Marijuana (2–8)	7.40	1.47	7.20	1.63	7.39	1.52	7.03	1.83
Other drugs (2–8)	7.56	1.27	7.54	1.31	7.78	0.90	7.50	1.43
School adjustment								
Attitude toward school (2–8)	5.14	1.62	5.08	1.73	4.88	1.79	4.69	1.76
Attitude toward teachers (2–8)	5.94	1.46	5.70	1.48	5.77	1.64	5.55	1.54
School performance (2–8)	5.34	1.41	5.01	1.45	5.17	1.64	4.82	1.45
Religious identification								
Participate in religion (1–4)	2.55	0.97	2.39	1.03	2.25	1.14	1.88	1.03
Religious (1–4)	2.36	1.01	2.30	1.05	2.26	1.13	1.84	1.00
Importance of religion (1–4)	3.03	0.88	2.79	1.00	2.55	1.02	2.10	1.02
Peer drug associations								
Alcohol (6–24)	13.85	4.13	14.96	4.75	15.29	4.53	15.48	4.26
Marijuana (4–16)	9.22	3.28	9.80	3.67	9.12	3.69	9.53	3.77
Other drugs (4–16)	6.44	2.40	7.21	3.08	6.30	2.52	6.71	2.81
Polydrug use								
Alcohol (0–7)	2.24	1.88	2.61	1.85	2.30	1.68	2.88	1.75
Marijuana (0–7)	1.88	2.13	2.48	2.59	1.79	2.25	2.55	2.71
Other drugs (0–21)	2.06	3.97	2.33	3.88	2.44	4.82	2.29	4.17

M = mean, SD = standard deviation

and for ethnicity, with Mexican-Americans dropping out at a younger age than white non-Hispanics, $F(1, 892) = 3.814$, $p = 0.05$. The two-way Gender × Ethnicity interaction was not significant. Mean grade point average (GPA) was also calculated across groups (Mexican-American females, $M = 1.10$, $SD = 0.80$; Mexican-American males, $M = 0.88$, $SD = 0.73$; white non-Hispanic females, $M = 1.40$, $SD = 0.81$; white non-Hispanic males, $M = 1.19$, $SD = 0.71$). A 2 × 2 ANOVA (Ethnicity × Gender) was conducted to determine differences in mean GPA across groups. There was a significant main effect for gender, with males having lower GPAs than females, $F(1, 823) = 14.085$, $p < 0.001$), and a significant main effect for ethnicity, with white non-Hispanics having higher GPAs than Mexican-Americans, $F(1, 823) = 29.136$, $p < 0.001$). The two-way Gender × Ethnicity interaction was not significant.

Table 2 presents the factor loadings and residuals of each of the indicator variables for their respective latent constructs. All factor loadings were significant ($p < 0.001$), and with the exception of "get along with parents" for white non-Hispanic males, all factor loadings were >0.40. This indicates that the indicator variables were good measures of the latent constructs.

Model Evaluation

Table 3 summarizes tests of model fit for each of the subgroups. In addition to high factor loadings as reported in Table 2, CFA results for all four groups indicated that the measurement model fit was generally good. With the exception of the NFI, all fit indices were 0.90 or higher. The Chi-square/*df* ratio for white non-Hispanic females and Mexican-American males was >2, but other indices for these groups indicated adequate fit. Fit for the structural model was also good for each group, with the exception of the NFI and the Chi-square/*df* ratio for Mexican-American males.

Figure 3 presents the final structural model for all groups. Standardized regression coefficients for each path are presented for the four subgroups. One structural change was made in the model from the original hypothesized model. Significant direct paths from family sanctions to polydrug use were obtained for both white non-Hispanic and Mexican-American

Table 2. Standardized Factor Loadings and Residuals, by Ethnicity and Gender

Latent variable (Observed)	Mexican-American				White Non-Hispanic			
	Females		Males		Females		Males	
	FL	Res	FL	Res	FL	Res	FL	Res
Family strength								
Family caring	0.82	0.57	0.83	0.56	0.69	0.72	0.74	0.67
Family monitoring	0.86	0.51	0.79	0.62	0.84	0.54	0.86	0.50
Get along with parents	0.58	0.81	0.45	0.89	0.42	0.91	0.36	0.93
Family sanctions								
Alcohol	0.74	0.67	0.76	0.65	0.74	0.67	0.47	0.88
Marijuana	0.94	0.34	0.87	0.49	0.96	0.29	0.96	0.28
Other drugs	0.70	0.72	0.80	0.60	0.71	0.70	0.74	0.68
School adjustment								
Attitude toward school	0.68	0.74	0.77	0.64	0.82	0.57	0.86	0.52
Attitude toward teachers	0.64	0.77	0.66	0.75	0.72	0.69	0.66	0.75
School performance	0.73	0.69	0.74	0.68	0.69	0.73	0.51	0.86
Religious identification								
Participate in religion	0.69	0.73	0.78	0.63	0.84	0.54	0.78	0.63
Religious	0.89	0.45	0.87	0.50	0.97	0.23	0.92	0.40
Importance of religion	0.74	0.67	0.77	0.64	0.84	0.54	0.86	0.51
Peer drug associations								
Alcohol	0.77	0.64	0.82	0.57	0.78	0.62	0.72	0.70
Marijuana	0.89	0.45	0.93	0.36	1.00	0.00	0.85	0.53
Other drugs	0.78	0.63	0.81	0.59	0.58	0.82	0.62	0.78
Polydrug use								
Alcohol	0.72	0.70	0.61	0.80	0.49	0.87	0.49	0.87
Marijuana	0.88	0.48	0.75	0.66	0.87	0.49	0.85	0.53
Other drugs	0.72	0.70	0.70	0.72	0.58	0.82	0.62	0.78

FL = factor loading; Res = residual.

males. As the figure indicates, this path was not significant for the two female groups.

Consistent with the hypothesized model (Figure 2), the direct association between peer drug associations and polydrug use was significant and of large magnitude for each of the four groups, with coefficients ranging from 0.58 to 0.74. In addition, peer drug associations mediated the indirect effects of all other model variables with the exception of family sanctions, where effects were both direct and indirect. However, the direct effects of family sanctions on polydrug use were significant only for the two male groups and of considerably smaller magnitude compared to peer drug associations, ranging from −0.19 to −0.27. These two direct effects on polydrug use indicate that among school dropouts, association

Table 3. Model Fit, by Ethnicity and Gender

	χ^2	S-B χ^2	*df*	χ^2/df	NFI	CFI	RCFI
Mexican-American females							
CFA	230.04	201.14	120	1.92	0.89	0.94	0.95
Structural model	235.33	205.23	126	1.87	0.88	0.94	0.95
Mexican-American males							
CFA	321.68	277.44	120	2.68	0.89	0.93	0.94
Structural model	342.60	295.28	126	2.72	0.89	0.92	0.93
White non-Hispanic females							
CFA	244.94	202.58	120	2.04	0.83	0.90	0.91
Structural model	251.809	207.211	126	2.00	0.83	0.90	0.91
White non-Hispanic males							
CFA	216.61	198.05	120	1.81	0.84	0.92	0.93
Structural model	244.79	229.750	126	1.94	0.82	0.90	0.92

All Chi-square values are significant ($p < 0.05$). S-B χ^2 = Satorra–Bentler Chi-square; NFI = Normed Fit Index; CFI = Comparative Fit Index; RCFI = Robust Comparative Fit Index; CFA = Confirmatory Factor Analysis.

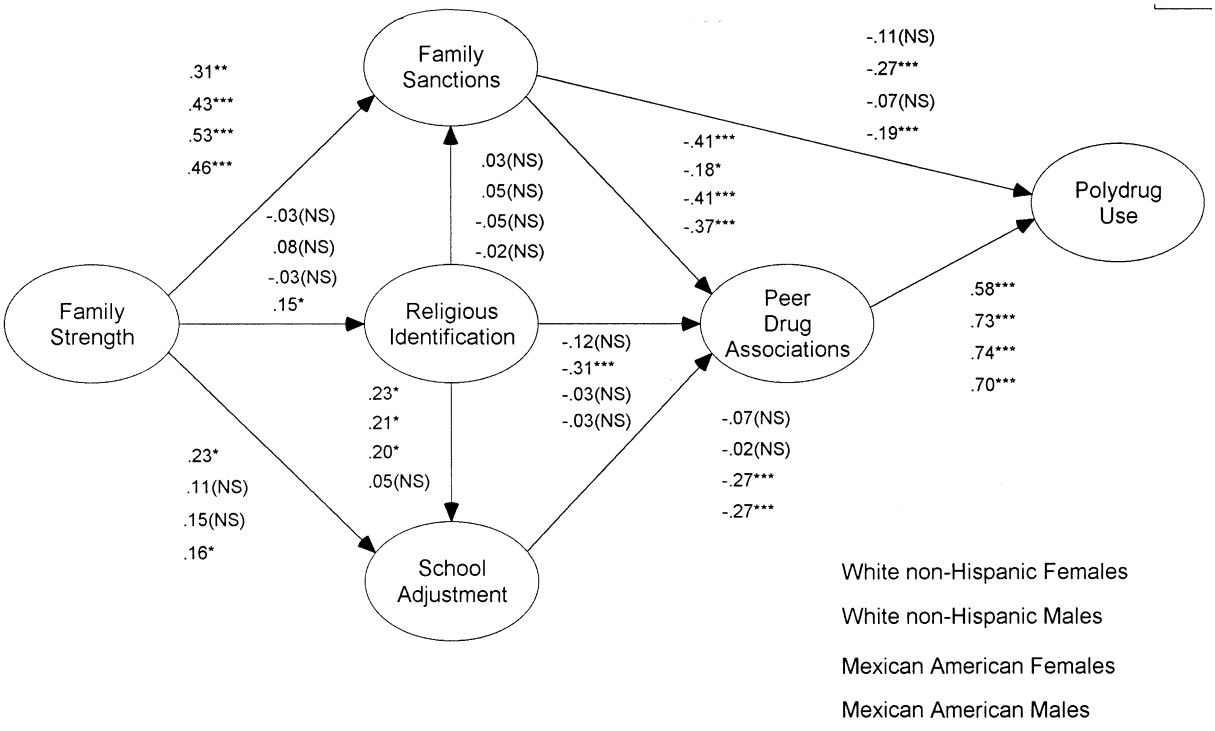

Figure 3. *Final structural socialization model. All regression paths are standardized maximum likelihood estimates.* *p < *0.05;* *p < *0.01;* ***p < *0.001; NS = nonsignificant.*

with drug-using peers greatly increases the likelihood of polydrug use; and among Mexican-American and white non-Hispanic male dropouts, family sanctions reduces the likelihood of polydrug use. Family sanctions also exerted an indirect effect on polydrug use, mediated by peer drug associations. These negative coefficients ranged from −0.18 to −0.41, indicating that family sanctions reduced the likelihood of association with drug-using peers.

Other characteristics of the model were generally as predicted, with some variation across subgroups. Moving to the left side of the model (Figure 3), a positive relationship between family strength and family sanctions was present in all four groups, indicating that school dropouts perceive their families more favorably if parents hold negative sanctions toward substance use. However, a significant relationship between family strength and religious identification was present only among Mexican-American males, for whom the relationship was marginal (0.15). Family strength and school adjustment were positively related only among white non-Hispanic females (0.23) and Mexican-American males (0.16). As predicted in the hypothesized model, among all four subgroups, no relationship was present between religious identification and family sanctions. However, religious identification was positively associated with school adjustment among both white non-Hispanic females (0.23) and males (0.21), and among Mexican-American females (0.20). Contrary to the hypothesized model, the only significant path between religious identification and peer drug associations, a negative relationship, was found among white non-Hispanic males (−0.31). The negative effects of school adjustment on peer drug associations was found only among Mexican-American females (−0.27) and Mexican-American males (−0.27). For these two groups, better school adjustment served as a protective factor against association with drug-using peers.

Discussion

The primary purposes of this study were to further evaluate a socialization model of adolescent substance use among high school dropouts and to identify similarities and differences in socialization risk factors among Mexican-American and white non-Hispanic dropouts. Consistent with previous research on this model (11,12,14), association with drug-using peers accounted for the largest propor-

tion of variance (34–55%) directly related to adolescent substance use. This echoes findings reported in past studies (25–27) in which association with drug-using friends greatly increases the probability that an adolescent will use drugs. Furthermore, the models indicated that peer drug associations mediated the effects of a number of other socialization variables. Given the higher levels of drug use reported among school dropouts (16), it is reasonable to predict that effects of drug-using peers for dropouts would be even more potent an influence than among students. In a study among a largely white non-Hispanic sample of students, Swaim et al. (27) obtained a direct effect of peer drug associations on drug use of 0.62. With the exception of white non-Hispanic females, the effect obtained in this study was somewhat higher (0.70–0.74), indicating that the influence of peers of drug-using behavior may increase as youth drop out of school.

Peer cluster theory postulates that association with drug-using peers will mediate the effects of other risk factors which are hypothesized to be indirect. The mediation hypothesis was generally supported with the one exception of family sanctions on substance use, which had both indirect (for all groups) and direct (for male groups) effects on polydrug use. Among male dropouts, family sanctions served as a direct protective effect against polydrug use. Although the causal interpretation of this effect cannot be determined conclusively from this dataset, which was cross-sectional, it is logically consistent that family sanctions are serving as a protective factor against substance use rather than substance use altering the level of family sanctions. If the latter were the case, a positive relationship would be expected in which increased substance use would lead to higher levels of sanctions by parents. The confirmation of directionality of this and other paths, however, will need to be evaluated within a prospective design. Although the direct effects of substance-using peers dominates the prediction of use in adolescents, including school dropouts, the direct effects of family sanctions indicate that peer drug associations do not mediate the effects of some socialization influences in some groups. This direct effect of family sanctions was observed in a previous test of this model among American Indian students (12).

A number of studies have found effects on adolescent substance use behavior related to both the attitudes and actual substance use of parents (28). In the current study, we did not measure substance use by parents, but rather, the youth's perceived attitudes of parents toward use. Although we found that family sanctions were likely to reduce drug behavior in the adolescent, either mediated through peers or, in the case of male dropouts, directly to drug use, Andrews et al. (28) found that cautionary statements by parents were less likely to reduce substance use among hard-core-using adolescents. Our findings would appear to contradict their findings. In fact, in addition to the protective effect against drug use, dropouts were more likely to perceive their families as caring if their parents held negative sanctions toward drug use. This might be explained by two methodological differences between the two studies. First, we did not obtain parental reports, but relied on adolescent reports of the parents' attitudes. Second, the Andrews et al. (28) study was prospective, whereas ours was cross-sectional. Thus, they were able to consider the effects of parents' attitudes on maintenance of drug use. However, our results do confirm that at the time school dropouts report negative drug sanctions by their parents, they are less likely to use and more likely to view their family as caring. Future studies employing a prospective design will be needed to determine if these relationships continue over time.

The effects of school adjustment, religious identification, and family strength were generally consistent with past results for this model, but some variation is worth noting. First, the relationship between school adjustment and peer drug associations identified a difference by ethnicity. Past studies among students have found that positive school adjustment serves a protective function against association with drug-using peers among white non-Hispanics (11) and American Indians (12). In the current study, this protective relationship was found only among Mexican-American dropouts. This difference may reflect variation in social control and problem-prone behavior between these two ethnic groups. Attachment to school represents bonding to prosocial norms and should help to prevent deviance based on the premises of social control theory (4,5). This appears to be operating among the Mexican-American dropouts. The lack of bonding to school is associated with attachment to drug-using peers. Conversely, those who evidence higher levels of school adjustment are less likely to associate with drug-using peers. Considered within problem behavior theory, this result suggests that the interrelatedness between various forms of deviance (e.g., poor school adjustment and drug use) may be stronger in Mexican-American youth compared to white non-Hispanic youth.

Previous studies have found a negative relation-

ship between participation in religious activities and substance use (29,30). No direct relationship was found between these two constructs in the present study. In a past study of white students (11), the effects of religious identification on substance use were not direct, but were mediated through peer drug associations and school adjustment. Among the dropouts in the current study, however, religious identification was not associated with lower peer drug associations except among white non-Hispanic males. This suggests that the protective effects that religious participation has on limiting association with drug-using peers are likely to be diminished or absent among many school dropouts. Religious identification did serve as a protective factor against poor school adjustment in all groups except Mexican-American males.

The models demonstrate that there is a strong relationship between perceived family strength and family sanctions against substance use. Even though school dropouts are more likely to use drugs than their student counterparts (16), and may therefore be exposed to more negative sanctions from their parents regarding substance use, they perceive their families more positively when parents hold negative views toward substance use. This suggests that there may be multiple benefits when parents engage in open dialogue with their children about substance use. The relationship between parents and their children who have dropped out of school is frequently conflictual (31), and parents may be reluctant to express clear views on drug use behavior to avoid further conflict. However, such reluctance may not be warranted. In fact, not only is such parent–child communication likely to protect against substance use (28), the parent–child bond may be strengthened by clear antidrug messages from parents.

Family strength had a positive effect on school adjustment only for white non-Hispanic females and Mexican-American males. Although this relationship has been observed in previous tests of the model among U.S. youth (11,12), the strength of the effect was small (path coefficients of 0.15 for a predominantly white non-Hispanic sample and 0.14 for an American Indian sample), accounting for approximately 2% of the variance in school adjustment among both groups. Thus, the difference found here between dropouts compared to students likely does not represent a difference based on school status, since this is not a particularly strong relationship for any of the samples.

Although this study helps to explicate the role of socialization factors in substance use among school dropouts, two limitations need to be considered. First, the data are based on self-report. No collateral measures of drug use were obtained from collection of biological samples or other sources such as parent report. However, there is good evidence that self-report data of substance use are generally reliable and valid when tested against other collateral measures (18). The other primary limitation was addressed earlier. These data are cross-sectional; therefore, no causal inferences can be drawn. The findings reported here should be considered in the design of prospective studies for testing whether these socialization factors are antecedent to substance use among school dropouts.

Conclusions

Adolescent school dropouts are at substantially higher risk for substance use compared to youth who remain in school (16). However, with some limited exceptions, the results of this study indicate that socialization influences associated with drug use do not differ to any great extent between students (based on previous tests of this model) and school dropouts. Even through school dropouts use drugs at much higher levels than students, this does not appear to substantially change the relationship between the socialization influences examined here and substance use. Association with drug-using peers is a key predictor of use in both students and school dropouts. Furthermore, family attitudes toward substance use are an important protective factor in both groups. Perceived family sanctions against drug use exerted a direct protective effect against polydrug use among males in addition to protective effects mediated through peer drug associations which was present in all groups. School dropouts do not appear to view their parents' negative attitudes toward drugs with disapproval. Rather, they are more likely to view their family as more caring when such views are espoused. Few differences were observed between Mexican-American and white non-Hispanic dropouts.

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