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# Variances in the Etiology of Drug Use Among Ethnic Groups of Adolescents

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## SYNOPSIS

**Objective:** This article reviews drug use trends among ethnic groups of adolescents. It identifies similarities and differences in general, and culturally specific variables in particular, that may account for the differences in drug use rates and the consequences of drug use.

**Methods:** The authors review trends in drug use among minority and nonminority adolescents over the past 25 years and propose an explanatory model for understanding the factors that affect adolescent drug use. Sources of variance examined include factors common to all adolescents, factors unique to certain ethnic groups, temporal influences, location and demographic variables, developmental and socialization factors, and individual characteristics.

**Results:** Most of the variance in adolescent drug use is due to factors that are common across ethnic groups.

**Conclusion:** This finding should not overshadow the importance of addressing ethnocultural issues in designing prevention or treatment interventions, however. Although the major factors leading to drug use may be common across ethnic groups, unique elements within a culture can be used effectively in interventions. Interventions also need to address culturally specific issues in order to gain acceptance within a community.

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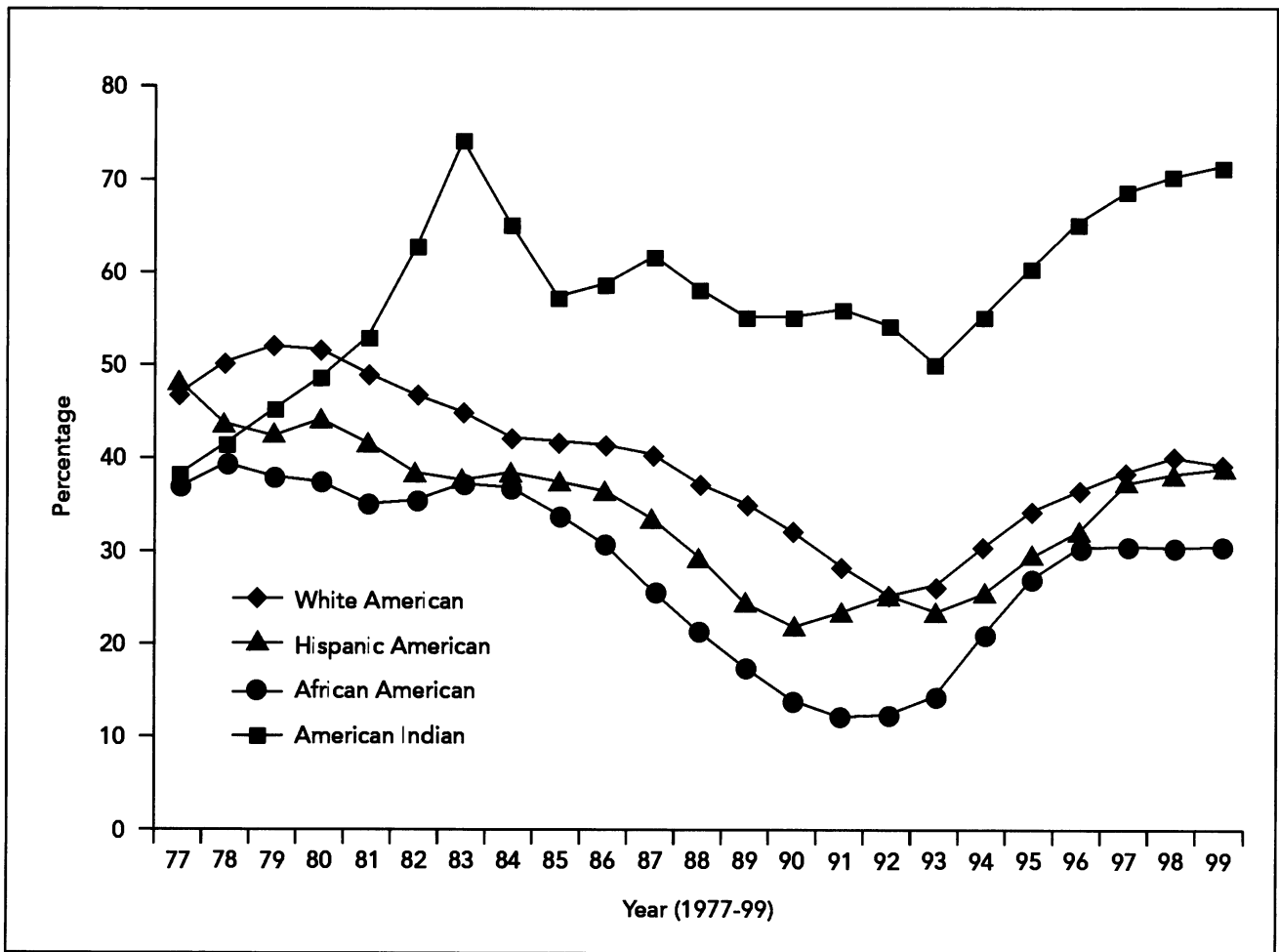
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**PREVALENCE AND TRENDS**

An extensive research literature demonstrates that differences in adolescent drug use rates exist among ethnic groups in the United States. In general population studies, adolescents from minority groups have lower rates of drug use than white adolescents,<sup>1</sup> except for American Indian adolescents, who have higher rates of use.<sup>2</sup> Although drug use prevalence is lower among most minorities, they experience more severe consequences from drug use. Explanations for this apparent anomaly include less access by minorities to prevention and health care and differential enforcement and application of legal statutes.<sup>3</sup>

Three recent comprehensive reviews have considered several hypotheses to explain differences in prevalence across ethnic groups. They include methodological issues in sampling; gender differences in some ethnic groups, particularly Hispanic Americans; the effects of differential school dropout rates; socioeconomic effects; heavier levels of drug use by minority youths who report drug use; later initiation of drug use by minority youths; and ethnic differences in risk and protective factors.<sup>4,6</sup> While there is evidence that some of these factors may affect the rates of use assessed for ethnic groups, the authors of these studies conclude that the mechanisms producing the differences are not fully understood.



**Figure 1. Annual prevalence of marijuana use for 12th graders, 1977-99**

Note: Data for American Indians show lifetime prevalence for 7th-12th graders.  
 Source: Johnston L, O'Malley P, Bachman J. Monitoring the Future, national survey results on drug use, 1975-2000. Volume I: secondary students. Rockville (MD): Dept. of Health and Human Services (US), National Institute on Drug Abuse; 2001. NIH Pub. No. 01-4924.

Adolescent drug use differs across ethnic groups, but there are major similarities in trends of drug use rates over time, with the shapes of the curves nearly identical for all ethnic groups (figure 1).<sup>1,7</sup> Past-year rates for marijuana use between 1977 and 1999 are shown for illustrative purposes because the base rate is relatively high and the patterns of use over time are clear and consistent. With a few exceptions, such as use of inhalants, similar patterns across time appear for most other drugs.

Data on annual prevalence for high school seniors are not available for American Indians over this period. The figures for American Indians in figure 1 are therefore the combined 7th-12th grade and lifetime prevalences. The trend over time is essentially the same as those found for other ethnic groups. (A more direct comparison of American Indian and white American base rates for marijuana use is presented elsewhere.<sup>2</sup>)

Two facts indicate that there are two independent sources of variance in adolescent drug use: First, the trends are the same for all ethnic groups over time. Second, essentially the same differences in base rates among ethnic groups are maintained at every point in time. Marijuana use peaked in the early 1980s, declined until the early to mid-1990s, and then increased again, with indications of at least a leveling off in 1998-99. These findings suggest that the factors that produce changes in drug use rates over time must be independent of those that produce ethnic differences.

Factors in the general adolescent culture appear to cause marijuana use rates to fluctuate over time for all American adolescents. Factors unique to each ethnic group affect the base rates of use in that ethnic group.

## METHODS

We constructed a model for understanding the factors that affect adolescent drug use. In analysis of variance terms, the model is as follows:

Variance (drug use) = variance (*C*) + variance (*E*) + variance (error), where *C* = factors common across ethnic groups and *E* = factors related to differences among ethnic groups.

This equation does not have to include a term for correlation, for three reasons. First, there is a high correlation in levels of drug use across ethnic groups. Second, major changes in drug use over time occur for all ethnic groups. Third, the differences between ethnic groups remain essentially the same despite

changes in drug use over time. These findings indicate that the sources of variance in *C* and *E* are independent.

Essentially all of the research on drug use and ethnicity has focused on variance (*E*), factors related to differences among ethnic groups. The review articles cited above discuss the possible causes of differences across ethnic groups, but they do not address the factors that produce similarities across ethnic groups.<sup>4,6</sup> The differences across ethnic groups appear to be small compared with the similarity across ethnic groups in level of drug use and the large changes in drug use over time that are common to adolescents of all ethnic groups. It is likely that a far greater proportion of variance in drug use is accounted for by the factors that are common across ethnic groups.

The analysis of variance model can be expanded to include some of the possible domains of influence that contribute to the common variance across ethnic groups. For example:

Variance *C* = variance (*T*) + variance (*L*) + variance (*S*) + variance (*P*), where *T* = temporal factors, *L* = location factors, *S* = socialization and developmental factors, and *P* = personal factors.

These domains are not exhaustive, but they capture what has been addressed in much of the literature and illustrate the existence of multiple domains. This equation may be overly simplified, since it is possible that these sources of variance are not fully independent of one another and the equation will have to include terms accounting for the correlations between domains. This assumption needs to be tested, however; like variance (*C*) and variance (*E*), these variables may prove to be independent. The equation does show that analyzing drug use in relation to only one source of variance is insufficient for understanding drug use rates and patterns.

**Temporal Factors.** Temporal factors are an elusive set of social and environmental conditions that appear to shape the acceptability and thus the use of drugs by adolescents at any point in time. Johnston postulated a number of historical attitudes and factors that fluctuate over time and might affect the rates of drug use found in the Monitoring the Future study.<sup>8</sup> For instance, perceived harm from drug use—which fluctuates substantially over time—seems directly related to how willing an adolescent is to use drugs. What is it that affects perceived harm? Possibilities include media messages, availability of and access to drugs, attitudes toward drug enforcement, public role models, and other

factors that alter the social acceptability and perception of risk from drug use. These are clearly difficult parameters to measure, but intuitively, they make up the social reality within which adolescents form their attitudes and model their behavior with respect to drug use. It is critically important to conduct studies that take into account the fact that these temporal factors affect all American adolescents, regardless of ethnic group.

**Location Factors.** The Monitoring the Future study shows that adolescent drug use differs by region.<sup>1</sup> These regional differences have been relatively consistent over time, while levels of adolescent drug use have changed. The factors that lead to regional differences may not be correlated with the other factors that affect adolescent drug use; similarly, regional differences may not be correlated with ethnic differences in drug use. Research is needed to establish the independence of these relationships.

Small differences in drug use in rural and urban areas have also been noted, although variability across rural settings makes it difficult to draw conclusions about the effect rural location may have on drug use.<sup>9</sup> Variability is far greater in rural communities than in urban communities. The major effect of rural location may simply be attributable to the relative homogeneity within small communities. These differences tend to be averaged out across neighborhoods in large cities, so large cities are more similar to one another than are rural communities.

Neighborhood effects have been found in the rates and patterns of drug use. Dembo, for instance, found variability in drug use among inner-city neighborhoods that was related to different patterns of street culture and perceptions about the "toughness" of the neighborhood.<sup>10</sup> The term "neighborhood" is no doubt a proxy for a wide range of conditions that might increase drug use, including low socioeconomic status, tolerance of deviance, unemployment, poor school quality, lack of recreational opportunity, and the like. These factors, which would be expected to produce higher drug use, are also characteristic of many minority neighborhoods in large cities. Yet drug use by most minority adolescents is lower than that of white American adolescents, not higher. Neighborhood differences may affect all youths and not be a factor in producing differences across ethnic groups.

**Socialization and Developmental Factors.** Oetting and colleagues have described the effects of the adolescent

socialization process on the use or nonuse of drugs.<sup>11,12</sup> They note that family, peers, and schools are the primary socialization influences that both protect against and cause drug use and other forms of deviance. Other factors, such as neighborhood, are important, but their effects tend to be mediated or moderated by the primary socialization influences. This is a developmental model in which the socialization factors assume different weights throughout childhood and adolescence. Oetting and colleagues have shown that this general model applies to youths in all ethnic groups, which suggests that socialization and developmental factors are a major component of variance (*C*).

There are, however, important differences in the links between socialization characteristics and drug use across ethnic groups. Swaim and colleagues found that, while the basic primary socialization model applied to young American Indians and the primary socialization influences accounted for most of the predictable variance in drug use, the influence of peers was considerably less for non-Indian adolescents.<sup>13</sup> Furthermore, reports by Indian youths indicate that their families play a greater role in influencing attitudes and behaviors than do non-Indian youths. Using a risk and protective factors framework, Newcomb was also able to discern various patterns of social etiological factors among different ethnic groups.<sup>4</sup>

Separating the effects of socialization and developmental factors on variance (*C*) and variance (*E*) proves to be a complex problem. Since the trends over time suggest that the two variances are not likely to be correlated, it is possible that the socialization and developmental factors that produce ethnic differences in drug use are independent of those that produce overall levels of drug use. More research is needed to determine which socialization and developmental factors influence variance (*C*) and which influence variance (*E*).

**Personal Factors.** A substantial body of literature attempts to identify personal variables that are predictive of substance abuse. These efforts derive in part from the belief that adolescent substance abuse is motivated primarily by some type or level of pathology within the individual or that people take drugs because the effects of drugs meet personal needs. Numerous studies attempt to link traits such as anxiety, depression, low self-esteem, and the like to drug use. The results are equivocal at best and contradictory at worst.<sup>14</sup> Other variables, such as sensation-seeking, are highly correlated with drug use, but the effects of sensation-

seeking on drug use are mediated by peer relationships.<sup>15</sup>

For the population as a whole, most adolescent drug use is a social behavior; only for some is it a means of meeting emotional needs other than those involved in adolescent social bonding.<sup>11</sup> Some adolescents do learn to use drugs to cope with stress, including the stress produced by drug use, and to meet other personal needs. They are likely to become heavier drug users and are in danger of drug dependence. In general population studies, the contribution to the variance of drug-using behavior of those few youths who are drug dependent and are using drugs for emotional reasons is likely to be greatly attenuated. The effects of personal characteristics on drug use appear to occur in all ethnic groups and thus will not account for differences in drug use among ethnic groups or be associated with variance (*E*).

## DISCUSSION

The domains discussed here capture most of what has been addressed in the literature and constitute a multidimensional model. The model implies that these sources of variance are independent and not correlated. (This assumption should be tested, of course, since interactions are possible across some domains.) Understanding at one level is insufficient for the understanding of drug use rates and patterns within a particular group of adolescents. Furthermore, comparison of results across studies is confounded by the lack of specification of the domain being investigated. Results may be inconsistent across studies merely because they are looking at different sources of variance across a supposedly homogeneous ethnic population.<sup>4</sup> For instance, it would not be unusual to find differences in drug use rates, and perhaps even in patterns of use over time, between rural African American adolescents in the South and African American adolescents in inner-city Chicago.

**Consequences of Drug Use.** Little attention has been paid in the literature to the consequences of drug use other than to conclude that such consequences are generally more severe among minority populations. A bigger question is how and why consequences differ in relation to the domains discussed here. If drug use rates are different across ethnic groups because of the influence of factors in these domains, it is reasonable to assume that the consequences experienced by the ethnic groups will be influenced by them as well. For example, barriers to resources affect populations

differentially. American Indians living on reservations have far less access to services than Indians in urban settings. The differences in legal consequences of crack cocaine and powder cocaine result in longer criminal sentences for certain minorities because they are more likely to possess crack cocaine. Another possible explanation for differences in the consequences of drug use is that, although fewer minority adolescents use drugs, those who do use drugs take them more heavily. If there are social or environmental factors related to variance (*E*) that influence this pattern of heavier use, these same factors could increase the risk that a minority adolescent would learn to use drugs to meet emotional needs and move on toward drug dependence. For example, the extreme poverty on many Indian reservations may produce higher levels of stress on all social systems, creating conditions in which heavy drug use occurs among adolescents. The independence of variance (*C*) and variance (*E*) in general levels of adolescent drug use suggests that examination of trends in consequences among ethnic groups would be valuable.

**Implications for Interventions.** This analysis has important implications for interventions for substance abuse problems among adolescents of different ethnic groups. The major sources of variance in adolescent drug use and in changes in adolescent drug use are associated with variance (*C*). Effective interventions designed for specific ethnic populations must recognize and address those social factors that influence all American adolescents. Emphasizing factors that relate to differences among ethnic groups is likely to have minimal effect on the drug use of those ethnic groups. Interestingly, much of the focus in the literature has been on the “at risk” nature of many ethnic groups but has failed to recognize that, with the exception of American Indian adolescents, the cultural milieu of adolescents is actually protective. A search for the nature and dynamics of this protective factor might be useful in designing interventions for all adolescents.

The conclusion that most of the variance in adolescent drug use is due to factors common across ethnic groups should not overshadow the importance of paying attention to ethnocultural issues in designing prevention or treatment interventions. First, the fact that the major factors leading to drug use may be common across ethnic groups does not imply that the solution to the problem can be generic or can ignore cultural issues. Unique elements within cultures can be used effectively in interventions. We know that there

are factors in variance (*E*) that produce differences in drug use among ethnic groups and that, except for American Indians, the sum of those effects is positive. If the factors can be identified, they might be resources that can be used to alter components of variance (*C*). For example, many of the prevention and treatment programs in Indian communities make use of the sweat lodge ceremony or the talking circle. Through these venues, Indian adolescents are taught to deal effectively with the many issues and problems they encounter in everyday life, including those that may resemble the problems experienced by all adolescents. These cultural practices may work in Indian communities, but it is unlikely that they would find wide acceptance by, or be effective with, other groups of adolescents.

Another important reason for addressing culturally specific issues is that any program must be acceptable within the community as a whole. Although successful prevention programs might best be focused on factors that are common to all adolescents, without community acceptance no program can be successful. A program that appears to be designed for use in white suburban schools may encounter a cool reception on an Indian reservation or in a predominantly African American school. Young people relate to the language and the unique cultural aspects of their environment.

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## CONCLUSION

The analysis presented here was intended to communicate four ideas: (1) there is a general "adolescent culture" that shapes the drug use patterns of all youths in the United States, including minority youths, (2) accurate analysis of drug use patterns among ethnic groups must take into account a variety of psychosocial domains that may lead to differential patterns even within a minority population, (3) there may indeed be elements of culture that lead to differences in base rates of drug use among minority youths, many of which may in fact be protective factors, and (4) despite the similarities in drug use patterns and common etiological pathways, effective interventions must take into account cultural values, beliefs, and practices of minority groups. The ideal prevention program for minority youths would be a combination of approaches that address the factors common to all youths, would take into account the psychosocial pattern of youths in a particular location, and would utilize the strengths of the culture from which the youths come.

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