Journal of Urban Health: Bulletin of the New York Academy of Medicine, Vol. 82, No. 2, Supplement 3
doi:10.1093/jurban/jti059

FUNDAMENTAL CONSIDERATIONS IN THE STUDY OF DRUG ABUSE AND HIV HEALTH DISPARITIES

Challenges in Understanding Disparities in Drug Use and its Consequences

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ABSTRACT *Racial/ethnic disparities in health have long been documented in a broad range of medical conditions in the United States. For example, Blacks have higher HIV incidence and AIDS-related mortality than do Whites. This article summarizes racial/ethnic differences in drug use and its consequences in the United States and proposes three key challenges to the study of disparities in drug use and its consequences. These are (a) patterns of drug use and misuse are complex, with different patterns of use of different drugs in different racial/ethnic groups; (b) racial/ethnic differences in use of drugs are not always associated with comparable differences in the consequences of drug use; and (c) the consequences of drug use are associated with drug use itself and other social/economic circumstances. Each of these challenges is discussed, and suggestions offered for future research that may help overcome them.*

KEYWORDS *Disparities, Drug abuse, Drug use, Race/ethnicity, Socioeconomic status.*

INTRODUCTION

There is a long recorded history of drug use and misuse in human civilization. Abuse of alcohol, the oldest known psychoactive drug, was well recorded in classical Greek and Roman times. Opium, first used medicinally more than 3,000 years ago, is now recreationally used and abused. There is a substantial burden of drug use and misuse, both to those individuals who use substances and to society at large.[1] However, the burden of drug-related morbidity and mortality is not borne equally by all groups. In the past decade, substantial attention has been dedicated to health disparities in the United States. Although, broadly speaking, "health disparities" refers to inequalities in health status between groups, most public health and medical attention to this issue in the United States has focused on racial/ethnic disparities in morbidity and mortality that persist despite many federal initiatives aimed at reducing these disparities.[2,3]

The National Survey on Drug Use and Health (NSDUH)[4] provides a concise cross-sectional description of the prevalence of drug use and the racial/ethnic disparities in drug use and misuse nationwide. In the 2002 NSDUH data release, the prevalence of

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past month alcohol use in 2002 was higher among Whites (55.0%) compared with American Indians/Alaska natives (44.7%), Blacks (44.7%), and Hispanics (42.8%). Racial/ethnic differences in cigarette use were different than those noted for alcohol use. More than one third (37.1%) of American Indians/Alaska Natives reported past month smoking compared with 26.9% of Whites, 25.3% of Blacks, 23.0% of Hispanics, and 17.7% of Asians. The prevalence of current illicit drug use varied among the major racial/ethnic groups in 2002 with the highest rate among American Indians/Alaska natives (10.1%), followed by Blacks (9.7%), Whites, (8.5%), Hispanics (7.2%), and Asians (3.5%).[4] There are also substantial variations in the prevalence of past month illicit drug use among Hispanic subgroups [Puerto Ricans (10.0%), Mexicans (7.3%), Cubans (6.5%), and Central or South Americans (5.0%)].[4]

There is ample evidence of racial/ethnic disparities in the consequences of both licit and illicit drug use. In the United States, the age-adjusted prevalence of cirrhosis was 15.8 per 100,000 persons among Hispanics compared with 9.4 and 9.0 per 100,000 persons among Blacks and Whites, respectively.[5] The consequences of cigarette smoking are far reaching,[6–11] and there are racial/ethnic disparities in several morbidities that are related to cigarette use. For example, across the United States in 2001, the age-adjusted prevalence of cardiovascular disease mortality was 432.5 per 100,000 persons among Blacks compared with 321.6 and 252.0 per 100,000 persons among Whites and Hispanics, respectively. Lung cancer age-adjusted mortality was 63.4, 57.7, and 23.8 per 100,000 persons among Blacks, Whites, and Hispanics, respectively in 2001.[5] One of the principal consequences of illicit drug use in the United States over the past two decades, particularly injection drug use, has been HIV infection. During the course of the 1990s, racial/ethnic disparities in HIV prevalence have been growing. Nationally, in 2001 age-adjusted AIDS mortality rate among Blacks was 23.2 per 100,000 persons; this compared with 6.2 per 100,000 persons among Hispanics and 2.1 per 100,000 persons among Whites.[12]

We acknowledge that socioeconomic disparities in health are inextricably linked to racial/ethnic disparities and also have been the focus of much attention.[13,14] This discussion, however, is limited to racial/ethnic disparities recognizing the complexity inherent in the study of differences in drug use and its consequences. Reference is made to socioeconomic factors, where relevant, as important covariates to consider when studying racial/ethnic disparities in drug use.

LITERATURE REVIEW METHODS

The literature that may be considered relevant to the topic at hand is vast. The focus of this review is limited to five drugs (cigarettes, alcohol, marijuana, cocaine, and heroin) and five synonyms for drug use (substance use, injection drug use, illicit drug use, drug abuse, and drug misuse). The published literature was identified by using the MEDLINE database (National Library of Medicine, Bethesda, Maryland), covering both United States and international studies that assessed disparities in drug use. The search was limited to English language studies in biomedical research. The study of drug use is interdisciplinary; however, although articles outside of the medical and public health disciplines were included, the search was not comprehensive in those areas. A full review encompassing disciplines outside medicine and public health would be beyond the scope of this review. Keywords and terms used for the search included primarily the following: cigarettes, marijuana, alcohol,

cocaine, heroin, substance use, injection drug use, illicit drug use, drug misuse, drug abuse, white, black, Hispanic, poor, rich, and socioeconomic status. Additional studies were retrieved from reference lists.[15]

CHALLENGES IN THE STUDY OF DRUG USE, MISUSE, AND ITS CONSEQUENCES

Despite the relative ubiquity of drug use, the systematic study of disparities in drug use and its consequences is in its infancy. Several recent publications have proposed frameworks that may help explain the causes underlying health disparities,[16] but the application of these frameworks to drug use remains limited.[17] Based on the review of the literature, three particular aspects of drug use research are suggested that make the study of disparities in drug use and its consequences challenging. This study focuses particularly on methodological challenges in the study of disparities and their consequences. It presents in the concluding section a summary of research directions that may, to some extent, help researches to overcome some of these challenges.

Patterns of Drug Use and Misuse are Complex with Different Patterns of Use of Different Drugs in Different Racial/Ethnic Groups

Drug use (or misuse) is not a single behavior or pathology, but rather a heterogenous group of behaviors and attendant pathologies, each potentially having different causes and modifying factors, and each being differentially distributed between racial and ethnic groups. These differences preclude attempts to directly compare drug use simply between racial and ethnic groups, and such comparisons, taken at face value, are simplistic and distort understanding of health disparities.

For example, although Whites have a higher prevalence of current alcohol drinking, some studies have suggested that among drinkers, Blacks are more likely to have a lifetime dependence on alcohol,[18] whereas Whites are more likely to abuse alcohol.[18,19] As another example, for illicit substance use, most studies suggest that the prevalence of marijuana use is higher among Blacks than among other racial/ethnic groups,[20–23] yet this is inconsistent across studies.[24] Blacks have a later onset of marijuana abuse and dependence, and a higher rate of abuse/dependence in adulthood.[19] In addition, Blacks are more likely to have used cocaine, with more frequency, and to be dependent than Whites.[23,25,26] However, in contrast, although heroin use is more common among Whites than it is among other racial/ethnic groups,[23] there are reported differences in injection practices between racial and ethnic groups that can be associated with disparities in the consequences of injection drug use.[26] In one study of the prevalence of fatal accidental drug overdose, it was shown that Blacks and Hispanics in New York City have had consistently higher rates of overdose death over the past decade than Whites.[26]

Therefore, it is difficult to discuss simple racial/ethnic disparities in "drug use" in the same way as can be done, for example, on disparities in HIV incidence or in AIDS mortality. Rather, the racial/ethnic patterns of use and misuse differ across drugs and, not infrequently, racial/ethnic groups with higher prevalence of use have lower likelihood of abuse or dependence of a drug. This observation suggests that it is difficult to consider racial/ethnic and socioeconomic differences in drug use as a whole and also that group differences in stages of drug use and misuse need to be assessed to better understand drug use-related disparities.[15]

Simple Conceptions of "Race/Ethnicity" May be Inadequate for Describing Disparities in Drug Use Patterns

As in most works concerned with racial/ethnic disparities in health, this article focuses primarily on the differences between Whites, Blacks, Hispanics, American Indians/Alaska Natives, and Asians. However, these classifications are themselves limiting and mask intergroup differences in drug use that can both facilitate understanding of disparities in health and guide interventions. For example, although Asians are consistently shown to have lower prevalence of alcohol use than other racial/ethnic groups,[27,28] within Asians, native Hawaiians have the higher alcohol consumption rate, followed by Hapahaoles-Japanese; persons of Chinese ancestry have the lowest prevalence of alcohol consumption.[29] Similarly, although the prevalence of smoking for Hispanics is lower than that for Blacks or Whites, and the Hispanics who smoke tend to smoke fewer cigarettes a day,[30–32] among Hispanics, Puerto Ricans and Cuban Americans are more likely to smoke than Mexican Americans.[32–34] This is in contrast to illicit drug use, where a study of marijuana use among high-school seniors showed that marijuana prevalence was higher among Mexican Americans than among Puerto Ricans, although both these groups had lower marijuana prevalence than Whites.[27] A study of adolescents showed that the highest prevalence of cocaine use was among Mexican Americans, followed by Cuban Americans, both of whom had a greater likelihood of cocaine use than did Whites.[35] Although studies of intraethnic group differences are more limited in other illicit drug use, recent work has shown that HIV/AIDS incidence is higher among Puerto Rican injection drug users compared with other Hispanic drug users.[36]

Therefore, racial/ethnic differences in substance use that make use of broad categories of race/ethnicity are likely to miss important intragroup differences in rates of drug use, misuse, and its consequences. While most studies do not enroll sufficient numbers of persons from each racial/ethnic group to be able to assess intragroup differences such as the ones summarized above, absent such intragroup assessments, a comprehensive determination of the causes of group inequalities in health will remain elusive.

Racial/Ethnic Differences in Use of Drugs are Not Always Associated with Comparable Differences in Consequences of Drug Use

Thus far, this discussion has focused on racial/ethnic disparities in drug use and its consequences, and difficulties in measuring these disparities have been highlighted. However, perhaps even more challenging, the relationship between the relative rates of use and misuse of a particular drug between specific racial/ethnic groups is not always commensurate with the relative rates of the *consequences* of that same drug between groups. For example, as noted earlier, the NSDUH shows that the rates of illicit drug use in 2002 were highest among American Indians/Alaska natives (10.1%), followed by Blacks (9.7%), Whites, (8.5%), Hispanics (7.2%), and Asians (3.5%).[4] Illicit, particularly injection drug use, has been one of the key modes of transmission of HIV infection. However, during the course of the 1990s, the rates of HIV infection among Blacks have risen far more than that of other racial/ethnic groups disproportionate to the documented differences in illicit drug use. Nationally, in 2001, age-adjusted AIDS mortality rate among Blacks was 23.2 per 100,000 persons; this compared with 6.2 per 100,000 persons among Hispanics and 2.1 per

100,000 persons among Whites.[37] These discrepancies between disparities in drug use and misuse and its potential consequences primarily reflect the multifactorial nature of drug-related pathology, and the consequences of drug use are as much a reflection of social/economic circumstances as they are of the drug use itself.

At the simplest level, there are multiple individual circumstances that are known to be associated with both the use of drugs and its consequences. For example, access to treatment and quality of available treatment have been shown to be associated with cessation of drug use as well as lower drug-related risk, including drug overdose, and contracting HIV, in the case of injection drug use.[38–40] In turn, the quality of treatment received by persons with HIV is associated both with progression of AIDS[41] and with AIDS-related mortality. Several studies have shown that minorities are less likely to have consistent access to diverse forms of medical care,[6,42,43] including HIV-related services.[43,44] Therefore, in addition to racial/ethnic disparities in the use of drugs, there are important racial/ethnic differences in these other factors that influence potential drug-related consequences, and the ultimate disparities observed in drug-related pathology reflect both disparities in drug use as well as racial/ethnic differences in these other, equally important determinants.

Recent work also has considered the role of contextual factors, or factors in the individual's social or physical environment, and how that is associated both with use and misuse of drugs and with the other social and economic circumstances that determine drug-related consequences. For example, although the evidence is limited, area-level social and economic disadvantage may be associated with greater likelihood of cigarette and alcohol use.[45,46] However, area-level disadvantage has also been associated with more limited access to health care services, particularly in predominantly minority communities, potentially compounding racial/ethnic differences in drug-related consequences.[47]

This observation suggests that understanding racial/ethnic differences in the consequences of drug use will require an appreciation of the diverse racial/ethnic patterns of drug use itself, complicated by the factors discussed earlier in this article. Also required is an appreciation of the circumstances that contribute to morbidity and mortality and that may be differentially associated with drug use itself across racial/ethnic groups.

DISCUSSION

It has been shown that there are well-documented racial/ethnic and socioeconomic differences in drug use, misuse, and their consequences. However, these differences are complex, and racial/ethnic patterns of use and misuse vary for different drugs. In addition, other individual and contextual factors contribute to the pathogenesis of drug-related morbidity and mortality, making it difficult to generalize about the differential burden of the consequences of drug use across racial/ethnic groups simply through an assessment of disparities in use or misuse. Recognizing these difficulties in the study of disparities in drug use, three directions are recommended that can help overcome the challenges in the field and help advance appreciation of the racial/ethnic differences in drug use and its consequences.

First, we contend that a more comprehensive, systematic, and comparative study of group differences in use, misuse, and consequences of different drugs is needed. Very few studies are designed in a manner that allows direct comparison, and as such, comparing disparities in use and misuse across drugs requires cross-study comparison that relies on each study's internal and external validity. Suitably

designed intrastudy comparisons can help clarify differences between groups and generate hypotheses that can guide etiological research. Absent such studies, researchers and practitioners need to be immensely cautious when drawing generalizations about patterns and differences between racial and ethnic groups of drug use/misuse. Although much of the research that focuses on racial/ethnic disparities in health is motivated by an appreciation of the disproportionate burden of pathology borne by minority groups in the United States, this general pattern is not necessarily the case for drug use/misuse, as discussed in this article. Given the stigma associated with use and misuse of certain drugs,[48] it is important that the study of drug use/misuse and its consequences avoids oversimplification about group differences and explicitly frames the known group differences with a focus on understanding the reasons for these differences.

Second, the study of drug use and its consequences clearly suggests the need both for moving beyond simple racial and ethnic classifications to more nuanced racial and ethnic categories that recognize the ever increasing complexity of life in the United States and for studies that are designed to allow meaningful comparisons of differences in drug use/misuse and its consequences *within* specific racial/ethnic groups. Therefore, studies that oversample minority groups or that specifically focus on assessing, for example, different groups of Hispanics, are warranted to enable careful documentation of differences *within* these racial/ethnic groups and to shed light on potential mechanisms underlying these differences.

Third, as the two directions presented above suggest, there is a pressing need for the field to move beyond *description* of differences in rates of drug use/misuse and drug-related consequences to studies that consider *explanations* of these differences. Drug use and misuse do not occur in a vacuum, but rather are embedded within an individual and a social context. There are few studies that have assessed how a range of individual and social determinants modify or mediate the relationship between race and ethnicity, drug use, and its consequences. To develop a comprehensive model that establishes *why* differences in drug use and misuse exist and *how* these differences manifest in differential morbidity and mortality, there will be a need to move toward a multifactorial model that considers race/ethnicity as part of a more comprehensive causal framework.

ACKNOWLEDGEMENT

This work was partly funded by National Institute of Health (DA 018061), (DA 017642), and (DA 013146-S1).

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