

Ethnicity and Health Disparities in Alcohol Research

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Recent advances in alcohol research continue to build our understanding of alcohol consumption and related consequences for U.S. ethnic minority groups. National surveys show variations across ethnicities in drinking, alcohol use disorders, alcohol problems, and treatment use. Higher rates of high-risk drinking among ethnic minorities are reported for Native Americans and Hispanics, although within-ethnic group differences (e.g., gender, age-group, and other subpopulations) also are evident for ethnicities. Whites and Native Americans have a greater risk for alcohol use disorders relative to other ethnic groups. However, once alcohol dependence occurs, Blacks and Hispanics experience higher rates than Whites of recurrent or persistent dependence. Furthermore, the consequences of drinking appear to be more profound for Native Americans, Hispanics, and Blacks. Disparities in alcohol treatment utilization are most apparent for Hispanics. Explanations for these differences are complex, likely affected by risky drinking behaviors, immigration experiences, racial/ethnic discrimination, economic and neighborhood disadvantage, and variations in alcohol-metabolizing genes. Research must maintain a systematic, strong, and growing focus on ethnic minorities. A more complete understanding of these effects for ethnic minority groups is needed to enable researchers to face the challenges of reducing and ultimately eliminating health disparities in the alcohol field. KEY WORDS: Alcohol treatment; Alcohol use disorders (AUD); Drinking behavior; Ethnicity and alcohol consumption; Health disparities; Medical consequences of alcohol consumption; Risky drinking; Social and cultural factors

This paper reviews recent advances in alcohol research related to ethnic group disparities in alcohol consumption, disorders, consequences, and treatment use, as well as factors that may account for the disproportionate impact of alcohol on some ethnic groups. Alcohol research in the United States paid fragmented attention to the implications of race and ethnicity prior to 1984, with early alcohol surveys focusing primarily on drinking for individuals of European descent (Caetano 1984; Dawson 1998). In 1984, the first national alcohol survey with an emphasis on Blacks and Hispanics, at that time already the two largest ethnic minority groups in the U.S. population, was conducted (Caetano et al. 1998). The importance of conducting alcohol research among ethnic groups was underscored by subsequent studies identifying different patterns of alcohol

consumption and disproportionate consequences from alcohol use among ethnic groups (for a review see Caetano et al. 1998; Galvan and Caetano 2003). More recent national surveys, including the 1991–1992 National Longitudinal Alcohol Epidemiologic Survey (NLAES) and the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), both conducted by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), oversampled Blacks and Hispanics, facilitating additional research in this area. Over the past decade, progress continues to be made in documenting the variability in alcohol consumption and related consequences for U.S. ethnic groups.

This review of selected published data describes the epidemiology of alcohol use and related behaviors both across and within U.S. ethnic groups.

The authors focused on research manuscripts published within the past 10 years. National data sources were used whenever possible. To complement published literature, national survey data available from NIAAA, the Substance Abuse and Mental Health Services Administration (SAMHSA), and the Centers for Disease Control and Prevention (CDC) were used.

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ALCOHOL CONSUMPTION

National surveys show differences in alcohol consumption across ethnic groups, including patterns of drinking associated with greater risk for the adverse effects of alcohol (e.g., binge drinking, defined as five or more drinks on the same occasion). According to past-30-day estimates of drinking provided by the 2007 National Survey on Drug Use and Health (NSDUH) (SAMHSA 2008c), any alcohol use in adults (i.e., ages 18 or older) is most prevalent for Whites (59.8 percent), lowest for Asian Americans (38.0 percent), and similar for Native Americans (i.e., American Indians and Alaska Natives; 47.8 percent), Hispanics (46.3 percent), and Blacks (43.8 percent). Native Americans have the highest prevalence (12.1 percent) of heavy drinking (i.e., five or more drinks on the same occasion for 5 or more of the past 30 days; followed by Whites (8.3 percent) and Hispanics (6.1 percent). A larger percentage of Native Americans (29.6 percent) also are binge drinkers, with somewhat lower percentages for Whites (25.9 percent), Hispanics (25.6 percent), and Blacks (21.4 percent). Relative to other ethnic groups, the proportion of Asian Americans (2.7 percent) and Blacks (4.7 percent) who are heavy drinkers and Asian Americans (13.3 percent) who are binge drinkers is low.

Estimates of current and heavy drinking for adults by gender within each ethnic group are provided by the 2001–2002 NESARC (see Table 1) (NIAAA 2006). These data show that current drinking is most prevalent among White and Hispanic men and lowest for Asian-American women. Heavy drinking is defined by both weekly and daily drinking limits (i.e., consuming 5 or more standard drinks per day [or 15 or more per week] for men and 4 or more drinks per day [or 8 or more per week] for women) (NIAAA 2006). Native Americans of both genders have the highest prevalence of weekly heavy drinking, whereas Hispanic men have the highest prevalence of daily heavy drinking. Rates of weekly heavy drinking are lowest for Asian-American and Hispanic women, and rates of daily heavy drinking are lowest among Asian-American and Black women. Dawson et al. (2004) reported few changes in the percentages of U.S. adults who exceed recommended drinking limits from 1991–1992 to 2001–2002. Among Whites, there was an increase in the proportion of adults exceeding weekly drinking limits and a decrease in proportion exceeding daily drinking limits. Both daily and weekly heavy drinking remained stable for other ethnic groups.

Alcohol consumption also has been shown to vary by ethnic group during

adolescence and young adulthood. According to the 2007 NSDUH, the prevalence rates of 30-day alcohol use and binge drinking in people aged 12–17 years were highest for Whites (alcohol use: 18.2 percent; binge drinking: 11.5 percent), followed by Hispanics (15.2 percent; 9.3 percent) and then Blacks (10.1 percent; 4.3 percent) and Asians (8.1 percent; 5.2 percent) (Chen et al. 2009). In a sample of young adults from the NESARC, ages 18–24, Whites and Native Americans had high prevalence rates of current drinking (77.1 and 70.7 percent, respectively) and exceeding the recommended daily (52.5 and 53.0 percent) and weekly (17.3 and 27.4 percent) drinking limits (Chen et al. 2004, 2005). Comparatively, Blacks, Hispanics, and Asians had lower rates of drinking (i.e., current drinking: 59.1–60.4 percent; exceeding daily limits: 29.0–37.3 percent; exceeding weekly limits: 8.5–10.5 percent).

Different trajectories of drinking have been identified by ethnic group. According to the NESARC, more Native Americans (16.43 percent) and fewer Blacks (5.52 percent) and Asians (6.03 percent) report an early onset of drinking (i.e., before age 15) than Whites (7.07 percent) and Hispanics (7.93 percent) (NIAAA 2006). The rate of drinking onset

Table Drinking Status and Heavy Drinking for U.S. Ethnic Groups by Gender, 2001–2002

Ethnic Group	U.S. Population Current Drinkers		Among Current Drinkers			
	Male	Female	Weekly Heavy Drinking		Daily Heavy Drinking	
			Male	Female	Male	Female
White*	74.27 (0.73)	65.10 (0.79)	18.51 (0.55)	13.85 (0.47)	30.74 (0.63)	23.73 (0.59)
Black*	62.62 (1.25)	45.92 (1.01)	19.88 (1.10)	12.67 (0.96)	25.81 (1.42)	19.02 (1.02)
Native American*	65.48 (3.50)	51.66 (3.23)	21.63 (3.52)	22.19 (3.75)	29.34 (3.32)	27.20 (3.77)
Asian*†	61.51 (2.58)	36.11 (2.67)	10.83 (1.79)	8.24 (1.90)	18.84 (2.30)	19.77 (2.27)
Hispanic	69.99 (1.20)	49.52 (1.51)	13.76 (1.04)	8.81 (0.92)	40.48 (1.62)	24.19 (1.18)

NOTE: Data are percentage (standard error); *Non-Hispanic. †Includes Pacific Islanders.

SOURCE: National Institute on Alcohol Abuse and Alcoholism. *Alcohol use and alcohol use disorders in the United States: Main findings from the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions* (NESARC). Bethesda, MD, National Institutes of Health, 2006.

before age 15 was lower for female compared with male subjects across all ethnic groups and lowest for Black female subjects at 3.91 percent. Muthen and Muthen (2000) reported strong effects for ethnicity on the development of drinking behaviors from ages 18 to 37 when comparing Blacks, Hispanics, and non-Black and non-Hispanics. Minority ethnic group status was a significant protective factor for heavy drinking until age 32, after which levels of heavy drinking for the three ethnic groups were similar.

Studies also have begun to take into consideration the variability in alcohol consumption that exists within ethnic groups (i.e., White, Black, Hispanic, and Asian) (Dawson 1998). For example, Beals et al. (2003), comparing two culturally and geographically distinct American Indian tribes, showed that current drinking rates among those aged 15–54 years (41.8 to 66.6 percent for men; 11.5 to 53.0 percent for women) were lower for Southwest Indians relative to Northern Plains Indians and to the U.S. population. In four Northern tribes, male subjects drank more than female subjects, with an average of 4.7 versus 2.1 drinking days and 5.7 versus 3.1 drinks per day in the past month (May and Gossage 2001). Despite overall low rates of alcohol consumption for Asians/Pacific Islanders in the U.S. population, some subpopulations within this group show alarmingly high rates of drinking. In particular, prevalence rates of 30-day binge and heavy alcohol use for Pacific Islander groups (ages 18 or older; 26.8 percent and 12.6 percent, respectively), as reported by the 2006 NSDUH, were more than double that of other Asian groups (12.5 percent and 2.6 percent, respectively) (SAMHSA 2008c).

In addition, Hispanic national groups have different drinking patterns but similar beverage preferences (Caetano et al. 2009b). Across specific beverage types (i.e., wine, beer, and liquor), Puerto Rican (5.1 to 11.2 drinks/week) and Mexican-American (4.1 to 7.0 drinks/week) men drink the most and have the highest rates of binge drinking (19.6 to 35.0 percent

and 13.3 to 36.8 percent, respectively) compared with Cuban (4.1 to 7.0 drinks/week; 4.6 to 26.7 percent) and South/Central-American (3.4 to 7.9 drinks/week; 10.3 to 32.3 percent) men. Among women, Puerto Ricans drink more (1.8 to 7.9 drinks/week) and report higher rates of binge drinking (17.3 to 40.2 percent) relative to Cuban, Mexican, and South/Central Americans (0.7 to 3.4 drinks/week; 5.1 to 17.9 percent). Beer is the preferred beverage for adults in all national groups and is most associated with heavier drinking and binge drinking for all Hispanic men and Puerto Rican and Mexican-American women. Beverage preferences also have been studied for Black men. Among primarily low-income Black men, 41 percent of drinkers preferred malt liquor beer (MLB) and 35 percent hard liquor, with an MLB preference linked to more drinking consequences and heavier drinking (Bluthenthal et al. 2005; Vilamovska et al. 2009).

ALCOHOL USE DISORDERS

According to the 2001–2002 NESARC, past-year alcohol abuse and alcohol dependence is prevalent in 4.7 and 3.8 percent of the U.S. adult population, while the lifetime prevalence of alcohol abuse and alcohol dependence is 17.8 and 12.5 percent, respectively (Hasin et al. 2007). Whites have greater odds than Blacks, Hispanics, and Asians for either a past-year or lifetime alcohol use disorder. Native Americans have greater odds than Whites for lifetime alcohol dependence but similar odds for lifetime alcohol abuse and past-year alcohol abuse and dependence. More specifically, Whites (13.8 percent) are more likely than Blacks (8.4 percent) and Hispanics (9.5 percent) to develop alcohol dependence in their lifetime (Hasin et al. 2007). However, once alcohol dependence occurs, Blacks (35.4 percent) and Hispanics (33.0 percent) have a higher prevalence than Whites (22.8 percent) of recurrent or persistent alcohol dependence (Dawson et al. 2005).

Several epidemiological studies have examined within-ethnic group differences in rates of alcohol use disorders. The 2002–2003 National Latino and Asian American Study (NLAAS) found that adult estimates of lifetime alcohol abuse and dependence were highest among Puerto Ricans (7.1 and 5.5 percent, respectively), followed by Mexican Americans (6.0 and 4.7 percent), “other” Latinos (5.7 and 3.1 percent), and Cuban Americans (3.1 and 2.4 percent) (Alegria et al. 2008). Similarly, as examined by gender, Puerto Rican (15.3 percent) and Mexican-American (15.1 percent) men have higher rates of alcohol dependence than South/Central-American (9.0 percent) and Cuban-American (5.3 percent) men (Caetano et al. 2008a). Among Hispanic women, Puerto Ricans (6.4 percent) had higher rates relative to Mexican (2.1 percent), Cuban (1.6 percent), and South/Central Americans (0.8 percent).

Varying estimates of alcohol dependence also have been observed among Asian-American national groups and American Indian tribes. Chae et al. (2008), based on data from the 2002–2003 NLAAS, reported a 3.6 percent lifetime estimate of alcohol disorders among Asian Americans. Comparatively, Filipino Americans (20.2 percent) had a lower prevalence of lifetime alcohol disorders than “other” Asian Americans (39.3 percent) but a higher prevalence than Chinese (10.3 percent) and Vietnamese Americans (2.5 percent). Additionally, Beals et al. (2005) found, relative to Northern Plains Indians, that Southwest Indians are less likely to report past-year (4.5 versus 9.8 percent) and lifetime (9.8 versus 16.6 percent) alcohol dependence, with lower rates for women regardless of tribe affiliation. Lifetime rates of alcohol dependence also varied from 1 to 56 percent for men and 2 to 30 percent for women across seven geographically diverse American Indian tribes from the Ten Tribes Study (Koss et al. 2003).

Some changes in the prevalence of alcohol abuse and dependence from 1991–1992 to 2001–2002 have been

reported for U.S. ethnic groups (Grant et al. 2004). Past-year alcohol abuse increased for Whites, Blacks, and Hispanics but not for Asians and Native Americans. Further, rates of past-year alcohol dependence decreased for Whites and Hispanics, whereas rates for Blacks, Native Americans, and Asians remained stable. Recent research findings also based on 1991–1992 and 2001–2002 data suggest a secular trend of increased risk for alcohol dependence in White and Hispanic women but not Black women (Grucza et al. 2008a). This change was partly attributed to a sharper decrease in the age of drinking onset for women compared with men born 1954 to 1983 and was most pronounced for White women but less so for Hispanic women (Grucza et al. 2008b).

ALCOHOL CONSEQUENCES

Binge and heavy drinking are high-risk consumption patterns that contribute to a variety of alcohol-related social and health problems (Naimi et al. 2003; Rehm et al. 2003). However, the consequences of alcohol consumption are more profound in some ethnic groups than others. High-risk drinking contributes to the higher rates of alcohol-related problems for some ethnic groups (e.g., Native Americans), but the negative effects of alcohol for ethnic minorities often occur over and above the contribution of alcohol use. Most recently, Mulia et al. (2009) showed that Black and Hispanic adult drinkers are more likely than White drinkers to report alcohol dependence symptoms and social consequences from drinking. These ethnic group differences were identified in drinkers at the no/low level of heavy drinking, whereas alcohol problems were similar for all groups at the highest heavy-drinking level. Furthermore, research continues to show different trajectories of alcohol problem development across ethnic groups. Particularly, Blacks relative to Hispanics and other ethnic groups show a lower level of alcohol-related problems during adolescence and in

their mid-twenties but a higher level by their mid-thirties (Muthen and Muthen 2000; Wagner et al. 2002).

SOCIAL CONSEQUENCES

Driving under the influence (DUI) is an important alcohol-related problem, which also is associated with ethnicity. Among ethnic groups, Whites and Native Americans have the highest rates of DUI in national surveys. Based on adult data from the 2007 NSDUH, 15.6 percent of Whites and 13.3 percent of Native Americans report past-year DUI, whereas relatively lower rates are reported by Blacks (10.0 percent), Hispanics (9.3 percent), and Asians (7.0 percent) (SAMHSA 2008b). DUI estimates using the 1991–1992 NLAES and 2001–2002 NESARC were also higher for Whites (6.4 to 5.0 percent) and Native Americans (4.2 to 5.9 percent), despite overall reductions in DUI for Whites during this time period (Chou et al. 2005). Past-year DUI also declined for Hispanic men from 5.4 to 3.5 percent, but Hispanic young women ages 18–29 years emerged as a new risk group for DUI (0.6 to 2.0 percent). Among Hispanic national groups, Caetano et al. (2008b) reported the highest rates of lifetime DUI for Mexican-American (21.0 percent) and South/Central-American (19.9 percent) men and Mexican-American women (9.7 percent). As a side note, it is important to be cautious when comparing these rates across studies, as they are derived from different measures of DUI (i.e., ever driving under the influence of alcohol [NSDUH]; driving after having too much to drink more than once [NESARC]; driving after drinking enough that you would be in trouble if stopped by police [Hispanic national groups study]).

Additional research shows that ethnic groups are differentially affected by alcohol-attributed violence, including intimate partner violence (IPV). General rates of male-to-female and female-to-male partner violence are highest among Black couples (23 and 30 percent), followed by Hispanic (17 to 21 percent) and White (12

and 16 percent) couples (Caetano et al. 2000). Schafer et al. (2004) reported stronger effects for alcohol problems in predicting IPV for Black couples compared with Hispanic and White couples. Alcohol appears to play an important role in IPV, although it is difficult to establish a direct causal link. Caetano et al. (2001) reported that 30 to 40 percent of men and 27 to 34 percent of women who perpetrate IPV are drinking at the time of the event. Alcohol also contributes to violence victimization among American Indians (Yuan et al. 2006). Several studies indicate that Native Americans are at greater risk for alcohol-related trauma (e.g., IPV, rape, and assault) compared with other U.S. ethnic groups (Oetzel and Duran 2004; Wahab and Olson 2004). Conversely, IPV among Asian Americans relative to the U.S. population is low (Chang et al. 2009).

MEDICAL CONSEQUENCES

Both morbidity and mortality are areas of disparity across ethnic groups. Liver cirrhosis is one alcohol-attributed disease that has more severe consequences for some ethnic groups. Hispanics and Blacks have greater risk for developing liver disease compared with Whites (Flores et al. 2008), and Hispanic men have the highest rate of liver cirrhosis mortality (Stinson et al. 2001; Yoon and Yi 2008). Additionally, rates of alcohol-related esophageal cancer and pancreatic disease are higher for Black men than White men (Polednak 2007; Yang et al. 2008), whereas fetal alcohol syndrome and fetal alcohol spectrum disorders are more prevalent in Blacks and Native Americans (Russo et al. 2004). From 2001 to 2005, alcohol-attributed deaths accounted for 11.7 percent of all Native American deaths, more than twice the rates of the general U.S. population (CDC 2008). Likewise, Native Americans are over-represented in national estimates of alcohol-related motor vehicle deaths and alcohol-involved suicides (CDC 2009a, b). Furthermore, alcohol consumption may be more detrimental at

all levels of drinking (i.e., abstinence, moderate, and heavy drinking) for Blacks in terms of mortality. Sempos et al. (2003) found no protective health effect for moderate drinking in Blacks, as previously reported in Whites.

ALCOHOL TREATMENT UTILIZATION

The higher level of risky drinking for Native Americans and Hispanic men and the increased occurrence of alcohol consequences for Native Americans, Hispanics, and Blacks may indicate a greater need for alcohol treatment in these populations. Not surprisingly, Native Americans have the highest prevalence of alcohol treatment need (i.e., classified by meeting one of three criteria in the past year, including alcohol dependence, alcohol abuse, or receiving specialty alcohol treatment; 12.2 percent), based on data for adults from the 2007 NSDUH (SAMHSA 2008*a*), with lower rates for Whites (8.4 percent), Blacks (7.6 percent), Hispanics (7.4 percent), and Asians (4.5 percent). For Native American men, Beals et al. (2005) reported more help seeking from specialty alcohol or drug treatment providers relative to the U.S. population, but there were no differences for women. Comparatively, Alaska Natives report less use of psychiatrists, medical doctors, and psychologists for alcohol problems than Whites, Blacks, and Hispanics (Hesselbrock et al. 2003). However, the differences in alcohol services for Alaska Natives may represent a lower availability of some professionals in Alaska.

Additionally, data from the 2007 NSDUH (SAMHSA 2008*a*) suggest a greater unmet need for alcohol treatment for some ethnic groups. Asians (0.1 percent) and Hispanics (5.5 percent) with a need for alcohol treatment were less likely to receive specialty alcohol treatment (i.e., alcohol and drug rehabilitation program, hospital or mental health center) compared with Whites (8.0 percent) and Blacks (14.0 percent). Schmidt et al. (2007) also reported less specialty alcohol or drug program use for

Hispanics than Whites, whereas Blacks were less likely to use a private physician for alcohol problems and to attend Alcoholics Anonymous (AA). Further, and more alarming, Blacks and Hispanics with higher severity alcohol problems were less likely to use any treatment services compared with Whites who have similar severity of alcohol problems. Utilization rates for alcohol treatment may reflect underlying ethnic group differences in the economic and logistic resources that affect treatment use. Zemore et al. (2009) showed greater barriers to treatment use for Spanish-speaking (versus English-speaking) Hispanics. Schmidt et al. (2007) identified concerns about paying for, finding services, and obtaining child care as barriers for Hispanics in obtaining treatment. Different rates of health insurance coverage across ethnic groups may serve as a barrier to utilization for some treatment services (e.g., care provided by a private physician). However, government funding for alcohol treatment programs also may lessen the affect of insurance coverage on ethnic group differences in treatment utilization. Weisner et al. (2002) showed that Blacks were more likely than Whites to be in a specialty alcohol treatment program regardless of insurance status, whereas Hispanics with health insurance were less likely to enter a treatment program.

Lower rates of treatment completion for Blacks and Hispanics than Whites point to another possible disparity in alcohol treatment (Bluthenthal et al. 2007). However, those that complete treatment appear to benefit equally regardless of their ethnic group (Brower and Carey 2003; Tonigan 2003). Even so, different treatment modalities and provider characteristics may be more beneficial than others for each ethnic group. Arroyo et al. (2003) reported that Whites in 12-step facilitation (TSF) therapy had better drinking outcomes than did Whites in other types of treatment or Hispanics in TSF therapy. Hispanics show less AA attendance both during and after treatment (Arroyo et al. 1998; Tonigan et al. 2002), as well as

improved drinking outcomes in a brief intervention with ethnic matching between patient and provider (Field and Caetano 2010). Based on preliminary data, American Indians also report better drinking outcomes in motivational enhancement therapy compared with other treatments (Villanueva et al. 2007). Together, these and other studies suggest that culturally tailored alcohol treatment programs are likely solutions for addressing disparities in alcohol treatment for ethnic minority groups (Schmidt et al. 2006).

PREDICTING ETHNIC DISPARITIES IN ALCOHOL

Studies have sought to explain the differences in alcohol consequences among ethnic groups. One explanation is the higher rates of risky drinking for some minority ethnic groups (e.g., Hispanics and Native Americans). However, other studies find that ethnic differences in drinking alone do not fully explain alcohol-related disparities (Herd 1994; Jones-Webb et al. 1997; Mulia et al. 2009), requiring the examination of other possible factors.

SOCIAL AND CULTURAL FACTORS

Ethnic disparities in alcohol problems may be explained by social and cultural factors. Current research has, for example, focused on the influence of acculturation, social and economic disadvantage, and alcohol availability in predicting alcohol problems. As a proxy for acculturation, being born in the U.S. has been identified as a risk factor for alcohol dependence in Hispanics, particularly when comparing foreign and U.S.-born Mexican Americans (Alegria et al. 2008; Caetano et al. 2009*a*). Among Hispanics, higher acculturation is associated with a greater risk for alcohol abuse (Caetano et al. 2009*a*), as well as heavy episodic drinking for women (Caetano et al. 2008*c*). In addition, social disadvantage, as defined by racial/ethnic stigma, may contribute to

ethnic disparities in alcohol problems for Hispanics and Blacks (Mulia et al. 2008, 2009). In Asian Americans, Chae et al. (2008) reported greater risk for alcohol dependence for individuals reporting experiences of unfair treatment and for individuals with low ethnic identification who experience racial/ethnic discrimination.

Further, for Blacks, an effect for economic disadvantage on alcohol disparities has been reported. Building on earlier research (Jones-Webb et al. 1995, 1997), Jacobson et al. (2007*a, b*) showed that both individual- and neighborhood-level economic disadvantage predicted a lower alcohol treatment completion for Blacks. As well, Cunradi et al. (2000) identified residence in an impoverished neighborhood as a risk factor for male-to-female partner violence and female-to-male partner violence among Black couples. Other neighborhood-level factors also may contribute to alcohol-related disparities among ethnic groups (e.g., alcohol availability). In urban areas in the United States, ethnic minority groups experience a higher density of alcohol outlets compared with Whites (Alaniz 1998; Romley et al. 2007), and greater alcohol outlet density has been shown to predict increased rates of alcohol-related violence and morbidity, including IPV, violent assaults, sexually transmitted infections, and liver problems (Gruenewald et al. 2006; McKinney et al. 2009; Theall et al. 2009). Conversely, restricted alcohol availability as enforced by alcohol prohibition and police in Alaska Native villages is associated with lower rates of assault and other injuries (Wood and Gruenewald 2006).

BIOLOGICAL FACTORS

Biological explanations also have been researched, including the effect of alcohol-metabolizing genes on drinking behaviors and the health effects of alcohol consumption (Zakhari 2006). Most often cited is the protective effect of the ALDH2*2 allele for alcohol dependence in Asians, which is associ-

ated with facial flushing and other aversive symptoms to alcohol. However, other populations also have been examined for the relationship of alcohol-metabolizing genes to alcohol use and dependence. In Mexican Americans, for example, the ADH1C*2, ADH1B*1, and CYP2E1 c2 alleles are associated with an increased risk for alcohol dependence (Konishi et al. 2003, 2004), whereas in Blacks and Southwest Indians the ADH1B*3 allele is protective against alcoholism and alcohol-related birth defects (Ehlers 2007; Scott and Taylor 2007). The ADH1B*1 and ADH1C*2 alleles in Asians and the ADH1B*1 in Whites also predict alcoholism (Zintzaras et al. 2006).

CONCLUSIONS

It has been nearly 10 years since NIAAA's "call to arms" to address alcohol-related health disparities (Russo et al. 2004). Recent advances in alcohol research continue to build our understanding of alcohol consumption and problems among U.S. ethnic groups. Native Americans, Hispanics, and Blacks remain disproportionately impacted by drinking compared with other ethnic groups. However, studies that highlight within-ethnic group differences and the social, cultural, and biological factors associated with alcohol-related disparities help us to understand more precisely who is at risk. Despite this progress, the current picture for ethnic groups, related to alcohol consumption, disorders, and related consequences is still fragmented. There is no one place to look for a complete account of alcohol research on all ethnic groups in spite of new large surveys conducted by Federal institutions and academic investigators, and comparisons between existing studies are made difficult by the use of different survey methods (e.g., measures and study samples). More research examining subpopulations within each ethnic group also is needed. There should be some caution in interpreting between-ethnic-group differences in alcohol use and related behaviors until within-group differences are more thoroughly investigated.

Current research indicates that overgeneralizations about Asians drinking less than other ethnic groups may not apply to Pacific Islanders, and risky drinking for Hispanic men and Native Americans may be less applicable to Cuban-American men and Southwest Indians.

Large national surveys also provide limited data for examining explanatory factors for alcohol disparities much beyond social demographic variables, often limiting this research to smaller less representative samples. Both drinking and the development of alcohol-related problems are complex events with multiple causes. U.S. ethnic minorities, therefore, have to contend with a host of factors with the potential to have adverse effects on these behaviors. Immigrant groups must go through a process of acculturation to U.S. society that can lead to increased personal stress and tension within families. Together with Blacks and Native Americans, these groups also can face socioeconomic disadvantage and potential racial/ethnic discrimination. These two latter factors in turn often are associated with, for example, poor job opportunities, residential segregation, life in unsafe neighborhoods, overexposure to alcohol advertising, police profiling and brutality, and lack of access to adequate health care. To face the challenges associated with reducing and ultimately eliminating health disparities in the alcohol field, research must maintain a systematic, strong, and growing focus on ethnic minorities. A more complete understanding of these effects for ethnic minority groups is needed to enable researchers to develop better and more targeted strategies for preventing and treating alcohol disorders and related consequences. ■

FINANCIAL DISCLOSURE

The authors declare that they have no competing financial interest.

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