

The Future of Research on Alcohol-Related Disparities Across U.S. Racial/Ethnic Groups: A Plan of Attack

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ABSTRACT. Objective: Research suggests striking disparities in alcohol use, problems, and treatment across racial/ethnic groups in the United States. However, research on alcohol-related disparities affecting racial/ethnic minorities remains in its developmental stages. The current article aims to support future research in this growing field by highlighting some of the most important findings, questions, and approaches, focusing on psychosocial research. **Method:** This article advances seven research needs (i.e., questions and topics meriting attention) that we believe are of crucial importance to the field. We draw on the existing literature to illuminate under-explored areas that are highly relevant to health intervention and that complement the field's existing focus. **Results:** Identified research needs include research that (a) better describes disparities in alcohol-related health conditions and their drivers, (b) identifies appropriate screening and brief intervention methods for racial/ethnic minorities, (c) investigates disparities in access to and

use of alcohol treatment and support services, (d) examines the comparative efficacy of existing alcohol interventions and develops tailored interventions, (e) explores the impacts of specific alcohol policies across and within racial/ethnic groups, and (f) describes the full spectrum of alcohol-related harms and how and why these may vary across racial/ethnic groups. We also call for (g) continuing research to monitor disparities over time. **Conclusions:** This article points to specific strategies for describing, explaining, intervening on, and monitoring some of the most substantial alcohol-related disparities. Conclusions outline methods and processes that may be advantageous in addressing these priorities, including the use of longitudinal designs; consideration of life course changes; attention to nontraditional intervention settings; and inclusion of disadvantaged populations in all aspects of research. (*J. Stud. Alcohol Drugs*, 79, 7–21, 2018)

EXCESSIVE ALCOHOL USE causes an estimated 88,000 deaths annually in the United States and, in 2010, accounted for approximately \$249 billion in economic costs, or about \$2.05 per drink sold (Centers for Disease Control and Prevention [CDC], 2016). There are striking disparities in alcohol use, alcohol-related problems, and utilization of alcohol treatment across racial/ethnic groups in the United States. Studies addressing both the pattern and potential causes of these disparities have been summarized in several reviews of the literature published in the last decade (Caetano et al., 2014; Chartier & Caetano, 2010; Chartier et al., 2013, 2014; Delker et al., 2016; Guerrero et al., 2013b; Iwamoto et al., 2016; Spillane & Smith, 2007; Vaeth et al., 2017; Zapolski et al., 2014). The current, conceptual article aims to extend these reviews by focusing specifically on directions for future research.

The existing reviews have described worthy avenues for research in four key areas related to the epidemiology of alcohol use patterns and problems within and across racial/ethnic groups. Two major focal points have been the development and testing of theory, and the adoption of a multilevel

perspective. For example, both Zapolski et al. (2014) and Spillane and Smith (2007) present (and encourage further research on) novel theories addressing alcohol use and problems among Black/African American and American Indian/Alaska Native groups, respectively. Both theories posit a central role for the availability of standard life reinforcers, defined as a basic set of rewarding circumstances or experiences that persons strive for, such as housing, economic security, work opportunity, knowledge, and relationships (Spillane & Smith, 2007); both models also include environmental factors (and emphasize historical factors, discrimination, and cultural norms) and individual factors (and address level of response to alcohol). More broadly, Vaeth et al. (2017) urge research guided by “multiple theoretical frameworks based on specific disciplinary perspectives” (p. 15), and Caetano et al. (2014) call for more research examining specific hypotheses about the origins of disparities. Developing comprehensive theories of alcohol use and problems across and within racial/ethnic groups is important to integrating the disparate literatures on distinct racial/ethnic groups, identifying a core set of factors that reliably predicts outcomes, and understanding causal pathways.

Speaking directly to the need for a multilevel perspective, both Vaeth et al. (2017) and Chartier et al. (2014) encourage research addressing risk and protective factors at multiple levels, from environmental to biological, as well as interactions across levels. Vaeth et al. (2017) argue that, although progress has been made in understanding how neighborhood

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risk and protective factors relate to alcohol outcomes overall, research is needed to understand how neighborhood effects may vary as a function of race/ethnicity and other individual-level characteristics. Chartier et al. (2014) similarly underline the need for an interdisciplinary approach that considers how the environment may influence the expression and impact of genetic factors. Research addressing the neighborhood context is crucial because racial/ethnic differences in health outcomes may be partly attributable to (or confounded by) differences in neighborhood context, as racial/ethnic minorities and immigrants are often overrepresented in disadvantaged neighborhoods (Jargowsky, 2003; Kuipers et al., 2013). Indeed, one recent national survey found that about 41% of Latinos and 51% of Blacks live in the most disadvantaged neighborhoods (i.e., those in the highest quartile of socioeconomic disadvantage) compared with only 13% of Whites (Karraker-Jaffe et al., 2012). However, it is worth emphasizing that environmental risk can extend beyond the neighborhood level to characterize entire communities, cities, or regions (e.g., the border region; Caetano et al., 2014; Cherpitel et al., 2015; Zemore et al., 2016a). These more macro-level effects should also be examined, accounted for, and explained, especially in populations living in ethnic enclaves (e.g., American Indians living on reservations).

A third theme of prior reviews has been the need to focus on subpopulation differences within racial/ethnic subgroups (e.g., Latinos, American Indians, and Asians), because there is substantial heterogeneity within these groups that is not well understood (Caetano et al., 2014; Chartier & Caetano, 2010; Chartier et al., 2014; Guerrero et al., 2013b; Spillane & Smith, 2007; Vaeth et al., 2017). Some reviewers have particularly focused on the need to understand more about immigrant groups and how changes associated with acculturation may relate to alcohol use, problems, and treatment (Caetano et al., 2014; Chartier & Caetano, 2010; Guerrero et al., 2013b; Vaeth et al., 2017). Effects for ethnic subgroup and acculturation-related factors can be powerful, so these factors should be considered in study design and incorporated into broader epidemiological theories of racial/ethnic differences in alcohol use and problems.

Last, important points have been made about the need to better understand why some groups, particularly Blacks and Latinos, can experience disproportionate personal and social consequences (including alcohol use disorder [AUD] symptoms and various social problems) at similar levels of alcohol use, compared with other racial/ethnic groups (Chartier et al., 2014; Zapolski et al., 2014). A similar pattern—that is, elevated alcohol-related consequences even given an equivalent volume and pattern of alcohol use—has been found for other disadvantaged groups, including Mexican Americans living on (vs. off) the border (Cherpitel et al., 2015; Greenfield et al., 2017) as well as, in a national sample, those who are poorer, higher on perceived prejudice and unfair treatment, younger, and unmarried (Zemore et al., 2016b). Why

the effects of alcohol use on alcohol-related consequences seem to differ across population groups remains a largely open question with significant bearing on our understanding of the epidemiology of alcohol problems broadly (cf. Zemore et al., 2016b).

We fully support the above recommendations and seek to extend them by proposing areas for research that are largely outside this focus and move beyond the basic epidemiology of racial/ethnic differences in alcohol use patterns and problems. We use existing reviews, and the broader disparities literature generally, to illuminate underexplored areas that are relevant to health intervention and complement existing work, describing seven research needs (i.e., questions and topics meriting attention) of importance to the field.

Our treatment of the racial/ethnic disparities literature focuses on Whites, Blacks/African Americans (hereafter Blacks), Latinos/Hispanics (hereafter Latinos), American Indians/Alaska Natives (hereafter American Indians), and Asian Americans in the United States, as these groups have been a predominant focus of existing research on racial/ethnic disparities. Nevertheless, we acknowledge that many racial/ethnic groups not addressed here deserve research attention (e.g., refugee and immigrant groups globally). We also stress the need for continuing consideration of intersections between disadvantaged statuses, although we do not address these issues in depth. Studies have repeatedly shown that social statuses operate interactively to affect alcohol outcomes (e.g., Gilbert et al., 2017; Zemore et al., 2011, 2014); therefore, other sources of disadvantage (e.g., gender, sexual minority status) should be considered in concert with race/ethnicity. Last, although this article cannot systematically address disparities by socioeconomic status (SES), SES plays important roles in creating and maintaining racial/ethnic disparities (Collins, 2016; Myers, 2009) and should be considered when designing studies, interpreting results, and planning interventions. SES has been underexplored in the U.S. alcohol literature. However, investigating how SES relates to racial/ethnic disparities is important to intervening on those disparities and to examining whether and when White people low on SES likewise encounter disparities worthy of redress.

Priority 1. Research addressing the extent of alcohol-related disparities in health conditions and their social, psychological, and biological determinants

Although alcohol consumption is a risk factor for many chronic diseases and conditions (Shield et al., 2013), racial/ethnic disparities in alcohol-related health conditions have received little attention in the literature. Yet, racial/ethnic disparities in such conditions are pronounced and significant. For example, national data have historically shown higher rates of liver cirrhosis, which is responsible for a substantial portion of alcohol-related mortality, among Blacks,

Latinos, and American Indians compared with Whites. In 2000, rates for Blacks declined to equal those for Whites and now remain low, but disparities between Whites and both Latinos and American Indians are persistent and large (CDC, 2008; Kerr et al., 2013; Yoon & Chen, 2016; Yoon & Yi, 2008; Yoon et al., 2011). Compared with Whites, Blacks also show higher incidence of hypertension (Holmes, Jr. et al., 2013) and mortality from certain alcohol-related cancers of the head and neck (Caetano et al., 2014; Chartier et al., 2013). American Indians experience far worse overall health than other racial/ethnic groups in the United States and have an average life expectancy of 5.2 years less than the general population (Devi, 2011). They also show higher alcohol-attributable morbidity and mortality than all other major racial/ethnic groups, underlining the importance of alcohol intervention in this population (Chartier & Caetano, 2010; Chartier et al., 2013; Kanny et al., 2015; Landen et al., 2014). To our knowledge, there is little evidence for elevations in alcohol-related health problems among Asian Americans overall. Still, frequent problem drinking in some subgroups suggests reason for concern (Caetano et al., 2014; Iwamoto et al., 2016; Lee et al., 2013b), and evidence suggests that Asians who exhibit the alcohol flushing response are at high risk of esophageal cancer if they drink (Brooks et al., 2009; Yokoyama et al., 2003).

Disparities in alcohol-related health conditions across race/ethnicity signal a need for additional research to better define the role of alcohol use in the incidence, course, and outcomes of these health problems across racial/ethnic groups. Importantly, the limited literature now available suggests that differences in sheer alcohol volume consumed cannot completely explain racial/ethnic disparities in alcohol-related health problems. These findings dovetail with findings for greater alcohol-related personal and social consequences among disadvantaged groups (described in the introduction), and further highlight the differential impact of alcohol use across race/ethnicity. Disparities in liver cirrhosis are a good case in point. These disparities do not appear to be wholly attributable to differences in alcohol use per se, since disparities in cirrhosis rates exceed reported differences in total alcohol consumption. Other contributing factors are unknown, but may include greater preference for spirits (which can contain harmful contaminants); greater propensity for heavy drinking through midlife; greater vulnerability to other health conditions that may affect the liver (e.g., hepatitis B); poorer nutrition; and differences in alcohol sensitivity and metabolism (Edenberg & Foroud, 2014; Kerr et al., 2013; Mulia et al., 2017a; Stewart, 2002; Wlazlo et al., 2010; Yoon et al., 2011). Additional research illuminating how alcohol use may interact with such factors to affect health problems and explain alcohol-related health disparities is indicated.

Intriguingly, some research has shown different shapes in the relationships between alcohol use and a given health

condition across racial/ethnic groups, and this also is poorly understood. Consider, for example, hypertension (Chen et al., 2008; Stewart et al., 2008), an important risk factor for coronary heart disease that is particularly elevated among U.S. Blacks (Stranges et al., 2004) and Filipinos (Ye et al., 2009). Although studies generally suggest a J-shaped relationship between alcohol consumption and both hypertension and heart disease, the few studies considering racial/ethnic disparities have not found the typical protective effects for light drinking among U.S. Blacks or Latinos (Fuchs et al., 2004; Kerr et al., 2011). These findings once again raise questions as to alcohol's contribution to disease across racial/ethnic groups, highlighting the need for additional research.

Understanding why racial/ethnic minorities may sometimes experience different (and worse) health effects at equivalent levels of alcohol consumption is a clear research priority and crucial to informing clinical guidelines. Studies that incorporate a life course perspective and use rigorous causal methods are especially needed in this area. Although population studies using longitudinal data on drinking over time have been conducted, particularly in the United Kingdom (e.g., Britton et al., 2016; O'Neill et al., 2017), few studies using life course methodologies and considering disparities have been conducted in the United States (Kerr et al., 2015). Rigorous assessment of drinking patterns, co-occurring health conditions, and diet throughout the life course is needed.

Also important are longitudinal studies that incorporate measures of potential biological drivers of racial/ethnic disparities, such as immune function indicators and genetic markers of alcohol metabolism and risk (Chartier et al., 2014, 2017; Edenberg & Foroud, 2014; Ehlers & Gizer, 2013). Alcohol use, immune function, and overall health are related in complicated ways that may differ across race/ethnicity. To that point, a systematic review of population-based studies on racial/ethnic and SES differentials in C-reactive protein (CRP), a marker of inflammation associated with both heavy alcohol use and negative health outcomes, found that 14 of 15 studies examining race/ethnicity reported higher levels of CRP in racial/ethnic minorities (specifically Blacks, Latinos, and South Asians) than Whites (Nazmi & Victora, 2007). Moreover, Stewart et al. (2002) observed differential effects of alcohol on CRP across racial/ethnic groups, whereby a stronger pro-inflammatory effect of alcohol was observed among Mexican Americans than Whites. This may suggest both greater immune reactivity among racial/ethnic minorities as well as differential effects of alcohol on immune function across racial/ethnic groups.

Racial/ethnic groups also vary on access to, use of, and quality of healthcare prevention and treatment services throughout life, and these factors are likewise important to examining disparities in the incidence and course of alcohol-related health conditions. Of note, lower SES is associated with many factors that may exacerbate the effects of alcohol

consumption on health. These include consumption of high-alcohol-content beverages (Jones-Webb & Karriker-Jaffe, 2013; Kerr et al., 2009); binge drinking and other risky health behaviors (e.g., poor diet, smoking, and restricted exercise; Algren et al., 2015; Bellis et al., 2016; Probst et al., 2014); poorer immune function (Lui et al., 2017; Nazmi & Victora, 2007); and lack of access to and use of healthcare (Klonoff, 2009; Probst et al., 2014). Lower individual and neighborhood SES have also been related to greater odds of alcohol-related hospitalization and mortality, even controlling for alcohol use (Bellis et al., 2016; Mäkelä & Paljärvi, 2008). Investigations of the effects of alcohol use on health among racial/ethnic minorities should thus also examine SES.

Priority 2. Research investigating disparities in access to and utilization of alcohol treatment and related support services

Findings for racial/ethnic differences in alcohol treatment utilization have been mixed, with different reviews coming to different conclusions. Vaeth et al. (2017) decline to offer broad conclusions about racial/ethnic disparities in this area, noting that “research findings on need and utilization of treatment by racial/ethnic groups are sometimes contradictory” (p. 13) and that “making generalizations about which racial/ethnic group is over- or underrepresented in treatment, and by modality and setting, is difficult” (p. 15). Meanwhile, Chartier and Caetano (2010), focusing largely on specialty treatment (i.e., programs specifically for alcohol or other drug abuse), conclude that there are Latino–White disparities in both alcohol treatment receipt and completion. Guerrero et al. (2013b), examining substance use treatment more broadly, agree, suggesting that “Latinos . . . experience more barriers than Whites to accessing and engaging in treatment services . . . are less likely to seek and complete treatment, receive fewer services overall, and are less satisfied with treatment” (p. 806).

These divergent conclusions may partially reflect the fragmented disparities literature (Chartier & Caetano, 2010). Nevertheless, among U.S. national samples, several studies have shown substantially lower use of specialty alcohol treatment among Latinos than Whites (Chartier & Caetano, 2011; Cook & Alegría, 2011; Mulia et al., 2014; Schmidt et al., 2007; Zemore et al., 2014); one study suggests the same occurs for Black (vs. White) women (Zemore et al., 2014). For example, a recent U.S. national study found that, among women, only 2.5% of Latinos and 3.4% of Blacks with a lifetime AUD had accessed specialty alcohol treatment, versus 6.7% of Whites; among men, corresponding figures were 6.8% for Latinos, 12.2% for Blacks, and 10.1% for Whites (Zemore et al., 2014). Studies have also reported diminished specialty treatment utilization among Asian Americans (Sakai et al., 2005; Wu & Blazer, 2015) and

American Indians (Novins et al., 2016), although evidence on these groups is severely lacking. These disparities are not merely the product of uniformly lower rates of alcohol problems among racial/ethnic minorities, as rates of AUD are now lowest among Asian Americans but similar across Whites, Blacks, and Latinos, and highest among American Indians (Vaeth et al., 2017). Further, the studies cited above uniformly restricted analysis to those with an AUD and often controlled for problem severity. National studies have also reported lower substance use treatment retention among both Blacks and Latinos compared with Whites (Arndt et al., 2013; Saloner & Lê Cook, 2013).

Mechanisms driving treatment disparities have not yet been well described, so more studies are needed to identify those factors that explain the low rates of specialty treatment utilization and retention among certain disadvantaged groups. This is particularly important because studies have consistently associated any (vs. no) use, and greater dosages, of specialty treatment with better alcohol and other drug use outcomes (Amato et al., 2013; Gossop et al., 2008; Miller et al., 2001). Although some data suggest that socioeconomic differences may help to explain racial/ethnic disparities in treatment retention (Saloner & Lê Cook, 2013), SES does not neatly explain disparities in utilization per se. Indeed, lower SES is typically related to greater (not lesser) use, even controlling for clinical severity (Cohen et al., 2007; Cook & Alegría, 2011; Schmidt & Weisner, 2005; Weisner et al., 2002; Wu et al., 2003).

Some work suggests roles for sociocultural and linguistic barriers in treatment disparities, although causal factors are not well understood (Zemore et al., 2014). Studies of Latinos, for example, have found that foreign-born status and a lack of English fluency relate to lower alcohol treatment utilization (Cherpitel, 2001; Spence et al., 2007; Zemore et al., 2009). Still, more research is needed to comprehensively describe the most important sociocultural barriers, in addition to language issues, that Latinos, Asians, American Indians, and immigrants—and particularly women among these groups—face in seeking and completing treatment. Such barriers may include lower health literacy generally; difficulty navigating the healthcare system; more negative attitudes toward help-seeking, mainstream healthcare providers, and available substance abuse treatment; heightened concerns about the social and legal ramifications of revealing alcohol problems to peers and providers (e.g., social stigma and referral to child welfare); differences in problem recognition and exposure to social-, legal-, and work-related pressures to seek help, which may be related to differences in culturally prescribed drinking patterns; and life stressors and competing demands, including caregiver strain and co-occurring mental and physical health conditions, among others (for reviews, see Alegría et al., 2011; Guerrero et al., 2013b; for social influence factors, see Zemore et al., 2014). These barriers may be present in many racial/ethnic minority

groups and intensified in immigrants and women. Related to social influence factors, research is needed to explore patterns in referrals from schools, healthcare, and government organizations, which may also contribute to treatment disparities (Alegria et al., 2011; Guerrero et al., 2013b).

Additional work is also needed to precisely model roles for logistic factors in treatment disparities. Logistic factors that may merit additional exploration include insurance status, treatment affordability, treatment delays, and childcare issues (Alegria et al., 2011; Mulia et al., 2014; Schmidt, 2016; Zemore et al., 2014). For example, the impact of insurance status on treatment utilization and retention remains poorly understood. Although insurance status is an unreliable predictor of utilization in studies of the general population (perhaps because the uninsured may be covered by federal Substance Abuse Prevention and Treatment Block Grants), this literature is inconsistent (Schmidt, 2016; Schmidt & Weisner, 2005; Weisner et al., 2002), and national data show that the second most common self-reported reason for not obtaining treatment among those with self-perceived need is lack of insurance/inability to afford treatment, reported by about 31% (Han et al., 2015). It may be that reported associations between insurance status and treatment receipt have been distorted by high treatment coercion—that is, pressures from the legal system, an employer, or social services to enter treatment—among lower SES groups, although this is unknown. Another logistic factor that merits more attention is ease of access to treatment (Guerrero & Kao, 2013; Guerrero et al., 2011, 2013a). Geographic proximity to quality care has been related to treatment utilization, retention, and short- and long-term outcomes (Fortney et al., 1995, 1999), and emerging work has documented geographic disparities in the availability of public treatment (Cummings et al., 2014, 2016) and programs providing Spanish-language services (Guerrero et al., 2011). Studies on mechanisms driving treatment disparities will be important to outreach efforts and to intervention and policy efforts to better address the concerns and needs of racial/ethnic minorities, immigrants, and women.

Priority 3. Research to identify appropriate screening and brief intervention methods among racial/ethnic minorities

Outreach with racial/ethnic minorities is an obvious need given the reported disparities in alcohol-related problems and treatment utilization, and screening and brief intervention (SBI) constitutes a reasonable approach to intervention. Reviews of the literature suggest that good-quality SBI approaches can reduce alcohol consumption in primary care (Whitlock et al., 2004) and are cost-effective in that setting (Angus et al., 2014); the evidence also supports SBI implementation in the emergency department (D'Onofrio & Degutis, 2002) as well as college settings (Fachini et al., 2012). However, several challenges relate to providing SBI

to disadvantaged populations, pointing to the need for studies examining implementation of SBI in nontraditional settings as well as experimentation with alternative protocols.

One challenge in providing SBI to disadvantaged populations is that traditional venues and implementation modes may not reach or be maximally effective among these populations. SBI is typically promoted in medical settings, such as primary care, where it has demonstrated high effectiveness (Bien et al., 1993; Whitlock et al., 2004; Wilk et al., 1997). However, U.S. national data show that among at-risk drinkers and persons with AUDs, Blacks and Latinos are significantly less likely than Whites to obtain primary care (Mulia et al., 2011). Blacks and Latinos are also less likely than Whites, overall, to have a regular medical provider or physician, and they use many forms of healthcare at rates below those of Whites (Mead et al., 2008; Vega et al., 2009). Foreign-born immigrants—comprising large proportions of Latinos (about 38%) and Asian Americans (about 60%)—are also unlikely to access primary care and other health services, in part because they are less likely than natives to work for large employers providing insurance (Buchmueller et al., 2005; Derose et al., 2009) and to speak English fluently (Pippins et al., 2007; Ponce et al., 2006). Thus, limiting SBI to primary care and other medical settings may have the unintended consequence of exacerbating disparities in alcohol problems because of differential access to and use of health services. Similar problems apply to implementing SBI in college settings, as disadvantaged groups are generally less likely to go to college and may attend college later in the life course. Accordingly, research is needed to test implementations of SBI in alternative venues frequented by racial/ethnic minority groups, such as community clinics, emergency rooms, and community events and health fairs (Crombie et al., 2013; Cunningham et al., 2009; Mulia et al., 2011).

Nevertheless, changing venues alone may not be sufficient. SBI delivery in alternative settings may still present problems because of the resource limitations typical of settings in which disadvantaged groups frequently receive care and because disadvantaged groups may be reluctant to disclose alcohol and other drug use for fear of stigmatization, loss of health benefits, and legal repercussions (e.g., deportation), which may be exacerbated among immigrants (Jacobson et al., 2002). To the extent that online interventions circumvent such barriers, computerized SBI might be an important alternative for some groups—particularly for young student populations and self-referred adult problem drinkers, for whom computerized alcohol interventions have been shown to be effective (Riper et al., 2011; White et al., 2010). Consistent with this thinking, one team has developed a promising web-based mobile health Screening, Brief Intervention, and Referral to Treatment (SBIRT) intervention tailored for Spanish-speaking Latinos visiting the emergency department (Abujarad & Vaca, 2015). More studies like

this are needed to identify ideal venues and modes for SBI implementation among racial/ethnic minorities, immigrants, and low-SES groups.

Further challenges in conducting SBI with disadvantaged populations relate to the screening and intervention content. As noted previously, studies suggest greater risk of alcohol problems for U.S. Blacks and Latinos (vs. Whites) at equivalent (especially lower) levels of alcohol consumption (Jones-Webb et al., 1997; Mulia et al., 2009; Witbrodt et al., 2014; Zemore et al., 2016b). Other studies, including methodological home-pour studies and observational bar studies, suggest that drink sizes are larger among U.S. Black and Latino (vs. White) men (Kerr et al., 2008, 2009). These findings suggest that standard screening protocols—which rely heavily on self-reported alcohol consumption—may fail to capture Black and Latino problem drinkers and that measuring drink size, and providing education related to drink size, may be essential components of SBI for these populations. Thus, it will be important for future studies in this area to test alternative screening protocols and to explore the efficacy of addressing drink size in the intervention context (Delrahim-Howlett et al., 2011).

More broadly, to best address disparities, studies are needed testing extensions of SBI to underage populations. This is because early use is a known risk factor for problem drinking/AUDs in all populations studied (Cook et al., 2015; Grant & Dawson, 1997) and because racial/ethnic disparities can emerge early in the life course. Illustrating this point, American Indians show the earliest age at initiation for alcohol use among all U.S. racial/ethnic groups (Clark et al., 2013) and the highest rates of substance use and substance-related disorders by adolescence (Miller et al., 2012; Stanley et al., 2014; Wu et al., 2011). Recent findings from clinical trials suggest that SBI can be successfully adapted and is effective for adolescents (Patton et al., 2014), including American Indian youth (Gilder et al., 2013).

Priority 4. Comparative research on the efficacy of existing alcohol interventions among racial/ethnic minorities (and subgroups) as well as research developing and testing new interventions tailored for these populations

It bears emphasis that evidence to date has not shown consistent or robust differences across racial/ethnic groups in the efficacy of standard interventions for alcohol problems, including specific evidence-based interventions (e.g., cognitive behavioral therapy or motivational interviewing) and SBIRT. Once exposed to a given intervention, racial/ethnic minorities generally seem to obtain outcomes comparable to Whites (Brower & Carey, 2003; Field et al., 2010; Schmidt et al., 2006; Tonigan, 2003). Nevertheless, comparative research is still evolving, partly because of the difficulty of recruiting large samples of small racial/ethnic subgroups and partly because individuals who do not speak English

have often been excluded from efficacy trials (Miranda et al., 2005; Wells et al., 2001). Thus, additional research is needed to examine the comparative appeal and efficacy of existing interventions.

Comparative efficacy studies are particularly needed in three areas. First, studies are needed to examine comparative treatment efficacy among little-studied subgroups (e.g., Asian Americans, American Indians, immigrants) and those who do not speak English. This is especially important given the current emphasis on technologically intensive interventions, which often require English fluency and technological instruments and savvy. Second, comparative research is needed on pharmacological interventions. It is currently unknown whether standard medications for AUDs work equally well across racial/ethnic groups. However, because level of response to alcohol may differ in Blacks and certain Asian American subgroups (Eng et al., 2007; Iwamoto et al., 2016; Montane Jaime et al., 2014; Wall et al., 1992), response to AUD medications may also differ in these groups (Zapolski et al., 2014). Third, comparative work is needed on nonmedical approaches to alcohol intervention (e.g., mutual help groups, sober living houses, and other community support services). Nonmedical approaches are a worthy focus because of the significant limitations that disadvantaged populations can face in accessing medically based services, described earlier. Participation in 12-step groups (in particular) has been powerfully and consistently associated with better outcomes (Kaskutas, 2009; Kelly et al., 2009; Tonigan et al., 1996). Yet, relatively few studies have examined racial/ethnic differences in the utilization and efficacy of mutual help groups, with existing studies producing mixed results (Avalos & Mulia, 2012; Beals et al., 2006; Hesselbrock et al., 2003; Kaskutas et al., 1999; Park et al., 2010; Schmidt et al., 2007; Tonigan et al., 1998, 2002, 2013; Zemore et al., 2014).

Alongside such comparative studies, further research is merited to develop and test new interventions for racial/ethnic minorities that are tailored to their preferences and needs. Tailored interventions are important even where standard treatments are equally effective across racial/ethnic groups, because such interventions may be especially likely to attract and retain groups that consistently underutilize specialty treatment (e.g., Latinos, Asian Americans, American Indians, and immigrants). Supporting this point, research on Asian Americans has found that the adoption of culturally and linguistically appropriate services (e.g., the use of culturally competent, bilingual Asian interventionists) can yield increased substance use service utilization (Yu et al., 2009). Another argument for tailored interventions is that such interventions may improve on the efficacy of standard interventions (Lee et al., 2013a). This can be important for populations facing extreme health disparities. Researchers aiming to develop tailored interventions might thus tailor their interventions to particularly address factors known to affect

treatment utilization and retention among targeted groups and to capitalize on culturally endorsed practices that promise to be especially effective in those groups. Similar to the points above regarding SBI, researchers developing tailored interventions will also want to consider implementation in alternative venues, and studies will be needed to test interventions in the community-based healthcare systems where racial/ethnic minorities and other disadvantaged groups are particularly likely to receive care (Guerrero et al., 2013b).

Last, we encourage researchers to build on mechanisms research to develop interventions that simultaneously address alcohol-related and other mental, physical, and social problems in disadvantaged groups (e.g., via case management). Combining case management with alcohol counseling was shown, in one small study, to be effective among highly disadvantaged Latino day laborers (Moore et al., 2016). Interventions that influence multiple health-related outcomes (e.g., poverty, education, housing, and co-existing health conditions) are of special value for disadvantaged populations because those groups are particularly likely to suffer from multiple sources of disadvantage and diverse and chronic health problems (Aneshensel, 2005).

Priority 5. Research exploring the impacts of specific alcohol policies found to decrease alcohol consumption in the general population among racial/ethnic groups, as well as policies targeting particular racial/ethnic groups

Because health disparities are only partly attributable to differences in access to and use of healthcare services, broad-based public health interventions are also essential to addressing disparities. Yet, newly emerging evidence indicates there may be a downside to public health interventions: Namely, not all segments of the population may benefit from such interventions (Frohlich & Potvin, 2008; Lorenc et al., 2013), in part because of differences in access to emerging health knowledge, innovative technologies, and general resources for improving health. Sociocultural norms may also alter or compromise the implementation of public health interventions in ethnic communities (Antin et al., 2010). Indeed, some broadly effective interventions have led to new or widening health disparities because their uptake and impact have been greater in socially and economically advantaged groups. Tobacco awareness and smoking cessation efforts are cases in point, as these efforts reduced population smoking while reversing the positive SES gradient in lung cancer mortality in the United States (Link, 2008). Similarly, recent federal efforts to promote routine alcohol screening and early intervention in primary care settings could inadvertently widen racial/ethnic disparities in access to alcohol interventions and, consequently, alcohol-related problems (Mulia et al., 2011, 2014). Yet, some alcohol policy interventions, and especially those that affect the cost of alcohol, may help to reduce disparities (Holmes et al., 2014). In short, although

alcohol policy interventions are a critical tool for reducing excessive drinking and alcohol problems, questions remain about whether certain alcohol policies benefit some groups more than others.

Emerging studies have already illustrated differences in alcohol policy effects across socioeconomic and racial/ethnic subgroups. Several international studies point to stronger effects of alcohol pricing on low-SES groups. For example, a Finnish study examining effects of the large drop in alcohol prices occurring in 2004 showed a marked increase in alcohol-related mortality among the long-term unemployed but no effect on alcohol-related mortality among the employed (Herttua et al., 2008). A subsequent study found that alcohol-attributable hospitalizations also increased most in low-SES groups, although differences across SES groups were not statistically significant (Herttua et al., 2015). Conversely, a simulation study of a minimum pricing policy in England suggested that low-SES groups would show the greatest reductions in harmful drinking and improvements in health (Holmes et al., 2014). By contrast, a U.S. study examining effects of the state alcohol policy environment (measured as the combination of effective and well-implemented alcohol policies) found that residence in a state with stronger alcohol policies was associated with lower binge drinking for Whites, but not Blacks or Latinos (Xuan et al., 2015). This is a surprising finding given that the lower SES of Blacks and Latinos (vs. Whites) in the United States might imply greater responsiveness to alcohol taxation. However, because the study targeted a combined policy index, the effects of taxation per se on drinking remain unclear.

Very little is known about the effects of specific alcohol policies across population subgroups, so research is needed to determine which policies have the largest impacts on heavy drinking and alcohol problems in the general population as well as within racial/ethnic subgroups. Good candidates for study would include policies determined to be effective overall, including alcohol taxation, minimum pricing, and outlet density (Campbell et al., 2009; Elder et al., 2010; Zhao et al., 2013). Studies should work to simultaneously examine (and disentangle) the effects of race/ethnicity and SES when evaluating policy effects.

It will also be valuable to investigate the utility of policies specifically designed to affect particular racial/ethnic groups. For example, further research is needed to assess the effects of limiting alcohol availability on Indian reservations. Although such policies may reduce overall drinking, they could also enhance risk for injuries incurred while driving or walking between reservations and alcohol outlets (Mahoney, 1991; May, 1989, 1990). American Indians have by far the highest rates of alcohol-related motor vehicle mortality and morbidity (Caetano et al., 2014); therefore, research directed at understanding the factors involved in these problems—as well as interventions that may effectively ameliorate them—is a priority (West & Naumann, 2014).

Priority 6. Research describing the full spectrum of harms that result from alcohol consumption and how and why these may vary across racial/ethnic groups

Heavy drinking adversely affects not only the drinker, but also other people. With a few long-studied exceptions like driving under intoxication (which is elevated among Latinos and American Indians; Chartier et al., 2013) and fetal alcohol exposure (which is elevated among Blacks and American Indians; Chartier et al., 2013), the range and severity of alcohol-related harms to others have not been comprehensively investigated. However, a growing body of evidence from the United States (Greenfield et al., 2009; Kaplan et al., 2017; Karriker-Jaffe et al., 2017) and other countries (Casswell et al., 2011; Laslett et al., 2011, 2017; Moan et al., 2015) is documenting a wide range of harms caused by the drinking of others. These harms range from public nuisances to more severe harms, such as physical and sexual assault by someone who has been drinking. Serious harms often occur in the family system, with excessive drinking leading to sexual and physical victimization of partners and family members (Graham et al., 2009), contributing to child abuse and neglect (Kaplan et al., 2017; Laslett et al., 2017), and adversely affecting others' emotional and mental health (Ferris et al., 2011; Greenfield et al., 2016; Karriker-Jaffe et al., 2017). Some estimate that, because of impacts on other people's health, quality of life, and mental health, the total costs of alcohol are double those incurred by the drinker alone (Bouchery et al., 2011; Laslett et al., 2010).

In addition to harms related to driving under intoxication and fetal alcohol exposure, U.S. studies have shown several racial/ethnic disparities in harms from others' drinking, especially for violent victimization (Chartier et al., 2013). Survey and administrative studies suggest that Blacks are at greater risk than Whites of alcohol-involved intimate partner violence (Chartier et al., 2013) and homicide (Delker et al., 2016), whereas American Indians are far more likely to be victims of alcohol-attributed crime than all other racial/ethnic groups (Chartier et al., 2013). Racial/ethnic differences are not as pronounced for less severe harms, although differences have emerged for certain specific harms (Greenfield et al., 2009; Karriker-Jaffe et al., 2017). Further, evidence suggests that residence in a disadvantaged neighborhood may put women at greater risk of alcohol-related crime victimization (Karriker-Jaffe & Greenfield, 2014), although research in this area remains scant. Because disadvantaged populations may be more likely to be exposed to risky drinking contexts and unsafe living and working conditions, they may be particularly likely to experience harms from others' (as well as their own) drinking. However, the mechanisms underlying racial/ethnic disparities in harms to others are currently not well described. Disadvantaged populations also experience greater institutional surveillance, which suggests a need to account for potential reporting biases in this work

(Room et al., 2010)—particularly when using administrative data.

Additional research that accurately describes the distribution and determinants of the full spectrum of harms to others is needed to better understand when and how alcohol use leads to harm. More specifically, information on alcohol-related harms to others is important to informing interventions that can effectively mitigate alcohol-related harms in the population as well as reduce racial/ethnic disparities. This information is also important to policy debates on the cost-effectiveness of specific alcohol interventions, since harms to others constitute a substantial portion of the societal costs of alcohol use.

Priority 7. Continuing research to monitor disparities in alcohol use, alcohol-related problems, and alcohol treatment

The extent and distribution of alcohol use and problems is in constant flux. Supporting this point, U.S. studies completed over the past 20 years have suggested large increases over time in heavy drinking and AUDs. Per capita alcohol consumption has generally increased in each year since 1995, interrupted only by recession-related declines in 2009 and 2010, with increases occurring especially for distilled spirits and wine (Haughwout et al., 2015; Kerr et al., 2014). Similarly, analyses of repeated U.S. national surveys indicate that heavy drinking occasions have increased (Dawson et al., 2015; Kerr et al., 2014), as have rates of alcohol dependence, especially among Whites and Blacks (Zemore et al., 2013). These trends highlight the importance of monitoring disparities in alcohol consumption and related problems as they evolve. Research is also needed to monitor disparities in treatment need, access, and use, which can change over time (Guerrero et al., 2013b).

Policies including but not limited to healthcare provision (e.g., the Affordable Care Act) and immigration are rapidly evolving and may directly affect alcohol (and other drug) treatment access and utilization. These and other policy changes may also affect alcohol outcomes indirectly, by affecting the many conditions that contribute to alcohol use and problems, alcohol treatment utilization, and sustained long-term recovery (e.g., socioeconomic factors, discrimination, receipt of healthcare services generally, and overall health).

In view of this shifting climate, continued support will be needed for repeated national surveys with strong measurement of alcohol consumption, the full range of alcohol-related consequences and harms, alcohol treatment utilization, and pertinent risk and protective factors. Measurement of alcohol consumption should capture detailed drinking patterns including maximum drinks in a day, frequency of heavy-drinking occasions, drinking contexts, and beverage-specific alcohol volume (Greenfield & Kerr, 2008). Beverage-specific

drinking and drink details relevant to alcohol content are especially relevant for disparities research, as differences between groups have been found in beverage preference and drink alcohol content (Kerr et al., 2009). Surveys should also continue to include detailed assessment of utilization of specific alcohol services. Repeated surveys play a vital role in monitoring a country's alcohol consumption patterns, problems, and trends, and they reveal patterns not shown in other data sources. They are also essential to describing precise pathways from environmental and individual-level risk factors to consumption and thence problems, and remain invaluable for cross-national comparisons. Greater attention to oversampling of small populations, such as American Indians, Asian Americans, and Pacific Islanders, will be crucial in the future to better understand alcohol-related use and harms as well as key factors that may exacerbate them.

Conclusions

We conclude with a few crosscutting points regarding the research methods and processes used to address the above questions. First, we encourage researchers to use longitudinal studies wherever possible to extend findings from cross-sectional and qualitative studies and appropriately describe and explain disparities. For example, studies of racial/ethnic disparities in alcohol-related health conditions, alcohol treatment utilization, and effects of specific alcohol policies call for longitudinal designs that can best address causal directionality and specific mechanisms of action. Second, researchers are encouraged to adopt a life course perspective in addressing the above questions. Some studies, and particularly those not limited to adults, have shown quite different life course patterns of alcohol use and problems across racial/ethnic groups (Evans-Polce et al., 2015; Godette et al., 2006; Mulia et al., 2017a; Muthén & Muthén, 2000). More specifically, several have shown an overall later age at drinking onset, slower rise in heavy drinking during adolescence, and more enduring heavy drinking in Blacks and Latinos than Whites (Caetano & Kaskutas, 1995; Mulia et al., 2017b; Zapolski et al., 2014). Such differences in life course drinking patterns have bearing on many of the questions proposed for study. For example, a later onset but more persistent heavy drinking trajectory could, by interacting with changes in overall health and the timing of typical role transitions, intensify the effects of heavy drinking on health and certain social harms (e.g., intimate partner violence and child abuse/neglect) while mitigating effects on alcohol-related consequences that often occur earlier in the life course (e.g., sexual risk behaviors). Life course differences may thus condition racial/ethnic disparities in the effects of alcohol consumption broadly. Life course differences in drinking patterns may also, and for the same reasons, relate to how and when individuals seek help for alcohol problems and whether and how they recover.

Turning to intervention strategies, we emphasize the need for researchers to think beyond traditional venues (e.g., medical care and college settings) when testing and implementing interventions to prevent and treat alcohol problems. This article makes the point that selectively targeting traditional venues for health intervention and maintenance can miss disadvantaged groups and thus enhance, rather than reduce, disparities. Recruiting a broad range of community systems for prevention, treatment, and aftercare (e.g., community clinics, food banks, and homeless shelters, along with educational institutions and healthcare providers) promises to best address the more severe and chronic needs of disadvantaged groups (White et al., 2002).

Last, a point about involvement of disadvantaged groups in the research process. Health disparities research that effectively targets the self-perceived needs of racial/ethnic minorities (in conjunction with other sources of disadvantage like SES and gender) will require the close involvement of those populations in all aspects of research. Research leaders must recognize the need to work closely with disadvantaged communities in establishing research priorities as well as fostering inclusion of disadvantaged groups within the research community. A research process that draws on the unique knowledge base and talents of individuals from disadvantaged communities, and the community stakeholders that serve them, should be maximally effective in ameliorating alcohol-related disparities.

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