

The GENAHTO Project (Gender and Alcohol's Harm to Others): Design and Methods for a Multinational Study of Alcohol's Harm to Persons Other than the Drinker

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Abstract

Aims: Most alcohol research has focused on how drinking harms the drinker. Research on alcohol's harms to others (AHTO) has studied primarily single or small groups of countries. This article describes the methodology of a new multinational study—Gender and Alcohol's Harm to Others (GENAHTO)—of how social and cultural contexts are related to AHTO, from the perspectives of both perpetrators and victims.

Design: The GENAHTO Project uses surveys in 21 countries that provide data from drinkers who report causing harms to others, and surveys in 16 countries that provide data from victims of AHTO. The countries surveyed vary widely in alcohol policies, drinking cultures, gender-role definitions, and socioeconomic conditions.

Participants: More than 140,000 men and women, aged 15–84, participated in the surveys.

Measures: Individual-level measures include demographics, alcohol use patterns, and alcohol-related harms. Regional- and societal-level measures include socioeconomic conditions, drinking patterns, alcohol policies, gender inequality, and income inequality.

Findings: The project seeks to identify characteristics of AHTO victims and perpetrators; within-country regional differences in AHTO; and associations between national alcohol policies and individual and regional levels of AHTO.

Conclusions: GENAHTO is the first project to assess AHTO in diverse societies. Its findings can inform policies to abate AHTO in varying cultural contexts.

Research on alcohol use and alcohol-related problems has focused largely on how drinking harms the drinker. Prior research on alcohol's harm to *other* people has studied mainly drink-driving (Berning, Compton, & Wochinger, 2015; Hingson & Winter, 2003; Kelley-Baker, Lacey, Voas, Romano, & Yao, 2013), fetal alcohol effects (Popova & Chambers, 2013, 2014), and intimate partner violence (Flynn & Graham, 2010; Graham, Bernards, Munné, & Wilsnack, 2008), neglecting broader harms to others' health, quality of life, living conditions, and resources. Research in Australia (Laslett et al., 2010, 2011) and New Zealand (Casswell, Harding, You, & Huckle, 2011) suggests that broader harms to others may double the costs of alcohol use/misuse. Concerns about alcohol's harms to others (AHTO) are similar to concerns about effects of second-

hand smoke, which have had substantial impact on tobacco control policy (Giesbrecht, Cukier, & Steeves, 2010; Raupach, Schäfer, Konstantinides, & Andreas, 2006; U.S. Department of Health and Human Services, 2006). The 2010 World Health Organization (WHO) global strategy on alcohol (WHO, 2011) stated that protecting people from exposure to AHTO is essential in alcohol policies.

Most research on AHTO to date has studied only individual countries (e.g., Casswell et al., 2011; Greenfield, Karriker-Jaffe, Kaplan, Kerr, & Wilsnack, 2015; Laslett et al., 2011) or small groups of countries (Lund et al., 2015), focusing primarily on characteristics of *individuals* harmed by others' drinking. For more effective interventions and policies to reduce AHTO, it is essential to understand also how *social*

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and cultural contexts are related to the risks, types, and severity of AHTO. The present article provides an overview of the GENAHTO Project, a multinational study of individual and sociocultural correlates of AHTO. The article summarizes the history of the emerging AHTO “paradigm”; the study design of the GENAHTO Project, including its conceptual model, major goals, and data collection and data analysis methods; and its potential implications for approaches to prevention, intervention, and policy.

History

Early studies

One of the first studies of how alcohol harms persons other than the drinker, by sociologist Kaye Fillmore (Fillmore, 1985), focused on the “social victims of drinking” in a Western U.S. city. More recent data from the U.S. National Alcohol Survey confirmed Fillmore’s findings that women report more family and financial harms from others’ drinking, whereas men report more physical assaults from other drinkers (e.g., Greenfield et al., 2009). Other studies using U.S. National Alcohol Survey data have found that neighborhood disadvantage and gender interact in predicting rates of family-related and stranger-violence-related AHTO (Karriker-Jaffe & Greenfield, 2014), and that persons experiencing AHTO are more likely to favor stronger alcohol policies (Greenfield et al., 2014).

Surveys conducted in 2008 in Australia (Ferris, Laslett, Livingston, Room, & Wilkinson, 2011; Laslett et al., 2010; Mugavin, Livingston, & Laslett, 2014) and New Zealand (Casswell et al., 2011) have now led to a diversity of national studies of harm from others’ drinking, in Canada (Lewis-Laietmark et al., 2017), Ireland (Hope, 2008), Denmark (Seid, Grittner, Greenfield, & Bloomfield, 2015), and Northern Europe (Moan et al., 2015; Ramstedt et al., 2015).

The GENACIS Project

Two large multinational projects collected general population survey data that are re-analyzed in the GENAHTO Project. GENACIS (Gender, Alcohol, and Culture: An International Study) studied cultural and gender-related influences on the alcohol use of women and men. GENACIS included comparable general population surveys conducted between 1997 and 2007 in 38 countries on six continents (Wilsnack, Wilsnack, Kristjanson, Vogeltanz-Holm, & Gmel, 2009; Wilsnack, 2012). The de-identified GENACIS data sets were edited, formatted, and archived at the Addiction Switzerland Research Institute in Lausanne (and subsequently also at the Centre for Alcohol Policy Research [CAPR] at La Trobe University, Melbourne, Australia). Funding sources included the European Union, WHO, the Pan American Health Organization, the U.S. National Institute on Alcohol Abuse and Alcoholism (NIAAA), and individual country sources.

The standard GENACIS questionnaire focused mainly on drinking consequences for the drinker but also included questions about harms that drinking respondents reported causing for other persons, as well as questions about getting in fights and about aggression toward a spouse/partner while drinking. The GENAHTO Project uses GENACIS data to

identify characteristics of persons whose drinking causes harm to other persons.

The WHO–Thai Health Project

In 2011, a project funded jointly by WHO and the ThaiHealth Promotion Foundation (WHO–TH) conducted population surveys in seven lower- and middle-income countries—Chile, India, Lao People’s Democratic Republic, Nigeria, Sri Lanka, Thailand, and Vietnam—using a common protocol and questionnaire (Callinan et al., 2016; WHO, 2012). The WHO–TH Project also incorporated the Australia (Laslett et al., 2010) and New Zealand (Casswell et al., 2011) AHTO surveys mentioned above. The project used two versions of a standard questionnaire. Both versions included 13 core questions about experiencing specific harms from strangers’ drinking or from known persons’ drinking (the “Brief Assessment of Harms,” available on request from the authors). Version 1 also included follow-up questions about estimated financial costs of the harms experienced; Version 2 did not ask for cost estimates but included additional questions about drinking contexts, the respondent’s own drinking and its perceived consequences, attitudes toward drinking and intoxication in varying social settings, and all questions from the Alcohol Use Disorders Identification Test (Saunders, Aasland, Babor, De la Fuente, & Grant, 1993). Many of these questions were taken or adapted from the standard GENACIS questionnaire.

Funding from WHO and the Australian National Health and Medical Research Council has supported the costs of archiving the WHO–TH data sets at the La Trobe University CAPR, in Melbourne, Australia. Care was taken to edit, format, and merge the WHO–TH data sets in the same manner as the GENACIS data sets, so that the two data archives are as comparable as possible.

Other AHTO data sets

For the GENAHTO Project several other separately funded data sets from higher-income countries have been added to the WHO–TH data archive. These include national surveys in Denmark (2011), Scotland (2012), Switzerland (2012 and 2016), São Paulo, Brazil (2014–15), Ireland (2015), and the United States (the 2015 National Alcohol Survey and a parallel National Alcohol’s Harms to Others Survey funded separately by NIAAA). These surveys are also archived at the La Trobe University CAPR, although they have not yet been analyzed together with the WHO–TH surveys. Taken together, these surveys provide extensive data on harms due to others’ drinking from the *victim’s* perspective.

The GENAHTO Project

Project personnel and meetings

In 2014–15 GENACIS members Kim Bloomfield, Jason Bond, Tom Greenfield, Robin Room, Richard Wilsnack, and Sharon Wilsnack wrote the grant application for what is now the multinational study of alcohol’s harms to others, funded by NIAAA, part of the U.S. National Institutes of Health, in March 2016. The grant is based at the Public Health Institute’s Alcohol Research Group (ARG) and has three Multiple Principal Investigators: Tom Greenfield (at ARG, contact Multiple Principal Investigator), Sharon Wilsnack (University of North Dakota School of Medicine and Health

Sciences), and Kim Bloomfield (Aarhus University Centre for Alcohol and Drug Research, Copenhagen, Denmark). Co-investigators of the grant are based at ARG (Kathryn Karriker-Jaffe), University of North Dakota (Richard Wilsnack), the Centre for Addiction and Mental Health in London, Ontario (Kathryn Graham), the Addiction Switzerland Research Institute (Gerhard Gmel), and the La Trobe University CAPR (Robin Room, Anne-Marie Laslett, and Sandra Kuntsche). Other key personnel include biostatisticians Ulrike Grittner (Charité—Universitätsmedizin Berlin) and Libo Li (ARG). The project also has consultants representing major world regions: Vivek Benegal (Asia), Florence Kerr-Corrêa (Latin America), Isidore Obot (Africa), and Orratai Waleewong (Asia).

At their organizational meeting preceding the 2016 Kettil Bruun Society Symposium in Stockholm, grant personnel selected a project name: GENAHTO, an acronym for Gender and Alcohol’s Harm to Others. “GEN” signifies the importance of gender in the study of AHTO, as well as the

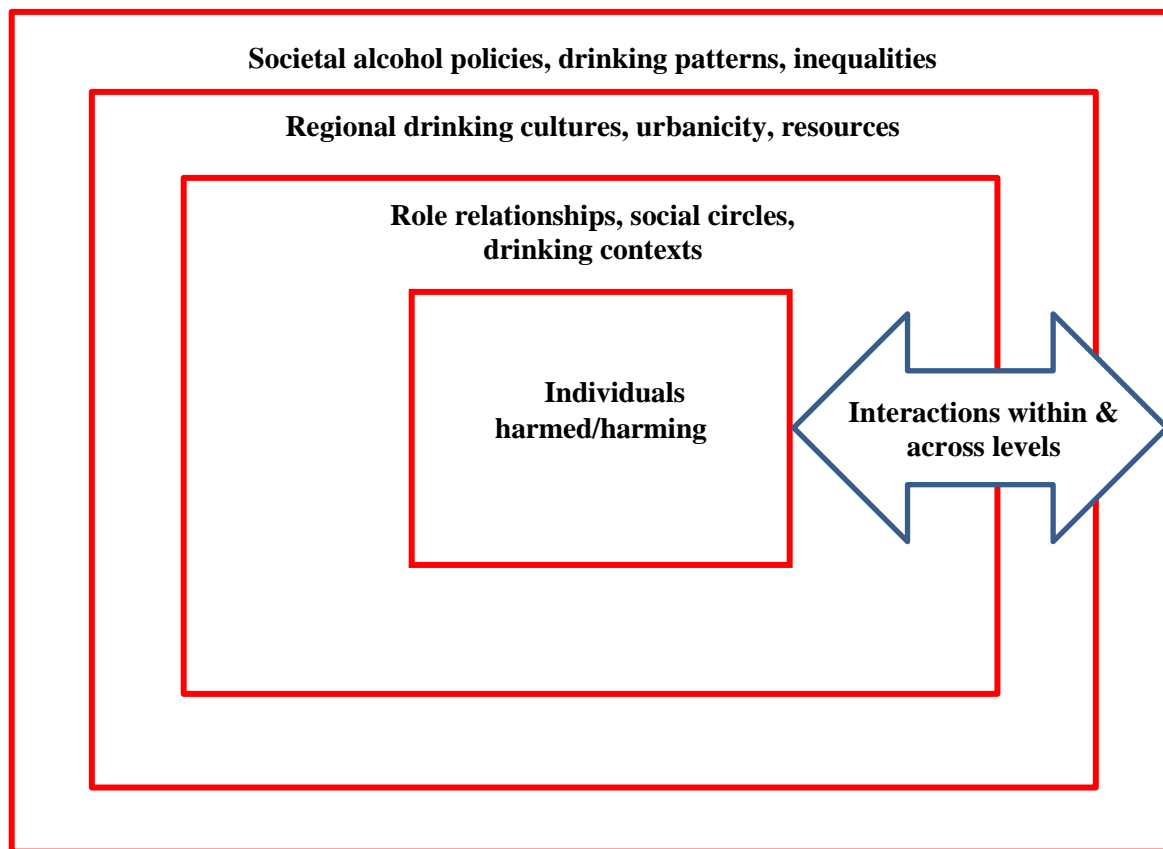
project’s continuity with the GENACIS Project. Key personnel of the GENAHTO Project meet twice a year, and the three Multiple Principal Investigators hold Skype meetings at least monthly.

Conceptual model

GENAHTO analyses are guided by several theoretical perspectives, including (1) the socioecological framework (Bronfenbrenner, 1989; Perry, Baranowski, & Parcel, 1990), emphasizing how AHTO occurs in a multilevel context with nested factors interacting to influence these harms; (2) Krieger’s ecosocial perspective (Krieger, 2001, 2011), explicating how macrosocial factors can affect harm done by drinkers; (3) Hobfoll’s conservation of resources theory (Hobfoll, 2001), identifying how loss/lack of social resources can affect vulnerability to harm from drinkers; and (4) resilience theory (Godette, Headen, & Ford, 2006; Widom, Czaja, Wilson, Allwood, & Chauhan, 2012), emphasizing how close social ties can mitigate harm from others’ drinking.

Figure 1

A conceptual model of multilevel influences on alcohol’s harm to others



No single theory can yet explain and predict alcohol’s harms to others, and no single theory is comprehensive enough to encompass all of the hypotheses and analyses proposed by the GENAHTO Project. However, multiple theoretical

perspectives have helped us construct a conceptual model in which AHTO occurs within a nested multilevel set of potential influences (see Figure 1). This model allows a more complex and realistic view of alcohol problems than has

been possible in much of the earlier research. Central are the characteristics of individuals experiencing and causing AHTO, such as gender and drinking patterns. These are imbedded in the individual's role relationships (such as in families and friendships), social circles (such as exposure to heavier drinkers), and drinking contexts (such as in public places or at home), which in turn are imbedded in regions where the individual lives (with characteristics such as urbanicity, local resources, and drinking cultures, including gender-specific rates of abstinence and heavy episodic drinking, and gender-differentiated drinking norms). The highest level of potential influences are societal characteristics, including especially national alcohol policies, but also social disparities, such as gender inequality and income inequality. Each level of impacting factors may be associated with AHTO directly (i.e., with additive effects) but also in interaction with lower- and higher-level characteristics (multiplicative or contingent effects). Multilevel modeling is used also to examine how regional factors may moderate the associations between the societal variables and AHTO, controlling for individual characteristics.

Major aims of GENAHTO Project

Aim 1: Identify characteristics of individual victims of AHTO and individual drinkers who cause AHTO. We examine both individual and social/contextual characteristics that make a person more likely to (a) *experience* and (b) *cause* AHTO. As one example, we investigate whether women evidence more family/relationship and financial harms, whereas men show more harms involving strangers, in part because of greater heavy and public drinking by men. Multilevel analyses examine, for example, whether the prevalence of AHTO is higher in regions and countries with a high Detrimental Drinking Pattern score (Gmel, Room, Kuendig, & Kuntsche, 2007).

Aim 2: Determine how rates of AHTO differ among regions within countries. We seek to learn whether differences in regional rates of AHTO (experienced and caused) within countries indicate that alcohol problem rates can no longer be adequately evaluated as national averages (Grittner et al., 2018; Wilsnack et al., in press). We also assess possible reasons for higher regional rates of AHTO, including urbanicity, socioeconomic disadvantage, and gender-specific drinking patterns (e.g., where high rates of abstinence among women combine with high rates of heavy drinking among men). Particular attention is paid to regional differences in drinking cultures (e.g., measured by injunctive norms for perceived acceptable/unacceptable levels of drinking), and how these may affect rates of AHTO (e.g., where intoxication is widely acceptable). Multilevel analyses will help reveal to what extent regional characteristics are associated with AHTO beyond what individual and country characteristics can tell us.

Aim 3: Assess how national alcohol policies and societal factors are associated with individual and regional levels of AHTO. A major aspect of this aim is to identify factors that modify associations of national alcohol policies with AHTO.

As examples, we want to learn whether regional drinking cultures that favor heavy drinking and intoxication alter how particular alcohol policies, such as restrictions on availability, are associated with individual and regional AHTO. We seek to disentangle societal patterns of alcohol consumption and other societal factors (e.g., gender inequality, income inequality) from policy variables, and to learn how effects of each on AHTO may be moderated by regional conditions.

Study Design and Methods

Major Data Sets and Their Uses

The GENAHTO Project uses 21 of the earlier GENACIS surveys. As noted above, the GENACIS surveys include a number of questions for drinkers about harms they inflicted on someone else (e.g., alcohol-related harms to family finances, disruption of an intimate relationship, aggression toward a spouse or partner), allowing us to examine AHTO *from the harming drinker's perspective*. These surveys include regional (subnational) indicators (e.g., states in federal countries, provinces, counties, postal codes, or other administrative districts), allowing multilevel analyses by region within country.

The 17 more recent AHTO surveys, including the separately funded surveys in Denmark, Ireland, Scotland, Sweden, Switzerland, and the United States, have all asked about alcohol-related harm from the *victim's* perspective. These surveys contain 13–18 items on alcohol's harms as experienced by those being harmed. In addition to variables measuring alcohol's harm to others, the AHTO surveys also contain assessments of the respondent's own alcohol use patterns and other items. Like the 21 chosen GENACIS surveys, these AHTO surveys have regional indicators, permitting refined contextual analyses.

Table 1 shows characteristics of 21 surveys from the GENACIS Project and 17 surveys focused on AHTO. The sampling frame column in Table 1 indicates which surveys had nationally representative samples and which had regional samples. The main reasons for using regional, rather than national, samples were cost and/or politics. For example, the GENACIS and the AHTO surveys in Nigeria and the GENACIS survey in Sri Lanka avoided regions where civil strife and violence made the security situation unfavorable for conducting surveys (Hettige & Paranagama, 2005; Ibanga, Adetula, Dagona, Karick, & Ojiji, 2005). Where it was necessary to conduct surveys with regional sampling frames, study directors were expected to select regions that (1) were as representative as possible of national characteristics of their country; (2) included both rural and urban areas; (3) corresponded to a governmental unit(s) that could provide aggregate statistics for cultural-level analyses; and (4) included a population with varied drinking patterns (e.g., rather than a region of abstainers only) (Laslett, Room, Waleewong, Stanesby, & Callinan, in press; Wilsnack et al., 2009; Wilsnack, Kristjanson, Benson, & Wilsnack, 2012).

Table 1

Characteristics of GENACIS and AHTO Surveys Used in GENAHTO Project

GENDER, ALCOHOL AND CULTURE: AN INTERNATIONAL STUDY (GENACIS) SURVEYS									
Country	Survey Year	Age Range	Sampling Frame	<i>N</i> Regions	Response Rate	Administration Mode	Total <i>N</i>	Men <i>n</i>	Women <i>n</i>
Australia I	2007	18+	Regional	2 ¹	38%	Telephone	2434	1000	1434
Belize	2005	18+	National	6 ²	83%	Face-to-face	3973	1903	2070
Canada	2004	18–75	National	5 ³	unknown	Telephone	13,812	5940	7872
Costa Rica	2003	18+	Regional	4 ⁴	58%	Face-to-face	1273	416	857
Czech Republic	2002	18–64	National	2 ⁵	73%	Face-to-face	2526	1244	1282
Denmark I	2003	15+	National	5 ⁶	40%	Telephone	2030	897	1133
Finland	2000	16–70	National	5 ⁷	79%	Face-to-face	1932	945	987
Germany	2000	18–60	National	8 ⁸	51%	Postal	8119	3676	4443
India I	2003	16+	Regional	4 ⁹	unknown	Face-to-face	2597	1347	1250
Ireland I	2002	18+	National	4 ¹⁰	70%	Face-to-face	1047	508	539
Mexico	1998	18–65	National	6 ¹¹	88%	Face-to-face	5711	2382	3329
New Zealand I	2007	18–70	National	5 ¹²	50%	Postal	1875	820	1055
Nicaragua	2005	15+	Regional	5 ¹³	unknown	Face-to-face	2030	614	1416
Nigeria I	2003	18+	Regional	6 ¹⁴	unknown	Face-to-face	2064	1109	955
Peru	2005	18–65	Regional	2 ¹⁵	unknown	Face-to-face	1531	516	1015
Spain	2002	18+	Regional	8 ¹⁶	unknown	Face-to-face	1850	894	956
Sri Lanka I	2002	18+	Regional	7 ¹⁷	unknown	Face-to-face	1193	603	590
Sweden I	2002	17+	National	7 ¹⁸	68%	Telephone	5472	2656	2816
Switzerland I	1997	15+	National	7 ¹⁹	68%	Telephone	12,994	5755	7239
Uganda	2003	18+	Regional	4 ²⁰	84%	Face-to-face	1478	720	758
USA I	2000	18+	National	9 ²¹	58%	Telephone	7497	3444	4053
ALCOHOL'S HARMS TO OTHERS (AHTO) SURVEYS									
Country	Survey Year	Age Range	Sampling Frame	<i>N</i> Regions	Response Rate	Administration Mode	Total <i>N</i>	Men <i>n</i>	Women <i>n</i>
Australia II	2008	18+	National	5 ²²	35%	Telephone	2649	1089	1560
Brazil	2014–15	18–59	Regional ^a	5 ²³	59%	Face-to-face	1083	474	609
Chile	2012–13	18+	Regional	5 ²⁴	72%	Face-to-face	1500	697	803
Denmark II	2011	15–79	National	5 ²⁵	64%	Web/Telephone	5133	2423	2710
India II	2013–14	18+	Regional	4 ²⁶	97%	Face-to-face	3403	1623	1780
Ireland II	2010	18+	National	4 ²⁷	unknown ^b	Face-to-face	1008	492	516
Ireland III	2015	18+	National	4 ²⁷	37%	Telephone	2005	999	1006
Lao PDR	2013	15–64	National	3 ²⁸	99%	Face-to-face	1257	519	738
New Zealand II	2008–09	12–80	National	5 ²⁹	64%	Telephone	3068	1232	1836
Nigeria II	2012–13	18+	Regional	3 ³⁰	unknown ^c	Face-to-face	2270	1390	880
Scotland	2012	16+	National	8 ³¹	unknown ^b	Face-to-face	1007	456	551
Sri Lanka II	2013–14	18+	National	6 ³²	93%	Face-to-face	2475	1214	1261
Sweden II	2013	17–84	National	7 ³³	59%	Postal & Web	15,576	7189	8387
Switzerland II/ III ^d	2012–2016	15+	National	7 ³⁴	51% /45%	Telephone	4892	2227	2665
Thailand	2012–13	18–70	National	6 ³⁵	94%	Face-to-face	1695	694	1001
USA II	2014–2015	18+	National ^e	9 ³⁶	60% ^f	Telephone	8608	3506	5102
Vietnam	2012–13	18–84	National	6 ³⁷	99%	Face-to-face	1501	753	748

^a Sao Paulo City only.

^b National quota sample.

^c A response rate of 99% was reported among households where someone was home.

^d Harms questions were asked in the 2012 and 2016 national surveys; cases from both studies were combined to provide data for these analyses.

^e Combines harms items from the 2015 National Alcohol Survey (N = 5919) and a parallel, separately funded National Alcohol's Harms to Others Survey (NAHTOS; N = 2689).

^f Cooperation rate (NAHTOS only).

¹ State of Victoria: Melbourne (including suburbs near Melbourne), other regions of Victoria (not Melbourne).

² Corozal, Orange Walk, Belize City, Cayo, Stann Creek, Toledo.

³ Atlantic Provinces (Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick), Quebec, Ontario, Prairie Provinces (Manitoba, Saskatchewan, Alberta), British Columbia.

⁴ San José, Alajuela, Cartago, Heredia.

⁵ Bohemia, Moravia.

⁶ Hovedstaden (Capital Region), Sjaelland (Zealand), Syddanmark (Southern Denmark), Midtjylland (Central Denmark), Nordjylland (Northern Denmark).

⁷ Uusimaa, Southern Finland, Eastern Finland, Western Finland, Northern Finland.

⁸ Schleswig-Holstein, Hamburg; Lower Saxony, Bremen; North Rhine-Westphalia; Hesse, Rhineland-Palatinate, Saarland; Baden-Württemberg; Bavaria; Berlin, Brandenburg, Mecklenburg-Western Pomerania; Saxony, Saxony-Anhalt, Thuringia.

⁹ Karnataka State: Bangalore, Bangalore rural, Bagalore urban; Bidar; Dakshina Kannada; Davanagere, Davanagere urban.

¹⁰ Dublin, Rest of Leinster, Munster, Connaught /Ulster.

¹¹ Baja California, Baja California Sur; Chihuahua, Durango, Sonora, Sinaloa; Coahuila, Nuevo Leon, Tamaulipas; Jalisco, Michoacan, Guanajuato, San Luis Potosí; Distrito Federal, Estado de Mexico, Morelos, Puebla, Hidalgo; Veracruz, Chiapas, Tabasco, Yucatan.

¹² Upper North Island, Mid North Island, Lower North Island, Upper South Island, Lower South Island.

¹³ Estelí (north), Juigalpa (east), Rivas (south), León (west), Bluefields (Atlantic coast).

¹⁴ Benue (north), Federal Capital Territory (north), Nasarawa (north), Plateau (north), Akwa Ibom (south), Rivers (south).

¹⁵ Lima, Ayacucho.

¹⁶ Cantabria, Alicante, Castellon, Valencia, La Coruña, Lugo, Orense, Pontevedra.

¹⁷ North Western Province, North Central Province, Central Province, Uva, Southern Province, Sabaragamuwa, Western Province.

¹⁸ Kronoberg, Blekinge, Halland; Norrland; Other Götaland (not Western Götaland); Other Svealand (not Stockholm); Skåne; Greater Stockholm; Western Götaland.

¹⁹ Area around Lake Geneva, Swiss Plateau, Northwestern Switzerland, Zurich, Eastern Switzerland, Central Switzerland, Tessin.

²⁰ Wakiso (central), Kabale (west), Tororo (east), Lira (north).

²¹ New England, Mid Atlantic, Northeast Central, Northwest Central, South Atlantic, Southeast Central, Southwest Central, Mountain, Pacific.

²² New South Wales and Australian Capital Territory; Victoria and Tasmania; Queensland; South Australia; Western Australia and Northern Territory.

²³ Districts of São Paulo city divided into five groups North São Paulo, South São Paulo, East São Paulo, West São Paulo, Center São Paulo.

²⁴ Seven cities and surrounding areas, located in five regions: Northern Chile (Northern tip), North Central Valley, Central, South Central Valley, Southern Chile (Southern tip).

²⁵ Hovedstaden (Capital Region of Denmark), Sjaelland (Zealand), Syddanmark (Southern Denmark), Midtjylland (Central Denmark), Nordjylland (Northern Denmark).

²⁶ Karnataka State: Bangalore, Kolar, Hubli, Manipal.

²⁷ Dublin, Rest of Leinster, Munster, Connaught/Ulster.

²⁸ Vientiane Capital, Luangprabang, Champasack.

²⁹ Upper North Island, Mid-North Island, Lower North Island, Upper South Island, Lower South Island.

³⁰ Benue (north), Akwa Ibom (south), Rivers (south).

³¹ Highlands and Islands, North East Scotland, Mid Scotland & Fife, Lothian (Lothians), Central Scotland, Glasgow, West Scotland, South Scotland.

³² Western region (most urbanized); largely plantation districts; Southern province (mostly Sinhalese); Northeast region (largely minorities); mostly rural region; largely plantation region, but also rural.

³³ Kronoberg, Blekinge, Halland; Norrland; Other Götaland (not Western Götaland); Other Svealand (not Stockholm); Skåne; Greater Stockholm; Western Götaland.

³⁴ Area around Lake Geneva, Swiss Plateau, Northwestern Switzerland, Zurich, Eastern Switzerland, Central Switzerland, Tessin.

³⁵ Chonburi, Surat Thani, Chiang Mai, Khon Kaen, Bangkok, Other Provinces (specific locales).

³⁶ New England, Mid Atlantic, Northeast Central, Northwest Central, South Atlantic, Southeast Central, Southwest Central, Mountain, Pacific.

³⁷ Dak Lak Province, Khanh Hoa Province, Long An Province, Dong Nai Province, Lai Chau Province, Vinh Phuc Province.

Measures

Individual-level measures for the WHO–TH surveys (Callinan et al., 2016) and the GENACIS surveys (Wilsnack et al., 2009) have been described in detail elsewhere. Nonetheless, a few examples are given here.

Drinking-related questions in the GENACIS surveys obtained information about drinking patterns as well as the total volume of alcohol consumed. The surveys included questions about the generic frequency and quantity per drinking day (combining all types of alcoholic beverages), beverage-specific frequency and quantity (asked separately for wine, beer, and liquor), and consumption of locally produced or culturally unique beverages. The GENACIS questionnaire contained a reference chart for estimating average sizes of “drinks” of each type of alcoholic beverage and for converting drinks into grams of absolute alcohol (ethanol). Drinking-related questions in most AHTO surveys were less detailed than in the GENACIS surveys. However, it is usually possible to characterize the generic quantity and frequency of alcohol consumption of the respondent and the generic quantity and frequency of heavy and intoxicated drinking of the person designated as the “most harmful heavy drinker” in the respondent’s life.

As noted earlier, both the GENACIS surveys and the AHTO surveys have questions about *alcohol-related harms*. Most of the GENACIS surveys have eight or more questions about alcohol-related harms that the respondent’s own drinking has *inflicted on others*. These questions ask about such problems as getting into a fight because of one’s drinking, losing a friendship or other close relationship, or having financial problems. The eight common AHTO included in the GENACIS surveys are listed in an early GENAHTO paper (Wilsnack et al., in press).

The 17 AHTO surveys contain 13 to 18 items on alcohol’s harms as experienced by those *being harmed*. These items range from harm committed by strangers (e.g., being threatened or yelled at by a drunken stranger; being kept awake at night by noise from drunken people) to being harmed (e.g., physical abuse, sexual abuse, neglect) by a known household or family member. The 13 questions in the “Brief Assessment of Harms” are listed on the GENAHTO website (www.genahto.org).

Many *regional-level variables* (e.g., education, income, urbanicity, gender inequality, income/educational inequality) are aggregated from responses of survey participants in each region. Regional- and societal-level drinking culture variables can also be aggregated from key individual-level alcohol variables, including 12-month abstinence, frequency of drinking days, quantity (standard drinks consumed) per drinking day, maximum drinks consumed, and injunctive drinking norms. Some *societal-level measures* are available from archival sources—for example, gender inequality (Dijkstra & Hanmer, 2000; Hausmann, Tyson, & Zahidi, 2007; Permanyer, 2013; Schwab et al., 2017) and income inequality (World Bank, 2017).

Information on *alcohol policies* for each country are obtained from WHO Global Status Reports (WHO, 2011, 2014) and the WHO Global Information System on Alcohol and Health (GISAH) (WHO, 2013), using alcohol policies in effect the year prior to each survey, updated where necessary by country study directors. For the United States we use NIAAA’s *Alcohol Policy Information System* (NIAAA, 2008). Our policy classification, guided by three cross-national policy studies (Brand, Saisana, Rynn, Pennoni, & Lowenfels, 2007; Cook, Bond, & Greenfield, 2014; Paschall, Grube, & Kypri, 2009), emphasizes four alcohol policy domains: physical availability, prices, advertising, and motor vehicle operation. In countries where there is internal variation in alcohol policies, policies may need to be studied at both subnational and national levels.

The WHO GISAH has several limitations. For example, a number of variables are either binary (e.g., alcohol excise taxes) or inadequately measured (e.g., pricing). Better price data from the World Bank and from the *ATLAS on Resources for the Prevention and Treatment of Substance Use Disorders* (WHO, 2010) may help in calculating affordability indices, following methods by Brand et al. (2007). There will remain uncertainty regarding enforcement of alcohol policies, but GISAH data have shown promise in multinational studies predicting several outcomes (e.g., Cook et al., 2014; Paschal et al., 2009).

Data Analysis Methods

One major data analysis method used in GENAHTO is *multilevel modeling* (Raudenbush & Bryk, 2002)—for example, to examine variability in individual (level-1) relationships across characteristics of countries and regions in three-level models. Random effects for both region and country in the same model (i.e., three-level models) can be used to determine how much of the variation in AHTO is related to differences between countries versus differences between regions.

A second major analytic method used in the GENAHTO Project is *propensity score (PS) methods* (Rosenbaum & Rubin, 1984; Rubin, 1997). For example, when evaluating how AHTO predicts victims’ health outcomes, PS methods can balance effects of confounding variables (e.g., age, education, urbanicity) on harmed versus not harmed groups. Although limited to simple cross-group comparisons, PS matching can allow clearer inferences about effects of AHTO than would be provided by standard regression approaches. PS analyses will be the main analytic technique when outcome differences between two well-defined groups (e.g., harmed vs. non-harmed individuals) are of primary interest (Karriker-Jaffe, Li, & Greenfield, 2018). Multilevel models will be used when estimation of effects of multiple variables (including confounders) are of interest.

Ethical Review

Each country survey was reviewed according to the ethical principles and methods that apply to research participants in that country. The overall GENACIS Project was approved by the Institutional Review Board of the University of North Dakota. The WHO–TH Project was approved by the WHO

Ethics Review Committee, and the overall GENAHTO Project was approved by the Institutional Review Board of the Public Health Institute.

Future Directions and Public Health Implications

Additional Countries

Several additional countries have asked the GENAHTO Project for guidance and support in conducting AHTO surveys. For example, a research group in Ukraine has received funding to interview family members of persons in treatment for alcohol use disorders, to learn about harms family members have experienced from the treated individual's drinking. The Ukraine group also hopes to interview a representative general population sample, which could be part of collaborative analyses of the GENAHTO Project. As other researchers and policy makers increasingly recognize the important costs of heavy drinking for people other than the drinkers, we hope that more countries will decide to conduct AHTO surveys of their own populations. We encourage those countries to use definitions and measures that are comparable to those in the GENAHTO Project (e.g., to include as a minimum the 13-item "Brief Assessment of Harms" mentioned above).

Longitudinal Research

Current surveys of the GENAHTO Project are cross-sectional, limiting inferences about temporal-causal relationships among variables. We hope that the cross-sectional analyses of the GENAHTO Project will suggest fruitful directions for future longitudinal research that can clarify time-ordered patterns and causal associations of alcohol's harms to others.

Potential Implications for Surveillance

It has become clear that surveys monitoring *trends* in alcohol consumption and effects of alcohol policies need to ask about harmful consequences of alcohol consumption not just for the drinker, but also for persons other than the drinker. As noted earlier, studies attempting to estimate the financial costs of AHTO (e.g., Laslett et al., 2010) have found that including alcohol's harms both to the drinker and to other persons may greatly increase (perhaps even twofold) the estimated societal costs of heavy alcohol consumption.

Effective (and cost-effective) international monitoring of public health risks depends on use of consistent measurement in multiple countries and regions (e.g., Moskalewicz, Room, & Thom, 2016). Ideally the GENAHTO Project could identify and disseminate the most useful questions to ask about AHTO in diverse societies and cultures. GENAHTO investigators are currently trying to assess the perceived severity of various alcohol-related harms to learn whether there are specific AHTO that are consistently perceived as "severe/very harmful" or as "mild/not very harmful." GENAHTO findings to date indicate considerable variation across countries and regions within countries (and probably across various drinking

contexts), in the prevalence of specific harms and also in how severe given harms are perceived to be. Ultimately, an important contribution of the GENAHTO Project to international surveillance efforts may be to determine to what extent commonly used harm questions have similar versus different meanings in different cultural contexts, and to clarify the questions that should be asked to ensure that harmful consequences of others' drinking are appropriately and accurately assessed.

Implications for Intervention and Policy

A long-term goal of the GENAHTO Project is to inform prevention and intervention planning and alcohol policy development. Increased understanding of individual and social characteristics of both perpetrators and victims of AHTO may help identify high-risk groups as targets for prevention and intervention. An urgent need exists for evidence-based evaluation of alternative intervention strategies for the high-risk groups thus identified. A recent expert panel (Karriker-Jaffe, Room, Giesbrecht, & Greenfield, 2018) advocates a public health approach that "gives preference to interventions that not only are broadly effective but also minimize social labeling and stigmatization" of individual heavy or problem drinkers (p. 241).

A recent study based on emergency-room data in 28 countries found that higher scores on an index of alcohol policy variables drawn from GISAH in four policy domains were associated with fewer alcohol-related injuries (Cherpitel et al., in press). Domains in the index included (1) physical availability of alcoholic beverages (such regulations as legal minimum drinking age, government retail monopoly, restrictions on outlet density, and limits on hours and days of sale); (2) vehicular policies (e.g., random breath testing, legal BAC limits, and related penalties); (3) advertising and promotion regulations; and (4) drinking context-related programs (such as community mobilization and training in responsible beverage service). GENAHTO research may help reveal how such alcohol policy domains are associated with levels of harms from others' drinking, thereby providing evidence to inform alcohol policy-making. Furthermore, better identification of regional characteristics and their association with the effectiveness of specific alcohol policies may help to identify optimal "matches" of alcohol policies and regional characteristics.

Finally, it is good that we now recognize the much higher societal cost of alcohol-related problems when harms that drinking causes to *other people* are added to the harms to the drinker. We hope that this recognition will increase efforts to prevent and reduce the multiple harms caused by heavy and harmful use of alcohol.

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