Cross-National Comparisons of Sex Differences in Opportunities to Use Alcohol or Drugs, and the Transitions to Use

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Abstract

Sex differences in opportunities to use alcohol or drugs, and transition to use, were investigated in 15 surveys, in 2001–2004 (Europe 6; Americas 3; Africa 2, Asia 3; Oceania 1). The paper focuses on 18–29 year olds (N = 9,873). The World Mental Health Survey Initiative oversaw the surveys; each country obtained its own funding. A complex picture emerged with different results for alcohol and for drugs and for opportunity to use and the transition to use. Sex differences in

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opportunity to use alcohol were small except in Lebanon and Nigeria, whereas for drugs, the largest differences were in Mexico and Colombia.

Keywords

alcohol drinking; street drugs; sex factors; epidemiology; natural history; opportunity to use

INTRODUCTION

Male–female differences in the use of alcohol and drugs occur in most countries, with males being more likely than females to use at all (Aguilar-Gaxiola et al., 2006; Holmila & Raitasalo, 2005; Medina-Mora, 2001; Mental Health Evidence and Research, & Department of Mental Health and Substance Abuse, 2006; World Health Organization, 1999). What is less clear is whether these sex differences in the percentage who have ever used substances have arisen through unequal opportunity to use alcohol or drugs, or in the progression from the first "substance exposure opportunity" to actual first use of the substance.

There are now a number of US studies that have examined these two stages, using the perspective of infectious disease epidemiology in which an "exposure opportunity" corresponds to "the chance to try a substance," and consequent infection given exposure corresponds to substance use given the opportunity to use. One of the earliest such papers looked at marijuana use in the United States in National Household Surveys on Drug Abuse (NHSDA) samples (Van Etten, Neumark, & Anthony, 1997). Subsequent analyses investigated sex differences for marijuana, cocaine, hallucinogens, and heroin and showed that males were more likely than females to ever have an opportunity to use drugs, but that there were few sex differences in use given opportunity (Van Etten & Anthony, 1999; Van Etten, Neumark, & Anthony, 1999), even among subgroups. Wagner and Anthony (2002) found the same in "time to event" analyses of the US data, and formalized a theoretical proposition about first drug exposure opportunity and the transition to first drug use as two separable mechanisms in the progression toward serious drug involvement.

Similar studies outside the US mainland have been restricted to adolescents at school in Guam (Storr, Arria, Workman, & Anthony, 2004), Panama (Delva et al., 1999), Mexico (Benjet et al., 2007; Wagner et al., 2003), and other Latin American countries (Chen, Dormitzer, Bejarano, & Anthony, 2004). Again, males were more likely than females to have an opportunity to use drugs. Use was not assessed in Guam. In the Latin American countries, females were equally or more likely than males to make the transition from opportunity to first use.

The World Mental Health (WMH) Initiative[1] surveys (http://www.hcp.med.harvard.edu/wmh/, accessed February 11, 2009) were designed to include standardized questions for

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[1]The World Mental Health (WMH) Survey Initiative aims to obtain accurate cross-national information about the prevalences and correlates of mental, substance, and behavioral disorders. The WMH Survey Consortium includes nationally or regionally representative surveys from countries in Europe, the Americas, Africa, the Eastern Mediterranean, and the Western Pacific (http://www.hcp.med.harvard.edu/wmh/). Within this consortium, the Drug Dependence workgroup led by Professor J. Anthony is funded to investigate drug use and disorders.

alcohol and other drugs that would enable estimates of opportunity to use and the transition from opportunity to first use. This paper presents results from the first 15 completed surveys in five of the World Health Organization regions. The first aim is to see whether the previous findings for drugs from studies in the United States and of Latin American adolescents hold in all these WMH surveys and also to see whether they hold for alcohol. The second aim is to look at country-wide measures of gender equality to see whether these are associated with the observed male–female differences in opportunity to use alcohol or drugs and the transition to first use. If the rank order of gender differences across countries is similar for alcohol and for drugs, a single country descriptor such as the Gender Empowerment Measure (GEM) (http://hdr.undp.org/hdr2006/, accessed February, 11, 2009) may explain much of the cross-country variation. In contrast, if the pattern of differences is not similar for alcohol and drugs, then substance-specific explanations are required.

Because of the complexity of looking at both opportunity to use and use given opportunity, for alcohol and for drugs, across 15 surveys, in the presence of varying time trends, this paper presents results only for the youngest age group, namely those who were 18–29 years of age at the time of interview. This also reduces the recall problems and biases, which may have occurred for older people. Results for other age groups are available on request.

METHODS

Descriptions of methods for each survey are in the individual country chapters and methods chapters of the first volume from the WMH Survey Consortium (Kessler & Ustun, 2008) and in some individual papers (http://www.hcp.med.harvard.edu/wmh/, accessed February, 11, 2009).

Surveys and Participants

Data from 15 surveys in 14 countries were available for this study. All surveys produced probability samples that were representative of the country or regions included. Nine samples were nationally representative. Table 1 shows the characteristics of the surveys and the sample sizes.

The Interview

All surveys used the WMH Composite International Diagnostic Interview (CIDI), which is now the CIDI 3.0. This is a personal interview delivered either as a computer-assisted personal interview (CAPI) or as a pencil and paper interview (PAPI). The interview was divided into Part 1, which everyone was asked, and Part 2, which contained additional sections. Selection into Part 2 was based on responses to Part 1; those with anxiety or mood diagnoses from Part 1 or reports of a suicide plan or attempt or hospital admission for mental problems went on to Part 2, as did a random sample of other respondents. The substance use section was in Part 1 in Mexico, Colombia, and New Zealand, and in Part 2 in the other surveys.

Variables

At the end of the substance use section, everyone was asked directly about the opportunity ever to use alcohol or other drugs:

> By an opportunity to use I mean someone offered you alcohol or drugs, or you were present when others were using and you could have used if you wanted to. Please do not include times when a health care provider may have offered you free samples.

Separate responses were recorded for alcohol and for drugs.

Alcohol use and symptom questions were asked prior to questions about other drugs. Drug use questions (ever, first use, use in the last year) were asked for four drug groups: cannabis, cocaine, prescription drugs (used not as prescribed), and a composite group of any other drugs. Symptom questions were asked only from those who had ever used drugs. The opportunity to use question, which followed these drug questions, did not distinguish between drug groups except in ESEMed (Belgium, France, Germany, Italy, the Netherlands, Spain), the first in the field, for which opportunity to use and use were asked separately for analgesics, cannabis, and cocaine. However, because the analgesic lists shown to participants in most of these countries included over-the-counter drugs such as aspirin, only responses to cannabis and cocaine questions were included for these six countries.

Use given opportunity was calculated from reports of use and opportunity for alcohol and for drugs.

Country Measures of Gender Inequality

Two measures of gender inequality were obtained from the Human Development Report 2006 (United Nations Development Programme, 2006; (http://hdr.undp.org/en/reports/global/hdr2006/, accessed February, 11, 2009) using data from 2004, the latest date of the WMH surveys in this paper. The GEM is a composite index measuring gender inequality in political participation and decision-making, economic participation and decision-making, and power over economic resources. GEM is not available for all countries; no GEM was available for Lebanon or Nigeria, and 2007 values had to be used for France and China. There are complete data on a rather crude indicator produced from the difference in rank for a country on the Human Development Index (HDI), and its rank on the Gender-related Development Index (GDI), which penalizes for gender disparities. For the WMH countries included here, only Japan has a marked discrepancy (−5), indicating gender inequality (in spite of high development).

A further indicator is the percentage of seats held by women in the national parliament (Indicator 3.3 of the UN Millenium goals; http://mdgs.un.org/unsd/mdg/Data.aspx, accessed February, 11, 2009).

Data Analysis

All estimates were weighted according to study design variables, including the probability of selection into Part 2, if the substance use section was in Part 2. There was also adjustment for nonresponse and post-stratification to census variables, where possible.

Because of the complex design of each survey, Taylor series linearization was used to produce estimates, taking account of stratification, clustering, and weighting.

Prevalence estimates and forest plots were produced using SAS (PROC SURVEYFREQ). Sex differences were estimated by SUDAAN (PROC DESCRIPT).

RESULTS

Opportunity to Use Alcohol or Drugs

For males, the percentage that had had an opportunity to use alcohol ranged from 72% in Nigeria up to 100% in Japan, and was over 95% in another seven surveys. For women, the percentage ranged from 51% in Nigeria to 99% in the Netherlands and Japan (Table 2), again with seven other surveys with percentages of 95% or more. Figure 1(a) illustrates the magnitude of the observed sex differences in opportunity to use alcohol and the precision of the estimates. It clearly shows that the largest sex differences were seen in Lebanon (30%) and in Nigeria (21%). Males were also significantly more likely than females to have had an opportunity to use alcohol in Mexico (5% difference). The remaining 11 surveys had no significant difference between men and women, although the precision of the estimated difference varied widely because of the sample sizes.

A different pattern emerged for the opportunity to use drugs. This was much less common than the opportunity to use alcohol in all 15 surveys and was under 30% for Lebanon, Nigeria, Japan, and both Chinese sites (Table 2). Figure 1(c) shows that the largest sex differences were found in Mexico (42%), Columbia (28%), and Belgium (29%). The sex differences in Italy (16%), Nigeria (11%), the USA (9%), and New Zealand (6%) were also significant. Six of the other eight surveys also found males to be more likely to have an opportunity to use drugs, although no differences were significant and difference estimates were quite imprecise, especially for low-opportunity countries. As for alcohol, there were no surveys in which men were significantly less likely than women to have had an opportunity to use drugs.

Use Given an Opportunity to Use

For alcohol, the progression from opportunity to actual use was over 90% for males in all surveys except for Beijing (87%) and Lebanon (75%). For females, the range was 80% (Shanghai) to 99% (Germany and Japan). Figure 1(b) shows that the sex difference was significant only in Mexico (8%) and Italy (9%), with a marginally significant difference in Shanghai (14%). Germany and New Zealand had quite precise small estimates (1% and 0%, respectively). Other surveys had broader confidence intervals for the sex difference, particularly lower use countries such as Lebanon, Nigeria, Beijing, and Shanghai. The evidence for sex differences in the progression to use of alcohol is mixed. Males are more

likely to progress in Mexico and Italy, and there is clearly no sex difference in Germany or New Zealand and only a small difference in Columbia, but in all the other surveys, the estimates of sex differences are imprecise.

For drugs, the progression from opportunity to use was much lower than for alcohol and ranged widely across countries (18%–87%). Because the opportunity to use drugs was less common than the opportunity to use alcohol, the progression estimates from opportunity through to use were particularly imprecise for those countries where drug use opportunities were low. In Italy and in the three surveys in the Americas, males were significantly more likely than females to progress to use [Italy (29%), Mexico (15%), USA (15%), and Colombia (12%)], with a similar trend in Spain (15%). In contrast, New Zealand (−2%) showed quite precisely that there was *no* sex difference in progression. Other countries also showed no evidence of differences, but confidence intervals were wide (Figure 1). The three Asian surveys had so few participants with an opportunity to use drugs that no estimates were reported for the progression from opportunity to use.

Gender Inequality, Economic Development, and the Opportunity to Use and Subsequent Use

The diversity of results across substances (alcohol versus other drugs) precludes the use of any single national measure of gender inequality per country to explain the extent of sex differences across all the countries included here. Even though the measures are country-wide whereas some WMHS surveys are regional, and the measures apply to all ages whereas only 18–29 year olds are included in the WMHS analyses here, such measures do nonetheless provide a context for understanding what is seen, particularly within groups of countries classified by economic development or region. The section presents no new estimates but makes different contrasts.

Opportunity to use alcohol was almost universal in the high-income countries of Europe, the USA, and New Zealand, and there were no sex differences. Opportunity to use drugs was also very common in the USA and New Zealand (>80%) and common for males in Europe (>60%), except for Italy (41%). Male–female differences in the opportunity to use drugs were significant in Belgium (29%), Italy (16%), the USA (9%), and New Zealand (6%), and positive though not significant in the remaining European countries except in the Netherlands, where the difference was nonsignificantly negative. These countries all have high values on the Gender Empowerment Measure (GEM), with a range from 0.693 (Italy) to 0.859 (Netherlands).

Mexico and Colombia and Lebanon and Nigeria formed contrasting pairs of countries in terms of opportunity to use alcohol and drugs. Males were much more likely than females to have an opportunity to use alcohol in Lebanon (30% difference) and Nigeria (21% difference), whereas sex differences were small in Mexico (5%) and Colombia (2%). For an opportunity to use drugs, large sex differences were found in Mexico (42%) and Colombia (28%), but differences were much smaller in Lebanon (6%) and Nigeria (11%), where both sexes had low opportunity to use drugs. Mexico and Colombia score only moderately on the GEM (0.59 and 0.50, respectively). There are no GEM scores for Lebanon and Nigeria, but

on one measure of sexual inequality—seats held in the national parliament by women—they have the lowest percentage of all countries considered here (2.3% and 6.7%, respectively).

The Asian surveys were distinguished by moderate-to-high opportunity to use alcohol but low opportunity to use drugs, with no significant sex differences for either substance.

Comparison Across Birth Cohorts for the United States and New Zealand

As previous studies of opportunity to use and the progression to use in adults have all been carried out in the United States, results over all ages and across birth cohorts are reported for that country to enable comparisons with previous findings. In addition, results from New Zealand are reported here because they are based on the largest sample. Results for all other surveys are available on request.

Sex differences in the opportunity to use alcohol in the United States were consistent in magnitude across the three age cohorts of 18–29 years, 30–44 years, and 45+ years (1%–4%). The sex difference in opportunity to use drugs was largest in the 45+ age group (23%, $p < .001$) but still significant in the 30–45 age group (6%, $p < .02$) and the 18–29 age group (9%, $p < .0001$). The opposite pattern was observed for use of drugs, given the opportunity to use. Sex differences were small in the oldest age group (4%, $p = .33$), larger for 30–44 year olds (9%, $p = .006$), and largest for the youngest age group (15%, $p < .0001$).

In New Zealand, as in the USA, sex differences for alcohol were consistent across age groups and were small (0%–2%). In contrast, sex differences decreased across the age groups from oldest to youngest both for an opportunity to use drugs (14%, 9%, 6%) and for use given opportunity (12%, 6%, −2%).

DISCUSSION

The variation in results across countries and across substances (alcohol or other drugs) shows that there is no cross-nationally consistent pattern of sex differences in the opportunity to use or in the progression from opportunity through to use among young adults aged 18–29 years, born between 1972 and 1986. In contrast to previous results in the United States (Van Etten & Anthony, 1999, 2001; Van Etten et al., 1997, 1999) and among Latin American adolescents (Benjet et al., 2007; Chen et al., 2004; Delva et al., 1999; Wagner et al., 2003), sex differences are not always manifested in the first stage (opportunity to use), and there was variation across countries in the second stage (the transition through to use). In some countries, sex differences were small at both stages, particularly for alcohol, in other countries they were apparent for both stages, and in the remainder, the previous pattern was observed, at least for drugs. Nonetheless, in no country were alcohol or drugs *more* available for females nor were females more likely than males to make the transition from opportunity through to actual use.

The countries included here provide a number of contrasts. The Catholic countries of Mexico and Colombia have ready access to alcohol and small sex differences, whereas Lebanon and Nigeria, with large Muslim populations, have less access to alcohol and large sex differences. For drugs, the largest sex differences in the opportunity to use were seen in

Mexico and Colombia, whereas in Lebanon and Nigeria, neither sex was likely to have an opportunity to use drugs. All four countries have relatively large levels of sexual inequality, but how this is manifested in the first stages toward substance use depends on the acceptability of the substance. Sex differences in the opportunity to use a substance may be small if the substance is acceptable in the society, regardless of levels of sexual inequality, but are marked if there are religious or social sanctions against use, in the context of availability and sexual inequality.

Sex differences in the first two stages toward use are constrained by ceiling effects, as in the developed countries where the opportunity to use alcohol and the transition through to use are nearly universal, and floor effects, as in Beijing and Shanghai where the opportunity to use drugs was uncommon so that the transition from opportunity to use could not be observed.

The time trends in the United States in this paper suggest that as drugs become more widely available, sex differences may move from the first stage (opportunity to use) to the second stage (the transition through to use). The time trends from New Zealand provide a counter-example whereby there is a decline in sex differences for both stages for more recent birth cohorts. New Zealand is a much more secular society than the US, with 43% reporting no religion either explicitly (26%) or by not replying (17%) to this question in the 2001 census, whereas in the 2000 US census only 10% reported that they had no religion.

The failure to replicate the previous results does not invalidate the usefulness of the two-stage approach. Indeed, it shows the need to investigate each stage in each country to find out how young people gain an opportunity to use drugs and what influences their decision to use alcohol or drugs if they do have the opportunity to do so (Moon, Hecht, Jackson, & Spellers, 1999). Prevention policies and activities need to be based on what substances are available in a country, who has access to them, and how. The policy context also includes the extent of religious or social prohibitions or restrictions on substance use. Muslim prohibition against alcohol use continues, but Protestant objections have declined from the high period of the Temperance (abstinence) Movement in the late nineteenth and early twentieth centuries. Social prohibitions against use of alcohol or other drugs by women appear to be related to the role of women in society, something that has changed markedly in the twentieth century. Modern prevention strategies by secular governments are unable to promulgate religious views on substance use but may find that such views, if widespread, may provide support for nonreligious measures such as taxation and licensing of alcohol and laws related to alcohol and other drugs. Religious views may also produce objections to harm reduction approaches, particularly for drugs other than alcohol. Where there are large sex differences in opportunities to use drugs or in use given opportunity, then part of a prevention approach would be to monitor and try to influence any attempts to reduce such differences, such as alcohol marketing campaigns aimed particularly at women (Lebanon and Nigeria would be the key countries to watch here).

The advantages of these surveys are the use of probability samples, standardized interviews, and many techniques to ensure high quality data collection (Heeringa et al., 2008; Pennell et al., 2008). One limitation of these surveys, however, is that like all other epidemiological

studies of substance use, they rely on self-report. This reliance on self-report, with its problems of recall, was reduced by restricting most analyses to 18–29 year olds, instead of using all adults. Another limitation comes from nonresponse, particularly in the European countries apart from Spain and Italy. Even with response rates of over 70%, which are regarded as acceptable for community surveys, there is the possibility of nonresponse bias (Heeringa et al., 2008). Furthermore, the opportunity to use drugs was reported for all drugs together. Thus, across-country differences in opportunities and progression to use for specific types of drugs cannot be estimated. Although cannabis is the first drug to be used in many countries (Degenhardt et al., 2008; Wells, McGee, Baxter, Agnew, & Kokaua, 2009), so results for opportunity to use will be for cannabis, this is not the situation in countries such as Nigeria where cannabis use is uncommon (Gureje et al., 2007).

A conceptual framework for future large-scale epidemiological research arises from this study and earlier work. The earliest involvement with alcohol or drugs is broken into discrete stages, enabling transitions between the opportunity to use and subsequent use to be examined. Sex differences are a fruitful topic for investigation because sex is clearly an exogenous variable, not influenced by exposure to alcohol or drugs, yet sex roles differ so much developmentally, across societies, through time and space, that sex differences provide a window into the influence of social factors such as culture and religion. For instance, among adults living in countries where opportunities to try alcohol or other drugs are prevalent, there may be smaller sex differences in the first two stages, namely in the opportunity to use and then first use—notwithstanding the developmentally earlier male excess in opportunity to try that was found in the original research on this topic (Van Etten & Anthony, 1999; Van Etten et al., 1999). The differences so often found in adult consumption must therefore be traced to processes that come into play after first use. In some other countries, women are protected from use by not having had the opportunity to try drugs. In the two metropolitan cities in China at least, both sexes are protected from drug use; few have had the chance to try. These different patterns preclude generalization about sex differences and require data about each specific drug in each country. When longitudinal studies are possible, beginning well before adolescence, then a rich set of data about early childhood, early psychiatric problems, family, school, and local environment can be collected, with temporal information enabling appropriate causal inferences. However, most large-scale epidemiological studies are cross-sectional surveys, in part because of the time and resources required for longitudinal research, and because of the need for surveillance of trends that become clear only with repeated surveys. It is difficult to distinguish cause from consequence in cross-sectional surveys, and a caution is required for inferences about possible endogenous variables that arise from previous use. For instance, educational attainment, current income, or current neighborhood may be outcomes rather than causes of use.[2] For causal analyses, in contrast to descriptive analyses, there needs to be an initial focus upon the limited set of exogenous variables that can be measured with relative accuracy, reliability, and cost-efficiency in the large sample survey context. For example, it is straightforward to estimate year of birth, sex, race, and other aspects of family history or

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[2]The reader is referred to Hills's criteria for causation which were developed in order to help assist researchers and clinicians determine whether *risk factors* were causes of a particular disease or outcomes or merely associated [Hill, A. B. (1965). The environment and disease: Associations or causation? *Proceedings of the Royal Society of Medicine, 58*, 295–300]. Editor's note.

life experience such as the death of a parent during early childhood, that predate the onset of the first chance to try a drug, or first use. Even early onset conduct disorder can be assessed through self-report, though undoubtedly with some measurement error. Asking adolescents or young adults about opportunity to use and first use, as well as current use, provides information about the initial stages and can assist in understanding of the development of use in a society.

Acknowledgments

Biography

J. Elisabeth Wells, Ph.D. (New Zealand), is a biostatistician/psychiatric epidemiologist in the Department of Public Health and General Practice at the University of Otago, New Zealand, who is particularly interested in epidemiology and survey methodology, and in use, abuse, and dependence on alcohol and other drugs, as well as in other mental disorders. She is the author of over 160 papers.

GLOSSARY

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Opportunity to use	In this paper, the first stage leading to drug use is an opportunity to use drug. Participants were asked by an interviewer, "By an opportunity to use I mean someone offered you alcohol or drugs, or you were present when others were using and you could have used if you wanted to. Please do not include times when a health care provider may have offered you free samples."
Use given opportunity	This is the second stage in which individuals transition from opportunity to use through to use. Use may follow the first opportunity to use at anytime—immediately, years later, or never.
Drugs	Apart from alcohol, the other drugs asked about were those from four drug groups: canabis, cocaine, prescription drugs (used not as prescribed), and a composite groups of any other drugs known to be used for non medical purposes in the country surveyed.

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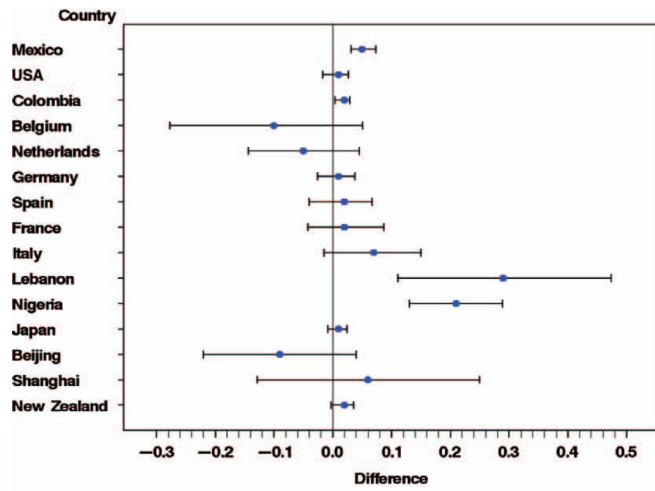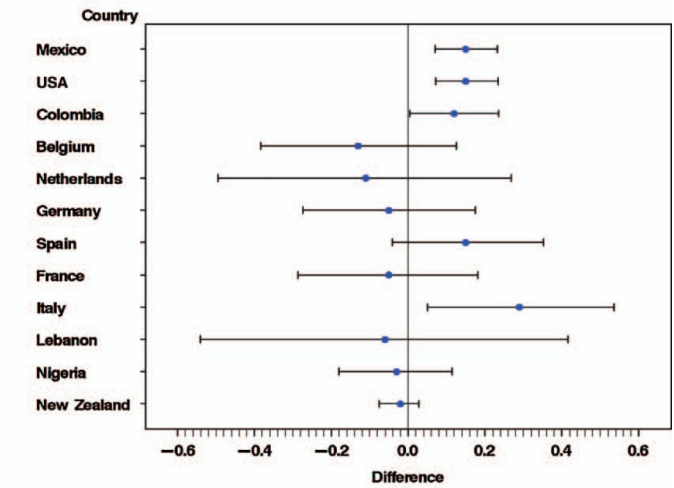
(a) Opportunity to use alcohol
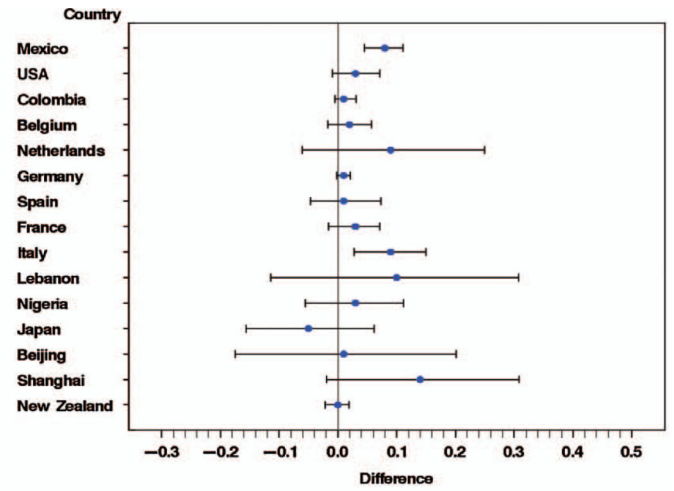
(b) Use of alcohol, given opportunity to use
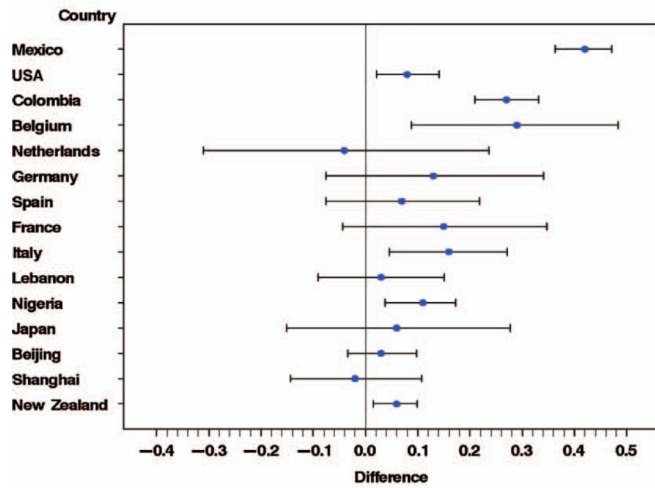
(c) Opportunity to use drugs

(d) Use of drugs, given opportunity to use

FIGURE 1.
Sex differences (M–F) in opportunity to use alcohol or drugs and in subsequent use, given the opportunity to use, 18–29 years.

TABLE 1

Surveys and samples

Survey[a] name	Year	Response rate[b] (%)	Sample size		Sample characteristics[c]
			Total	**18–29 year olds asked about "opportunity to use"**	
The Americas					
Mexico	M-NCS	2001–2002	76.6	5,782	2,055	Stratified multistage clustered area probability sample of household residents in all urban areas of the country (approximately 75% of the total national population)
USA	NCS-R	2002–2003	70.9	9,281	1,377	Stratified multistage clustered area probability sample of household residents, nationally representative
Colombia	NSMH	2003	94.3	4,426	1,431	Stratified multistage clustered area probability sample of household residents in all urban areas of the country (approximately 73% of the total national population)
Europe					
Belgium	ESEMeD	2001–2002	50.6	2,419	139	Stratified multistage clustered probability sample of individuals residing in households from the national register of Belgium residents, nationally representative
The Netherlands	ESEMeD	2002–2003	56.4	2,372	135	Stratified multistage clustered probability sample of individuals residing in households that are listed in municipal postal registries, nationally representative
Germany	ESEMeD	2002–2003	57.8	3,555	191	Stratified multistage clustered probability sample of individuals from community resident registries, nationally representative
Spain	ESEMeD	2001–2002	78.6	5,473	340	Stratified multistage clustered area probability sample of household residents, nationally representative
France	ESEMeD	2001–2002	45.9	2,894	237	Stratified multistage clustered sample of working telephone numbers merged with a reverse directory (for listed numbers). Initial recruitment was by telephone, with supplemental in-person recruitment in households

| Survey[a] name | Year | Response rate[b] (%) | Sample size | | Sample characteristics[c] |
			Total	18–29 year olds asked about "opportunity to use"	
					with listed numbers, nationally representative
Italy	ESEMeD	2001–2002	71.3	4,712	330	Stratified multistage clustered probability sample of individuals from municipality resident registries, nationally representative
The Eastern Mediterranean					
Lebanon	LNMHS	2002–2003	70.0	2,857	235	Stratified multistage clustered area probability sample of household residents, nationally representative
Africa					
Nigeria	NSMHW	2002–2004	79.9	6,752	697	Stratified multistage clustered area probability sample of households in 21 of the 36 states in the country, representing 57% of the national population. The surveys were conducted in Yoruba, Igbo, Hausa, and Efik languages
Western Pacific					
Japan	WMHJ	2002–2004	56.4	2,436	94	Unclustered 2-stage probability sample of individuals residing in households in 4 metropolitan areas (Fukiage, Kushikino, Nagasaki, Oyayama)
Beijing	B-WMH	2002–2003	74.8	2,633	115	Stratified multistage clustered area probability sample of household residents in the Beijing metropolitan area
Shanghai	S-WMH	2002–2003	74.6	2,568	147	Stratified multistage clustered area probability sample of household residents in the Shanghai metropolitan area
New Zealand	NZMHS	2003–2004	73.3	12,992	2,350	Stratified multistage clustered area probability sample of household residents, nationally representative

[a]ESEMeD, The European Study of the Epidemiology of Mental Disorders; NSMH, The Colombian National Study of Mental Health;WMHJ 2002-2004,WorldMental Health Japan Survey; LNMHS, Lebanese Evaluation of the Burden of Ailments and Needs of the Nation; M-NCS, The Mexico National Comorbidity Survey; NZMHS, New Zealand Mental Health Survey; NSMHW, The Nigerian Survey of Mental Health and Wellbeing; B-WMH, The Beijing World Mental Health Survey; S-WMH, The Shanghai World Mental Health Survey; NCS-R, The US National Comorbidity Survey Replication.

[b]The response rate is calculated as the ratio of the number of households in which an interview was completed to the number of households originally sampled, excluding from the denominator households known not to be eligible either because of being vacant at the time of initial contact or because the residents were unable to speak the designated languages of the survey.

[c]Most WMH surveys are based on stratified multistage clustered area probability household samples in which samples of areas equivalent to counties or municipalities in the United States were selected in the first stage followed by one or more subsequent stages of geographic sampling (e.g., towns within counties, blocks within towns, households within blocks) to arrive at a sample of households, in each of which a listing of household members was created and one or two people were selected from this listing to be interviewed. No substitution was allowed when the originally sampled household resident could not be interviewed. These household samples were selected from Census area data in all countries other than France (where telephone directories were used to select households) and the Netherlands (where postal registries were used to select households). Several WMH surveys (Belgium, Germany, Italy) used municipal resident registries to select respondents without listing households. The Japanese sample is the only totally unclustered sample, with households randomly selected in each of the four sample areas and one random respondent selected in each sample household. Nine of the 15 surveys are based on nationally representative household samples, while two others are based on nationally representative household samples in urbanized areas (Colombia, Mexico).

TABLE 2

Sex comparisons of opportunities to use, and subsequent use, of alcohol and other drugs, 18-29 years

	Opportunity to use				Use, given the opportunity to use			
	Males	**Females**	**M-F difference**	***p***	**Males**	**Females**	**M-F difference**	***p***
	Alcohol				*Alcohol*			
Mexico	0.98	0.93	0.05	<.001	0.93	0.85	0.08	<.001
USA	0.99	0.98	0.01	.66	0.96	0.93	0.03	.13
Colombia	0.99	0.97	0.02	.01	0.98	0.97	0.01	.15
Belgium	0.85	0.95	–0.10	.17	1.00	0.98	0.02	.27
The Netherlands	0.94	0.99	–0.05	.29	0.99	0.90	0.09	.22
Germany	0.99	0.98	0.01	.72	1.00	0.99	0.01	.11
Spain	0.97	0.95	0.02	.63	0.96	0.95	0.01	.66
France	0.96	0.94	0.02	.49	1.00	0.97	0.03	.21
Italy	0.87	0.80	0.07	.11	0.98	0.89	0.09	.006
Lebanon	0.84	0.55	0.29	.003	0.74	0.64	0.10	.36
Nigeria	0.72	0.51	0.21	<.001	0.92	0.90	0.03	.50
Japan	1.00	0.99	0.01	.34	0.95	0.99	–0.05	.38
Beijing	0.83	0.92	–0.09	.16	0.87	0.86	0.01	.88
Shanghai	0.85	0.79	0.06	.52	0.95	0.81	0.14	.08
New Zealand	0.99	0.97	0.02	.09	0.96	0.96	0.00	.88

	Other drugs [a]				*Other drugs* [a]			
	Males	**Females**	**M-F difference**	***p***	**Males**	**Females**	**M-F difference**	***p***
Mexico	0.69	0.27	0.42	<.001	0.33	0.18	0.15	<.001
USA	0.92	0.84	0.08	.01	0.69	0.54	0.15	<.001
Colombia	0.55	0.28	0.27	<.001	0.41	0.29	0.12	.04
Belgium	0.63	0.34	0.29	.007	0.57	0.70	–0.13	.31
The Netherlands	0.70	0.74	–0.04	.79	0.36	0.47	–0.11	.54
Germany	0.80	0.67	0.13	.21	0.59	0.64	–0.05	.66
Spain	0.66	0.59	0.07	.34	0.59	0.44	0.15	.12
France	0.79	0.64	0.15	.12	0.67	0.72	–0.05	.65
Italy	0.41	0.25	0.16	.007	0.59	0.29	0.29	.02
Lebanon	0.14	0.11	0.03	.62	0.50	0.56	–0.06	.79
Nigeria	0.28	0.17	0.11	.003	0.84	0.87	–0.03	.65
Japan	0.19	0.13	0.06	.55	_[b]	–	–	–
Beijing	0.05	0.02	0.03	.33	–	–	–	–
Shanghai	0.05	0.07	–0.02	.77	–	–	–	–
New Zealand	0.87	0.81	0.06	.008	0.71	0.73	–0.02	.37

[a]Cannabis, cocaine, prescription drugs (used not as prescribed or without a prescription), any other drugs, except in the ESEMED countries (Belgium, the Netherlands, Germany, Spain, and France) where only cannabis and cocaine were included (see Methods).

[b]Estimates were not shown due to small sample size ($n < 30$).