

SUPPLEMENTARY INFORMATION

S1 Table. Survey year, response rate in percent, sample size, and number of current drinkers in STEPS surveys	2
S2 Text. Supplementary information on the methodology	3
S3 Text. Questionnaire used in nominal group expert assessment.....	4
S4 Table. Detailed findings by country: Proportion of unrecorded alcohol <i>per capita</i> in 2015 as per World Health Organization (WHO) estimates, nominal group expert assessment, the STEPwise approach to surveillance surveys, and the prediction model. Volume of unrecorded and total alcohol consumption <i>per capita</i> in litres of pure alcohol were based on the estimated proportion of unrecorded alcohol consumed and the litres of recorded alcohol consumed reported by the WHO	14
S5 Table. Guidelines for Accurate and Transparent Health Estimates Reporting (GATHER) checklist.....	23

S1 Table. Survey year, response rate in percent, sample size, and number of current drinkers in STEPS surveys

Country	Survey year	Response rate (%)	Sample size	N current drinkers
Burkina Faso	2013	99	4692	1114
Bhutan	2014	97	2819	928
Botswana	2014	n.a.	4065	633
Kenya	2015	87	4498	622
Kyrgyzstan	2013	n.a.	2622	473
Kuwait	2014	89	3915	17
Sri Lanka	2015	72	5171	469
Republic of Moldova	2013	84	4768	2057
Myanmar	2014	94	8268	793
Mongolia	2013	98	6013	849
Swaziland	2014	76	3280	329
Tokelau	2014	n.a.	554	224
Turkmenistan	2013	n.a.	5110	319
Timor-Leste	2014	96	2601	336
Uganda	2014	99	3982	930
Uzbekistan	2014	89	3830	358

S2 Text. Supplementary information on the methodology

Assessment of unrecorded alcohol consumption based on STEPS survey data

Total alcohol consumption was assessed in the WHO's STEPwise approach to surveillance (STEPS) surveys using the following question: "During each of the past 7 days, how many standard drinks did you have each day?"

Unrecorded alcohol use was assessed in five categories: "During the past 7 days, did you consume any homebrewed alcohol, any alcohol brought over the border from another country, any alcohol not intended for drinking or other untaxed alcohol?" For each category, the number of standard drinks was assessed: "On average, how many standard drinks of the following did you consume during the past 7 days?" The estimates therefore relied on the assumption that the levels of underreporting of unrecorded and total alcohol use were approximately the same.

Description of obtaining expert judgments on unrecorded consumption

To date, only experts' judgments of unrecorded alcohol consumption have been available for the majority of countries. Various procedures were used for collecting data on unrecorded alcohol consumption: up to and including 2010, experts were identified as general experts on alcohol consumption, often advising on regions and/or more than one country. The collection of expert judgments became more standardized over time, and the following procedures had been implemented since 2010.

Changes Implemented after 2010

A written questionnaire (see below) was sent to experts from the country being considered, requesting their assessment of estimates of unrecorded alcohol consumption and of supporting documentation. A limited number of countries were selected based on the following criteria: the proportion of unrecorded alcohol consumption based on prior estimates, the size of the country, and any known controversies surrounding the estimates of unrecorded alcohol consumption contained in the Global Status Report on Alcohol and Health.⁴³ The countries selected covered 63% of the world's population in 2010 (for a more detailed description, see¹³). For countries where more than one expert's opinion was solicited, a second round of questioning followed: based on all information obtained in the first round of questioning, experts were asked again for their final estimates of unrecorded alcohol consumption, thereby applying a nominal group technique procedure.¹³

For all other countries, there was at least one expert from each country who was asked for their assessment. The expert opinion survey was anonymously completed. As the experts were country-specific after 2010, and they often provided documentation to support their judgments, albeit often pertaining to certain sources of unrecorded consumption or non-nationally representative information, we used these expert judgments in cases where there were changes from the original 2014 Global Status Report on Alcohol and Health estimates.

While the questionnaire asked about the proportion of unrecorded alcohol consumed in total alcohol *per capita* consumption, rather than the absolute level of unrecorded consumption (in litres of pure alcohol), some experts only answered with absolute levels. Using recorded consumption estimates these estimates were transformed into the percentage of overall consumption.

S3 Text. Questionnaire used in nominal group expert assessment

Date:		2015	(Day/Month/Year)
Country:	[country name here]		
<i>Questionnaire completed by:</i>			
Last name:		First name:	
Title/Position:			
Institute/Organization/Etc:			
Phone:			
Fax:			
e-mail:			

Contact details for questions or clarifications:***World Health Organization***

Management of Substance Abuse
 Department of Mental Health and Substance Abuse
 World Health Organization
 20, Avenue Appia
 CH-1211 Geneva 27
 Switzerland
 Phone: +41 22 791 33 34; Fax: +41 22 791 48 51; e-mail: gisah@who.int

Centre for Addiction and Mental Health

Social and Epidemiology Research Department, PAHO/WHO Collaborating Centre for Addiction and Mental Health
 Centre for Addictions and Mental Health (CAMH)
 33 Russell Street
 Toronto, Ontario, Canada, M5S 2S1
 Phone: +1 416 535 8501 ext. 36173; Fax: +1 416 595 6033; e-mail: jurgen.rehm@CAMH.ca

THE QUESTIONNAIRE ON UNRECORDED ALCOHOL CONSUMPTION

Dear Expert,

We invite you to participate in this additional component of the WHO Global survey on alcohol and health in your personal capacity with an objective to improve our understanding of a number of critical issues related to unrecorded alcohol consumption in different parts of the world.

Any alcohol that is consumed as an alcoholic beverage, but not taxed or registered as such under the jurisdiction of where it is consumed, is regarded as unrecorded alcohol. Unrecorded alcohol in a country includes homemade or informally produced alcohol (legal or illegal), illegally produced (on a large scale) alcohol outside the usual system of governmental control, smuggled alcohol, alcohol obtained through cross-border shopping, and alcohol consumed as a substitute of alcoholic beverages, but not intended for such consumption (industrial ethanol, ethanol-containing liquids, ethanol-based medicines, etc).

Please note that we are interested in your responses as they pertain to the national perspective. If your responses pertain to a sub-national or regional perspective, please indicate below to which sub-national population or region your responses pertain.

(Please type directly into the text box)

Q1. Currently we have an estimate¹ that [country specific estimate here]% of all the alcohol that is consumed in [country name here] is unrecorded. This corresponds to [country specific estimate here] litres of adult (15+ years old) per capita per year (for the year of 2015)². The estimated total adult per capita consumption is [country specific estimate here] litres of pure alcohol. Do you agree with this estimate of unrecorded alcohol consumption?

☐ Yes

☐ No

How certain are you about your answer to Q1? (1-5)

(Please tick, highlight or circle the appropriate option)

- ☐ (1) Very certain (99-80% confidence of being right)
- ☐ (2) Quite certain (79-60% confidence of being right)
- ☐ (3) Not so certain (59-40% confidence of being right, i.e. either way)
- ☐ (4) Quite uncertain (39-20% confidence of being right)
- ☐ (5) Very uncertain (less than 20% confidence of being right)

If the answer to Question 1 is “Yes”, please proceed to Q3.

If the answer to Question 1 is “No”, please proceed to Q2.

Please provide any source or any form of evidence in relation to your response to this question (Q1); sources could be official webpages, government reports, statistics from customs, research articles etc.:

(Please type directly into the text box)

¹The presented estimate is based on the best available data in WHO from different sources including Food and Agricultural Organization (FAO), industry, expert opinions and research.

²Please focus on proportion of unrecorded alcohol consumption from the total and not on the absolute figures of per capita consumption. If you have different opinion on the total per capita consumption in [country name here] for 2015 please provide your views in Q2, Q4 and Q8. We have special procedures for validating the total per capita alcohol consumption for 2015.

Q2. What is your estimation of unrecorded alcohol consumption in [country name here]? (please give an answer even if it is with very high level of uncertainty):

___% of all alcohol consumed in the country, which corresponds to ___ litres of adult (15+ years old) per capita unrecorded alcohol consumption per year (for the year 2015).

How certain are you about your answer to Q2? (1-5)

(Please tick, highlight or circle the appropriate option)

- | | |
|--|---|
| <input type="checkbox"/> (1) Very certain | (99-80% confidence of being right) |
| <input type="checkbox"/> (2) Quite certain | (79-60% confidence of being right) |
| <input type="checkbox"/> (3) Not so certain | (59-40% confidence of being right, i.e. either way) |
| <input type="checkbox"/> (4) Quite uncertain | (39-20% confidence of being right) |
| <input type="checkbox"/> (5) Very uncertain | (less than 20% confidence of being right) |

Please provide any source or any form of evidence in relation to your response to this question (Q2); sources could be official webpages, government reports, statistics from customs, research articles etc.:

(Please type directly into the text box)

Q3. Considering the unrecorded alcohol only, please provide us with your expert opinion on % estimates for the main categories of unrecorded alcohol (adding up to the total, i.e. 100% of unrecorded alcohol) consumed in [country name here]:

(Please type directly into the parentheses)

Home produced alcohol () % from total unrecorded

- Home produced spirits () % from total unrecorded
- Home produced beer () % from total unrecorded
- Home produced wine () % from total unrecorded

Brought over the border () % from total unrecorded

- Smuggling, contraband (large scale) () % from total unrecorded
- Duty-free and cross-border shopping () % from total unrecorded

Illegal production () % from total unrecorded

**Surrogate alcohol, industrial spirits not intended for human consumption
() % from total unrecorded**

Other (specify):

() % from total unrecorded

How certain are you about your answers to Q3? (1-5)

(Please tick, highlight or circle the appropriate option)

- ☐ (1) Very certain (99-80% confidence of being right)
- ☐ (2) Quite certain (79-60% confidence of being right)
- ☐ (3) Not so certain (59-40% confidence of being right, i.e. either way)
- ☐ (4) Quite uncertain (39-20% confidence of being right)
- ☐ (5) Very uncertain (less than 20% confidence of being right)

Please provide any source or any form of evidence in relation to your responses to this question (Q3); sources could be official webpages, government reports, statistics from customs, research articles etc.:

(Please type directly into the text box)

Q4. Is unrecorded alcohol consumption perceived as a matter that demands attention in [country name here]?

☐ YES, please GO TO questions 4a – 4c.

☐ NO, please GO TO question 5.

4a. Is the consumption of unrecorded alcohol perceived as a financial problem, for example, due to loss of taxes?

☐ Yes

☐ No

4b. Is the consumption of unrecorded alcohol perceived as a public health problem, for example, due to outbreaks of methanol intoxication or implied high toxicity of unrecorded alcohol?

☐ Yes

☐ No

4c. Is the consumption of unrecorded alcohol perceived as a social problem, for example, due to smuggling or illegal large scale production?

☐ Yes

☐ No

How certain are you about your answer to Q4a-c? (1-5)

(Please tick, highlight or circle the appropriate option)

☐ (1) Very certain (99-80% confidence of being right)

☐ (2) Quite certain (79-60% confidence of being right)

☐ (3) Not so certain (59-40% confidence of being right, i.e. either way)

☐ (4) Quite uncertain (39-20% confidence of being right)

☐ (5) Very uncertain (less than 20% confidence of being right)

Please provide any source or any form of evidence in relation to your responses to this question (Q4); sources could be official webpages, excerpts from national strategies and governmental reports, statistics from customs, research articles etc.:

(Please type directly into the text box)

Q5. Please describe the social and demographic profile of the majority of consumers of unrecorded alcohol (e.g. race, sex, age, socioeconomic status, state of mental health, addiction disorders)?

Home produced alcohol:

5a. Home produced alcohol:

(Please type directly into the text box)

5b. Surrogate alcohol, industrial spirits not intended for human consumption:

(Please type directly into the text box)

5c. Other category of unrecorded alcohol (specify)

(Please type directly into the text box)

Q6. Please list the methods that are currently used in [country name here] to deter people from making or consuming unrecorded alcohol (Please tick, highlight or circle the appropriate option and provide additional information as appropriate).

(Please tick, highlight or circle the appropriate option and provide additional information as appropriate)

- ☐ Using tax stamps on alcohol beverages
- ☐ Reducing taxes on recorded alcohol
- ☐ Strengthening legislation and law enforcement measures
- ☐ Providing financial incentives to home-producers and others to encourage quality control and registration
- ☐ Adding bittering agents to surrogate alcohols
- ☐ Issuing public warnings about contaminants and other health threats from informal or illicit alcohol
- ☐ Reducing sizes of ethanol-containing medicines
- ☐ Allowing sales of ethanol-containing medicines only by prescription
- ☐ Other, please specify:

(Please type directly into the text box)

articles etc.

(Please type directly into the text box)

Q7. Did we miss any aspect of unrecorded alcohol? Please specify.

(Please type directly into the text box)

--

Q8. Please recommend the names and contact e-mail or telephone numbers information of at least 2 other expert(s) on unrecorded alcohol in [country name here] that we should contact on this issue?

1.	
2.	
3.	
4.	

We truly appreciate your time and cooperation. Thank you.

S4 Table. Detailed findings by country: Proportion of unrecorded alcohol *per capita* in 2015 as per World Health Organization (WHO) estimates, nominal group expert assessment, the STEPwise approach to surveillance surveys, and the prediction model. Volume of unrecorded and total alcohol consumption *per capita* in litres of pure alcohol were based on the estimated proportion of unrecorded alcohol consumed and the litres of recorded alcohol consumed reported by the WHO

WHO region	Income level	Country	Proportion unrecorded alcohol based on other data sources (%)			Proportion unrecorded alcohol based on the statistical model (%)			Volume of alcohol <i>per capita</i> based on the statistical model (litres of pure alcohol)		
			WHO	Experts	STEPS	% unrecorded	95% confidence interval		Unrecorded alcohol	95% confidence interval	Total alcohol
AFR	UMIC	Algeria	39.4			40.0	24.0	41.8	0.4	0.2 0.4	1.0
	UMIC	Angola	18.0			21.6	16.1	26.4	2.4	1.7 3.2	11.3
	LIC	Benin	44.1			48.9	40.8	54.8	1.4	1.0 1.7	2.8
	UMIC	Botswana	33.4		11.8	26.5	23.8	36.4	2.1	1.8 3.3	7.8
	LIC	Burkina Faso	39.0		32.5	40.4	38.5	52.6	3.2	2.9 5.1	7.8
	LIC	Burundi	42.0			44.9	37.0	52.7	3.3	2.3 4.5	7.3
	LMIC	Cameroon	30.0	60.0		26.9	14.0	39.9	2.6	1.1 4.6	9.5
	LMIC	Cape Verde	37.9			28.3	27.4	40.5	2.0	1.9 3.4	7.1
	LIC	Central African Republic	55.1			49.1	46.2	60.2	1.6	1.5 2.6	3.4
	LIC	Chad	77.1	43.5		55.5	42.5	68.5	1.5	0.9 2.6	2.7
	LIC	Comoros	44.4			84.5	54.9	80.6	0.5	0.1 0.4	0.6
	LMIC	Congo	38.0								
	LMIC	Côte d'Ivoire	39.0	32.0		42.7	31.6	46.3	2.3	1.5 2.7	5.5
	LIC	Democratic Republic of the Congo	39.9	55.3		49.0	40.3	57.6	1.7	1.2 2.5	3.6
	HIC	Equatorial Guinea	7.5			12.7	8.1	15.9	1.6	0.9 2.0	12.3
	LIC	Eritrea	50.0			55.6	36.6	53.2	0.8	0.4 0.7	1.4
	LIC	Ethiopia	58.1	58.0		49.8	49.3	64.0	1.9	1.9 3.4	3.8
	UMIC	Gabon	18.0			16.7	13.3	23.1	1.8	1.4 2.7	10.6

WHO region	Income level	Country	Proportion unrecorded alcohol based on other data sources (%)			Proportion unrecorded alcohol based on the statistical model (%)			Volume of alcohol <i>per capita</i> based on the statistical model (litres of pure alcohol)			
			WHO	Experts	STEPS	% unrecorded	95% confidence interval		Unrecorded alcohol	95% confidence interval		Total alcohol
	LIC	Gambia	24.9									
	LMIC	Ghana	63.0	59.0		41.4	49.3	63.8	1.2	1.6	2.9	2.8
	LIC	Guinea	71.1			69.9	63.1	78.4	0.5	0.4	0.8	0.7
	LIC	Guinea-Bissau	33.4			40.8	32.6	44.4	2.5	1.7	2.9	6.0
	LMIC	Kenya	58.0	57.5	20.2	44.6	45.8	62.2	1.5	1.6	3.0	3.3
	LMIC	Lesotho	58.1			39.9	43.2	56.9	1.6	1.8	3.2	4.0
	LIC	Liberia	30.9			39.0	30.7	42.1	2.4	1.6	2.7	6.1
	LIC	Madagascar	50.0			54.3	36.2	52.3	1.0	0.5	1.0	1.9
	LIC	Malawi	48.1			45.3	40.7	55.1	1.0	0.8	1.5	2.2
	LIC	Mali	45.8			53.8	34.3	49.8	0.8	0.3	0.6	1.4
	LMIC	Mauritania	90.9			84.1	78.0	92.3	0.1	0.0	0.1	0.1
	UMIC	Mauritius	25.0			31.0	23.1	36.1	1.4	0.9	1.7	4.4
	LIC	Mozambique	50.0			46.2	42.2	56.4	1.0	0.8	1.5	2.2
	UMIC	Namibia	25.0			20.7	18.0	29.1	2.3	2.0	3.6	11.2
	LIC	Niger	66.7			78.9	64.1	83.0	0.6	0.3	0.7	0.7
	LMIC	Nigeria	15.0	16.2		28.1	13.8	22.9	3.0	1.2	2.3	10.8
	LIC	Rwanda	27.5	30.5		23.2	21.5	33.8	2.5	2.3	4.3	10.9
	LMIC	Sao Tome and Principe	35.0			29.2	27.1	39.0	2.3	2.1	3.6	8.0
	LMIC	Senegal	50.0			67.6	51.0	69.1	0.5	0.3	0.6	0.8
	HIC	Seychelles	17.5			14.0	11.3	21.1	1.6	1.2	2.6	11.3
	LIC	Sierra Leone	34.0			39.5	32.3	44.0	2.5	1.8	3.0	6.2
	UMIC	South Africa	37.0	21.3		23.3	18.7	30.3	2.1	1.6	3.1	9.2
	LIC	South Sudan										
	LMIC	Swaziland	17.1		13.9	27.0	19.7	30.9	1.9	1.3	2.3	7.1
	LIC	Togo	45.0			46.3	40.1	53.8	1.2	1.0	1.7	2.7

WHO region	Income level	Country	Proportion unrecorded alcohol based on other data sources (%)			Proportion unrecorded alcohol based on the statistical model (%)			Volume of alcohol <i>per capita</i> based on the statistical model (litres of pure alcohol)			
			WHO	Experts	STEPS	% unrecorded	95% confidence interval		Unrecorded alcohol	95% confidence interval		Total alcohol
AMR	LIC	Uganda	13.0		42.3	19.4	22.7	37.6	2.5	3.0	6.2	12.7
	LIC	United Republic of Tanzania	33.4	48.0		34.4	38.0	50.7	2.2	2.6	4.3	6.4
	LMIC	Zambia	38.0	41.2		40.4	34.5	47.5	1.6	1.3	2.2	4.0
	LIC	Zimbabwe	16.0			26.1	18.0	28.0	2.5	1.6	2.8	9.7
	HIC	Antigua and Barbuda	5.0			12.0	7.6	13.8	1.2	0.7	1.4	9.8
	HIC	Argentina	11.0			13.8	10.0	17.5	1.3	0.9	1.7	9.4
	HIC	Bahamas	4.9			12.1	7.6	13.9	1.2	0.7	1.5	10.3
	HIC	Barbados	5.5			13.0	8.2	14.8	1.3	0.8	1.5	10.1
	UMIC	Belize	20.0			18.8	15.4	25.2	1.5	1.2	2.2	8.1
	LMIC	Bolivia (Plurinational State of)	35.0	27.2		25.1	23.3	36.2	1.3	1.2	2.2	5.1
	UMIC	Brazil	16.7	24.0		15.9	16.5	27.5	1.4	1.5	2.8	8.8
	HIC	Canada	19.2			9.9	9.0	17.9	0.9	0.8	1.8	9.0
	HIC	Chile	20.5			14.8	13.1	22.4	1.2	1.1	2.1	8.4
	UMIC	Colombia	15.0	14.5		23.6	14.4	24.6	1.4	0.7	1.4	5.7
	UMIC	Costa Rica	21.6			23.7	18.2	29.9	1.0	0.7	1.4	4.2
	UMIC	Cuba	19.5			24.0	17.4	29.3	1.4	0.9	1.8	5.7
	UMIC	Dominica	6.5			19.8	11.9	19.9	1.4	0.7	1.4	6.8
	UMIC	Dominican Republic	10.0			18.4	12.2	20.3	1.3	0.8	1.5	7.3
	UMIC	Ecuador	25.0			24.7	20.2	31.9	1.3	1.0	1.8	5.1
	LMIC	El Salvador	29.6			29.5	24.0	37.8	1.0	0.8	1.5	3.4
	UMIC	Grenada	8.0			13.9	9.2	16.4	1.4	0.9	1.7	9.8
	LMIC	Guatemala	43.2	52.9		35.8	36.0	53.5	1.0	1.0	2.0	2.8

WHO region	Income level	Country	Proportion unrecorded alcohol based on other data sources (%)			Proportion unrecorded alcohol based on the statistical model (%)			Volume of alcohol <i>per capita</i> based on the statistical model (litres of pure alcohol)		
			WHO	Experts	STEPS	% unrecorded	95% confidence interval		Unrecorded alcohol	95% confidence interval	Total alcohol
EMR	LMIC	Guyana	11.7			18.4	12.4	21.5	1.7	1.1 2.1	9.4
	LIC	Haiti	9.4								
	LMIC	Honduras	24.5			29.4	22.1	35.0	1.2	0.8 1.5	4.1
	UMIC	Jamaica	30.0			24.2	21.7	34.2	1.2	1.1 2.0	5.1
	UMIC	Mexico	25.5	39.2		20.5	24.3	38.0	1.4	1.7 3.2	6.6
	LMIC	Nicaragua	30.8			26.6	23.2	36.2	1.3	1.1 2.0	4.8
	UMIC	Panama	10.4			14.7	10.4	17.8	1.2	0.8 1.5	8.3
	UMIC	Paraguay	21.0			22.7	17.3	29.1	1.5	1.0 2.1	6.5
	UMIC	Peru	35.0	24.1		19.3	19.8	31.2	1.4	1.4 2.6	7.1
	HIC	Saint Kitts and Nevis	5.5								
	UMIC	Saint Lucia	1.9			13.1	7.4	13.7	1.4	0.7 1.4	10.5
	UMIC	Saint Vincent and the Grenadines	4.1			16.1	9.5	16.4	1.4	0.8 1.4	8.7
	UMIC	Suriname	15.9			17.0	13.2	21.9	1.4	1.0 1.9	8.1
	HIC	Trinidad and Tobago	10.0			13.2	9.3	16.8	1.1	0.7 1.4	8.2
	HIC	United States of America	5.5	5.0		8.7	4.8	10.6	0.8	0.4 1.0	9.7
	HIC	Uruguay	14.1			17.5	12.9	21.5	1.2	0.9 1.6	7.0
	HIC	Venezuela (Bolivarian Republic of)	15.0			18.8	13.7	23.1	1.4	0.9 1.8	7.4
	LIC	Afghanistan	98.0			85.9	83.8	93.7	0.1	0.1 0.1	0.1
	HIC	Bahrain	5.3								
	LMIC	Djibouti	31.4								
	LMIC	Egypt	47.5			57.7	40.4	66.8	0.3	0.1 0.4	0.5

			Proportion unrecorded alcohol based on other data sources (%)			Proportion unrecorded alcohol based on the statistical model (%)			Volume of alcohol <i>per capita</i> based on the statistical model (litres of pure alcohol)			
WHO region	Income level	Country	WHO	Experts	STEPS	% unrecorded	95% confidence interval		Unrecorded alcohol	95% confidence interval		Total alcohol
EUR	UMIC	Iran (Islamic Republic of)	97.1			73.6	75.4	89.2	0.1	0.1	0.2	0.1
	UMIC	Iraq	61.4			55.0	45.9	71.4	0.2	0.1	0.4	0.4
	UMIC	Jordan	28.0			53.4	29.4	55.9	0.4	0.1	0.5	0.8
	HIC	Kuwait	90.9		44.4	58.3	58.9	82.7	0.0	0.0	0.1	0.0
	UMIC	Lebanon	24.2									
	UMIC	Libya	90.9			74.3	72.8	88.0	0.0	0.0	0.0	0.0
	LMIC	Morocco	46.9									
	HIC	Oman	26.5			48.6	26.8	52.7	0.3	0.1	0.4	0.7
	LMIC	Pakistan	83.3	96.8		85.8	83.5	93.6	0.2	0.2	0.6	0.3
	HIC	Qatar	34.7									
	HIC	Saudi Arabia	52.6			64.3	46.8	71.7	0.2	0.1	0.2	0.3
	LIC	Somalia	100.0			86.4	84.8	94.2	0.0	0.0	0.0	0.0
	LMIC	Sudan	35.0			46.5	28.0	57.6	1.8	0.8	2.9	4.0
	LMIC	Syrian Arab Republic	21.3			60.7	22.0	47.9	0.9	0.2	0.5	1.5
	UMIC	Tunisia	13.7			31.5	15.3	36.7	0.6	0.3	0.8	2.0
	HIC	United Arab Emirates	46.9									
	LMIC	Yemen	83.3			88.2	78.7	92.5	0.3	0.1	0.5	0.3
	UMIC	Albania	28.0			32.4	24.8	38.6	2.1	1.4	2.7	6.4
	HIC	Andorra	7.1			12.6	8.3	15.2	1.4	0.9	1.7	11.1
	LMIC	Armenia	27.1			32.2	23.9	38.7	1.9	1.2	2.5	5.8
	HIC	Austria	4.6			8.3	5.2	11.0	1.1	0.7	1.5	13.4
	UMIC	Azerbaijan	33.1			34.1	27.0	43.2	1.4	1.0	2.0	4.1
	UMIC	Belarus	15.0	15.0		21.0	11.2	27.8	3.7	1.8	5.4	17.7
	HIC	Belgium	4.7			8.9	6.0	10.9	1.2	0.8	1.5	13.8

WHO region	Income level	Country	Proportion unrecorded alcohol based on other data sources (%)			Proportion unrecorded alcohol based on the statistical model (%)			Volume of alcohol <i>per capita</i> based on the statistical model (litres of pure alcohol)		
			WHO	Experts	STEPS	% unrecorded	95% confidence interval		Unrecorded alcohol	95% confidence interval	Total alcohol
	UMIC	Bosnia and Herzegovina	35.0			31.0	26.4	42.2	1.7	1.4 2.8	5.6
	UMIC	Bulgaria	9.2			11.3	7.7	15.4	1.6	1.0 2.3	13.9
	HIC	Croatia	15.0			12.3	10.0	17.8	1.7	1.4 2.6	13.8
	HIC	Cyprus	10.0			15.8	11.3	17.8	1.7	1.1 1.9	10.5
	HIC	Czech Republic	9.0			10.4	7.7	13.6	1.4	1.0 2.0	13.9
	HIC	Denmark	9.0			12.3	8.4	15.8	1.3	0.8 1.7	10.5
	HIC	Estonia	4.5	5.0		7.3	4.3	10.0	1.2	0.7 1.7	16.2
	HIC	Finland	22.1			15.1	14.3	22.5	1.5	1.4 2.4	10.0
	HIC	France	4.0			10.8	7.1	12.1	1.4	0.9 1.6	12.6
	LMIC	Georgia	24.0								
	HIC	Germany	5.0			10.6	7.1	12.3	1.3	0.8 1.5	12.2
	HIC	Greece	18.5			20.7	16.4	25.2	1.8	1.4 2.3	8.8
	HIC	Hungary	16.3			13.5	11.0	19.5	1.6	1.3 2.5	11.9
	HIC	Iceland	5.5			16.1	10.0	16.7	1.4	0.8 1.5	8.9
	HIC	Ireland	4.7			10.7	6.9	12.6	1.2	0.7 1.4	11.3
	HIC	Israel	10.2			29.7	16.5	29.0	1.2	0.5 1.1	3.9
	HIC	Italy	5.0	7.0		18.3	8.9	14.4	1.6	0.7 1.2	8.9
	UMIC	Kazakhstan	30.0			23.8	22.1	33.1	1.9	1.7 3.0	8.0
	LMIC	Kyrgyzstan	40.0		8.2	35.6	27.0	43.7	1.8	1.2 2.5	5.1
	HIC	Latvia	15.5	14.8		14.4	11.7	19.0	1.7	1.4 2.4	12.1
	HIC	Lithuania	16.4	14.2		7.7	8.7	17.6	1.3	1.4 3.3	16.5
	HIC	Luxembourg	20.4			7.2	5.6	18.9	0.7	0.5 2.1	9.5
	HIC	Malta	5.0			15.0	9.1	16.2	1.5	0.9 1.6	10.0
	UMIC	Montenegro	37.0			22.4	23.2	36.5	1.9	2.0 3.8	8.4

			Proportion unrecorded alcohol based on other data sources (%)			Proportion unrecorded alcohol based on the statistical model (%)			Volume of alcohol <i>per capita</i> based on the statistical model (litres of pure alcohol)			
WHO region	Income level	Country	WHO	Experts	STEPS	% unrecorded	95% confidence interval		Unrecorded alcohol	95% confidence interval		Total alcohol
SEAR	HIC	Netherlands	5.0			14.1	8.9	15.1	1.4	0.8	1.5	9.7
	HIC	Norway	23.0			15.2	12.7	25.9	1.1	0.9	2.1	7.0
	HIC	Poland	13.0	12.5		13.6	10.2	16.8	1.7	1.2	2.2	12.4
	HIC	Portugal	13.5			16.1	12.4	19.5	1.8	1.3	2.2	11.0
	LMIC	Republic of Moldova	40.0	29.3	40.1	36.6	27.6	52.9	5.5	3.6	10.7	15.1
	UMIC	Romania	30.0	42.5		16.8	29.1	42.1	1.9	3.9	7.0	11.5
	HIC	Russian Federation	30.0	33.4		30.3	22.2	45.8	4.2	2.8	8.2	14.0
	UMIC	Serbia	23.0			17.6	15.3	26.2	1.9	1.6	3.2	11.0
	HIC	Slovakia	14.0			13.4	10.9	17.7	1.6	1.3	2.3	12.2
	HIC	Slovenia	10.0			13.9	10.2	16.5	1.6	1.2	2.0	11.8
	HIC	Spain	11.0			16.8	12.1	19.0	1.6	1.1	1.9	9.8
	HIC	Sweden	19.3	24.0		16.5	16.9	27.3	1.4	1.4	2.7	8.5
	HIC	Switzerland	5.0			11.2	7.1	13.2	1.2	0.7	1.4	10.6
	LMIC	Tajikistan	89.0			70.0	69.8	85.7	0.7	0.7	1.9	1.1
	UMIC	The former Yugoslav Republic of Macedonia	65.5			40.9	35.1	55.1	0.7	0.5	1.2	1.6
	UMIC	Turkey	24.9	1.5		36.3	10.7	20.9	0.8	0.2	0.4	2.3
	UMIC	Turkmenistan	47.0		3.0	35.7	28.1	43.8	1.6	1.1	2.3	4.5
	LMIC	Ukraine	37.0	35.7		38.3	25.0	50.8	5.0	2.7	8.3	13.1
	HIC	United Kingdom	15.0			11.1	9.1	17.0	1.3	1.1	2.1	11.8
	LMIC	Uzbekistan	44.0		1.7	38.2	27.0	43.8	1.7	1.0	2.2	4.6
	LMIC	Bangladesh	95.2	85.2		73.0	77.1	89.2	0.0	0.0	0.1	0.0
	LMIC	Bhutan	52.1		59.1	60.9	54.5	76.0	0.4	0.3	0.7	0.6

WHO region	Income level	Country	Proportion unrecorded alcohol based on other data sources (%)			Proportion unrecorded alcohol based on the statistical model (%)			Volume of alcohol <i>per capita</i> based on the statistical model (litres of pure alcohol)			
			WHO	Experts	STEPS	% unrecorded	95% confidence interval		Unrecorded alcohol	95% confidence interval		Total alcohol
WPR	LIC	Democratic People's Republic of Korea	13.4									
	LMIC	India	38.0	38.0		46.6	28.4	51.2	2.7	1.2	3.2	5.7
	LMIC	Indonesia	84.7			63.1	63.2	82.3	0.2	0.2	0.4	0.2
	UMIC	Maldives	21.6			58.7	26.0	59.1	2.7	0.7	2.8	4.6
	LMIC	Myanmar	67.0		11.0							
	LIC	Nepal	89.0	86.6		71.2	76.7	88.8	0.7	0.9	2.1	0.9
	LMIC	Sri Lanka	38.0		10.0	36.5	25.7	45.9	1.5	0.9	2.1	4.0
	UMIC	Thailand	10.5	12.7		21.0	9.5	22.9	1.7	0.7	1.9	8.1
	LMIC	Timor-Leste	50.0		21.1	72.6	45.9	68.4	1.3	0.4	1.1	1.8
	HIC	Australia	15.0			7.9	6.3	14.9	0.8	0.6	1.7	10.4
	HIC	Brunei Darussalam	24.8			19.3	9.8	28.1	0.2	0.1	0.4	1.2
	LIC	Cambodia	60.0	50.0		47.5	41.5	64.7	1.9	1.5	3.9	4.0
	UMIC	China	20.0	16.8		20.2	13.7	25.7	1.6	1.0	2.2	7.8
		Cook Islands	7.3									
	UMIC	Fiji	31.0			32.0	24.4	41.9	1.1	0.7	1.6	3.3
	HIC	Japan	3.0	3.0		13.9	6.5	13.0	1.2	0.5	1.1	8.8
	LMIC	Kiribati	80.0			40.9	41.8	62.7	0.4	0.4	0.9	0.9
	LMIC	Lao People's Democratic Republic	16.0			33.0	18.4	36.0	3.0	1.4	3.4	9.1
	UMIC	Malaysia	67.3			36.4	33.2	54.0	0.3	0.3	0.6	0.8
	UMIC	Marshall Islands										
	LMIC	Micronesia (Federated States of)	35.0			36.8	28.1	47.0	0.9	0.6	1.4	2.5

WHO region	Income level	Country	Proportion unrecorded alcohol based on other data sources (%)			Proportion unrecorded alcohol based on the statistical model (%)			Volume of alcohol <i>per capita</i> based on the statistical model (litres of pure alcohol)		
			WHO	Experts	STEPS	% unrecorded	95% confidence interval		Unrecorded alcohol	95% confidence interval	Total alcohol
	UMIC	Mongolia	25.6		1.5	22.8	15.6	28.8	1.7	1.1 2.3	7.5
		Nauru	69.4								
	HIC	New Zealand	14.0			12.1	9.2	18.1	1.2	0.9 1.9	9.9
		Niue	16.0								
	UMIC	Palau									
	LMIC	Papua New Guinea	63.0			43.8	35.5	55.3	0.7	0.5 1.1	1.6
	LMIC	Philippines	16.0	20.0		31.8	17.6	31.7	2.2	1.0 2.2	6.9
	HIC	Republic of Korea	21.0	5.2		11.3	6.6	13.5	1.2	0.7 1.5	10.6
	LMIC	Samoa	27.1								
	HIC	Singapore	21.4			15.7	10.0	30.7	0.3	0.2 0.8	2.2
	LMIC	Solomon Islands	31.2								
	UMIC	Tonga	30.9			37.4	20.0	36.7	0.6	0.2 0.6	1.5
	UMIC	Tuvalu	30.9								
	LMIC	Vanuatu	36.1								
	LMIC	Viet Nam	50.0	50.0		31.4	35.2	53.6	2.0	2.3 5.0	6.3

WHO=World Health Organization. STEPS=Noncommunicable Disease Risk Factor Survey, part of the STEPwise surveillance (STEPS) by the WHO. AFR=African Region. AMR=Region of the Americas. EMR=Eastern Mediterranean Region. EUR=European Region. SEAR=South East Asian Region. WPR=Western Pacific Region. HIC= High-income country. LIC=Low-income country. LMIC=Lower-middle-income country. UMIC=Upper-middle-income country.

Differences between the modelled estimates and the WHO estimates were highest in Kiribati, Kuwait, Malaysia and Iran, where the modelled estimates were 25% to 40% lower than the WHO estimates. Furthermore, in Israel, Oman, Jordan, Timor-Leste, Maldives, Syrian Arab Republic, and Comoros, the modelled were 20% to 40% higher than the WHO estimates.

S5 Table. Guidelines for Accurate and Transparent Health Estimates Reporting (GATHER) checklist



Checklist of information that should be included in new reports of global health estimates

Item #	Checklist item	Reported on page #
Objectives and funding		
1	Define the indicator(s), populations (including age, sex, and geographic entities), and time period(s) for which estimates were made.	Page 4
2	List the funding sources for the work.	Page 12
Data Inputs		
<i>For all data inputs from multiple sources that are synthesized as part of the study:</i>		
3	Describe how the data were identified and how the data were accessed.	Pages 4-5
4	Specify the inclusion and exclusion criteria. Identify all ad-hoc exclusions.	No exclusion
5	Provide information on all included data sources and their main characteristics. For each data source used, report reference information or contact name/institution, population represented, data collection method, year(s) of data collection, sex and age range, diagnostic criteria or measurement method, and sample size, as relevant.	Pages 4-5, S1 Table, S2 Text
6	Identify and describe any categories of input data that have potentially important biases (e.g., based on characteristics listed in item 5).	Page 10
<i>For data inputs that contribute to the analysis but were not synthesized as part of the study:</i>		
7	Describe and give sources for any other data inputs.	Pages 5-6
<i>For all data inputs:</i>		
8	Provide all data inputs in a file format from which data can be efficiently extracted (e.g., a spreadsheet rather than a PDF), including all relevant meta-data listed in item 5. For any data inputs that cannot be shared because of ethical or legal reasons, such as third-party ownership, provide a contact name or the name of the institution that retains the right to the data.	IHME, WHO
Data analysis		
9	Provide a conceptual overview of the data analysis method. A diagram may be helpful.	Page 4
10	Provide a detailed description of all steps of the analysis, including mathematical formulae. This description should cover, as relevant, data cleaning, data pre-processing, data adjustments and weighting of data sources, and mathematical or statistical model(s).	Pages 4,6
11	Describe how candidate models were evaluated and how the final model(s) were selected.	Page 6
12	Provide the results of an evaluation of model performance, if done, as well as the results of any relevant sensitivity analysis.	Page 6

13	Describe methods for calculating uncertainty of the estimates. State which sources of uncertainty were, and were not, accounted for in the uncertainty analysis.	Page 6
14	State how analytic or statistical source code used to generate estimates can be accessed.	Page 6
Results and Discussion		
15	Provide published estimates in a file format from which data can be efficiently extracted.	S4 Table
16	Report a quantitative measure of the uncertainty of the estimates (e.g. uncertainty intervals).	Table 1, page 8, S4 Table
17	Interpret results in light of existing evidence. If updating a previous set of estimates, describe the reasons for changes in estimates.	Pages 9-10
18	Discuss limitations of the estimates. Include a discussion of any modelling assumptions or data limitations that affect interpretation of the estimates.	Pages 10

This checklist should be used in conjunction with the GATHER statement and Explanation and Elaboration document, found on gather-statement.org