

Alcohol Indicators: purpose meaning, measurement and uses in public health

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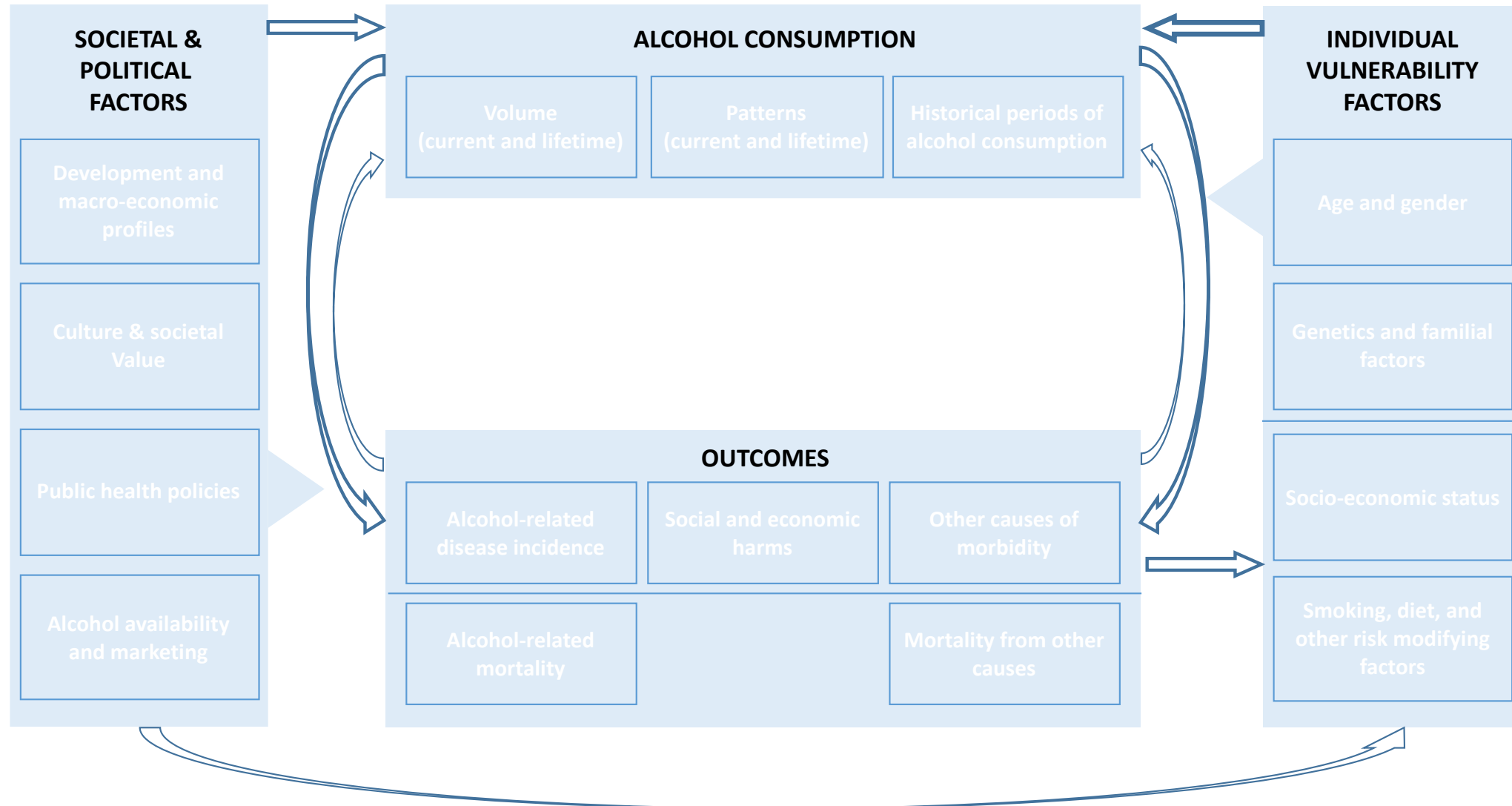
Pan American Health Organization
Webinar

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camh



Alcohol and health



Alcohol consumption and Sustainable Development Goals

Alcohol causes large global **health**, **social** and **economic** burdens

SDG 3.5: “**strengthen prevention** and **treatment** of substance abuse, including narcotic drug abuse and harmful use of alcohol”

Reductions in alcohol consumption will help in achieving the SDG goal of “a reduction of premature mortality from non-communicable diseases by a third by 2030”





A WORLD FREE FROM ALCOHOL RELATED HARMS

The SAFER action package

- S** Strengthen restrictions on alcohol availability
- A** Advance and enforce drink driving counter measures
- F** Facilitate access to screening, brief interventions and treatment
- E** Enforce bans or comprehensive restrictions on alcohol advertising, sponsorship, and promotion
- R** Raise prices on alcohol through excise taxes and pricing policies



Alcohol-Attributable Global Burden of Disease

Alcohol-attributable burden of disease

2016 burden of disease attributable to alcohol consumption

- 3.0 million deaths; 5.3% of all deaths globally
- 131.6 million DALYs; 5.1% of all DALYs global

Change in the age-adjusted alcohol-attributable burden of disease: 2000 to 2016

- -18.1% for deaths
- -14.6% for DALYs

Change in the age-adjusted burden of disease: 2000 to 2016

- -23.7% for deaths
- -25.2% for DALYs

Effects of Alcohol on Health

Diseases and injuries causally related to alcohol consumption

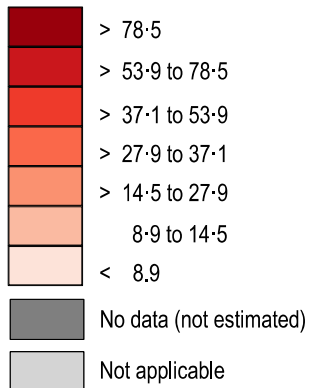
Table 4.1 Causes of death and disability causally related to alcohol consumption

Diseases and injuries included in the analysis
Detrimental (included)
Communicable, maternal, perinatal and nutritional conditions
Tuberculosis, HIV/AIDS, lower respiratory infections
Noncommunicable diseases
Lip and oral cavity, pharyngeal cancers (excluding nasopharyngeal), oesophagus cancer, colon and rectum cancers, liver cancer, breast cancer, larynx cancer, alcohol use disorders, epilepsy, hypertensive heart disease, haemorrhagic stroke, alcoholic cardiomyopathy, cirrhosis of the liver, pancreatitis
Injuries
Unintentional injuries
Road injury, poisonings, falls, fire, heat and hot substances, drowning, exposure to mechanical forces, other unintentional injuries
Intentional injuries
Self-harm, interpersonal violence
Beneficial (at low levels of alcohol consumption*)
Noncommunicable diseases
Diabetes mellitus, ischaemic heart disease, ischaemic stroke

* No health benefit is seen for people who engage in binge drinking.

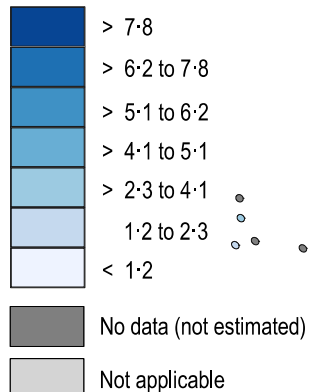
Not included in the analysis (however, alcohol has been shown to have an impact causally related to): major depressive disorder, atrial fibrillation and flutter, oesophageal varice, psoriasis.

Age-standardized deaths
attributable to alcohol consumption
per 100 000 people



3 million deaths

Proportion (in %) of deaths
attributable to alcohol



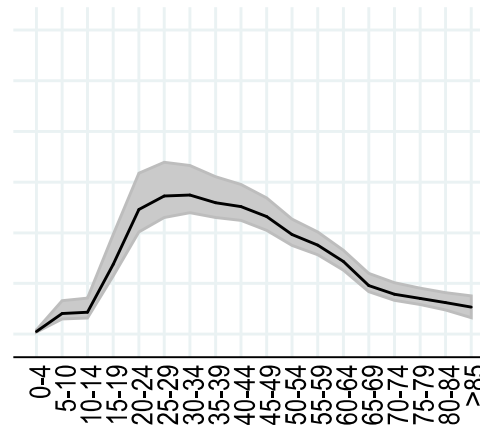
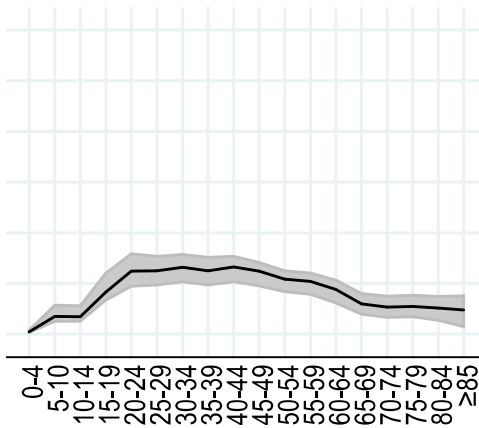
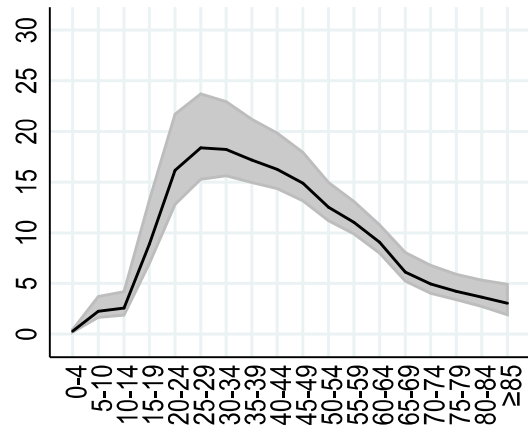
5.3% of all deaths

Percent (%) deaths attributable to alcohol

Men

Women

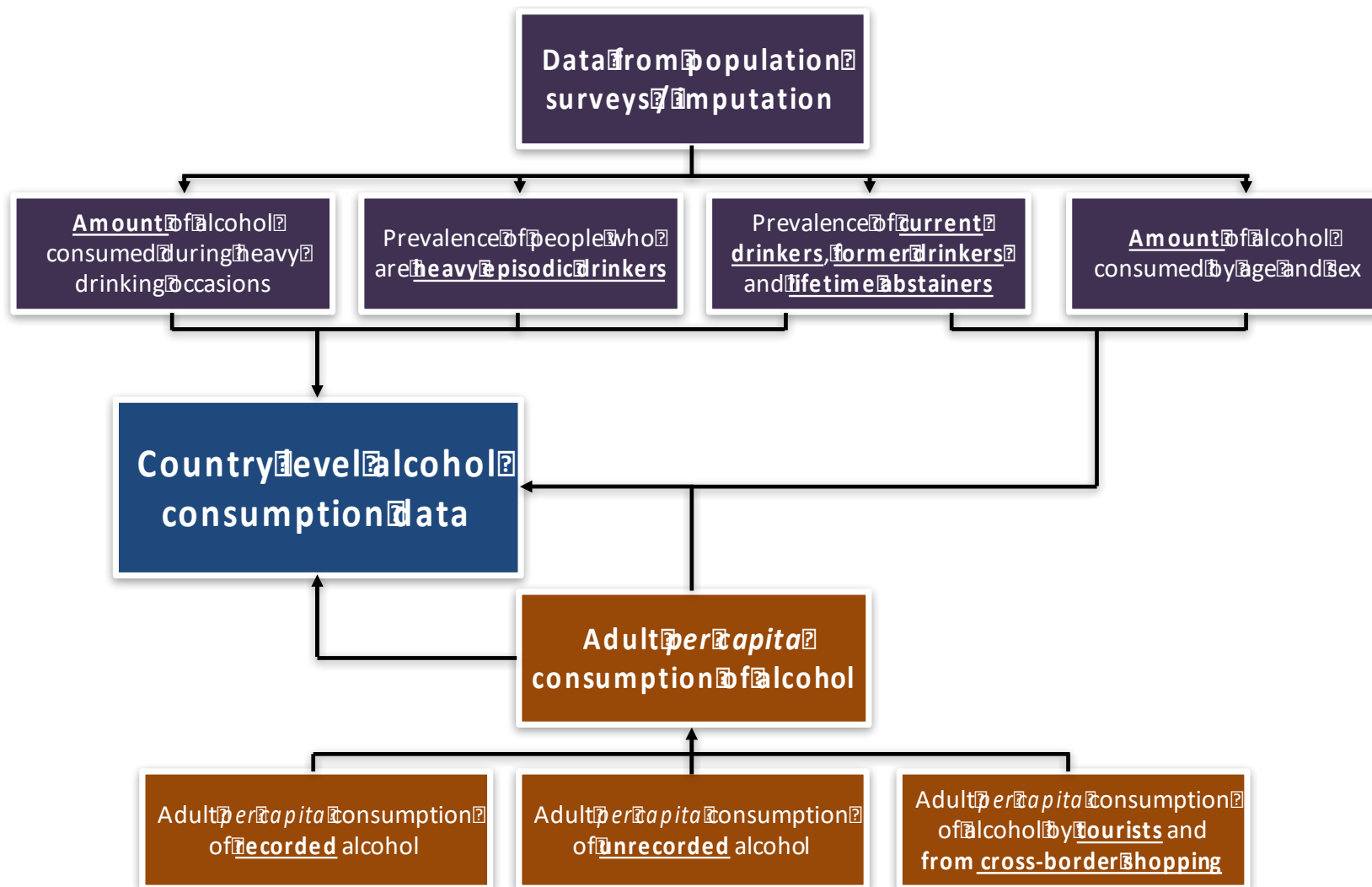
Total



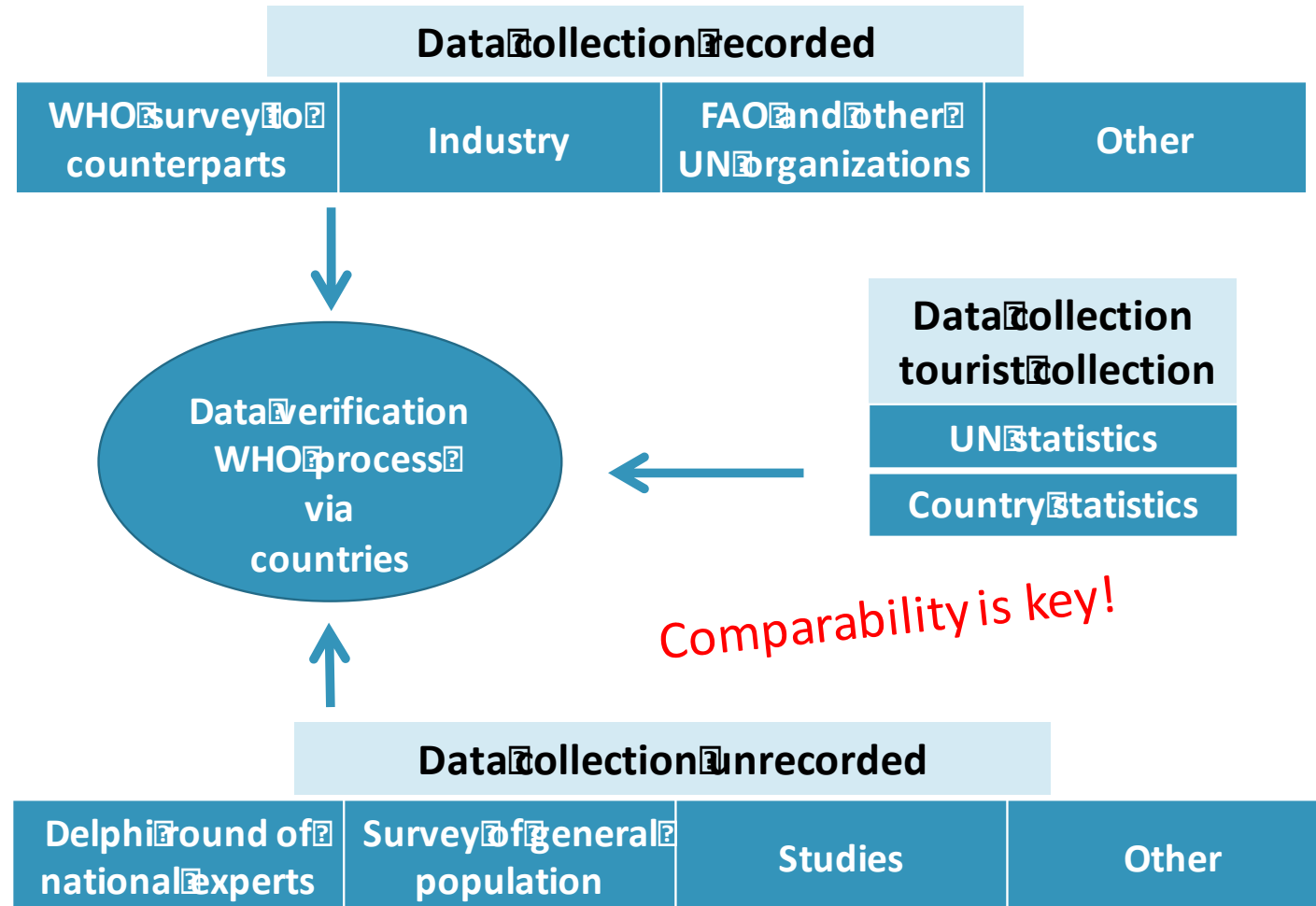
Age (years)

52.4% of all AA deaths
occurred before
60 years of age

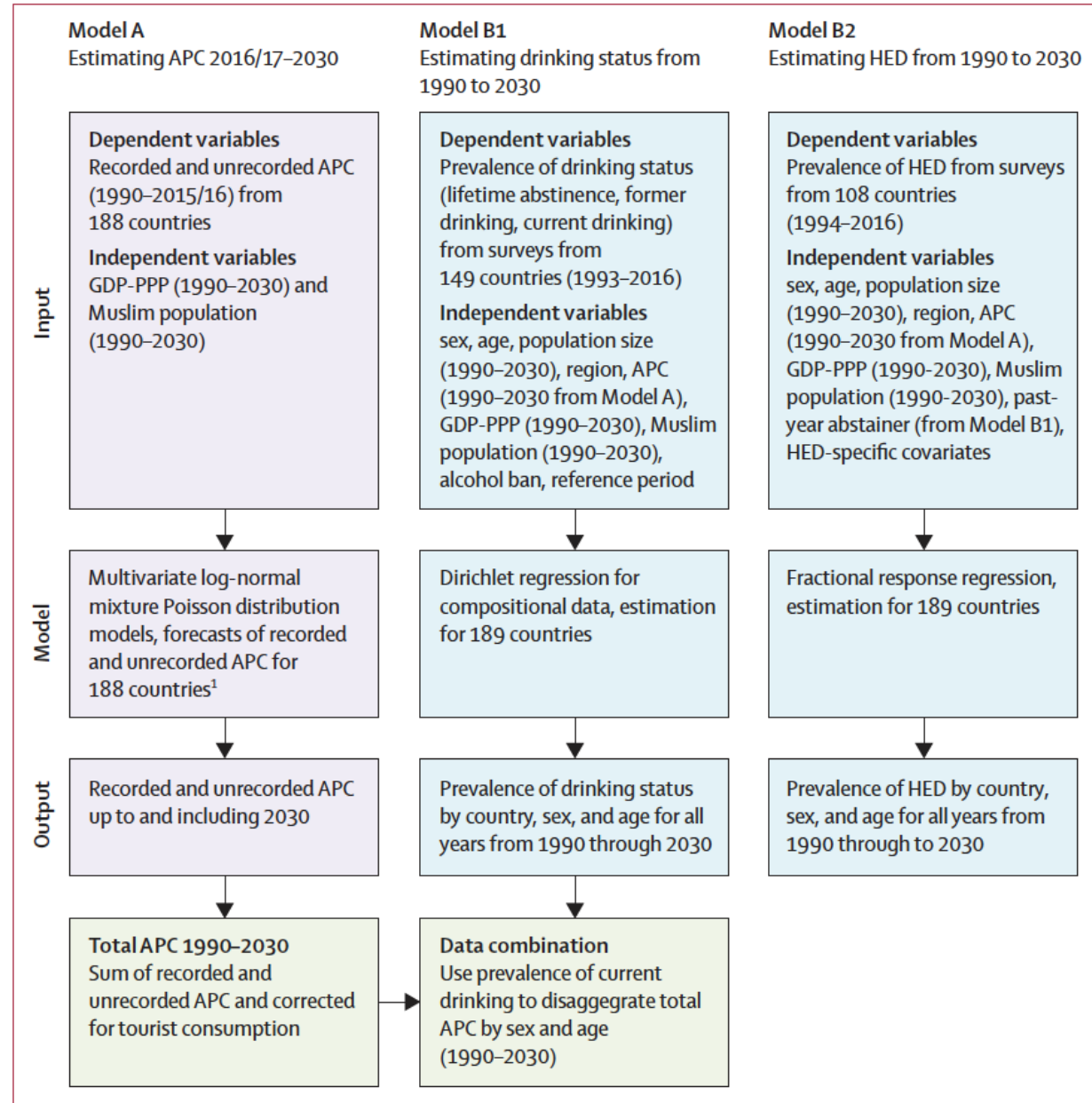
Main indicators of alcohol consumption



Data sources - overview



Modelling overview



Alcohol Questions for Surveys

A subset of key questions from alcohol surveys

Main findings: APC

- Between 1990 and 2017, APC **decreased** from **8.5 L** (95% CI 8.3–8.6) to **7.9 L** (7.5–8.3)
- APC is projected to **remain stable** with an estimated APC of **7.8 L** (95% CI 6.9–8.9) by 2030
 - This is contrary to the objectives of:
 - Global Strategy on Alcohol and Health
 - WHO's Global Action Plan for the Prevention and Control of NCDs
 - The Sustainable Development Goals

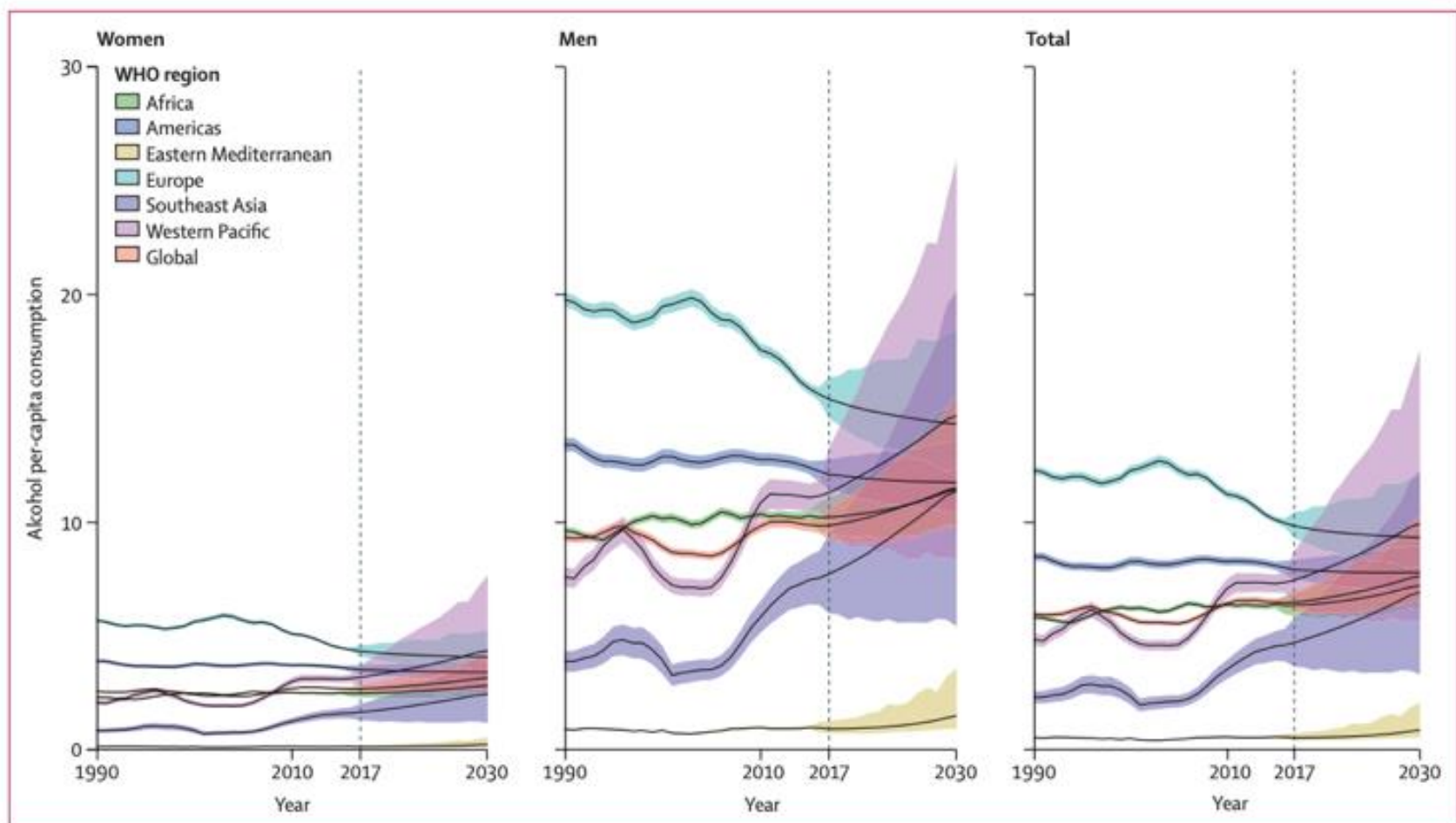


Figure 3: Alcohol per-capita consumption time trends between 1990 and 2030 for WHO regions and globally

Given alcohol per-capita consumption and global population growth, the total volume of alcohol consumed has increased by 70% (95% CI 59–82) from 1990 (20 999 million L) up to and including 2017 (35 676 million L). In high-income countries, the total volume of alcohol consumed has remained stable, while it has grown in lower-middle-income and upper-middle-income countries. Conversely, high-income countries' contribution to global alcohol use will have halved by 2030 (from 42% in 1990, to 26% in 2017 and 19% in 2030).

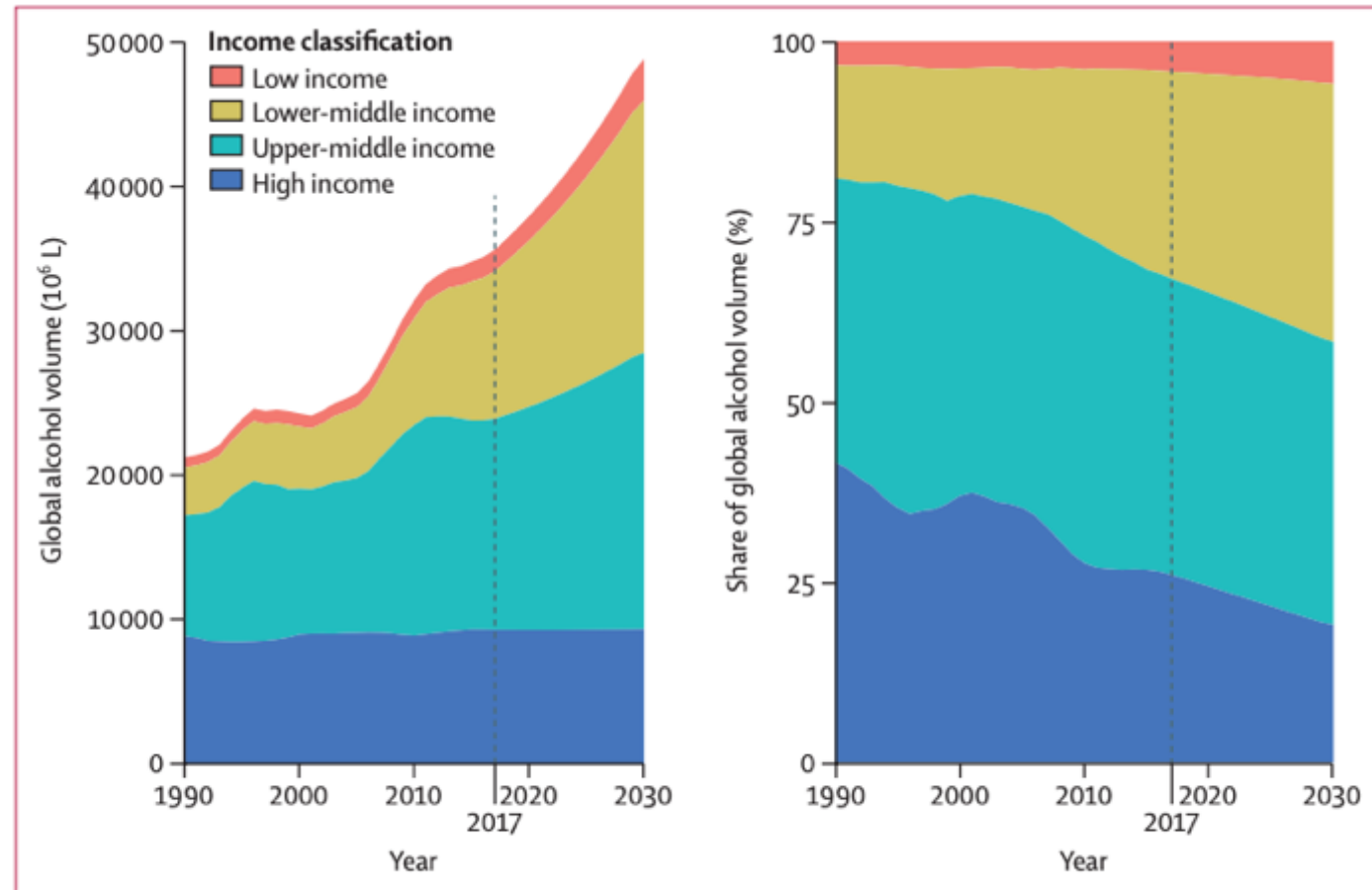


Figure 4: Absolute and relative share of global volume of pure alcohol consumed over time and by income classification

Unrecorded alcohol (sources)

Data sources:

- (i) A nominal expert group Delphi round was conducted between August 2015 and July 2016 (49 countries)
- (ii) WHO expert surveys (189 countries)
- (iii) WHO's STEPwise approach to surveillance (STEPS) surveys starting in 2013 (16 countries)

Question	Response	Skip pattern
Q3a. During the past 7 days, did you consume any home-brewed alcohol, any alcohol brought over the border/from another country, any alcohol not intended for drinking, or other untaxed alcohol?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	If "no," skip to question 4a
Q3b. On average, how many standard drinks of those listed did you consume during the past 7 days?	Home-brewed spirits, e.g., Moonshine [_ _]	
	Home-brewed beer or wine, e.g., beer, palm or fruit wine [_ _]	
	Alcohol brought over the border/from another country [_ _]	
	Alcohol not intended for drinking, e.g., alcohol-based medicines, perfumes, after shaves [_ _]	
	Other untaxed alcohol [_ _]	

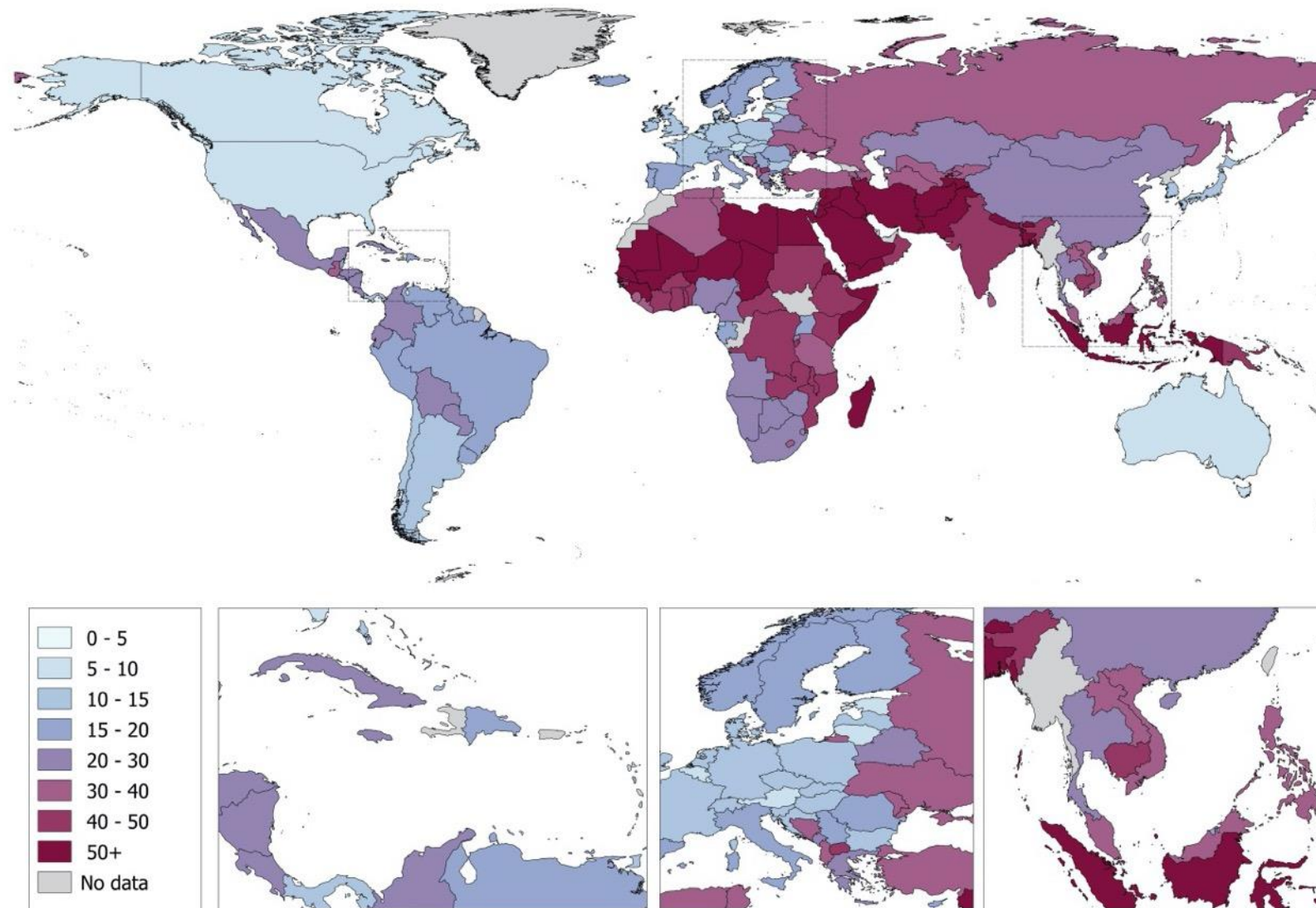


Figure. World map of the percentage (%) of unrecorded alcohol consumption to total *per capita* alcohol consumption in 2015

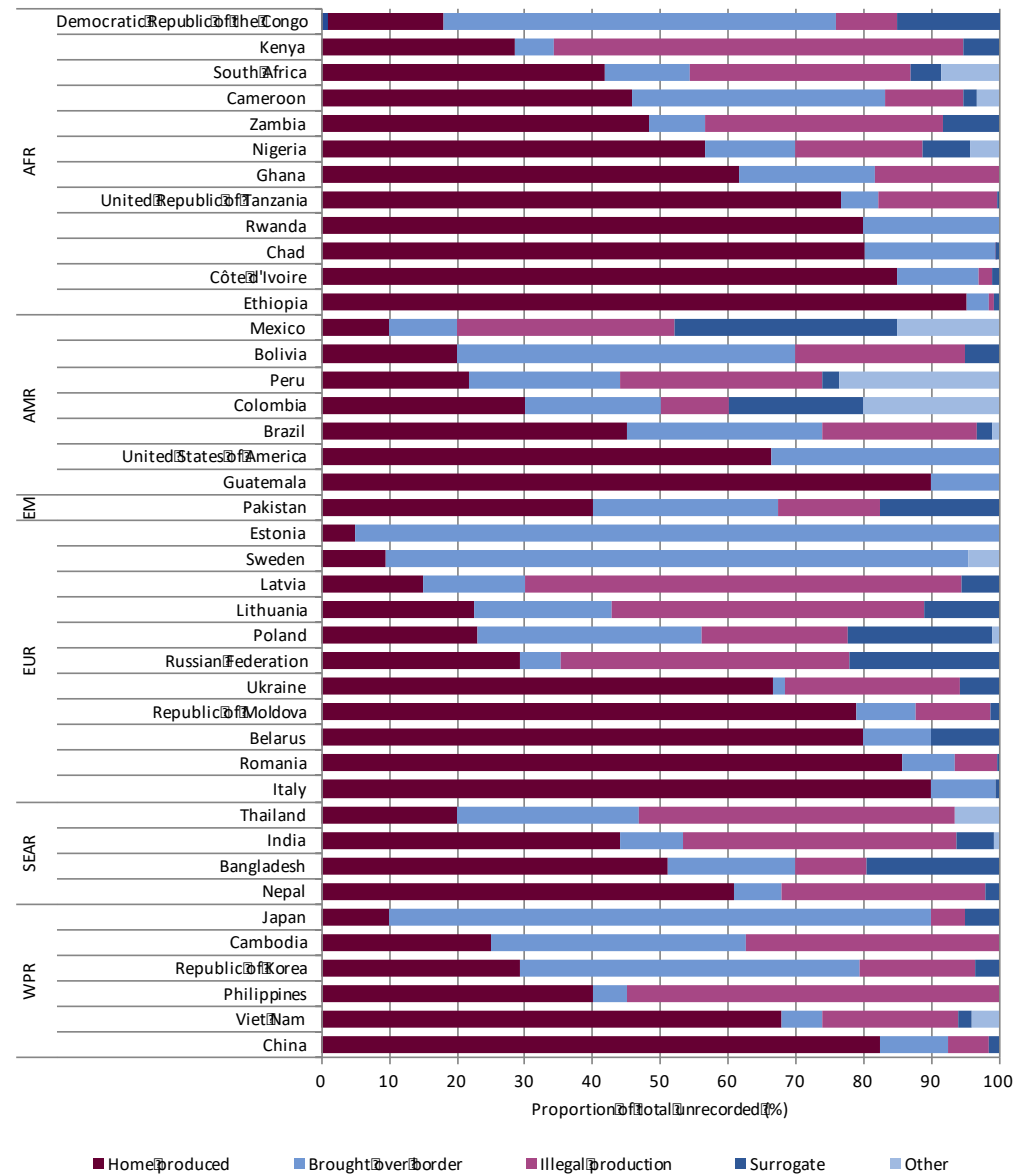


Figure. Sources of unrecorded alcohol in 2015 for selected countries

Drinking status

Question	Response	Skip pattern
Q1a. Have you ever consumed any alcohol such as beer, wine, spirits, or [add other local examples]?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	If "no," skip to Q7
Q1b. Have you consumed any alcohol within the past 12 months?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	If "yes," skip to Q2 If "no," go to Q1c (if Q1c is not included, skip to Q7)

Former drinking

Question	Response	Skip pattern
Q1c. Have you stopped drinking due to health reasons, such as a negative impact on your health, or on the advice of your doctor or other health worker?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	After answering this question, skip to Q7

Alcohol volume

Question	Response	Skip pattern
Q2a. During the past 30 days, on how many occasions did you have at least one standard alcoholic drink?	Number [_ _]	If “0,” skip to Q4a
Q2b. During the past 30 days, when you drank alcohol, how many standard drinks on average did you have during one drinking occasion?	Number [_ _]	

Heavy episodic drinking

Question	Response	Skip pattern
Q4a. How often do you have six or more drinks per occasion	<ul style="list-style-type: none">_ Never_ Less than monthly_ Monthly_ Weekly_ Daily or almost daily _ Don't know	If "never," skip to Q5a
Q4b. During the past 30 days, how many times did you have six or more standard drinks in a single drinking occasion?	[_ _] Number of times	

Main findings: drinking status

The prevalence of lifetime abstention (LA) **decreased** from 20.2% (95% CI 17.7–22.8) in 1990 to 16.9% (14.6–19.4) in 2017

- A further **decrease** in the prevalence of LA is expected: 15.3% (95% CI: 12.9-18.2) in 2030.

The prevalence of heavy episodic drinking (HED) **increased slightly** from 24.3% (95% CI: 22.0-26.6) in 1990 to 25.1% (95% CI 22.6-27.6) in 2017

- A further **increase** in the prevalence of HED is expected: 26.4% (95% CI 23.7 to 29.1) in 2030.

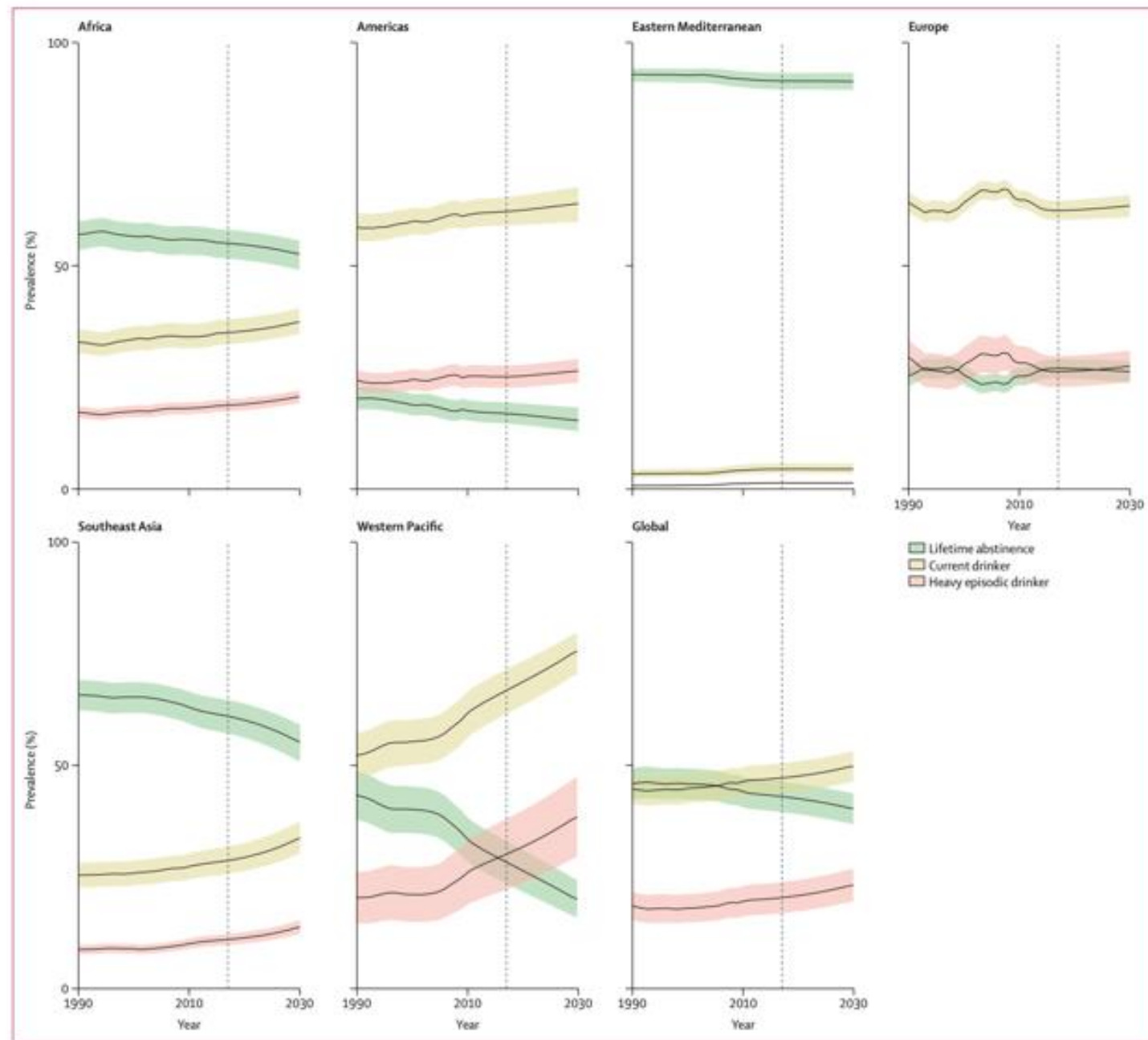
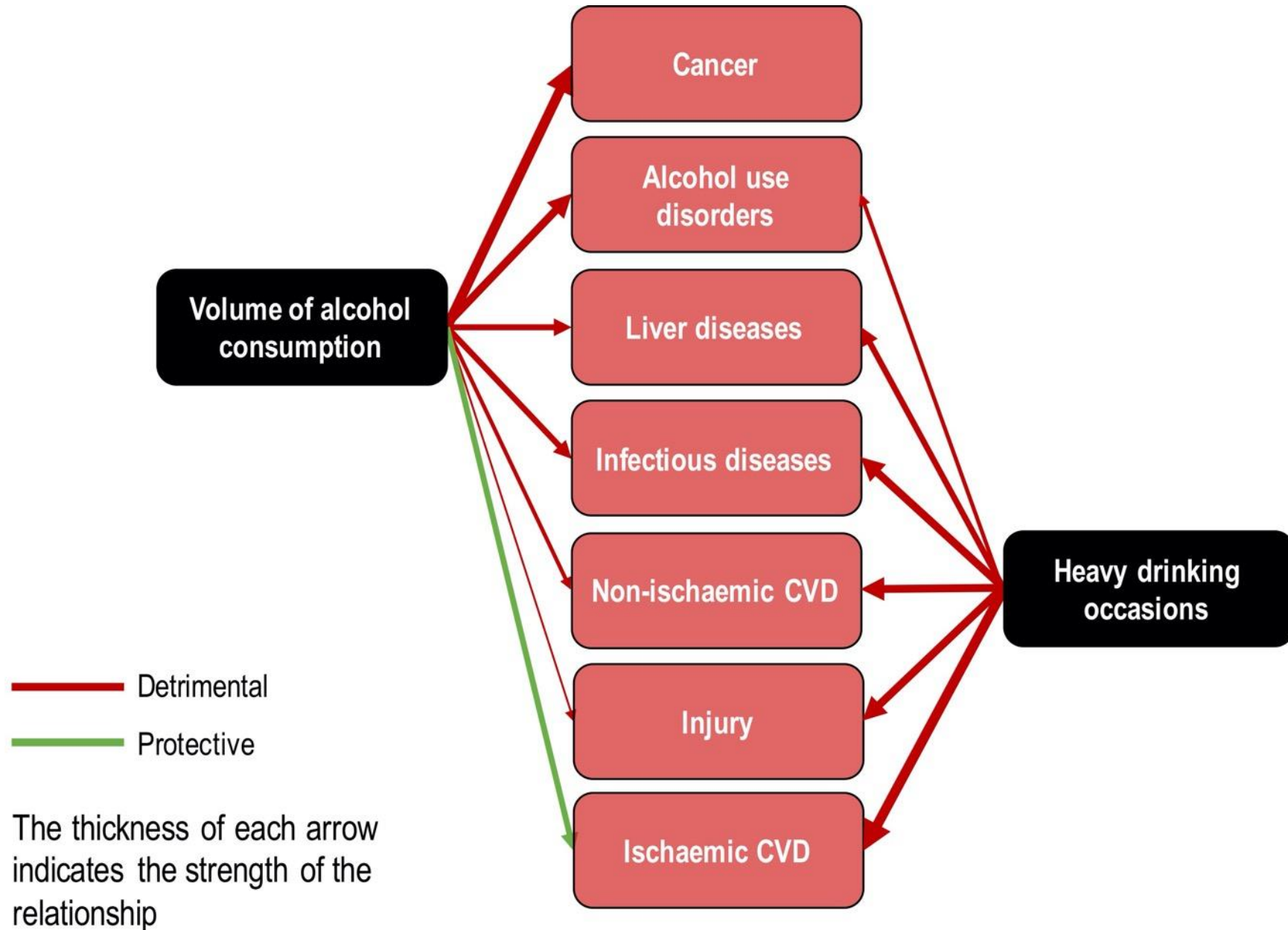


Figure 5: Prevalence of drinking status (lifetime abstinence, current drinking) and heavy episodic drinking, by WHO region and globally over time

Best indicator of harmful alcohol use: APC or HED



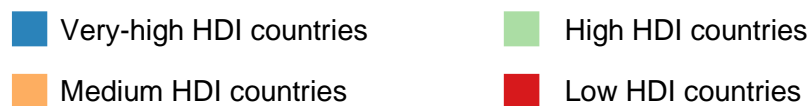
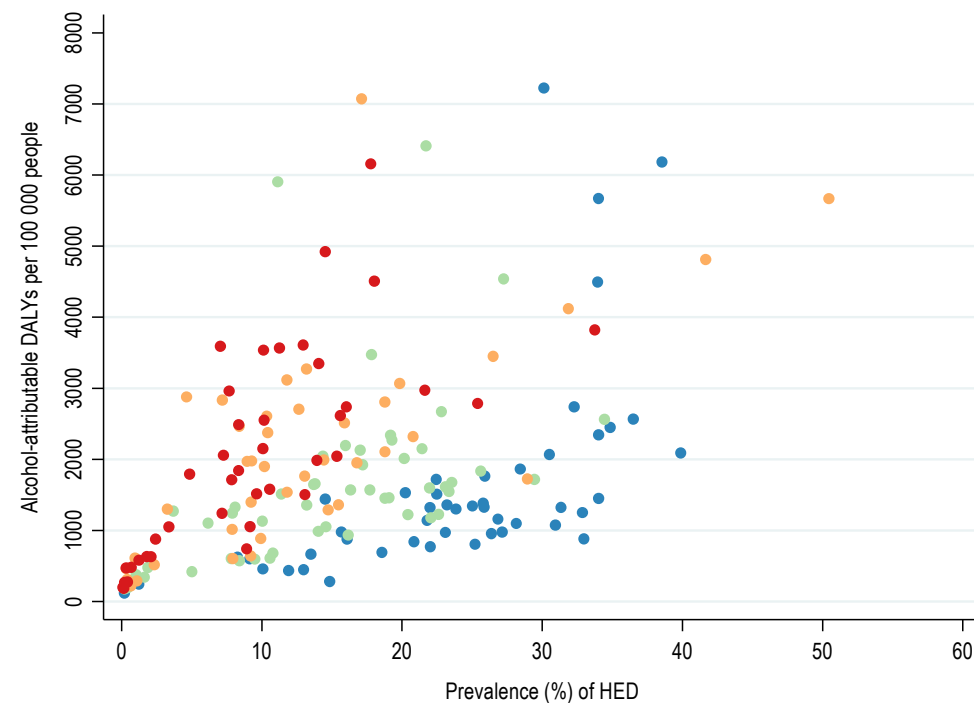
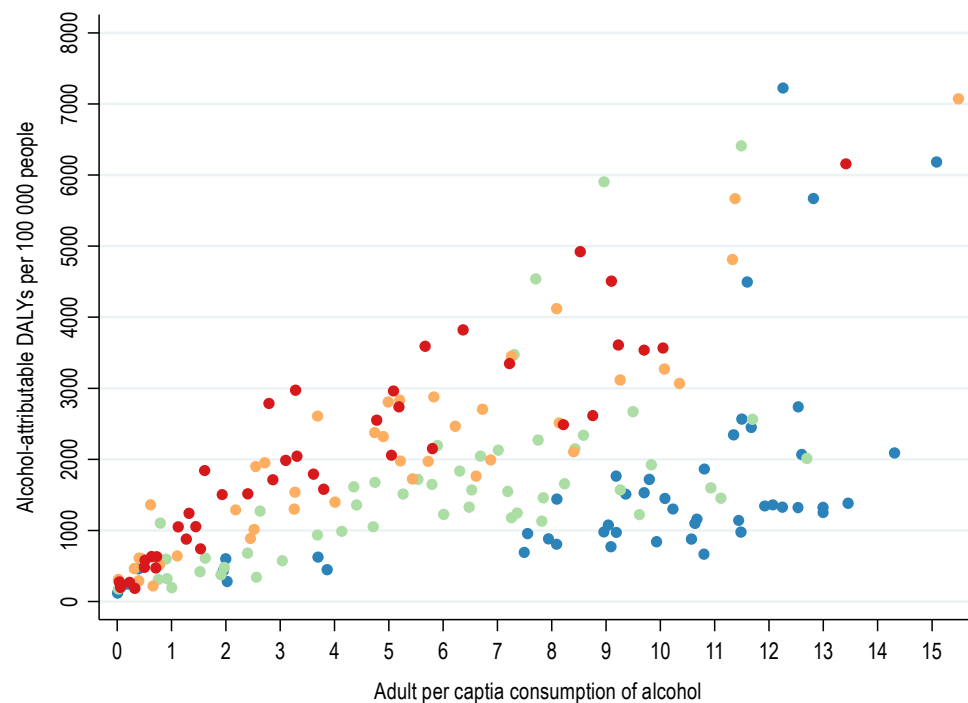


Figure 1. Comparison in the correlation between adult per capita consumption and age-standardized prevalence heavy episodic drinking (HED) with the age-standardized rate of alcohol-attributable deaths stratified by human development index group

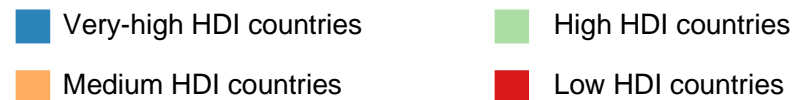
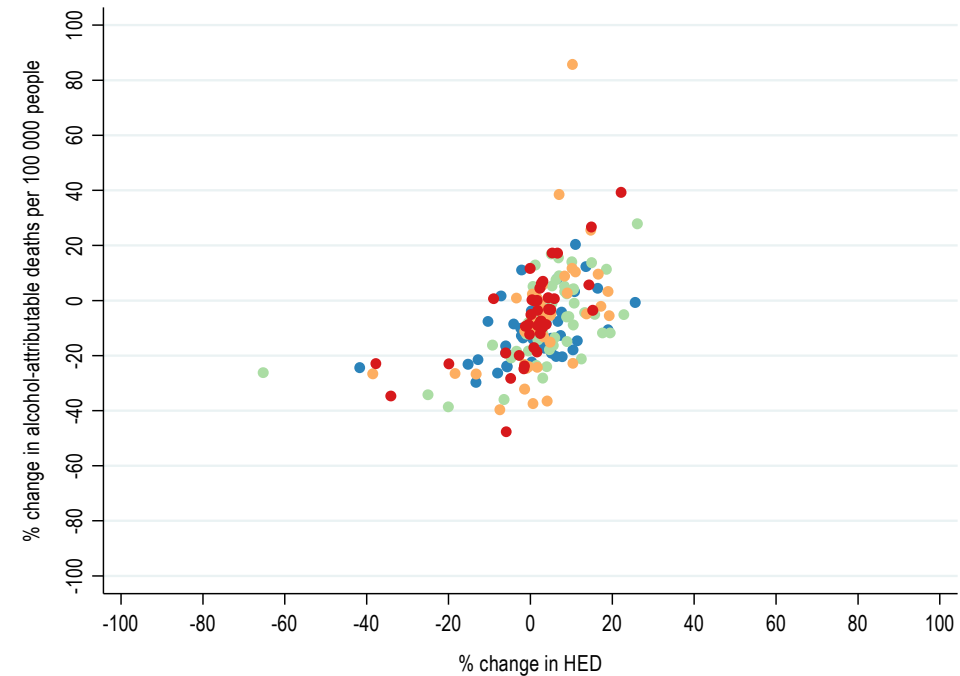
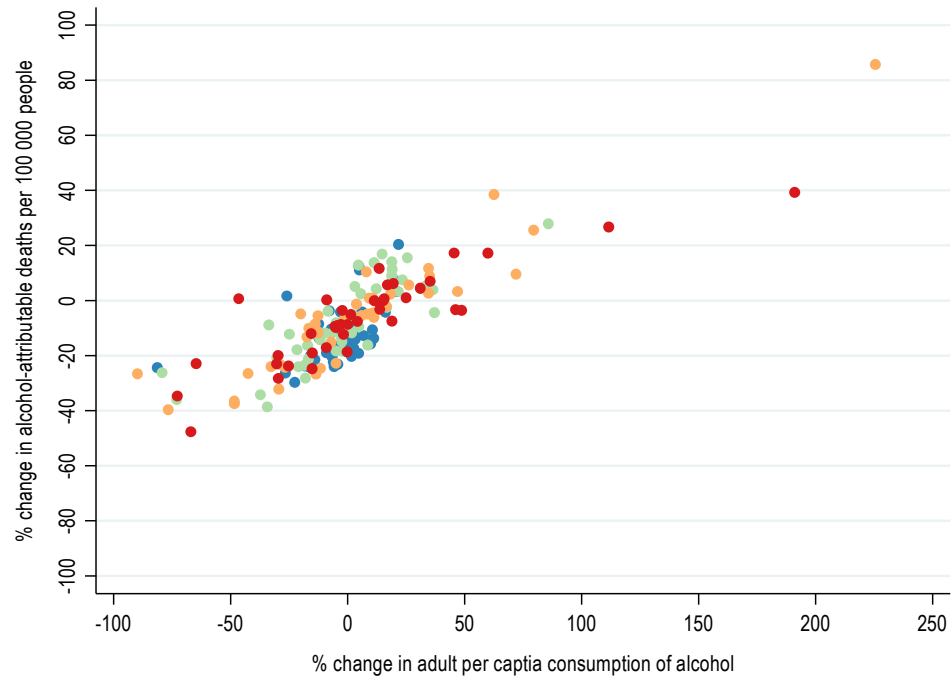


Figure 2. Comparison in the correlation between percent changes in adult per capita consumption and age-standardized prevalence heavy episodic drinking (HED) with the age-standardized rate of alcohol-attributable deaths from 2010 to 2016 stratified by human development index group

Standard drink of alcohol

Why use a standard drink?

The amount of alcohol in a standard drink is useful to define for:

- Economics
 - UK Weights and Measures Act (1963, 1985, 2001)
- Low-risk drinking guidelines (originally dietary)
- Studies measuring alcohol consumption

A standard drink in the United States

First appeared in the 1985 US Dietary guidelines





STANDARD DRINK EQUIVALENTS	APPROXIMATE NUMBER OF STANDARD DRINKS IN:
BEER or COOLER	
12 oz.  ~5% alcohol	<ul style="list-style-type: none">• 12 oz. = 1• 16 oz. = 1.3• 22 oz. = 2• 40 oz. = 3.3
MALT LIQUOR	
8-9 oz.  ~7% alcohol	<ul style="list-style-type: none">• 12 oz. = 1.5• 16 oz. = 2• 22 oz. = 2.5• 40 oz. = 4.5











TABLE WINE	
5 oz.  ~12% alcohol	<ul style="list-style-type: none">• a 750 mL (25 oz.) bottle = 5
80-proof DISTILLED SPIRITS	
1.5 oz.  40% alcohol	<ul style="list-style-type: none">• a mixed drink = 1 or more*• a pint (16 oz.) = 11• a fifth (25 oz.) = 17• 1.75 L (59 oz.) = 39 <p>*Note: Depending on factors such as the type of spirits and the recipe, one mixed drink can contain from one to three or more standard drinks.</p>

A standard drink is any drink that contains about specified amount of pure alcohol

https://pubs.niaaa.nih.gov/publications/practitioner/PocketGuide/pocket_guide2.htm

KNOW YOUR STANDARDS

BEER				
Full Strength				
Pot/Middy	Schooner	Pint	Bottle	Six Pack
				
4.6% Alc./Vol 285ml	4.6% Alc./Vol 425ml	4.6% Alc./Vol 570ml	4.6% Alc./Vol 375ml	4.6% Alc./Vol 6 x 375ml
1.0 StdDrk	1.5 StdDrks	2.0 StdDrks	1.4 StdDrks	8.4 StdDrks
Mid Strength				
Pot/Middy	Schooner	Pint	Bottle	Six Pack
				
3.5% Alc./Vol 285ml	3.5% Alc./Vol 425ml	3.5% Alc./Vol 570ml	3.5% Alc./Vol 375ml	3.5% Alc./Vol 6 x 375ml
0.8 StdDrks	1.2 StdDrks	1.6 StdDrks	1.0 StdDrks	6.0 StdDrks
Light Strength				
Pot/Middy	Schooner	Pint	Bottle	Six Pack
				
2.7% Alc./Vol 285ml	2.7% Alc./Vol 425ml	2.7% Alc./Vol 570ml	2.7% Alc./Vol 375ml	2.7% Alc./Vol 6 x 375ml
0.6 StdDrks	0.9 Std Drks	1.2 StdDrks	0.8 StdDrks	4.8 StdDrks

CIDER						
Pot/Middy	Schooner	Pint	Bottle	Six Pack		
						
5.0% Alc./Vol 285ml	5.0% Alc./Vol 425ml	5.0% Alc./Vol 570ml	5.0% Alc./Vol 375ml	5.0% Alc./Vol 6 x 375ml		
1.1 StdDrk	1.7 StdDrks	2.3 StdDrks	1.5 StdDrks	9.0 StdDrks		
SPIRITS						
(Vodka, Rum, Bourbon, Scotch, Tequila, Whisky)						
Shot	Straight	Bottle	Pre-Mix	Six Pack		
						
40% Alc./Vol 30ml	40% Alc./Vol 30ml	40% Alc./Vol 700ml	5% Alc./Vol 375ml	5% Alc./Vol 6 x 375ml		
1.0 StdDrk	1.0 StdDrks	23.0 StdDrks	1.5 StdDrks	9.0 StdDrks		
WINE			CHAMPAGNE			
White/Red						
Glass	Bar Serve	Bottle	Cask	Flute	Piccolo Bottle	Bottle
						
12% Alc./Vol 100ml	12% Alc./Vol 150ml	12% Alc./Vol 750ml	12% Alc./Vol 4L	12% Alc./Vol 100ml	12% Alc./Vol 200ml	12% Alc./Vol 750ml
1.0 StdDrk	1.5 StdDrks	7.5 StdDrks	40 StdDrks	1.0 StdDrk	2.0 StdDrks	7.5 StdDrks

Standard Drinks Guide

A standard drink contains 10 grams of pure alcohol. Alcoholic drinks which are purchased often contain more than one standard drink. Labels on alcoholic beverages display the amount of standard drinks and alcohol content (%) each specific drink contains.

Alcohol - Standard drink

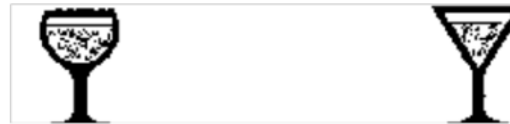
1 standard drink =



1 standard bottle
of **regular beer**
(285ml)



1 single measure
of **spirits** (30ml)



1 medium size
glass of wine
(120ml)

1 measure of
aperitif (60ml)

Note: net alcohol content of a **standard drink** is **approximately 10g** of ethanol.

Labelling



Drinkers' knowledge of what a standard drink

Drinkers underestimate the alcohol content of beverages based on %ABV – Australia (Stockwell et al., 1991)

Beer is the most standardized and easiest to report

- Sold in single serve containers
- Variations in strength and container size
- A single pour would lead to over-pouring of stronger brands (Kerr et al., 2012)

For wine and spirits there is a tendency to over pour drinks

- Generally poor awareness of wine volume pours (Devos-Comby et al., 2006)
- Historically increased serving size and strength for wine (Britton et al., 2016)
- Over pouring dependent on size and shape of vessel

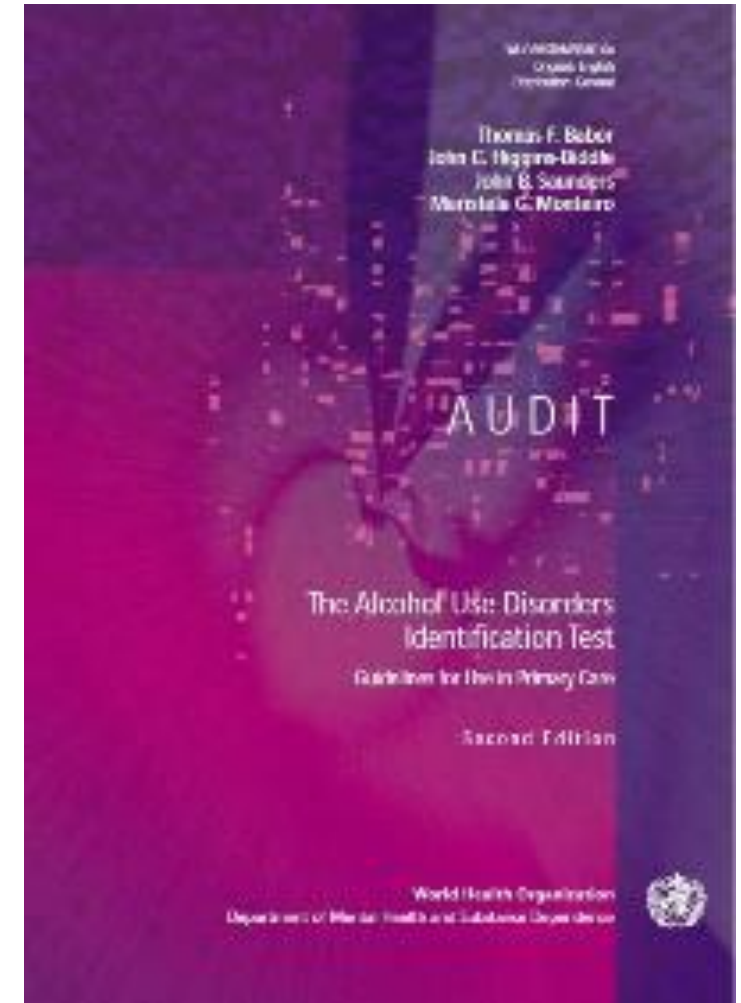
Measuring Alcohol Use Disorders

Multiple definitions of Alcohol Use Disorders:

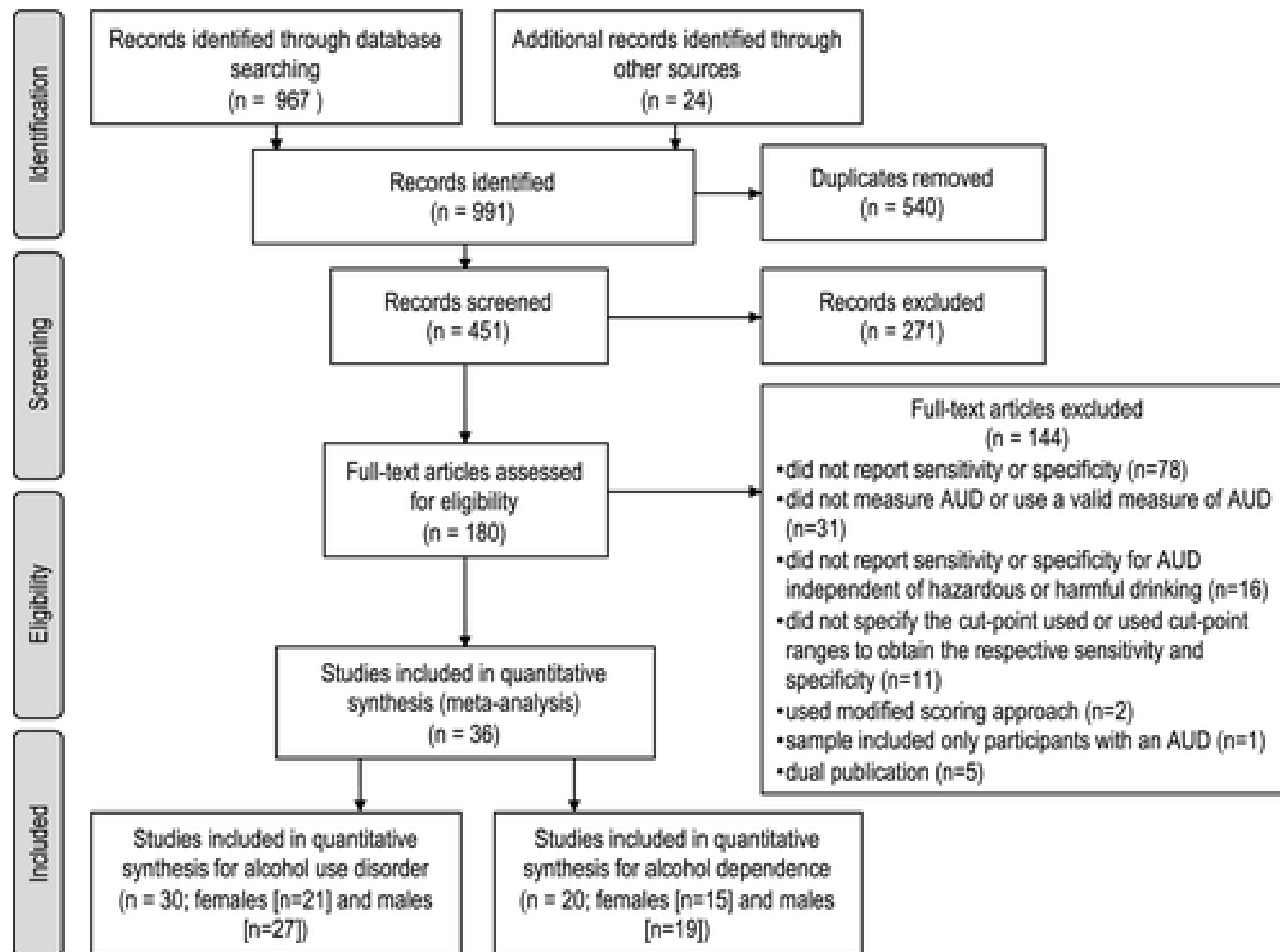
- DSM–III–R, DSM–IV, DSM 5, and ICD–10

Multiple diagnostic instruments

- Composite International Diagnostic Interview (CIDI)
- Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS)
- Schedules for Clinical Assessment in Neuropsychiatry (SCAN)
- Semi–Structured Assessment for the Genetics of Alcoholism (SSAGA)
- Hazardous drinking identification: AUDIT, ASSIST, CAGE, MAST, SSAGA



Using the AUDIT as an indicator of Alcohol Use Disorders



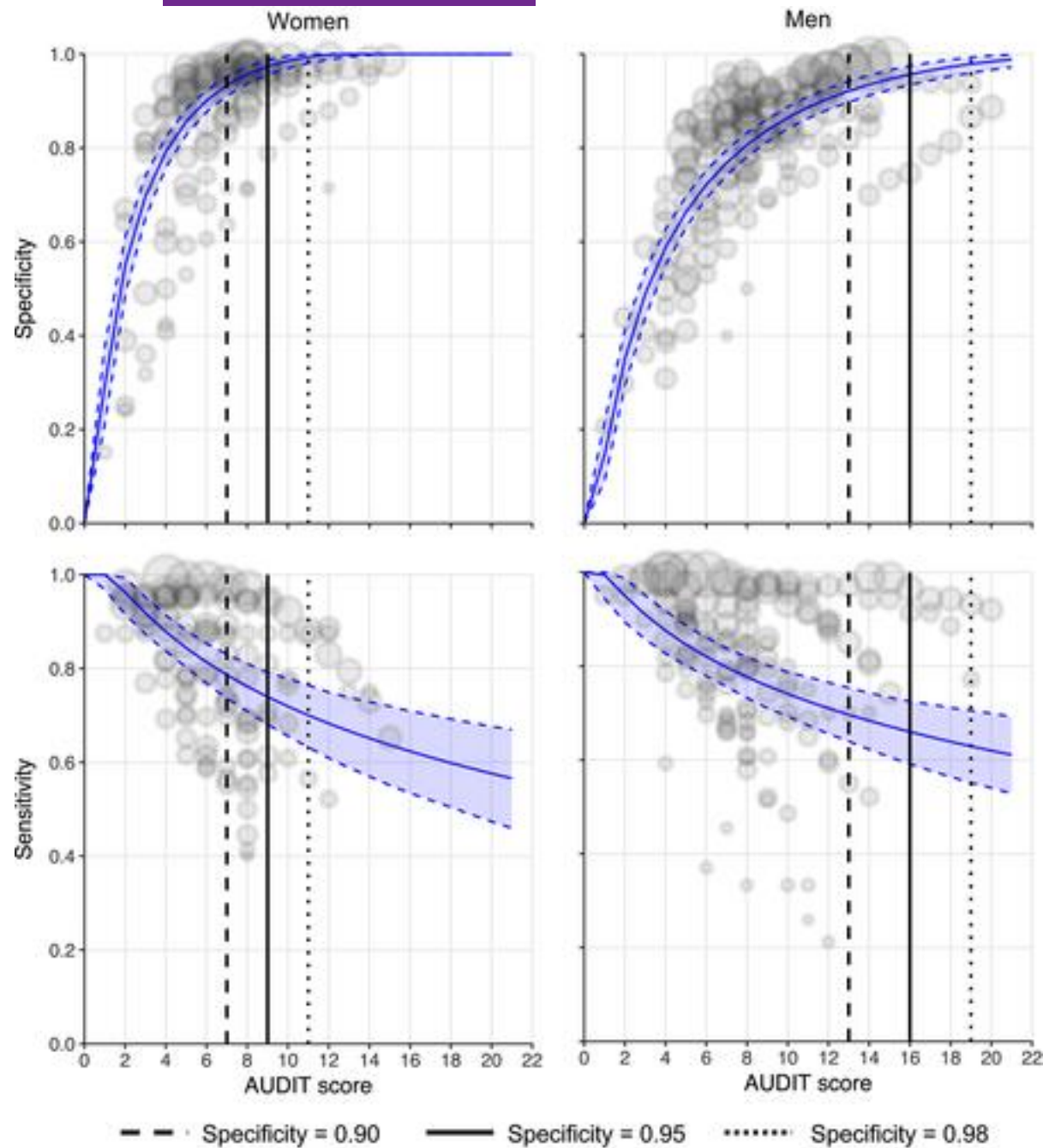


Figure 2. Relationship between the AUDIT cut-point and the sensitivity and specificity of the AUDIT in identifying AUDs, by sex, assuming a standard drink size of 10 g of EtOH.

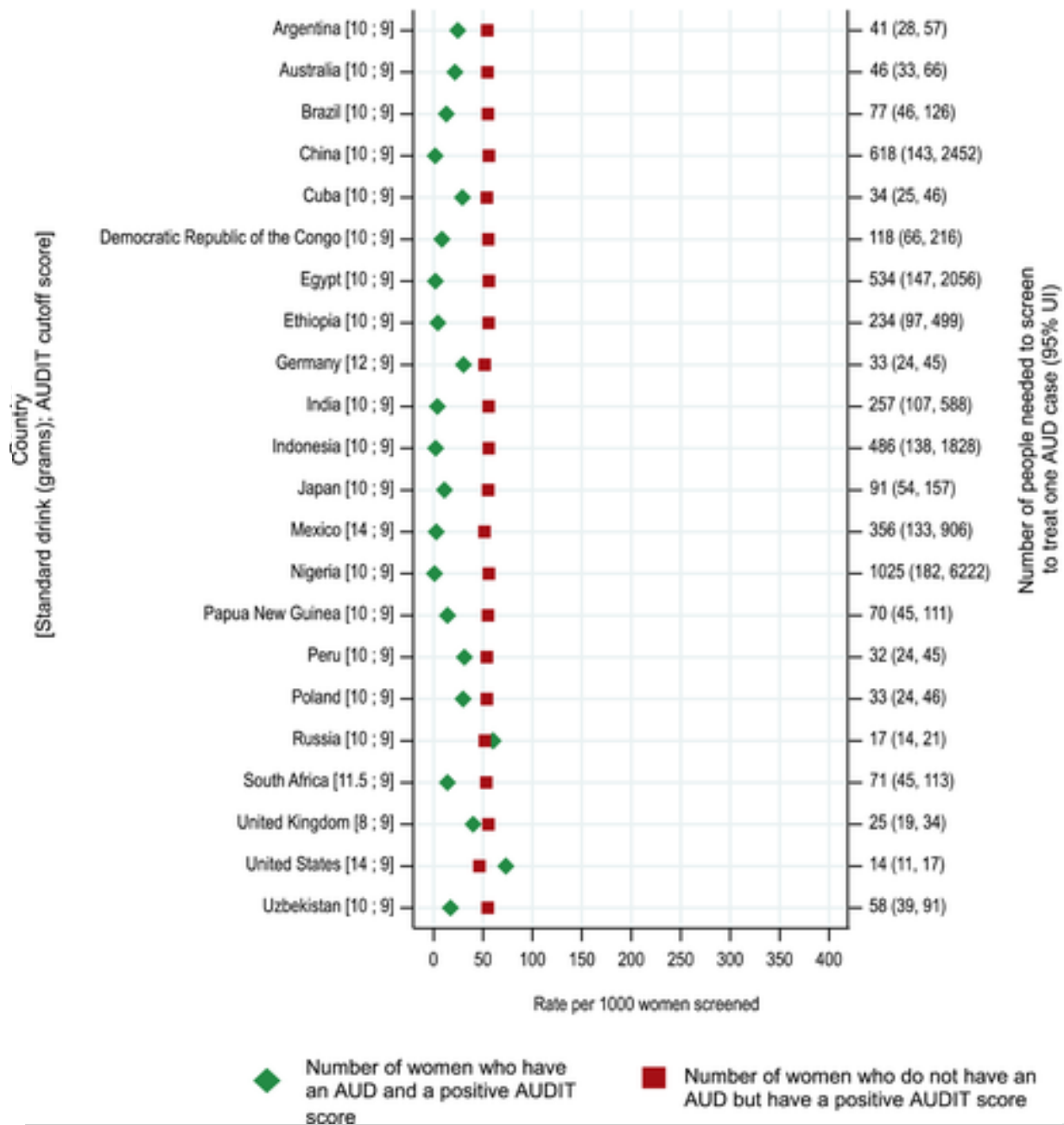


Figure. Screening statistics, by country, for AUDs per 1,000 **men** screened using the AUDIT cut-point that provides a specificity of 0.95

Very high risk level of alcohol consumption

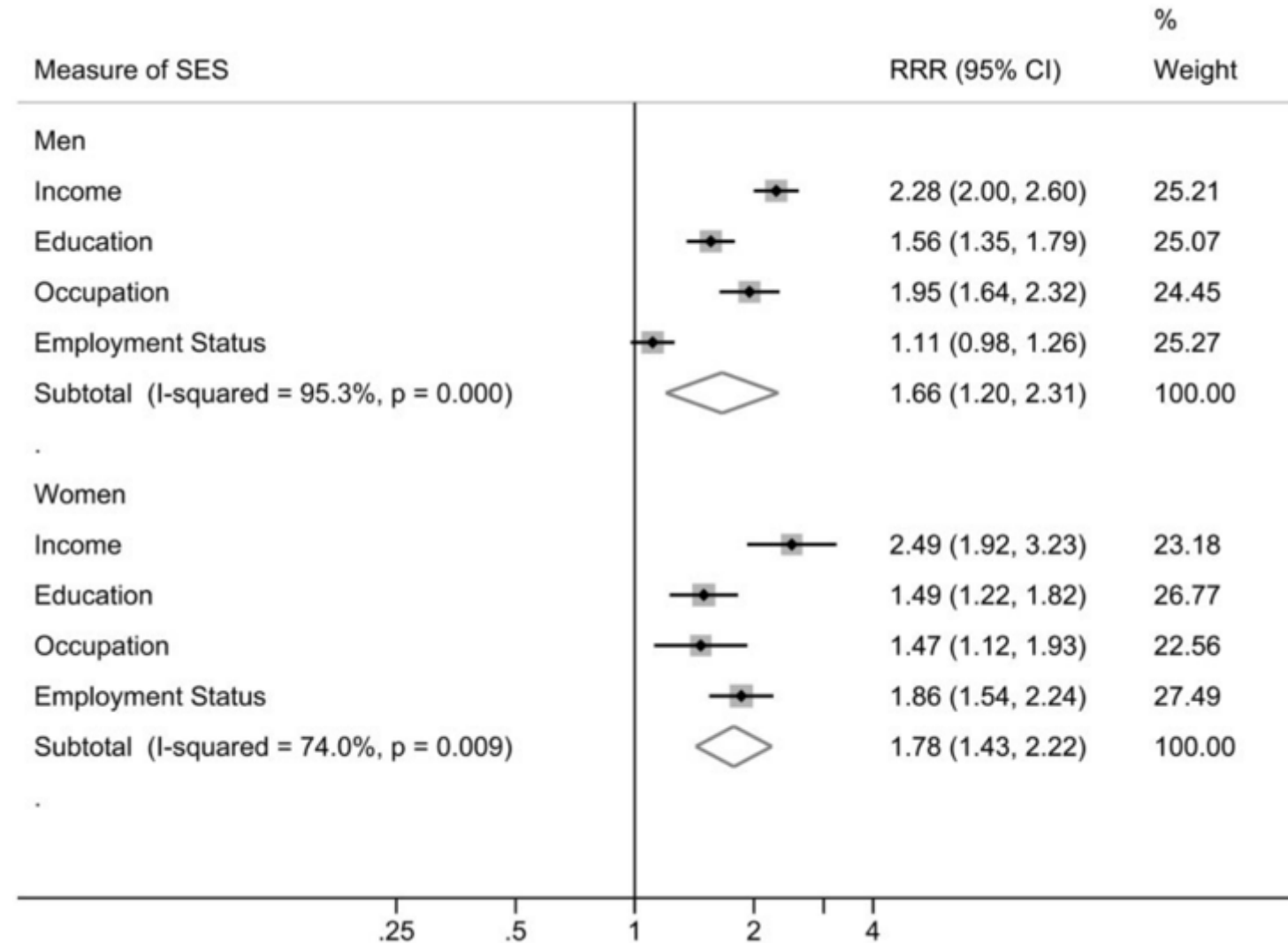
Table 1 World Health Organization criteria for risk of consumption on a single drinking day in relation to acute problems (European Medicines Agency, 2010; World Health Organization, 2000).

<i>Drinking level category</i>	<i>Average daily consumption of ethanol (g/day)</i>	
	<i>Male</i>	<i>Female</i>
Low risk	>0 - ≤40	>0 - ≤20
Moderate risk	>40 - ≤60	>20 - ≤40
High risk	>60 - ≤100	>40 - ≤60
Very high risk	>100	>60

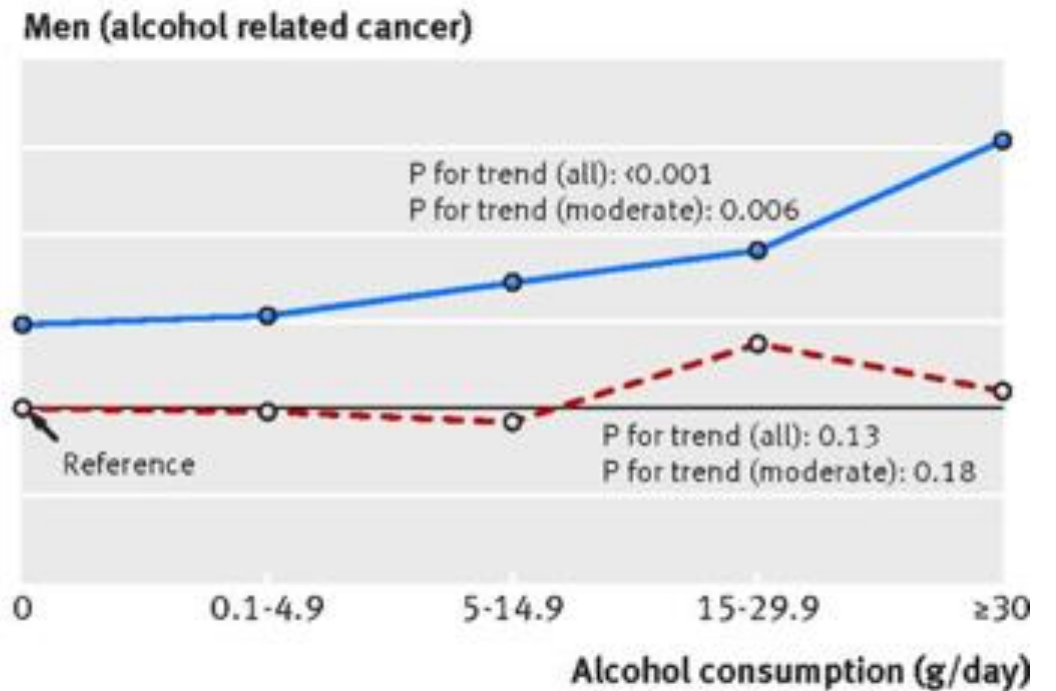
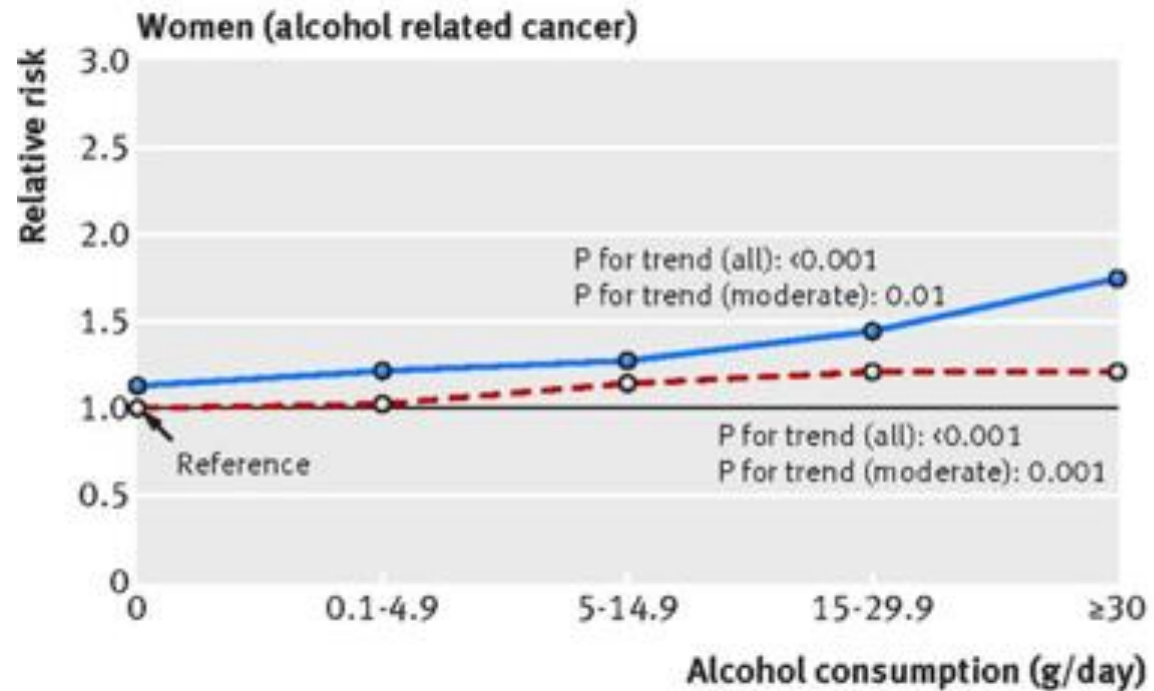
Table 2 Incidence and risk of occurrence over 1-year and 10-year periods for the considered diseases and injuries in an alcohol-dependent population drinking 44.5 kg of pure alcohol per year.

<i>Disease/injury</i>	<i>Risk of occurrence over a 1-year period per 100 patients</i>	<i>Risk of occurrence over a 10-year period per 100 patients</i>
Pneumonia	2.5	25.3
Ischaemic heart disease	2.2	21.6
Ischaemic stroke	0.7	6.9
Haemorrhagic stroke	0.3	3.0
Liver cirrhosis	1.0	10.2
Pancreatitis	0.9	8.7
Traffic injuries	0.7	7.3
Other injuries	5.2	52.5
Total	13.5	135.3

Alcohol and Socioeconomic Status



Alcohol and smoking



Treatment coverage

Question	Response	Skip pattern
Q6a. Did you seek any form of treatment for your use of alcohol at any time in the past 12 months?	<input type="checkbox"/> No <input type="checkbox"/> Yes	If “no,” skip to question 7.
Q6b. From whom did you receive professional treatment?	<input type="checkbox"/> Specialist doctor: Psychiatrist <input type="checkbox"/> Specialist other: Other mental health professional, e.g., psychologist/ counselor/mental health nurse <input type="checkbox"/> Generalist doctor: Any other medical doctor <input type="checkbox"/> Generalist other: e.g., General social worker, community health worker, nurse <input type="checkbox"/> Religious or spiritual advisor <input type="checkbox"/> Traditional healer, herbalist, or spiritualist <input type="checkbox"/> Other	

Second-hand harms due to alcohol

Question	Response	Skip pattern
<p>Q7. In the past 12 months, have you been negatively impacted because of another person's drinking?</p>	<ul style="list-style-type: none"> _ verbally abused _ physically abused _ threatened _ involved in a traffic accident _ felt unsafe while in a public place _ had unwanted sexual attention, or were pressured into sexual activity _ had your house, car, or property damaged 	

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Thank You

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