

Global burden of alcohol use disorders in the Year 2000: summary of methods and data sources.

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1. Introduction

Alcohol consumption is linked to long-term health and social consequences through three intermediate outcomes: intoxication, dependence and direct biochemical effects. Alcohol consumption is a risk factor for a large number of diseases through direct biochemical effects and also, at certain levels of consumption, is protective against certain diseases (1). Alcohol may influence chronic disease either in a beneficial or harmful way. Beneficial effects include the influence of moderate drinking on coronary heart disease via effects on reduction of plaque deposits in arteries, on protection against blood clot formation and on promotion of blood clot dissolution. Examples of harmful effects include increasing the risk for high blood pressure, direct toxic effects causing organ damage (eg. liver, pancreas) or hormonal disturbances.

Intoxication is a powerful cause of accidents, and intentional injuries or deaths, domestic conflict and violence, though intoxication episodes can also be implicated in chronic health and social problems. Alcohol dependence is a disorder in itself, but is also a powerful mechanism sustaining alcohol consumption and mediating its impact on both chronic and acute physiological and social consequences of alcohol (2).

"Alcohol dependence and harmful use" is a disease category in the Global Burden of Disease cause list within the neuropsychiatric disease group. It includes the direct burden of alcohol addiction and harmful use, both in terms of deaths and loss of full health. It does not include the burden of other diseases or injuries attributable to alcohol as a causal risk factor. The Comparative Risk Assessment (CRA) project estimated the total attributable burden of alcohol consumption in 2000 and summary results are published in the World Health Report 2002 (3). Full details will be available in the CRA book to be published in late 2003 (1).

The CRA analysis found that the alcohol-attributable burden of disease is considerable: 3.0% of global mortality and 3.8% of global burden of disease as measured in DALYs. In terms of alcohol-related mortality, almost half of the global burden is related in acute causes, i.e. unintentional and intentional injuries. The next important categories are malignant neoplasms (22% of the overall alcohol-related mortality burden), followed by liver cirrhosis (15%) and cardiovascular deaths (4%). More males than females die of alcohol, with a ratio of about 5:1. Alcohol use disorders (dependence and harmful use) are directly responsible for 37% of total alcohol-attributable DALYs.

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This is a higher proportion than for mortality, because alcohol use disorders result mainly in loss of health.

Alcohol use disorders was estimated to be the 40th leading cause of non-fatal burden in the world in 1990, accounting for 0.7% of total YLD, around the same percentage as obsessive-compulsive disorders and meningitis (4). In the Version 1 estimates for the Global Burden of Disease 2000 study, published in the World Health Report 2001 (5), alcohol use disorders is the 57th leading cause of YLDs at global level, accounting for 0.9% of total global YLDs. This draft paper summarises the data and methods used to produce the Version 2 estimates of alcohol use disorders burden for the year 2000. It will be replaced by a more complete and final paper in the next year, when the Version 3 estimates are finalised.

2. Case and sequelae definitions

The case definition for alcohol use disorders is based on ICD 10 criteria for alcohol dependence and harmful use (F10.1 and F 10.2), excluding cases with comorbid depressive episode.. DSM IV alcohol abuse is included in the case definition.

The case definition includes alcohol dependence and harmful use. There must be a clear evidence that substance use was responsible for (or substantially contributed to) physical or psychological harm, including impaired judgement or dysfunctional behaviour, which may lead to disability or have adverse consequences for interpersonal relationships

The last phrase was introduced to operationalise 'social harm' (a narrow definition that would exclude mere disapproval or marital arguments that may be due to substance use but would still capture the notion of social harm)

Case definitions, health state descriptions, disease models and prevalence figures were extensively discussed with the WHO Technical Programme.

Table 2.1 GBD 2000 case and sequelae definitions for alcohol abuse disorders

Cause category	GBD 2000 Code	ICD 9 codes	ICD 10 codes
Alcohol use disorders	U086	291, 303, 305.0	F10

Sequela	Definition
Alcohol dependence	Cases meeting ICD 10 criteria for alcohol dependence and harmful use (F10.1 and F 10.2), excluding cases with comorbid depressive episode.

3. Epidemiological data

Incidence and prevalence data are summarised in Tables 5 and 6 and the assumptions about incidence and prevalence for each GBD 2000 subregion in Table 7. 55 population-based studies All

available population-based surveys using diagnostic criteria that could be mapped to this case definition were identified. Population estimates of the point prevalence of alcohol use disorders were obtained from 55 studies. These studies are summarized in Table 3.1. For each study, the following summary items are listed.

Region of the WHO Member States (Variables: Region)

- Region: WHO Region (incl. Mortality stratum)

Countries and Sites (Variables: Country, Sites)

- Country: Name of the country where the data have been collected
- Sites: Site where the data have been collected

Year of the Data Collection of the Studies (Variables: Year2)

- Year2: End of the data collection

Methods used in the Studies, three Possibilities (Variables: Method1, Method2, Method3)

1. CIDI: Composite International Diagnostic Interview
2. CIDI-PHC: Composite International Diagnostic Interview - Primary Health Care Version
3. DIS: Diagnostic Interview Schedule
4. APST: Alcohol-Related Problems screening test, based on the DIS
5. CIS: Clinical Interview Schedule
6. SRQ: Self Reporting Questionnaire
7. SCAN: Schedules for Clinical Assessment in Neuropsychiatry
8. AUQ: Alcohol Use Questionnaire
9. CAGE Questionnaire
10. AUDIT: Alcohol Use Disorders Identification Test
11. S-MAST: Short Michigan Alcoholism Screening Test
12. SSI: Second Stage Interview
13. Early Developmental Stages of Psychopathology
14. Structured Interview for Personality Disorders

Ages of the Subjects (range)

- Lower limit of the age to upper bound of the age

Diagnosis used, two possibilities (Variables: Diagn1, Diagn2)

1. ICD-10
2. DSM-III
3. DSM-III-R
4. DSM-IV

Kind of Prevalence (Variable: Prev)

1. Dependence – life time

2. Dependence – 12 month
3. Dependence – 6 month
4. Dependence – 1 month
5. Dependence – point prevalence
6. Abuse or Dependence – life time

Prevalences of the Diagnosis, in per cent (Variables: Prev_m, Prev_f, Prev_t)

- Prev_m: Prevalence of Alcohol dependence for male, in per cent
- Prev_f: Prevalence of Alcohol dependence for female, in per cent
- Prev_t: Prevalence of Alcohol dependence for male and female, in per cent

Kind of Survey (Variable: Survey)

1. General population
2. Community
3. General practitioner (GP)
4. Cohort

Numbers of the Subjects from the Studies (Variable: N)

- N: Numbers of the Subject

Table 3.1. Prevalence studies for alcohol use disorders

Region	Country	Sites	Year	Method1	Method2	Method3	Ages	Diagn1	Diagn2	Prev	Prev_m	Prev_f	Prev_t	Survey	N	Ref
AFRO D	NIGERIA									5			0	1	20000	(6)
AFRO D	NIGERIA	Ibadan	1991	12			15-65	1		4	1.5	0	0.4	3	926	(7)
AFRO D	NIGERIA	Ibadan	1991	12			15-24	1		4			0	3	308.7	(7)
AFRO D	NIGERIA	Ibadan	1991	12			25-44	1		4			0.8	3	308.7	(7)
AFRO D	NIGERIA	Ibadan	1991	12			45-65	1		4			0	3	308.7	(7)
AFRO E	ETHIOPIA	Addis Abeba	1994	6	9	1	15+	1		1	3.8	0.4	1	1	10203	(8)
AFRO E	ETHIOPIA	Addis Abeba	1994	6	9	1	15+	1		4			0.8	1	10203	(8)
AFRO E	SOUTH AFRICA	Fraserburg		9			18+	4		1			56	2	96	(9)
AFRO E	ZAMBIA	Lusaka	1987				-			5			14	3		(10)
AFRO E	ZIMBABWE	Harare	1989				-			5			13.2	3	483	(10)
AMRO A	CANADA	Ontario	1991	1			15-54	3		1	14.3	4.1	9.2	1	6902	(11)
AMRO A	CANADA	Ontario		1			15-64	3		2	7.1	1.8	4.5	2	9953	(12)
AMRO A	PUERTO RICO	Puerto Rico	1984	3			18-64	2		1	2.1	0.4	1.2	2	1513	(13)
AMRO A	PUERTO RICO	Puerto Rico	1984	3			18-64	2		3	2	0.1	0.1	2	1513	(13)
AMRO A	USA	Fresno	1997	1			18-54	3		1	16.8	4.8	10.8	1	2874	(11)
AMRO A	USA		1994				15-54			5			7.2	1	8098	(10)
AMRO A	USA		1992				18+	4		1			13.3	1	42862	(14)
AMRO A	USA		1992				18+	4		2			4.4	1	42862	(14)
AMRO A	USA		1992	1			15-54	3		1	20.1	8.2	14.1	1	8098	(15)
AMRO A	USA		1992	1			15-54	3		2	10.7	3.7	7.2	1	8098	(15)
AMRO A	USA	Seattle	1992	12			15-65	1		4	2.5	1	1.5	3	1962	(7)
AMRO A	USA	Seattle	1992	12			15-24	1		4			0.9	3	654	(7)
AMRO A	USA	Seattle	1992	12			25-44	1		4			2.1	3	654	(7)
AMRO A	USA	Seattle	1992	12			45-65	1		4			0.7	3	654	(7)
AMRO A	USA	California		1			18-59			1	12.2	0.9	6.2	4		(16)
AMRO A	USA	California		1			18-59			1	12.9	1.7	9.9	4		(16)

AMRO B	BRAZIL	Sao Paulo	1996	1			18-64	3	1	7.7	3.3	5.5	1	1179	(11)
AMRO B	BRAZIL	Sao Paulo	1992				15+		5	4			2		(10)
AMRO B	BRAZIL	Brasilia	1992				15+		5	5			2		(10)
AMRO B	BRAZIL	Porto Alegre	1992				15+		5	9			2		(10)
AMRO B	BRAZIL	Brasilia	1991	13			14+	2	1	15	1.1	8	2	6476	(17)
AMRO B	BRAZIL	Sao Paulo	1991	13			14+	2	1	15.2	0	7.6	2	6476	(17)
AMRO B	BRAZIL	Porto Alegre	1991	13			14+	2	1	16	2.5	9.2	2	6476	(17)

Table 3.1 (continued). Prevalence studies for alcohol use disorders

Region	Country	Sites	Year	Method1	Method2	Method3	Ages	Diagn1	Diagn2	Prev	Prev_m	Prev_f	Prev_t	Survey	N	Ref
AMRO B	BRAZIL	Rio de Janeiro	1991	12	2		15-65	1		4	12.6	0.8	4.1	3	2795	(7)
AMRO B	BRAZIL	Rio de Janeiro	1991	12	2		15-24	1		4			3.7	3	931.7	(7)
AMRO B	BRAZIL	Rio de Janeiro	1991	12	2		25-44	1		4			3.8	3	931.7	(7)
AMRO B	BRAZIL	Rio de Janeiro	1991	12	2		45-65	1		4			4.2	3	931.7	(7)
AMRO B	CHILE		1996				12-64				2.9	0.7	1.8	1	8271	(18)
AMRO B	CHILE	Cautin		1			15+	3		1	11	0.7	4.9	2	509	(19)
AMRO B	CHILE	Cautin		1			15+	3		3	6.7	0	2.8	2	509	(19)
AMRO B	CHILE	Santiago de Chile	1991	12	2		15-65	1		4	5.6	1.2	2.5	3	1453	(7)
AMRO B	CHILE	Santiago de Chile	1991	12	2		15-24	1		4			3	3	484.3	(7)
AMRO B	CHILE	Santiago de Chile	1991	12	2		25-44	1		4			2.6	3	484.3	(7)
AMRO B	CHILE	Santiago de Chile	1991	12	2		45-65	1		4			2.3	3	484.3	(7)
AMRO B	COLOMBIA		1987				-			4			8			(10)
AMRO B	COLOMBIA		1987				25-29			4		5				(10)
AMRO B	COLOMBIA		1987				38-49			4	20					(10)
AMRO B	COSTA RICA		1995				12-70						6.9	1		(20)
AMRO B	COSTA RICA		1993				12-70					2.9		1		(20)
AMRO B	MEXICO		1998				18-65				9.6	1	5.3	1	5711	(21)
AMRO B	MEXICO		1998				12-17				0.6	0.2	0.4	1	3882	(21)
AMRO B	MEXICO		1988				18-65	1		5	12	0.6	0.4	1	12557	(10)
AMRO B	MEXICO	Mexico City	1996	1			18-54	3		1	14.1	1.1	7.6	1	1734	(11)

AMRO B	VENEZUELA	Venezuela		3			-		1		0.5	4	191	(22)
AMRO B	VENEZUELA	Merida	1990				-		1		3	4	1013	(10)
AMRO B	VENEZUELA	Merida	1990				-		1		1.4	4	426	(10)
AMRO D	ECUADOR		1996				-		5		0	1		(10)
AMRO D	PERU	Lima	1983	3			18+	2	6	34.8	2.5	18.7	2	815 (23)
EMRO D	IRAQ		1992				-		5		0	1		(10)
EURO A	AUSTRIA		1996	9			18+		1	1.8	0.4	2.2	1	747 (24)
EURO A	BELGIUM	Louvain	1996	1	10		18-	4	1	5.9	1.6	3.6	4	3564 (25)
EURO A	FINLAND		1992				19-81	1	2			10.8	1	614 (26)
EURO A	FINLAND		1994				-		5		0.3	3		(10)
EURO A	FRANCE	Paris	1991	12			15-65	1	4	6.1	2.2	4.3	3	2096 (7)
EURO A	FRANCE	Paris	1991	12			15-24	1	4			2.5	3	698.7 (7)
EURO A	FRANCE	Paris	1991	12			25-44	1	4			4.7	3	698.7 (7)
EURO A	FRANCE	Paris	1991	12			45-65	1	4			4.1	3	698.7 (7)

Table 3.1 (continued). Prevalence studies for alcohol use disorders

Region	Country	Sites	Year	Method1	Method2	Method3	Ages	Diagn1	Diagn2	Prev	Prev_m	Prev_f	Prev_t	Survey	N	Ref
EURO A	GERMANY	Luebeck		9	11		14-75	1	3		5.3	1.9	7.2	3	929	(27)
EURO A	GERMANY	Munich	1995	1			14-24	4		1	10	2.5	6.3	2	3021	(28)
EURO A	GERMANY	Munich	1995	1			14-24	4		2	7.3	2.2	4.8	2	3021	(28)
EURO A	GERMANY	Berlin	1991	12	2		15-65	1		4	7.3	3.8	5.3	3	2364	(7)
EURO A	GERMANY	Berlin	1991	12	2		15-24	1		4			3.9	3	788	(7)
EURO A	GERMANY	Berlin	1991	12	2		25-44	1		4			6.8	3	788	(7)
EURO A	GERMANY	Berlin	1991	12	2		45-65	1		4			3.9	3	788	(7)
EURO A	GERMANY	Mainz	1992	12	2		15-65	1		4	14.7	1.7	7.2	3	2460	(7)
EURO A	GERMANY	Mainz	1992	12	2		15-24	1		4			10.8	3	820	(7)
EURO A	GERMANY	Mainz	1992	12	2		25-44	1		4			7.8	3	820	(7)
EURO A	GERMANY	Mainz	1992	12	2		45-65	1		4			3.7	3	820	(7)

EURO A	GREAT BRITAIN		1994	5	7		16-64	1	2	7.5	2.1	4.7	1	10108	(29)
EURO A	GREAT BRITAIN	Manchester	1992	12	2		15-65	1	4	5.3	0.8	2.2	3	1523	(7)
EURO A	GREAT BRITAIN	Manchester	1992	12	2		15-24	1	4			3.1	3	507.7	(7)
EURO A	GREAT BRITAIN	Manchester	1992	12	2		25-44	1	4			3	3	507.7	(7)
EURO A	GREAT BRITAIN	Manchester	1992	12	2		45-65	1	4			1	3	507.7	(7)
EURO A	GREECE	Athen	1991	12	2		15-65	1	4	1.8	0.7	1	3	1610	(7)
EURO A	GREECE	Athen	1991	12	2		15-24	1	4			2.4	3	536.7	(7)
EURO A	GREECE	Athen	1991	12	2		25-44	1	4			1.7	3	536.7	(7)
EURO A	GREECE	Athen	1991	12	2		45-65	1	4			0.3	3	536.7	(7)
EURO A	ICELAND		1988	3			55-57	2	1			3.7	1	1087	(30)
EURO A	ICELAND		1988	3			55-57	2	2	1.8	0.2	1.1	1	1087	(30)
EURO A	ICELAND		1988	3			55-57	2	3	1.8	0.2	1.1	1	1087	(30)
EURO A	ICELAND		1988	3			55-57	2	4	1.4	0	0.7	1	1087	(30)
EURO A	ITALY	Verona	1992	12			15-65	1	4	1.1	0.2	0.5	3	1555	(7)
EURO A	ITALY	Verona	1992	12			15-24	1	4			0	3	518.3	(7)
EURO A	ITALY	Verona	1992	12			25-44	1	4			1.3	3	518.3	(7)
EURO A	ITALY	Verona	1992	12			45-65	1	4			0	3	518.3	(7)
EURO A	NETHERLANDS		1996	1			18-64	3	1	9	1.9	5.5	1	7076	(31)
EURO A	NETHERLANDS		1996	1			18-64	3	2	6.1	1.1	3.7	1	7076	(31)
EURO A	NETHERLANDS		1996	1			18-64	3	4	4.5	0.9	2.7	1	7076	(31)
EURO A	NETHERLANDS			7	14		19-24	3	1			1.3	1	706	(32)

Table 3.1 (continued). Prevalence studies for alcohol use disorders

Region	Country	Sites	Year	Method1	Method2	Method3	Ages	Diagn1	Diagn2	Prev	Prev_m	Prev_f	Prev_t	Survey	N	Ref
EURO A	NETHERLANDS	Groningen	1992	12	2		15-65	1		4	7.5	0.6	3.4	3	1271	(7)
EURO A	NETHERLANDS	Groningen	1992	12	2		15-24	1		4			2.4	3	423.7	(7)
EURO A	NETHERLANDS	Groningen	1992	12	2		25-44	1		4			5.8	3	423.7	(7)
EURO A	NETHERLANDS	Groningen	1992	12	2		45-65	1		4			0.4	3	423.7	(7)

EURO A	SPAIN		1992		-			5		0	1	(10)
EURO B1	ALBANIA		1994		-			5	0	0	3	(10)
EURO B1	GEORGIA		1989		-			5		0.3	1	(10)
EURO B1	TFYR MACEDONIA		1990		-			5		2	1	(10)
EURO B1	TURKEY	Ankara	1991	12	15-65	1		4	2.9	0	1	1307 (7)
EURO B1	TURKEY	Ankara	1991	12	15-24	1		4		0.9	1	435.7 (7)
EURO B1	TURKEY	Ankara	1991	12	25-44	1		4		1.5	1	435.7 (7)
EURO B1	TURKEY	Ankara	1991	12	45-65	1		4		0	1	435.7 (7)
EURO B2	ARMENIA		1991		-			5	0	0	1	(10)
EURO B2	AZERBAIJAN		1995		-			5	0	0	1	(10)
EURO B2	KYRGYZSTAN		1993		-			5	1.8	0.2	1	(10)
EURO B2	TAJKISTAN		1991		-			5	0	0	1	(10)
EURO B2	UZBEKISTAN		1995		-			5		0	1	(10)
EURO C	BELARUS		1995		-			5	0	0	1	(10)
EURO C	ESTONIA		1993		-			5		0.2	1	(10)
EURO C	KAZAKHSTAN		1991		-			5		0.1	1	(10)
EURO C	KAZAKHSTAN		1988		-			5		0.1	1	(10)
EURO C	LITHUANIA		1993		-			5		0.1	1	(10)
EURO C	REPUBLIC OF MOLDOVA		1991		-			5		4.4	1	(10)
EURO C	RUSSIAN FEDERATION	Udmurtia	1995	1	18-65	1	3	1	69.3	3.7	31.9	2 855 (33)
EURO C	RUSSIAN FEDERATION		1990		-			5		1.8	1	(10)
EURO C	UKRAINE		1995		-			5		0.1	1	(10)
SEARO D	INDIA	Bandalore	1991	12	2	15-65	1	4	2.9	0	1.4	3 1374 (7)
SEARO D	INDIA	Bandalore	1991	12	2	15-24	1	4		0.9	3	458 (7)
SEARO D	INDIA	Bandalore	1991	12	2	25-44	1	4		1.2	3	458 (7)
SEARO D	INDIA	Bandalore	1991	12	2	45-65	1	4		2.8	3	458 (7)

Table 3.1 (continued). Prevalence studies for alcohol use disorders

Region	Country	Sites	Year	Method1	Method2	Method3	Ages	Diagn1	Diagn2	Prev	Prev_m	Prev_f	Prev_t	Survey	N	Ref
WPRO A	AUSTRALIA	Victoria	1998	1	5		21-	4		1			5.5	4	1947	(34)
WPRO A	AUSTRALIA		1997	1			18+	1		2	5.2	1.8	3.5	1	10641	(35)
WPRO A	AUSTRALIA		1997	1			18-24			2	9.2	2.7	6	1		(36)
WPRO A	AUSTRALIA		1997	1			25-34			2	4.9	1.7	3.3	1		(36)
WPRO A	AUSTRALIA		1997	1			35-44			2	3.5	1.2	2.4	1		(36)
WPRO A	AUSTRALIA		1997	1			45-54			2	2.6	0.6	1.6	1		(36)
WPRO A	AUSTRALIA		1997	1			55-64			2	1.7	0.2	1	1		(36)
WPRO A	AUSTRALIA		1997	1			65-74			2	0.7	0.2	0.5	1		(36)
WPRO A	AUSTRALIA		1997	1			75+			2	0.5	0.2	0.4	1		(36)
WPRO A	AUSTRALIA			10			17+			2		1		1	6000	(37)
WPRO A	JAPAN	Nagasaki	1991	12			15-65	1		4	6.5	1	3.7	3	1555	(7)
WPRO A	JAPAN	Nagasaki	1991	12			15-24	1		4			2.5	3	518.3	(7)
WPRO A	JAPAN	Nagasaki	1991	12			25-44	1		4			4.3	3	518.3	(7)
WPRO A	JAPAN	Nagasaki	1991	12			45-65	1		4			3.5	3	518.3	(7)
WPRO A	NEW ZEALAND		1990				18-	3		2			10.4	4	930	(45)
																(10)
WPRO B1	CHINA	5 Provinces	1994	8	4		15-65	3		5	6.6	0.1	3.4	2	23513	(39)
WPRO B1	CHINA		1993				15+			5	1.4	0	0.1	1	19223	(40)
WPRO B1	CHINA		1993				15-19			5			0	1	1728	(40)
WPRO B1	CHINA		1993				20-24			5			0	1	2214	(40)
WPRO B1	CHINA		1993				25-29			5			0	1	1941	(40)
WPRO B1	CHINA		1993				30-34			5			0.1	1	1927	(40)
WPRO B1	CHINA		1993				35-39			5			0	1	2344	(40)
WPRO B1	CHINA		1993				40-44			5			0.1	1	1984	(40)
WPRO B1	CHINA		1993				45-49			5			0.1	1	1405	(40)
WPRO B1	CHINA		1993				50-54			5			0.2	1	1142	(40)
WPRO B1	CHINA		1993				55-59			5			0.1	1	1197	(40)

WPRO B1	CHINA		1993				60-64			5			0.2	1	1049	(40)
WPRO B1	CHINA		1993				65+			5			0.1	1	2292	(40)
WPRO B1	CHINA	3 Provinces	1993				15-65				6.7	0.2	3.5	2	14383	(39)
WPRO B1	CHINA	Hunan	1993				15-65				1.6	0.2	0.9	2	4794.3	(39)
WPRO B1	CHINA	Heilongjiang	1993				15-65				7.7	0.2	4	2	4794.3	(39)
WPRO B1	CHINA	Jiangsu	1993				15-65				10.8	0.3	5.6	2	4794.3	(39)

Table 3.1 (continued). Prevalence studies for alcohol use disorders

Region	Country	Sites	Year	Method1	Method2	Method3	Ages	Diagn1	Diagn2	Prev	Prev_m	Prev_f	Prev_t	Survey	N	Ref
WPRO B1	CHINA	Shanghai	1991	12			15-65	1		4	3	0	1.1	3	1673	(7)
WPRO B1	CHINA	Shanghai	1991	12			15-24	1		4			2.4	3	557.7	(7)
WPRO B1	CHINA	Shanghai	1991	12			25-44	1		4			0.9	3	557.7	(7)
WPRO B1	CHINA	Shanghai	1991	12			45-65	1		4			1.2	3	557.7	(7)
WPRO B1	CHINA		1989				-			5	5.7	0	3.7	1	44920	(10)
WPRO B1	REPUBLIC OF KOREA		1986				-			6	43	2	23	1		(10)
WPRO B1	KOREA	Kangwha		3			-			1			10.2	2		(41)
WPRO B1	TAIWAN	Taipei	1986	3			18+	2		2	28.5	1.2	14.6	2	5005	(42)
WPRO B1	TAIWAN	Small Towns	1986	3			18+	2		1	37.2	2.9	18	2	3004	(42)
WPRO B1	TAIWAN	Rural	1986	3			18+	2		1	21.3	0	11.7	2	2995	(42)
WPRO B1	TAIWAN		1995				-						23	4		(43)
WPRO B1	TAIWAN			3			-	2					9	4	793	(44)
WPRO B1	TAIWAN			3			-	2					8.1	4	659	(44)
WPRO B1	TAIWAN			3			-	2					6.4	4	106	(44)
WPRO B2	VIET NAM	urban areas					-			5			2.4	2		(10)
WPRO B2	VIET NAM	mountainous areas					-			5			2.34	2		(10)
WPRO B2	VIET NAM	rural areas					-			5			0.3	2		(10)
WPRO B3	PALAU		1997				-			5	0	0	0	3		(10)

4. Disease model

The disease model for alcohol use disorders was based on evidence from the literature which indicates low remission rates over long periods. This differs from the approach adopted in the GBD 1990 study which assumed no remission. Figure 4.1 summarizes the disease model for alcohol use disorders and Table 4.1 lists the assumptions and parameters for the disease model. Assumptions are contrasted with those of the GBD 1990 model in Table 4.2.

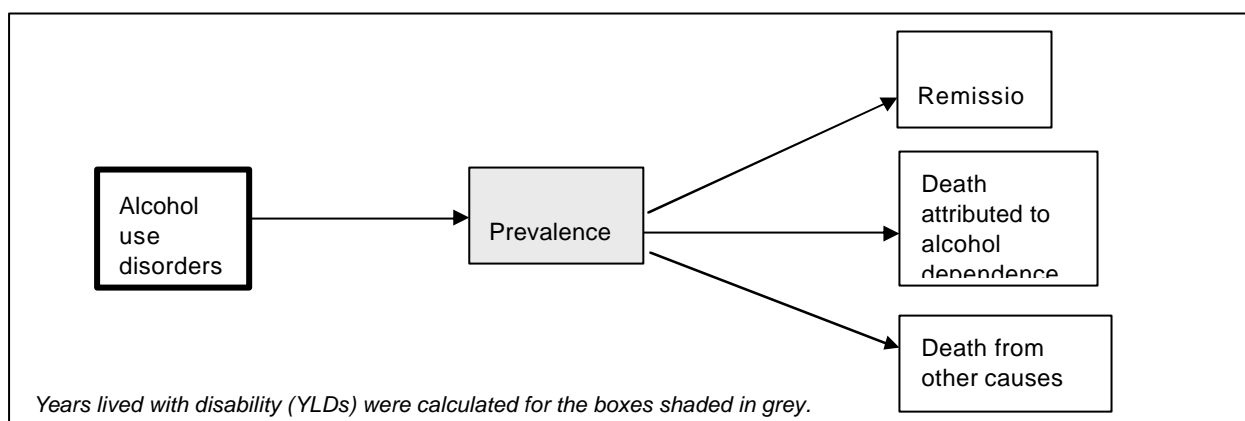


Figure 4.1: Alcohol Abuse Disorders disease model.

Table 4.1 Disease model assumptions

Definitions	ICD-10 (see Section 2). The need to take in account new data that show that there is a different remission rate in developing countries as compared to developed countries was suggested by the Mental Health Program within WHO. Following this recommendation, changes were made on the disease model but not in the case definition
Incidence/Prevalence	Incidence rates from prevalence, RR and RRm with Dismod II
Remission	0.175 (above age 15), zero below
Age at onset	Male 18-25, female 26-45
Other assumptions	Mortality RR = 2.0. 20% reduction on the prevalence of alcohol use disorder to adjust for the comorbidity with depression

Table 4.2. Comparison between GBD 1990 and GBD 2000 disease models

	GBD 1990	GBD 2000
Stages/Sequelae	Alcohol Abuse	Harmful use and dependence
Prevalence rates	Overall m: 1.2%; f: 0.1%	From local studies; adjusted for comorbidity

Duration	1.6 years	5 years
DW	0.180	0.180

Disability weights from the Global Burden of Disease 1990 study have been used (Table 4.2). Health state descriptions are given in Table 4.3.

Table 4.3 Health state descriptions

Sequela/stages/severity level	Health state description
Alcohol dependence	Repeated urge to take alcohol with loss of control over its use, continued use despite knowledge of harm. There may be a development of withdrawal symptoms on stopping. Alcohol use takes over person's life and leads to many social, psychological and physical health problems.
Harmful use of alcohol	Consumption of alcohol within the individual's control which is causing physical, social or mental problems. The consumption of the substance may lead to poor work performance, absenteeism, poor school performance, neglect of children or family, interpersonal problems with friends, domestic violence or disorderly conduct.

5. Incidence, prevalence and mortality estimates for 2000

Age and sex specific prevalence rate for alcohol use disorders were estimated for all regions based on the studies listed in Section 3. The data sources are summarized in Table 5.1. The age-sex specific regional prevalence estimates are listed by GBD subregion in Table 5.2.

Incidence rates were estimated from these prevalence rates using DISMOD 2, and the assumptions on duration and case fatality described above. Age-standardized incidence and prevalence rates, and mortality rates (Version 2) are summarized by subregion in Table 5.3.

Table 5.1: Alcohol use disorders data sources a - summary

AFRO D	Data from Nigeria.
AFRO E	Data from Ethiopia, South Africa, Zambia, and Zimbabwe.
AMRO A	Data from Canada, Puerto Rico, and the USA.
AMRO B	Data from Brazil, Chile, Colombia, Costa Rica, Mexico, and Venezuela.
AMRO D	Data from Ecuador and Peru.
EMRO B	Based on the data from Iraq resp. Islamic countries.
EMRO D	Data from Iraq.
EURO A	Data from Austria, Belgium, Finland, France, Germany, Great Britain, Greece, Iceland, Italy, Netherlands, and Spain.
EURO B1	Data from Albania, Georgia, The former Yugoslav Republic of Macedonia, and Turkey.
EURO B2	Data from Armenia, Azerbaijan, Kyrgyzstan, Tajikistan, and Uzbekistan.
EURO C	Data from Belarus, Estonia, Kazakhstan, Lithuania, Republic of Moldova, Russian Federation, and Ukraine.
SEARO B	Data from Indonesia
SEARO D	Data from India.

WPRO A	Data from Australia, Japan, and New Zealand.
WPRO B1	Data from China, Republic of Korea, and Taiwan.
WPRO B2	Data from Viet Nam.
WPRO B3	Data from Palau.

Table 5.2. Alcohol use disorders: prevalence rates per 1000 population by age and sex for WHO epidemiological subregions, 2000.

	AFRO D	AFRO E	AMRO A	AMRO B	AMRO D	EMRO B	EMRO D	EURO A	EURO B1
Males									
0-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5-14	0.15	0.37	2.03	2.00	0.91	0.00	0.00	1.18	0.62
15-29	7.93	18.94	88.63	86.46	42.72	0.04	0.04	51.44	27.32
30-44	9.61	25.74	83.26	58.78	52.41	0.06	0.06	61.90	37.81
45-59	8.52	22.90	43.15	54.66	30.00	0.08	0.07	40.19	32.89
60-69	4.55	10.97	16.64	42.66	12.45	0.02	0.01	8.33	23.36
70-79	1.88	3.77	6.89	14.50	3.39	0.01	0.01	3.79	11.79
80+	0.77	1.77	2.43	4.11	1.24	0.00	0.00	1.85	1.42
All ages	4.63	11.44	48.46	45.90	25.10	0.03	0.03	34.30	22.98
Females									
0-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5-14	0.01	0.04	0.63	0.45	0.22	0.00	0.00	0.28	0.10
15-29	0.37	2.11	29.17	21.47	10.38	0.00	0.00	12.47	4.38
30-44	0.38	2.58	27.60	14.80	12.18	0.01	0.01	16.07	5.50
45-59	0.37	2.29	12.15	13.53	7.50	0.01	0.00	9.73	4.89
60-69	0.18	1.12	3.18	10.74	2.95	0.00	0.00	5.02	3.50
70-79	0.02	0.39	1.55	4.31	0.86	0.00	0.00	2.07	1.73
80+	0.01	0.18	0.67	1.21	0.29	0.00	0.00	0.59	0.20
All ages	0.20	1.21	14.78	11.50	6.10	0.00	0.00	8.50	3.44
Persons	2.41	6.30	31.38	28.54	15.57	0.02	0.02	21.12	13.13
	EURO B2	EURO C	SEARO B	SEARO D	WPRO A	WPRO B1	WPRO B2	WPRO B3	World
Males									
0-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5-14	0.21	1.87	0.44	0.14	0.55	0.73	0.21	0.17	0.62
15-29	10.02	68.51	20.27	6.80	23.57	31.98	10.03	8.86	29.07
30-44	13.18	81.47	17.94	17.32	35.60	44.99	14.96	12.65	38.00
45-59	10.72	55.47	12.19	11.29	25.63	34.67	10.86	10.08	28.89
60-69	7.36	20.24	6.86	5.30	14.68	22.47	7.22	6.76	15.20
70-79	3.69	4.04	1.56	2.36	8.59	7.05	2.41	2.17	5.55
80+	0.41	1.65	0.85	1.00	8.14	3.41	1.15	1.13	2.53
All ages	6.84	47.95	11.51	6.86	20.37	26.21	7.53	6.17	20.66
Females									
0-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5-14	0.03	0.44	0.06	0.01	0.01	0.13	0.03	0.03	0.12
15-29	1.55	16.76	2.79	0.37	18.33	5.76	1.64	1.55	6.50
30-44	1.82	19.58	2.38	0.58	14.73	6.62	1.90	1.77	7.61
45-59	1.49	12.20	1.42	0.28	7.44	4.31	1.19	1.19	5.33
60-69	1.03	4.85	0.42	0.11	1.42	1.83	0.58	0.54	2.65
70-79	0.53	1.01	0.10	0.04	0.22	0.46	0.17	0.14	1.05

80+	0.08	0.41	0.05	0.02	0.03	0.13	0.06	0.07	0.38
<i>All ages</i>	<i>1.00</i>	<i>10.58</i>	<i>1.51</i>	<i>0.25</i>	<i>8.26</i>	<i>3.89</i>	<i>1.04</i>	<i>0.90</i>	<i>4.18</i>
<i>Persons</i>	<i>3.89</i>	<i>28.10</i>	<i>6.51</i>	<i>3.66</i>	<i>14.21</i>	<i>15.36</i>	<i>4.25</i>	<i>3.61</i>	<i>12.48</i>

Table 5.3 Alcohol use disorders: age-standardized incidence and prevalence estimates for WHO epidemiological subregions, 2000.

Subregion	Age-std. Incidence/100,000		Age-std. prevalence/100,000		Age-std. mortality/100,000	
	Males	Females	Males	Females	Males	Females
AFRO D	124.2	5.3	578.5	24.8	2.8	0.0
AFRO E	332.2	34.0	1479.7	153.6	6.9	1.8
AMRO A	985.5	317.1	4828.2	1541.6	3.3	0.8
AMRO B	953.5	224.5	4639.7	1158.9	7.6	0.6
AMRO D	582.6	137.5	2765.8	663.1	8.4	1.0
EMRO B	0.8	0.1	3.8	0.3	1.1	0.1
EMRO D	0.8	0.0	3.5	0.1	0.3	0.0
EURO A	675.5	171.1	3326.4	853.5	4.2	1.0
EURO B1	453.2	67.3	2220.5	335.5	2.9	0.4
EURO B2	159.4	22.0	767.3	110.3	1.6	0.5
EURO C	944.6	219.6	4501.6	1071.1	4.8	1.1
SEARO B	231.0	29.9	1138.3	146.6	2.7	0.3
SEARO D	164.8	5.4	766.7	27.0	1.8	0.3
WPRO A	382.5	177.8	1903.5	895.9	0.6	0.1
WPRO B1	507.4	74.4	2498.5	368.7	1.2	0.2
WPRO B2	167.0	20.7	803.2	105.3	1.5	0.2
WPRO B3	148.4	20.9	708.1	99.9	2.8	0.2
World	432.2	84.9	2127.4	432.5	2.8	0.5

- Age-standardized to World Standard Population (46).

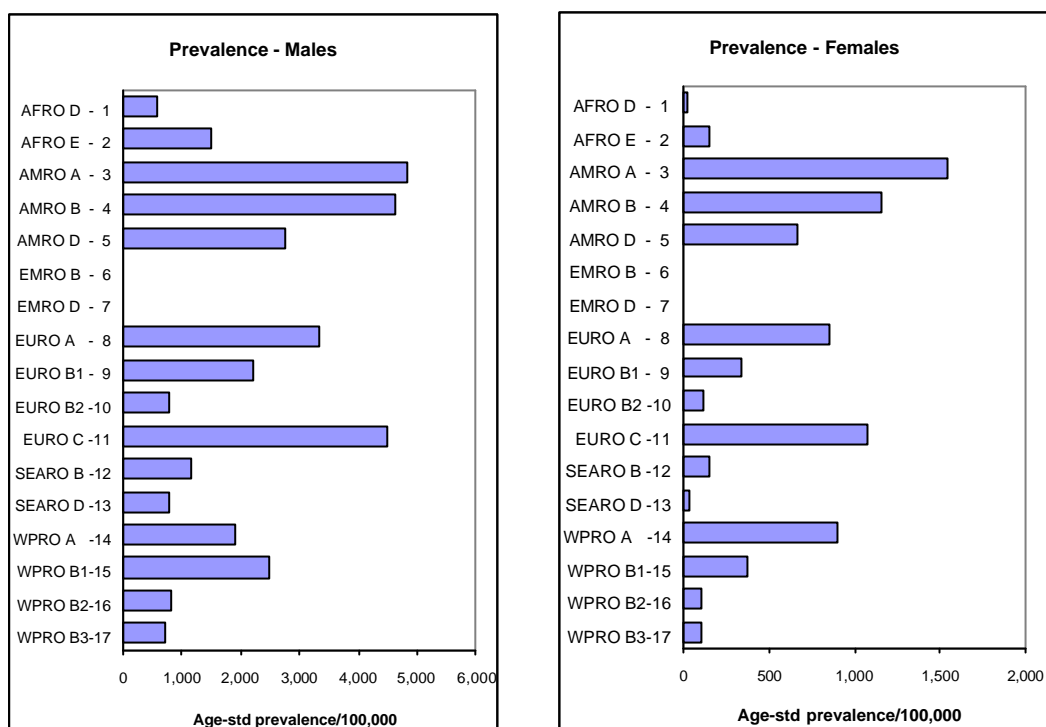


Figure 5.1: Age-standardized alcohol use disorders prevalence rate estimates, WHO epidemiological subregions, by sex, 2000.

Table 5.4 Adult *per capita* alcohol consumption: average per capita consumption of adults (15+) in litres of pure alcohol after 1998 (average of available years)

Country	Alcohol adult <i>per capita</i>	Country	Alcohol adult <i>per capita</i>	Country	Alcohol adult <i>per capita</i>
Albania	4.77	Georgia	7.36	Peru	5.43
Algeria	.47	Germany	14.40	Philippines	6.40
Argentina	16.30	Ghana	3.64	Poland	12.64
Armenia	2.88	Greece	11.39	Portugal	15.06
Australia	9.19	Guatemala	3.71	Republic of Korea	14.20
Austria	13.90	Guyana	12.07	Republic of Moldova	29.36
Azerbaijan	2.86	Haiti	5.38	Romania	16.27
Barbados	7.43	Honduras	4.22	Russian Federation	16.39
Belarus	12.22	Hungary	17.35	Rwanda	6.36
Belgium	11.45	Iceland	6.41	Saudi Arabia	.21
Belize	6.35	India	2.00	Senegal	1.26
Bolivia	5.74	Indonesia	.58	Seychelles	11.00
Bosnia and Herzegovina	7.65	Iraq	.48	Sierra Leone	4.22
Botswana	5.33	Ireland	15.21	Singapore	3.14
Brazil	8.59	Israel	2.91	Slovakia	19.30
Bulgaria	13.08	Italy	10.34	Slovenia	13.42
Burkina Faso	3.81	Jamaica	4.28	South Africa	12.41
Burundi	7.42	Japan	8.47	Spain	13.28
Cambodia	.36	Jordan	.28	Sri Lanka	.57
Cameroon	4.35	Kazakhstan	10.11	Sudan	.69
Canada	9.43	Kenya	6.83	Suriname	5.96
Central African Republic	3.01	Kyrgyzstan	5.89	Swaziland	7.89
Chile	8.34	Lao People's Democratic Republic	5.82	Sweden	9.07
China	4.83	Latvia	16.48	Switzerland	12.49
Colombia	8.30	Lebanon	5.60	Syrian Arab Republic	.70
Costa Rica	6.70	Lesotho	3.16	Tajikistan	5.23
Croatia	18.39	Liberia	4.54	The former Yugoslav Republic of Macedonia	8.56
Cuba	5.66	Lithuania	11.41	Thailand	11.70
Cyprus	9.29	Luxembourg	17.32	Trinidad and Tobago	2.36
Czech Republic	15.02	Malaysia	4.26	Tunisia	1.80
Democratic People's Rep of Korea	5.14	Mauritius	15.62	Turkey	4.30
Denmark	14.32	Mexico	8.15	Turkmenistan	2.85
Djibouti	.66	Mongolia	4.45	Uganda	13.30
Dominican Republic	5.71	Morocco	1.16	Ukraine	8.00
Ecuador	5.49	Myanmar	.62	United Arab Emirates	3.68

Egypt	.92	Namibia	5.40	United Kingdom	11.88
El Salvador	4.64	Netherlands	10.39	United Republic of Tanzania	6.47
Eritrea	2.55	New Zealand	11.32	United States of America	9.47
Estonia	11.70	Nicaragua	3.71	Uruguay	9.54
Ethiopia	1.68	Nigeria	6.94	Uzbekistan	2.92
Fiji	2.95	Norway	7.50	Venezuela	9.59
Finland	11.69	Pakistan	.23	Viet Nam	2.26
France	15.62	Papua New Guinea	.88	Zambia	3.96
Gabon	7.34	Paraguay	9.55	Zimbabwe	12.65

The regional estimates of prevalence rates of alcohol use disorders by age and sex were extrapolated to country level using data compiled by the CRA project on average per capita consumption of alcohol. Adult *per capita* and unrecorded data were taken from the Global Status Report on Alcohol (10) and from the WHO Global Alcohol Database created by the Marin Institute for the Prevention of Alcohol and Other Drug Problems, and currently maintained by the Swiss Institute for the Prevention of Alcohol Problems (1). Country-specific survey data of the ratio of male/female consumption were used to allocate proportionally the overall adult *per capita* consumption into adult male and adult female *per capita* consumption. The assumption was then made that, within each epidemiological subregion, the country prevalences of alcohol use disorders were proportionate to the adult per capita consumption levels.

Table 5.4 provides country-specific information on alcohol consumption, taken from the CRA analysis (1).

6. Global burden of alcohol use disorders in 2000

General methods used for the estimation of the global burden of disease are given elsewhere (47). Version 2 estimates of YLDs for alcohol use disorders are based on the prevalence estimates discussed above, together with application of the disease model described in Section 4 above. These estimates differ significantly from the Version 1 estimates published in the World Health Report 2001, which were based on fewer studies, and in particular, did not include the recent prevalence data collected in WHO Household Survey Study (6). The tables and graphs below summarise the global burden of alcohol use disorders estimates for the GBD 2000 and compare them with the alcohol use disorders estimates from the GBD 1990 (4).

Table 6.1: Alcohol use disorders: global total YLD, YLL and DALY estimates, 1990 and 2000.

	<i>Males</i>	<i>Females</i>	<i>Persons</i>
YLD('000)			
<i>GBD1990</i>	13,935	1,836	15,770
<i>GBD2000</i>	15,225	2,994	18,219
YLL('000)			
<i>GBD1990</i>	761	130	890

		21	
<i>GBD2000</i>	1,249	198	1,447
DALY('000)			
GBD1990	14,696	1,965	16,661
GBD2000	16,473	3,192	19,665

Table 6.2: Alcohol use disorders: YLD, YLL and DALY estimates for subregions, 2000.

Subregion	YLD/100,000		YLL/100,000		YLD	YLL	DALY
	Males	Females	Males	Females	('000)	('000)	('000)
AFRO D	124.5	5.5	33.2	0.3	216	56	272
AFRO E	299.6	31.6	81.0	18.1	556	167	723
AMRO A	1121.6	341.2	58.8	15.3	2,247	114	2,361
AMRO B	1173.7	291.6	105.1	8.7	3,223	250	3,472
AMRO D	680.5	164.4	95.6	9.9	301	38	338
EMRO B	0.9	0.1	19.4	1.0	1	15	15
EMRO D	0.8	0.0	6.0	0.2	1	4	5
EURO A	769.1	186.1	77.2	18.6	1,937	194	2,131
EURO B1	535.4	79.4	46.3	5.8	507	43	550
EURO B2	179.0	26.0	18.3	5.5	52	6	58
EURO C	1102.1	241.0	78.1	19.2	1,584	115	1,699
SEARO B	296.6	39.0	36.5	4.2	662	80	742
SEARO D	174.9	6.6	24.3	1.7	1,259	180	1,440
WPRO A	436.2	186.9	11.3	2.1	462	10	472
WPRO B1	633.6	94.7	19.1	3.9	5,047	159	5,206
WPRO B2	198.2	27.3	19.2	2.0	159	15	174
WPRO B3	161.8	24.1	32.4	3.0	7	1	8
World	500.1	99.8	41.0	6.6	18,219	1,447	19,665

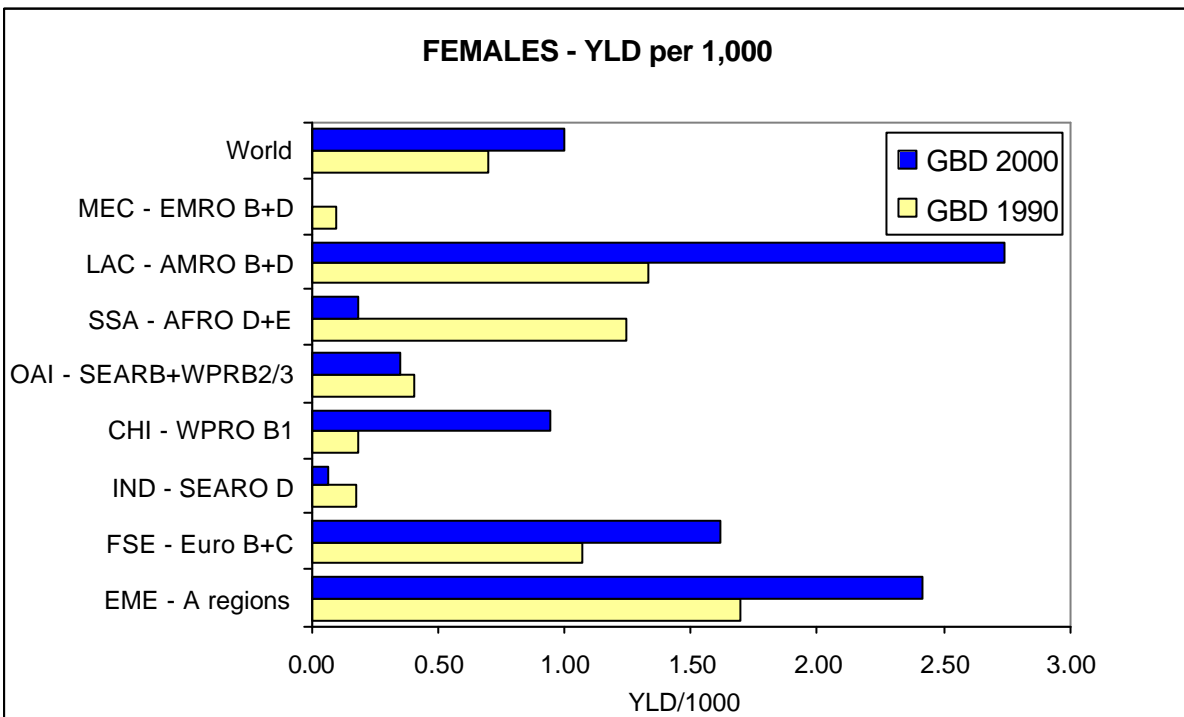
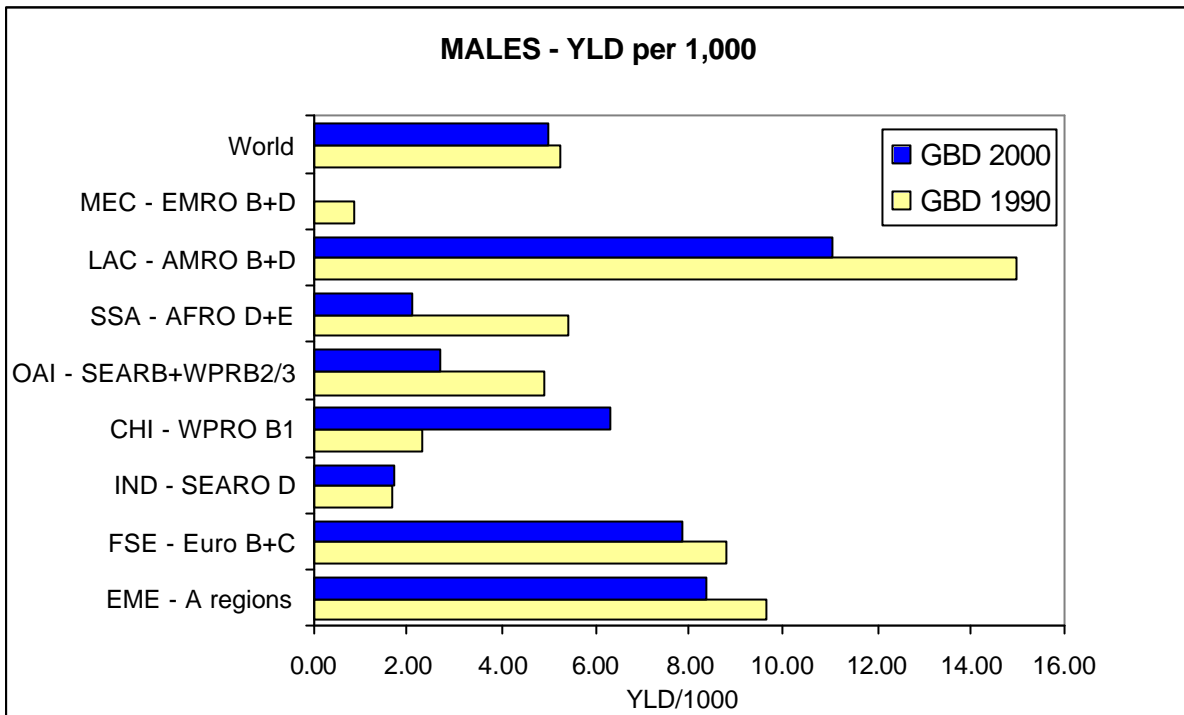


Figure 6.1: Total YLD rates, by sex, broad regions, 1990 and 2000.

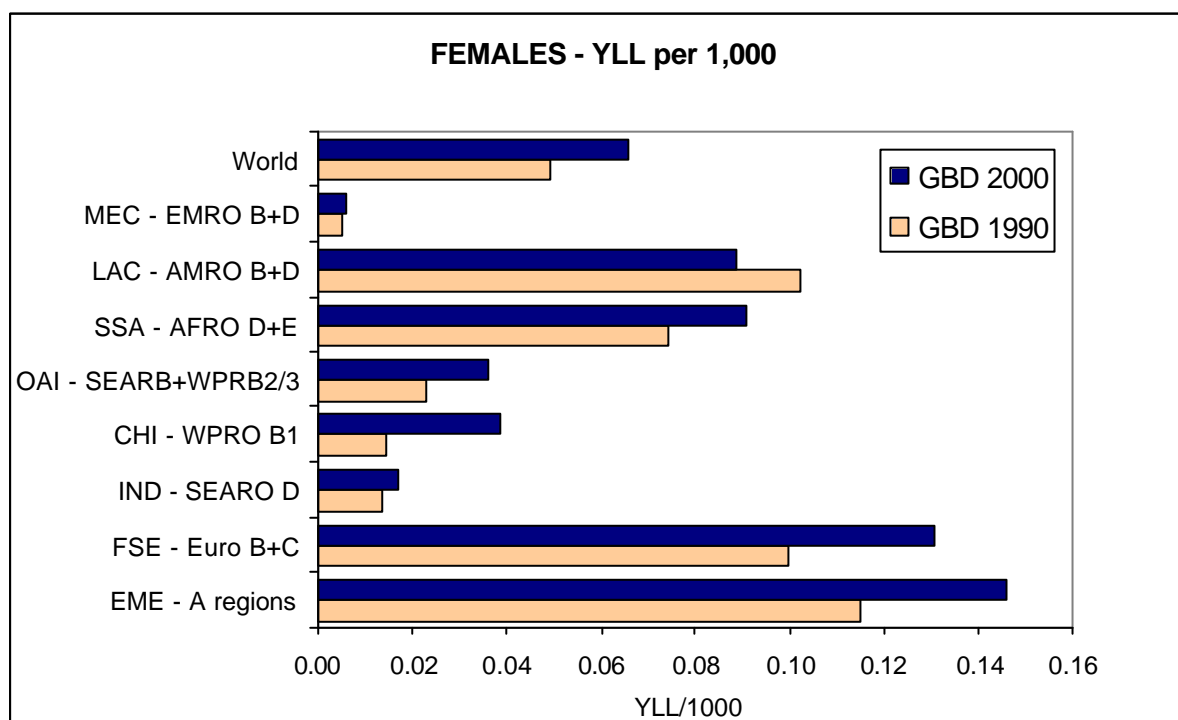
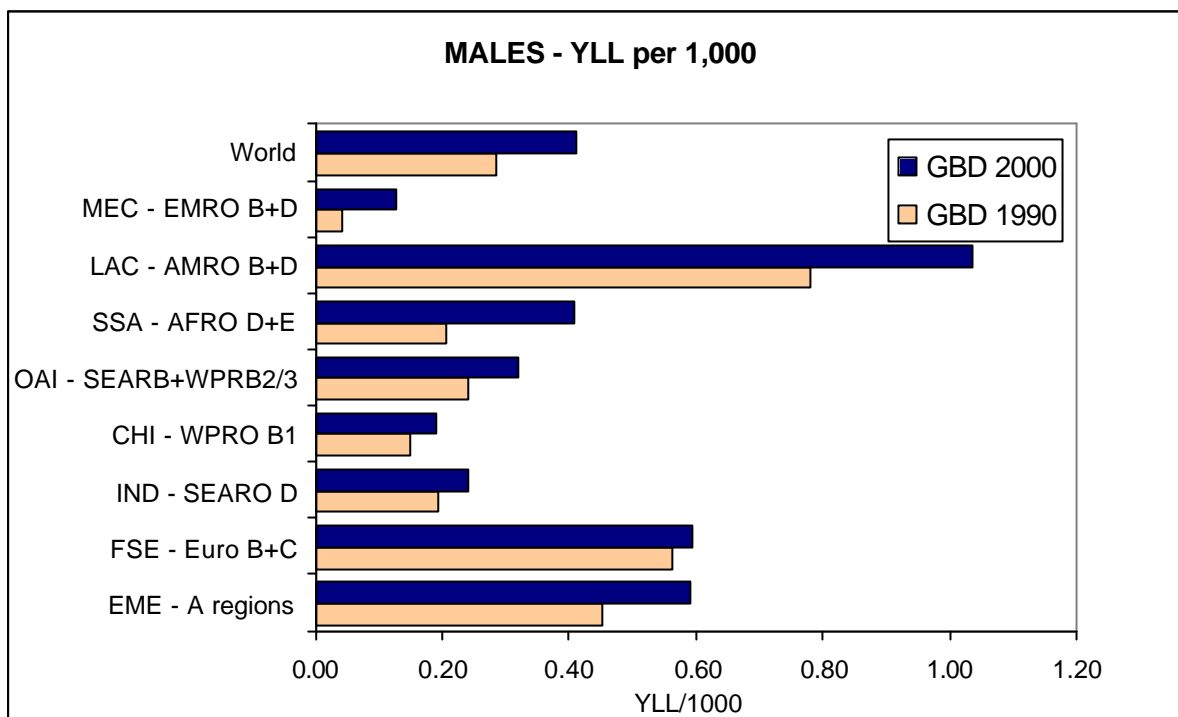


Figure 6.2: Total YLL rates, by sex, broad regions, 1990 and 2000.

7. Conclusions

These are version 2 estimates for the GBD 2000. Apart from uncertainty analysis, and any new or revised epidemiological data or evidence, the only further revisions of these estimates will involve revision of disability weights using information from the 2002-2003 World Health Survey.

We welcome comments and criticisms of these draft estimates, and information on additional sources of data and evidence. Please contact Colin Mathers (EBD/GPE) on email mathersc@who.ch

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