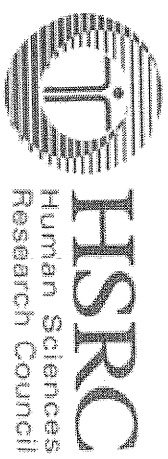


HSRC RESEARCH OUTPUTS  
6628

# Health behaviour interventions: what works in low/middle income countries

Presentation at Monash University: School  
of Public Health and Preventive Medicine

**Karl Peltzer & Supra Penqpid**  
Social science that makes a difference  
South Africa



25 June 2016

# Overview

## **Background: Transition, Risk factors, Burden of disease**

- 1. Sexual and reproductive health risks**
  - 2. Addictive substances**
  - 3. Environmental risks**
  - 4. Injury and violence**
  - 5. Lack of preventive health care**
  - 6. Mental health risk**
  - 7. Vector risk**
  - 8. Lack of adherence to treatment in medical conditions**
  - 9. Childhood and maternal undernutrition**
  - 10. Other diet-related risk factors & physical inactivity**
- Global health behaviour interventions**

# **The Demographic Transition**

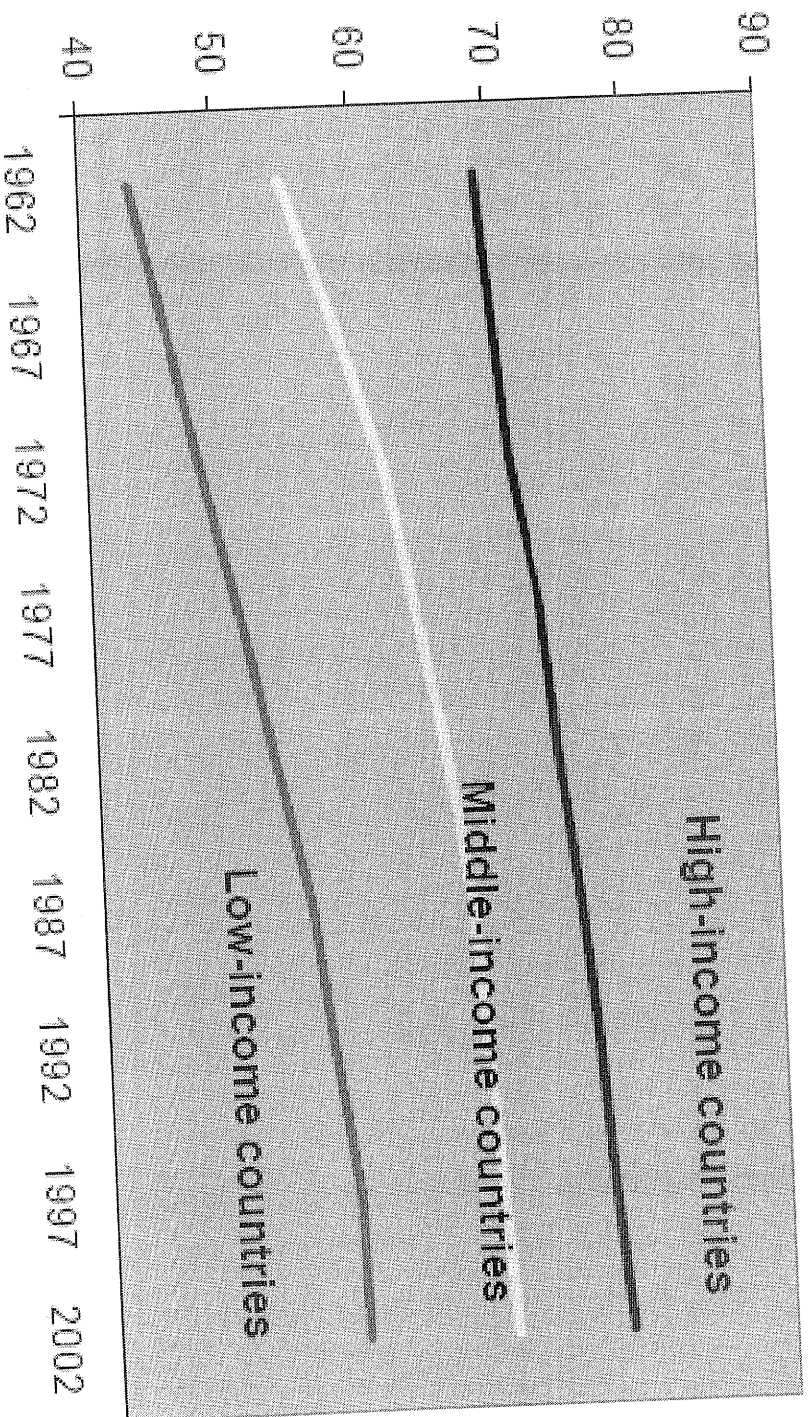
- **A change in the population dynamics of a country as it moves from high fertility and mortality rates to low fertility and mortality rates.**

# **The Epidemiologic Transition**

- **A transition from infectious disease to chronic, degenerative, or man-made diseases as the primary causes of mortality.**

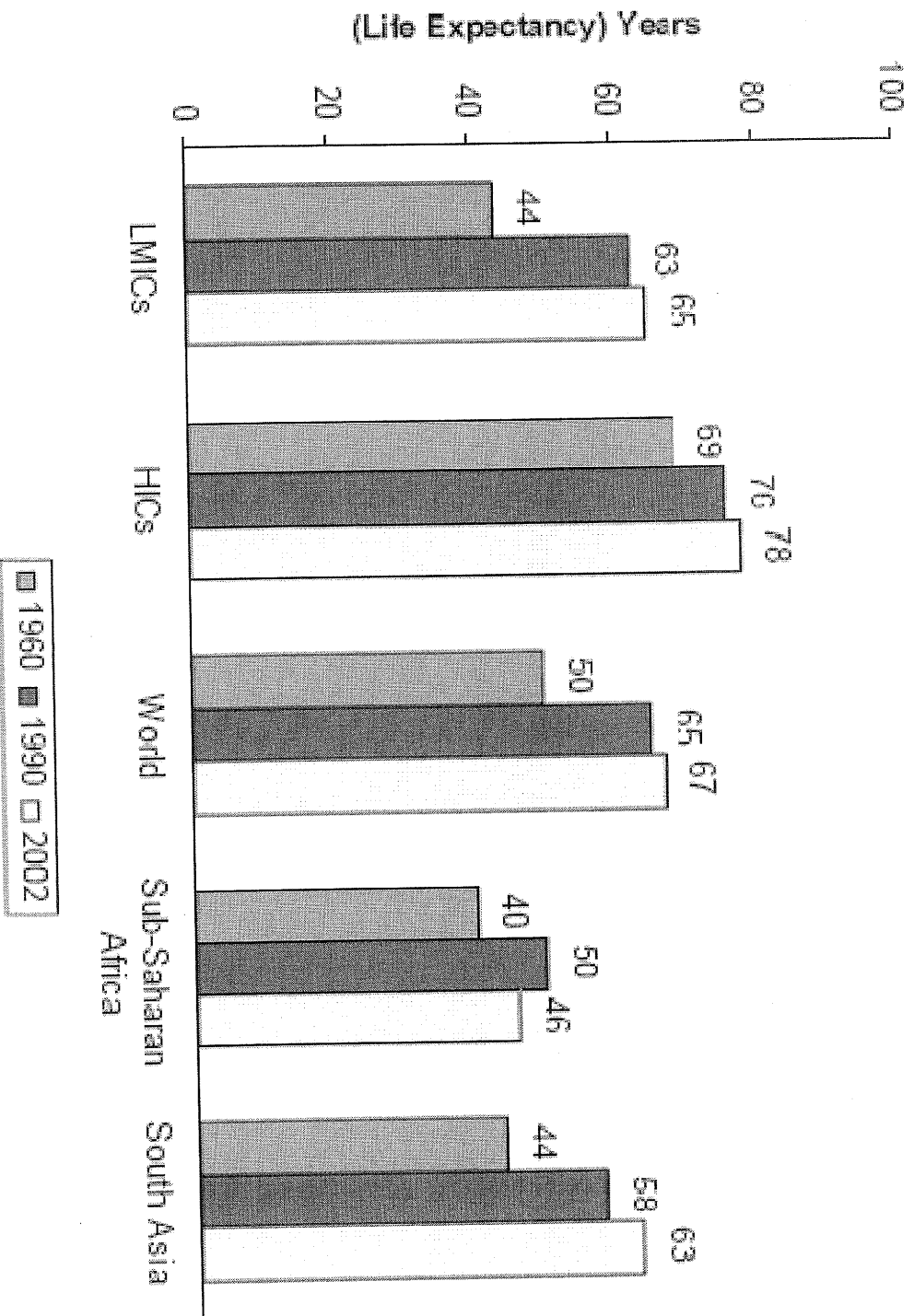
# Dramatic improvement in health in the 20<sup>th</sup> century...

Life Expectancy (years)

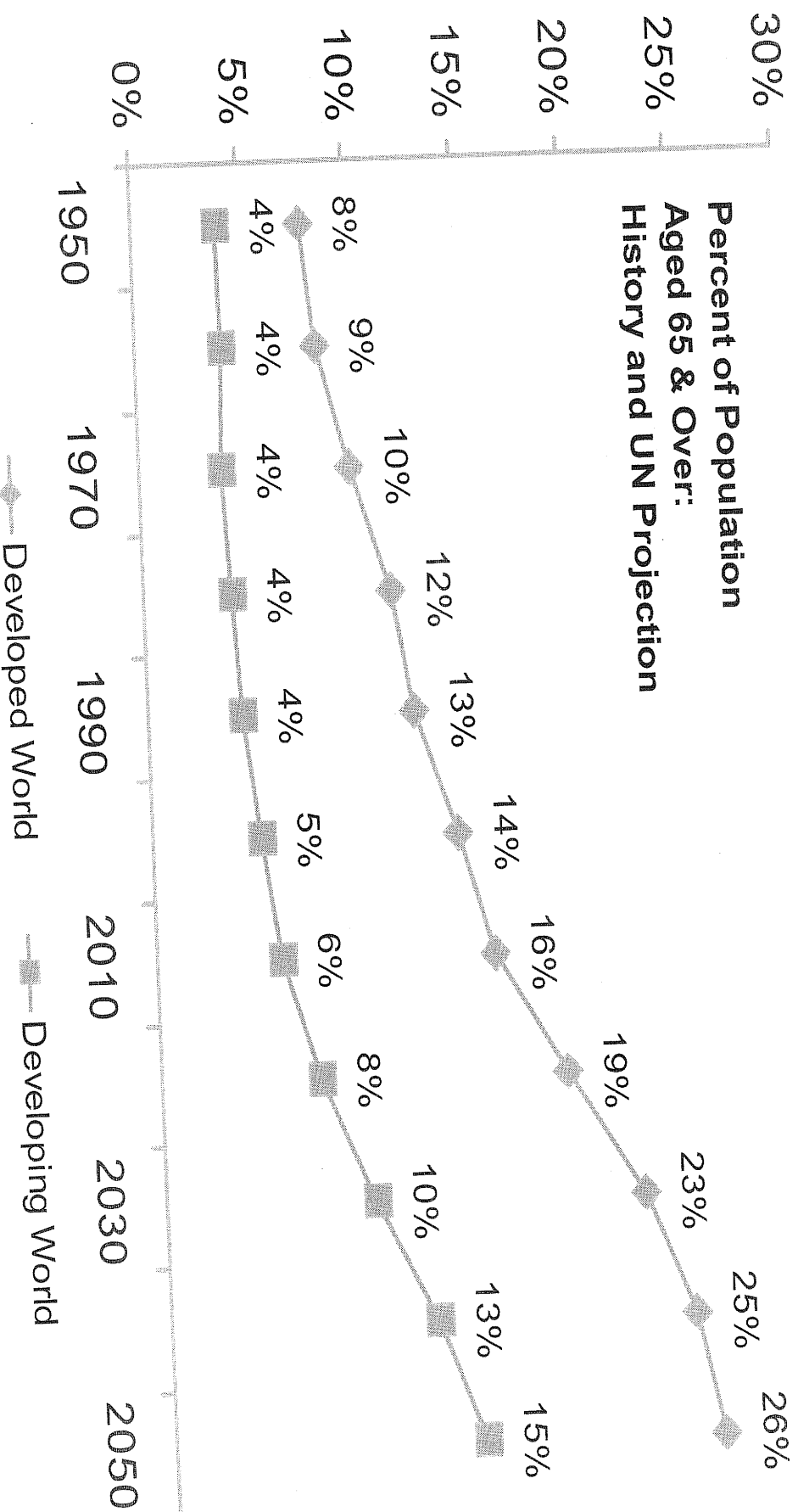


DISEASE CONTROL  
PRIORITIES PROJECT

# But, progress has been uneven

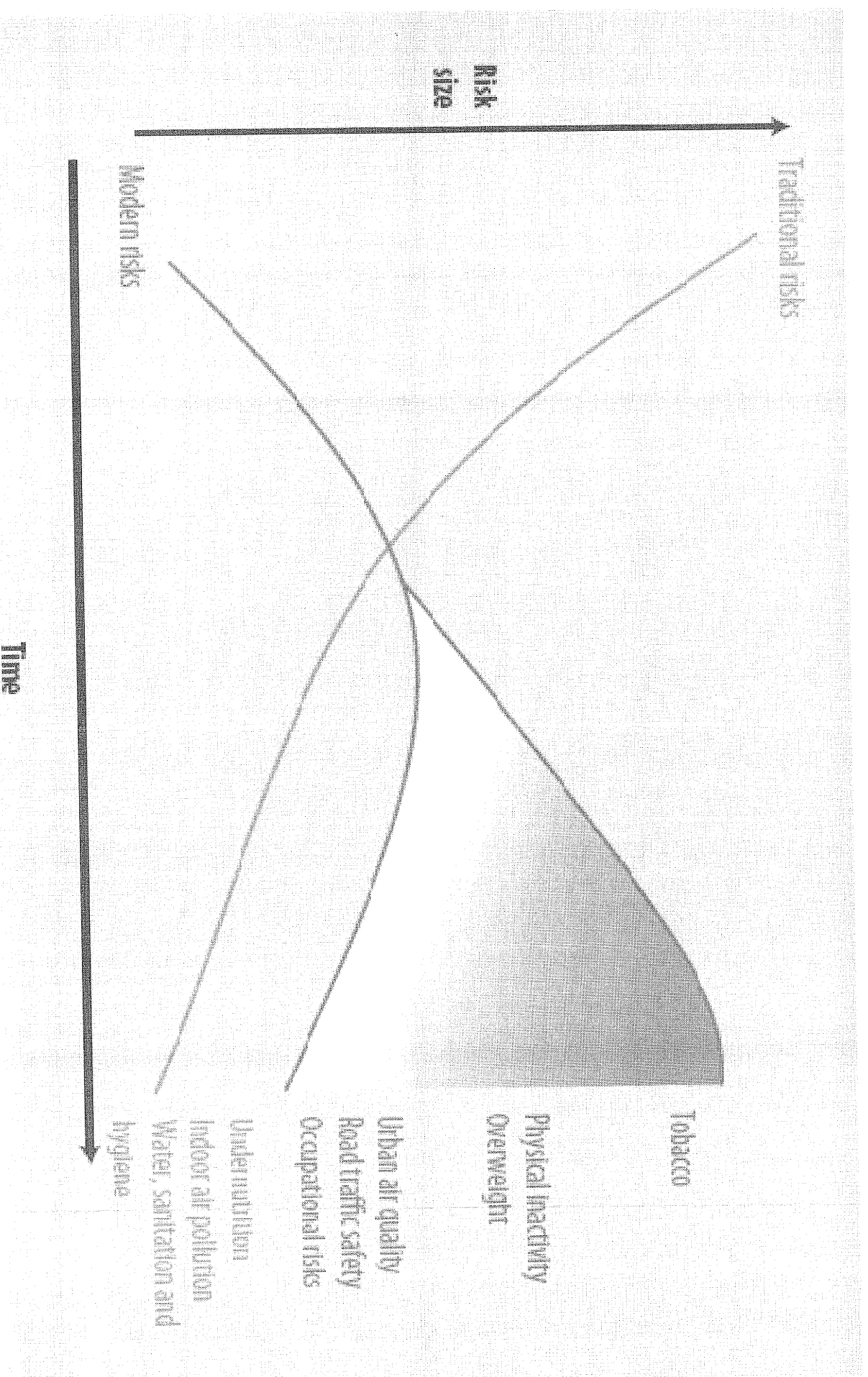


# Trends in Global Ageing

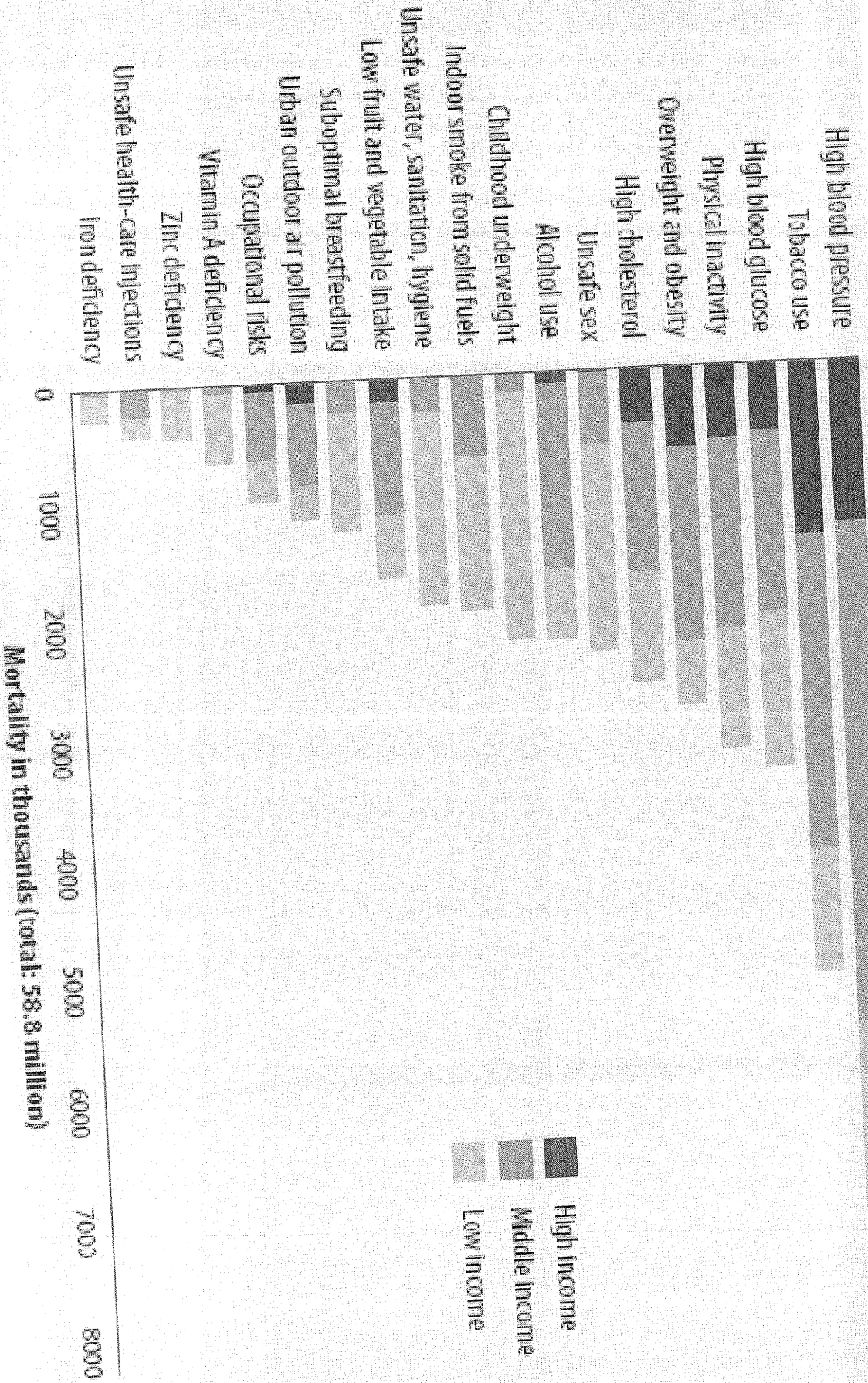


Source: UN (2005)

# Health risk transition

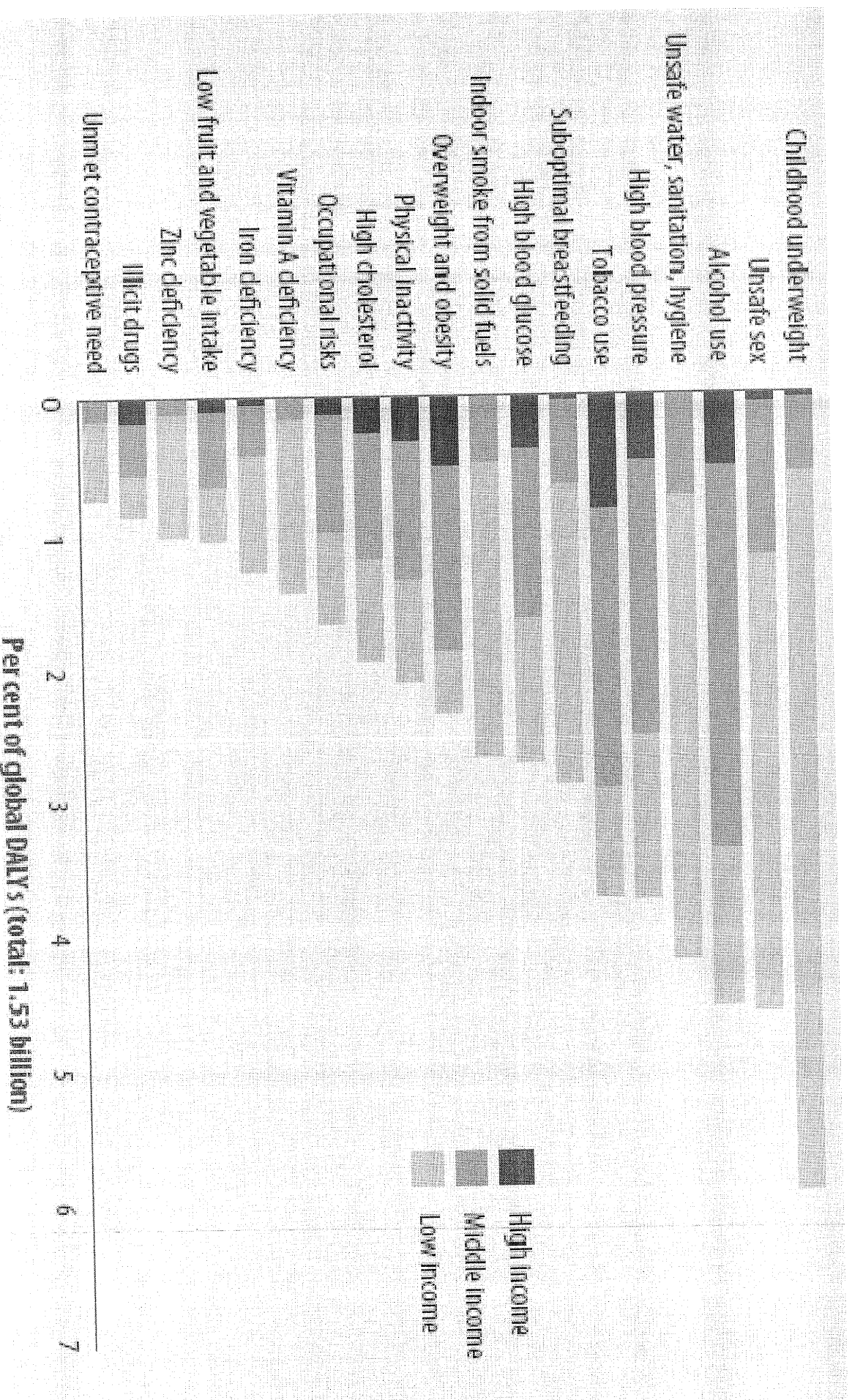


## Deaths attributed to 19 leading risk factors, by country income level, 2004





# Percentage of disability-adjusted life years (DALYs) attributed to 19 leading risk factors, by country income level, 2004.



Percent of global DALYs (total: 1.53 billion)

## Leading causes of burden of disease (DALYs), countries grouped by income, 2004

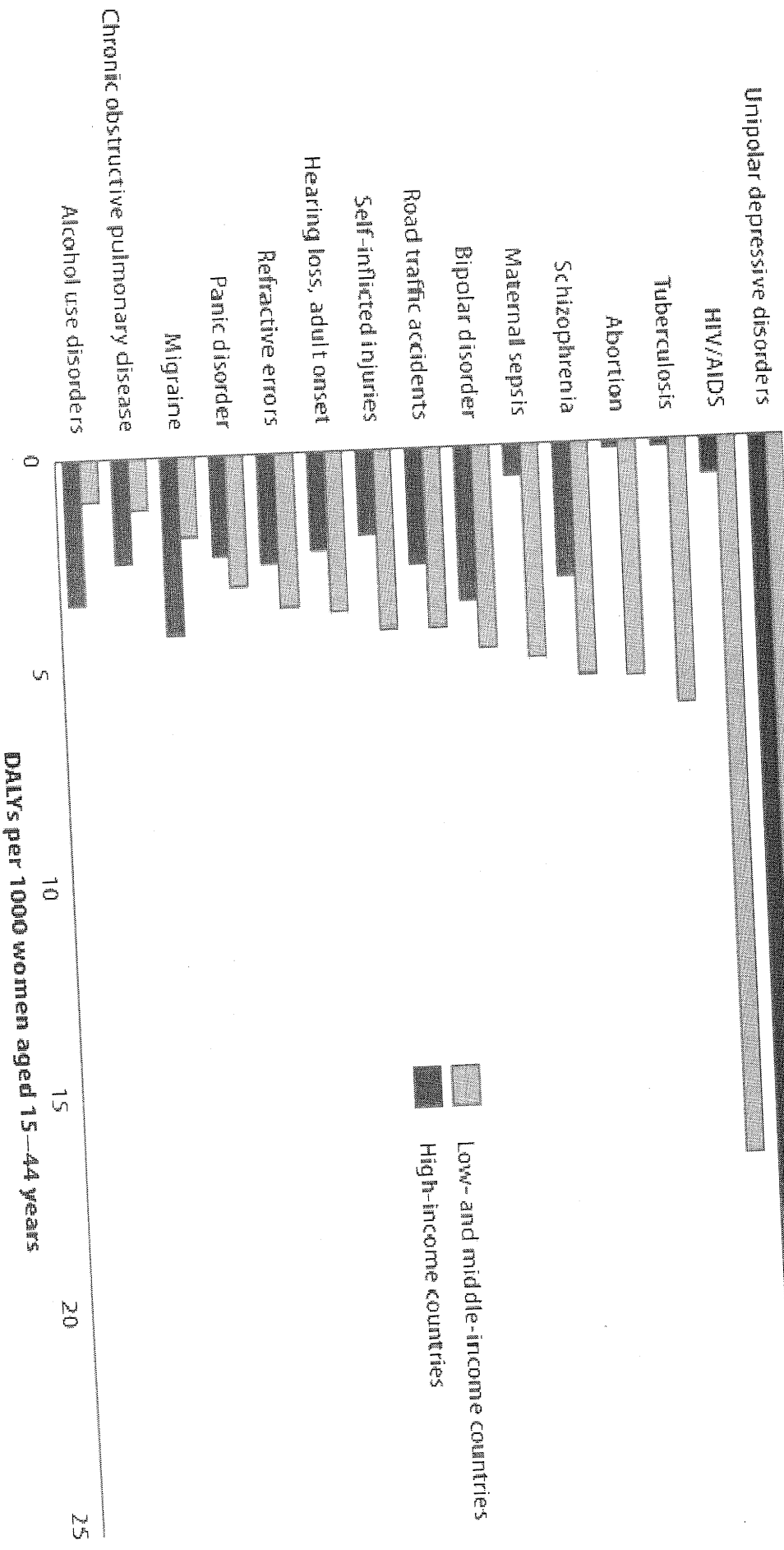
Disease or injury		DALYs (millions)	Per cent of total DALYs	Disease or injury		DALYs (millions)	Per cent of total DALYs
<b>World</b>							
1	Lower respiratory infections	94.5	6.2	1	Lower respiratory infections	76.9	9.3
2	Diarrhoeal diseases	72.8	4.8	2	Diarrhoeal diseases	59.2	7.2
3	Unipolar depressive disorders	65.5	4.3	3	HIV/AIDS	42.9	5.2
4	Ischaemic heart disease	62.6	4.1	4	Malaria	32.8	4.0
5	HIV/AIDS	58.5	3.8	5	Prematurity and low birth weight	32.1	3.9
6	Cerebrovascular disease	46.6	3.1	6	Neonatal infections and other <sup>a</sup>	31.4	3.8
7	Prematurity and low birth weight	44.3	2.9	7	Birth asphyxia and birth trauma	29.8	3.6
8	Birth asphyxia and birth trauma	41.7	2.7	8	Unipolar depressive disorders	26.5	3.2
9	Road traffic accidents	41.2	2.7	9	Ischaemic heart disease	26.0	3.1
10	Neonatal infections and other <sup>b</sup>	40.4	2.7	10	Tuberculosis	22.4	2.7
<b>Middle-income countries</b>							
1	Unipolar depressive disorders	29.0	5.1	1	Unipolar depressive disorders	10.0	8.2
2	Ischaemic heart disease	28.9	5.0	2	Ischaemic heart disease	7.7	6.3
3	Cerebrovascular disease	27.5	4.8	3	Cerebrovascular disease	4.8	3.9
4	Road traffic accidents	21.4	3.7	4	Alzheimer and other dementias	4.4	3.6
5	Lower respiratory infections	16.3	2.8	5	Alcohol use disorders	4.2	3.4
6	COPD	16.1	2.8	6	Hearing loss, adult onset	4.2	3.4
7	HIV/AIDS	15.0	2.6	7	COPD	3.7	3.0
8	Alcohol use disorders	14.9	2.6	8	Diabetes mellitus	3.6	3.0
9	Refractive errors	13.7	2.4	9	Trachea, bronchus, lung cancers	3.6	3.0
10	Diarrhoeal diseases	13.1	2.3	10	Road traffic accidents	3.1	2.6
<b>High-income countries</b>							

COPD, chronic obstructive pulmonary disease.

<sup>a</sup> Countries grouped by gross national income per capita (see Annex C, Table C2).

<sup>b</sup> This category also includes other non-infectious causes arising in the perinatal period apart from prematurity, low birth weights, birth trauma and asphyxia. These non-infectious causes are responsible for about 20% of DALYs shown in this category.

# Leading causes of disease burden for women aged 15–44 years, high-income countries, and low- and middle-income countries, 2004



## 2) Sexual and reproductive health risks

- Unsafe sex
- Lack of contraception

### **3. Addictive substances**

- **Tobacco**
- **Alcohol**
- **Illicit drugs**

**The six MPOWER strategies → tobacco control  
(WHO, 2008)**

**Monitor tobacco use and prevention policies**

**Protect people from tobacco smoke**

**Offer help to quit tobacco use**

**Warn about the dangers of tobacco**

**Enforce bans on tobacco advertising, promotion  
and sponsorship**

**Raise taxes on tobacco**

# **Alcohol Prevention Strategies**

## **[Babor, 2009]**

- Pricing and Taxation
- Regulating Physical Availability
- Altering the Drinking Context
- Education and Persuasion
- Regulating Alcohol Promotion
- Drinking-Driving Countermeasures
- Treatment and Early Intervention

# Regulating Physical Availability (Babor, 2009)

Strategy or Intervention	Effectiveness	Research Support	X- Cultural Testing	Cost
Total ban on sales	+++	+++	++	High
Minimum legal purchase age	+++	+++	++	Low
Rationing	++	++	++	High
Government monopoly of retail sales	+++	+++	++	Low
Hours and days of sale restrictions	++	++	++	Low
Restrictions on density of outlets	++	+++	++	Low
Different availability by alcohol strength	++	++	+	Low



# Modifying the Drinking Context

Strategy or Intervention	Effectiveness	Research Support	X-Cultural Testing	Cost
Outlet policy to not serve intoxicated patrons	+	++++	++	Moderate
Training bar staff and managers to prevent and better manage aggression	+	+	+	Moderate
Voluntary codes of bar practice	O	+	+	Low
Enforcement of on-premise regulations and legal requirements	++	+	++	High
Community mobilization	++	++	+	High

## Drinking-Driving Countermeasures

Strategy or Intervention	Effectiveness	Research Support	X- Cultural Testing	Cost
Sobriety check points	++	+++	+++	Moderate
Random breath testing (RBT)	+++	++	+	Moderate
Lowered BAC Limits	+++	+++	++	Low
Administrative license suspension	++	++	++	Moderate
Low BAC for young drivers (“zero tolerance”)	+++	++	+	Low
Graduated licensing for novice drivers	++	++	++	Low
Designated drivers and ride services	0	+	+	Moderate

# Treatment and Early Intervention

Strategy or Intervention	Effectiveness	Research Support	Cultural Testing	Cost
Brief intervention with at-risk drinkers	++	+++	+++	Moderate
Alcohol problems treatment	+	+++	+++	High
Mutual help/self-help attendance	+	+	++	Low
Mandatory treatment of repeat drinking-drivers	+	++	+	Moderate

**The Effectiveness of a Brief Intervention  
for Illicit Drugs Linked to the Alcohol,  
Smoking and Substance Involvement  
Screening Test (ASSIST) in Primary Health  
Care Settings:**

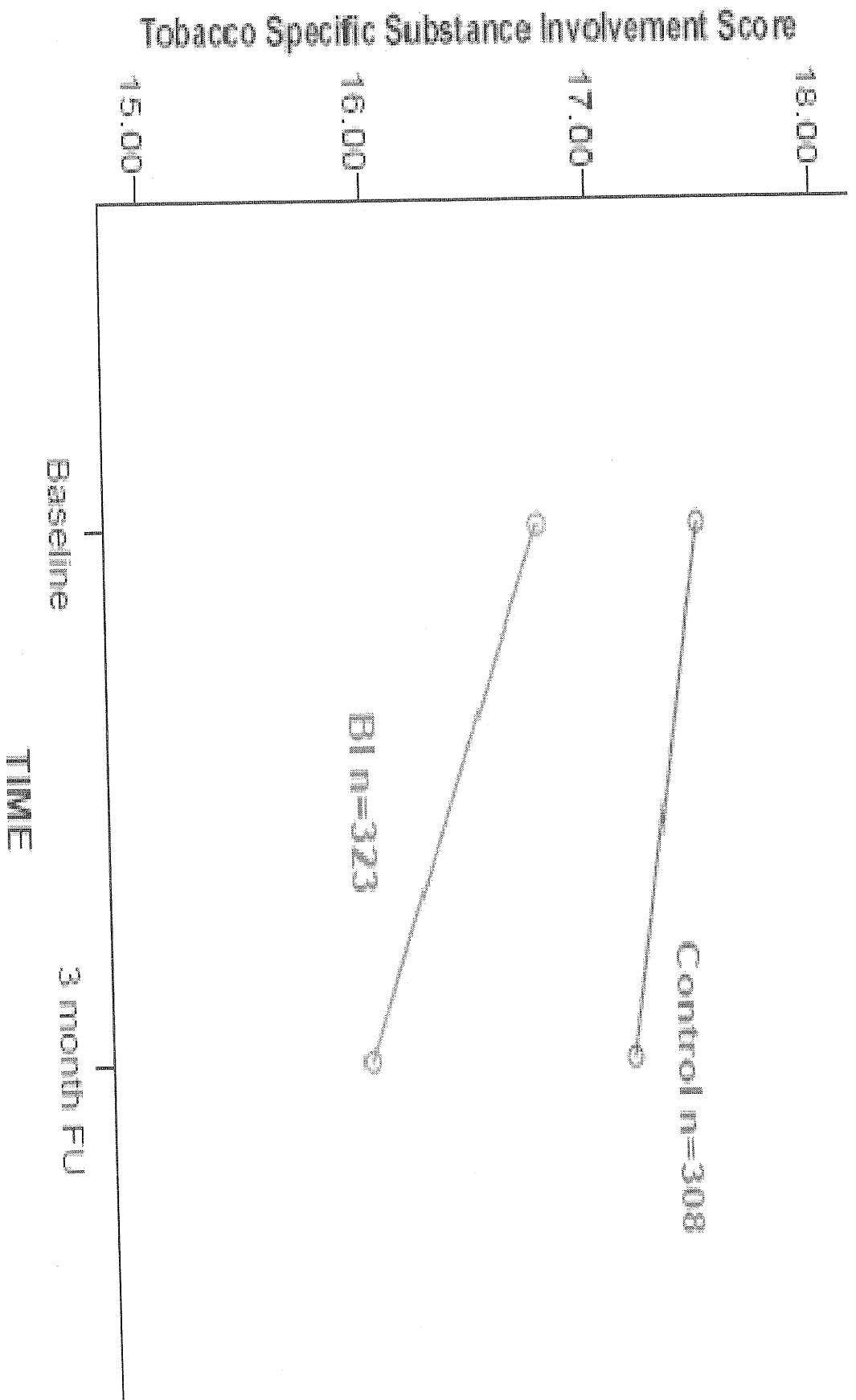
**Phase III Findings of the WHO ASSIST  
Randomized Controlled Trial**

## What is Screening, Brief Intervention and Referral (SBIR)?

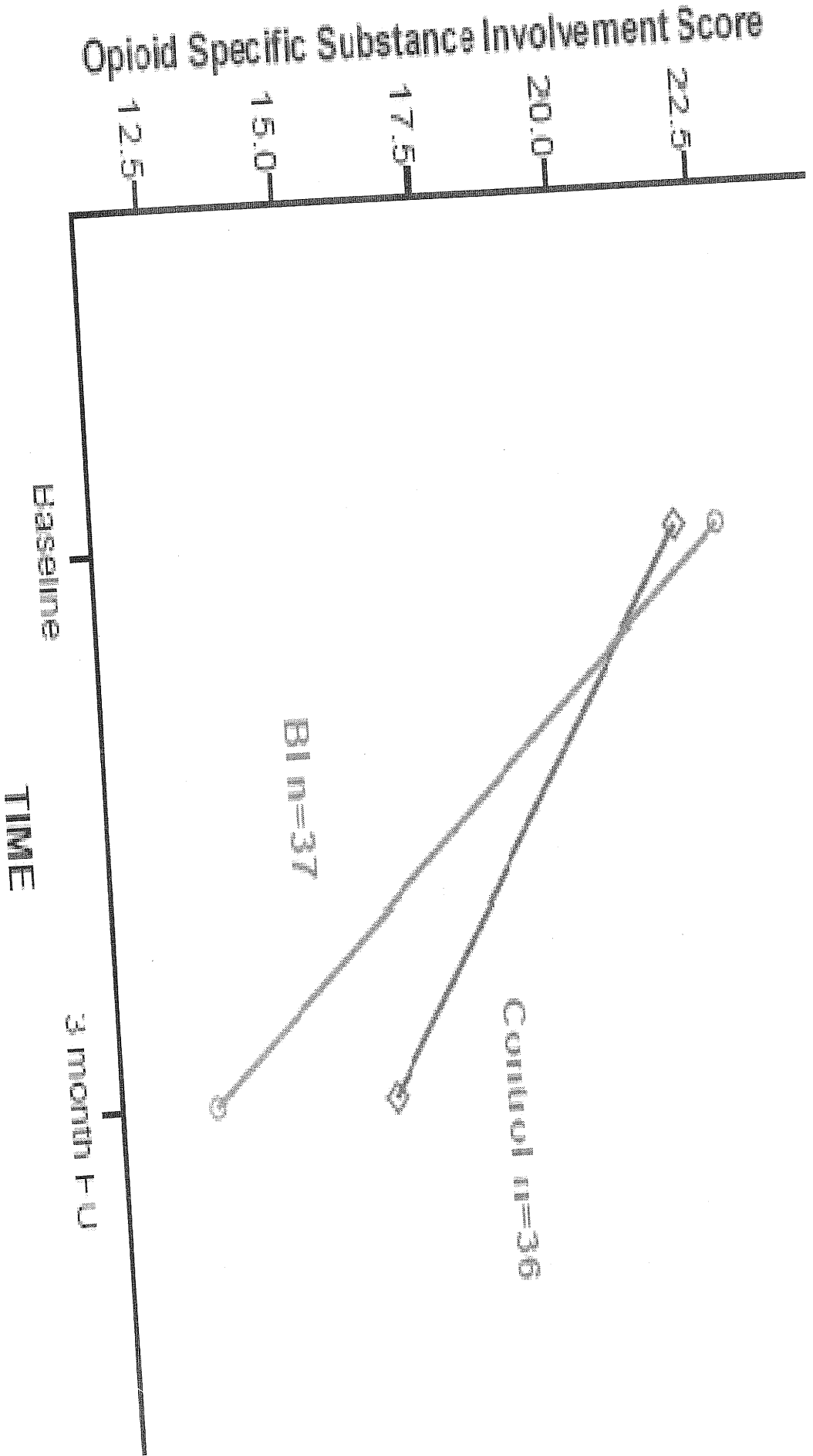
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- Screening to find:
  - at-risk drinkers (and drug users)
  - possible alcohol (and drug) dependence
- Brief Intervention
  - Early detection
  - Time limited
  - Low cost, easy to use
- Referral of more serious cases to further diagnostic assessment specialized care

# Tobacco



# Opioid



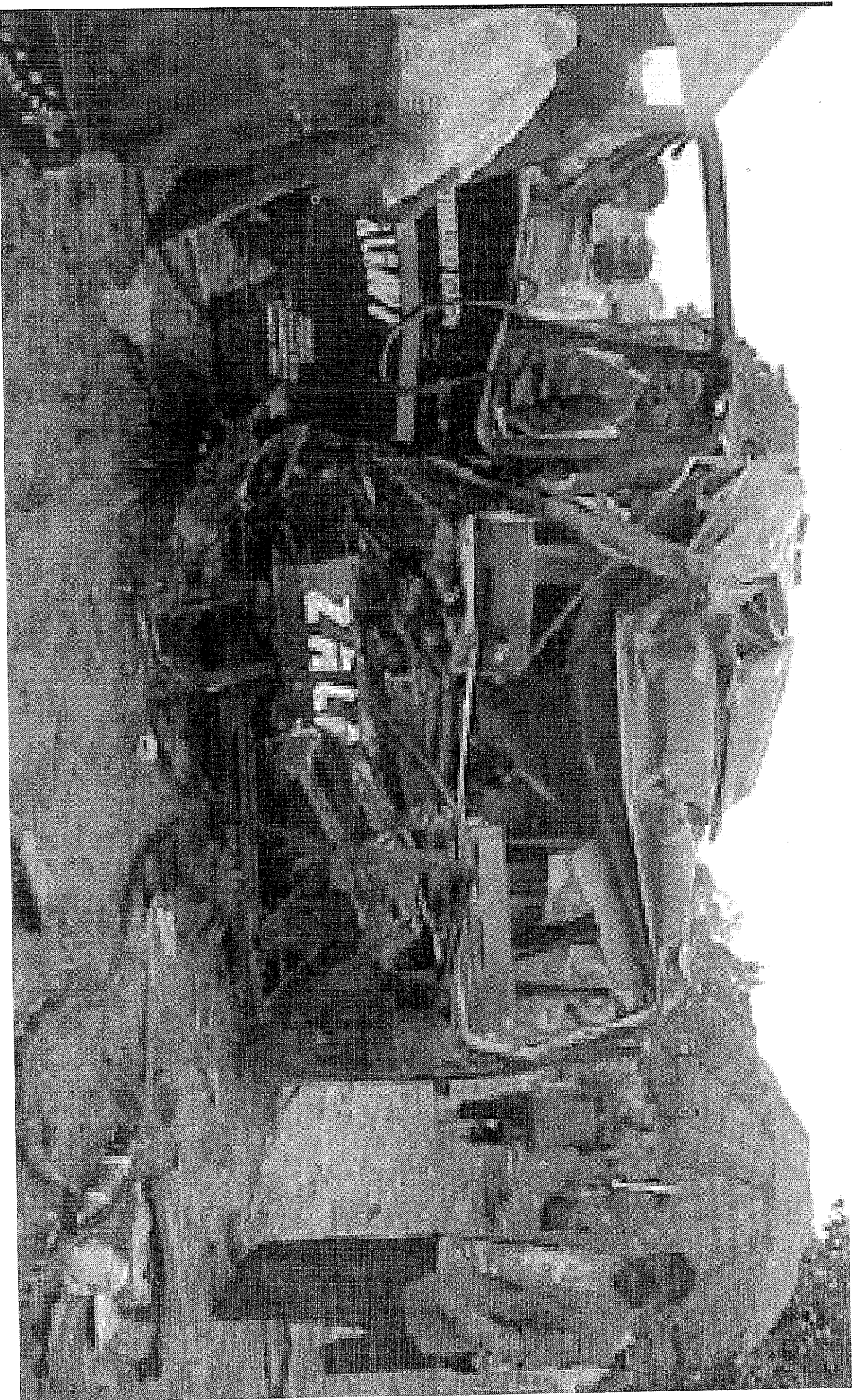
## 4) Environmental risks

- Unsafe water
- Sanitation and hygiene
- Urban air pollution
- Indoor smoke from solid fuels
- Lead exposure
- Climate change

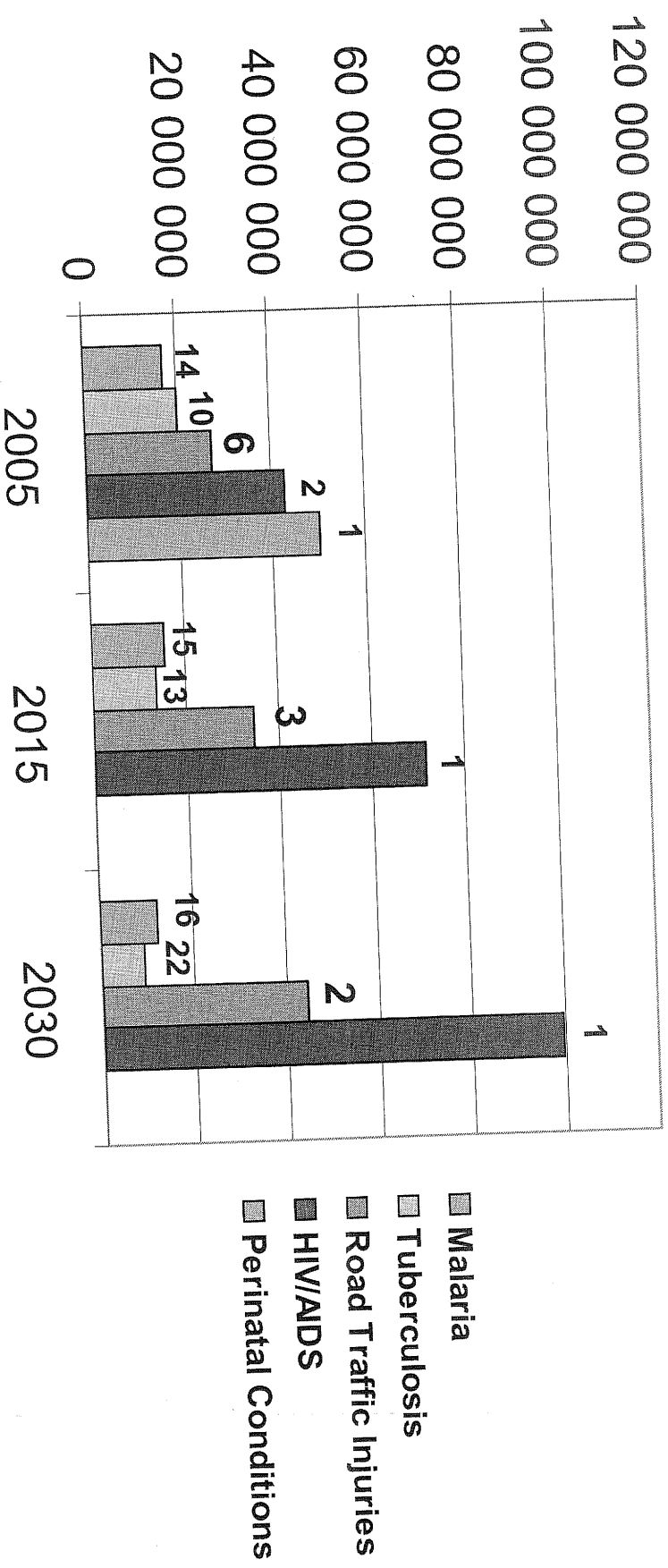


## **5) Injury and violence**

# Road traffic injury

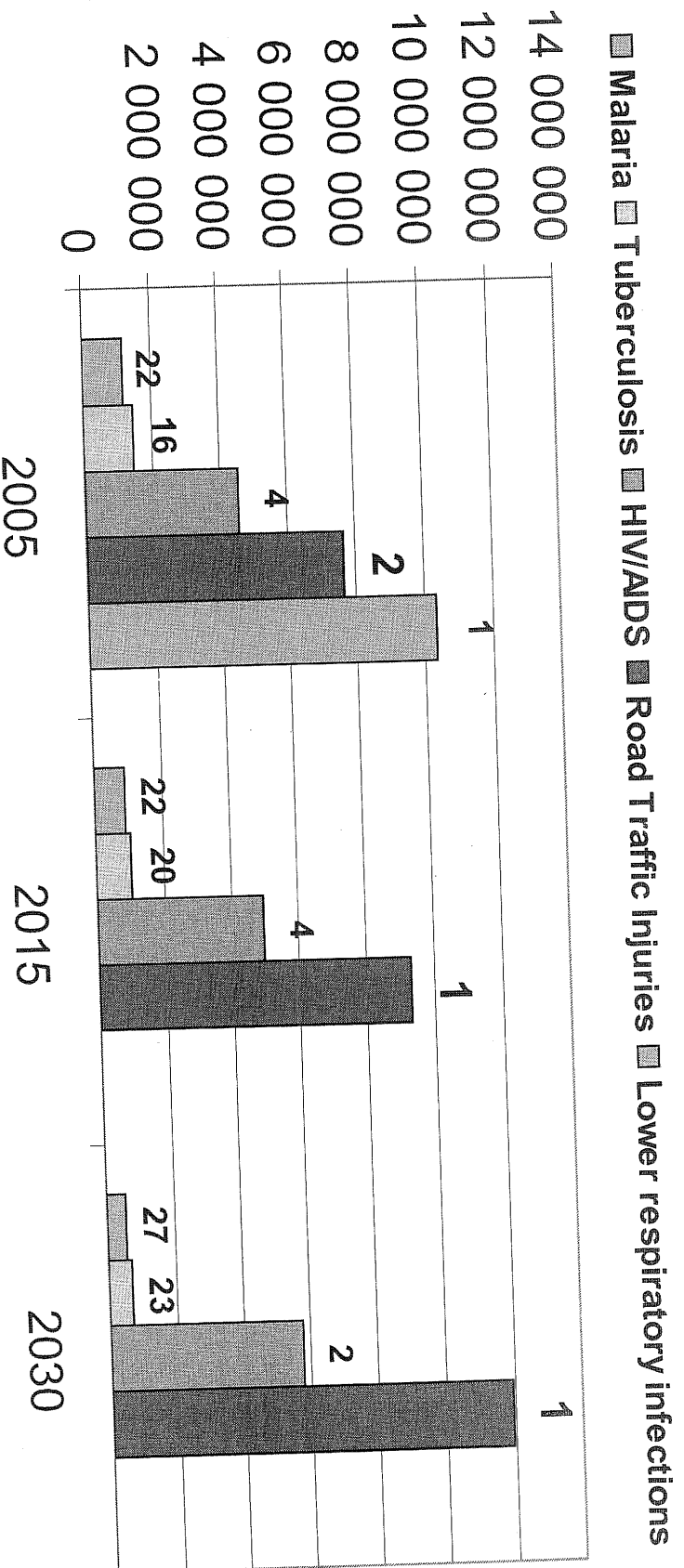


# DALYS in low and middle income countries (male population)



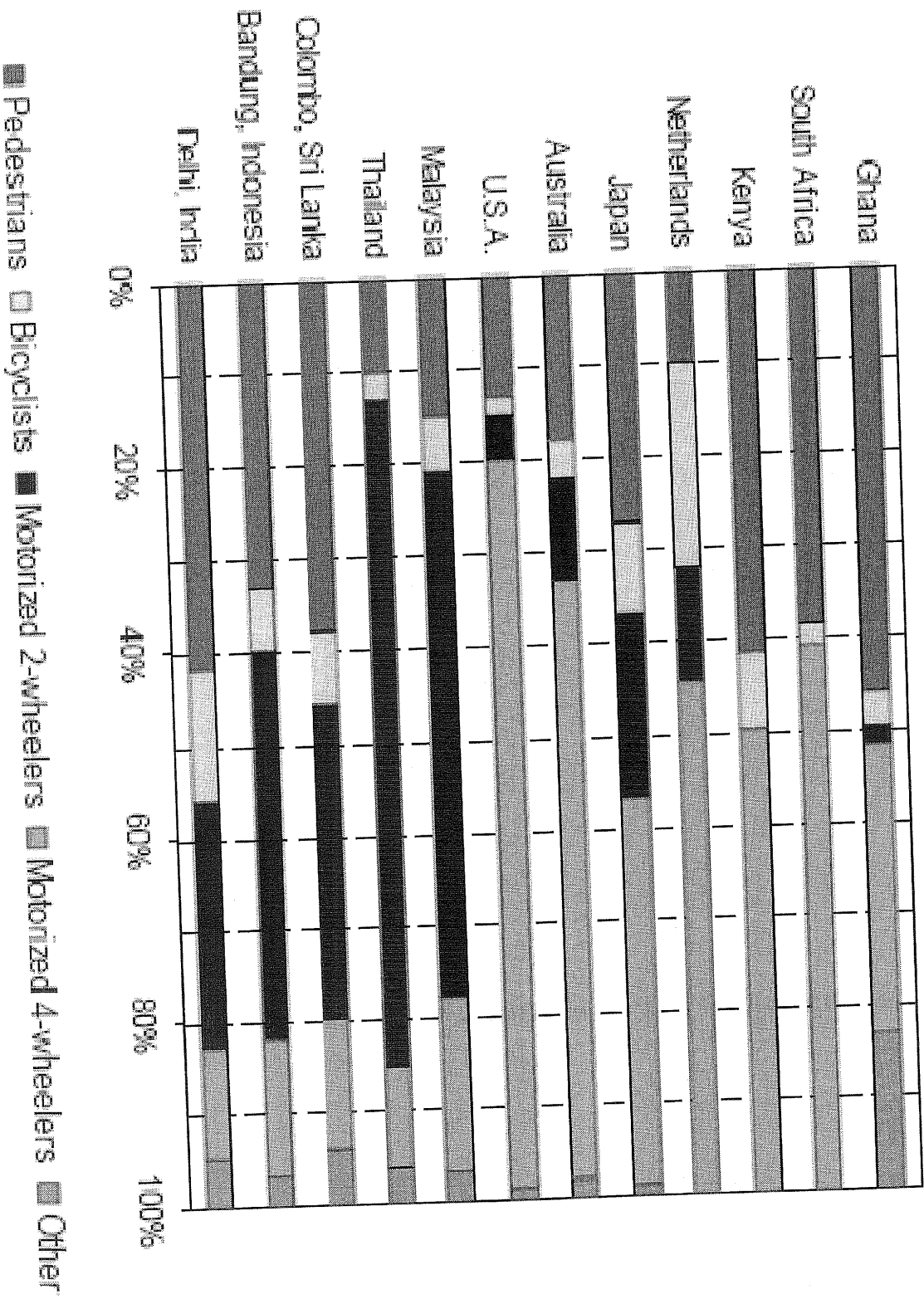
Source: Mathers C, Loncar D. Updated projections of global mortality & burden of disease, WHO, 2005

# DALYS in low and middle income countries (children age 5-14)



Source: Mathers C, Loncar D. Updated projections of global mortality & burden of disease, WHO, 2005

# Road User fatalities



**Human factors (information, attitudes, impairment,  
police enforcement)**

- a) Excessive speeding and driver negligence**
- b) Alcohol and drug use**
- c) Poor skills/knowledge**
- d) Driver fatigue, stress and aggression**
- e) Other impairment: vision**
- f) Seatbelt, helmet use**

## b) Alcohol related death in South Africa

	Driver	Pedestrian	Cyclist
	BAC positive (Mean BAC)	BAC positive (Mean BAC)	BAC positive (Mean BAC)
NIMSS* (2002)	55.3% (0.17)	59.4% (0.22)	36.9% (0.2)
NIMSS* (2005)	53.5% (0.16)	58.7% (0.15)	45.0% (0.16)

\*National Injury Mortality Surveillance System

## f) Lack of seatbelt use (observed)

		Country	Non-wearing of seatbelt (observed)
Nantulya et al. (2001)	Kenya		99% of car occupants injured in crashes
Sangowawa et al. (2006)	Nigeria		52% drivers 95.9% restraint use among children
Iribhogbe & Osime (2008)	Nigeria		47.7% drivers 81.6% front seat passengers 93.9% rear seat passengers
Peltzer (2003)	South Africa		53% drivers
Department of Transport (2003)	South Africa, rural roads		67.5% drivers unobserved 14.2% drivers at roadblock 33.3% front passengers at roadblock 92.3% back passenger at roadblock



## f) Non-helmet use

Author	Country, sample	Non-helmet use on motor cycle
Asigwa (1982)	Nigeria, motorcyclist	8%
Amoran et al. (2005)	Nigeria, commercial motorcyclists	100%
Oginni et al. (2007)	Nigeria, commercial motorcyclists	82.4%
Flisher et al. (1993)	South Africa, school children on motorcycle	47.9%
Flisher et al. (2006)	South Africa, school children on motorcycle	18.9%

## What works?

- Literature in road traffic injury control interventions in low and middle income countries is slim
- Systematic review limited to low and middle income country intervention evaluations
  - Speed bumps Afukaar (2003).
  - Bicycle helmets Li and Baker (1997)
  - Motorcycle helmets Tsauo (1999)
  - Traffic enforcement (Poli de Figuereido, 2001)

# Safer people interventions

(Forjuoh, 2003)

Prevention target	Proven	Applicability in developing countries
Occupant	<ul style="list-style-type: none"> <li>Seatbelt*</li> <li>Airbags</li> <li>Child safety seats</li> <li>Seat belt use laws</li> <li>Child seat use laws</li> </ul>	<ul style="list-style-type: none"> <li>*affordable/feasible</li> <li>Combined strategy: laws, public education, enforcement (primary &amp; secondary)</li> </ul>
Motorcyclist	Helmets*	*affordable/feasible
Bicyclist	Helmets*	<ul style="list-style-type: none"> <li>*Readily usable</li> <li>Combined with other strategies</li> <li>Policies? Barriers (attitudes/costs)</li> </ul>

\*Denotes intervention with some evaluation in LICs

# Safer people interventions

(Forjuoh, 2003)

Prevention target	Proven	Applicability in developing countries
Pedestrian	Sidewalks Roadway barriers* Pedestrian crossing signs* Education on conspicuity-enhancement measures	*Feasible Combined with public education
Cross-cutting	Speed limits* Speed ramps/bumps* Alcohol sobriety checkpoints Lower BAC laws Minimum drinking age laws	*Useable Need strict enforcement & other traffic-calming strategies →Hours of driving for commercial and public drivers →Policy to prevent culture of impunity

*\*Denotes intervention with some evaluation in LICs*

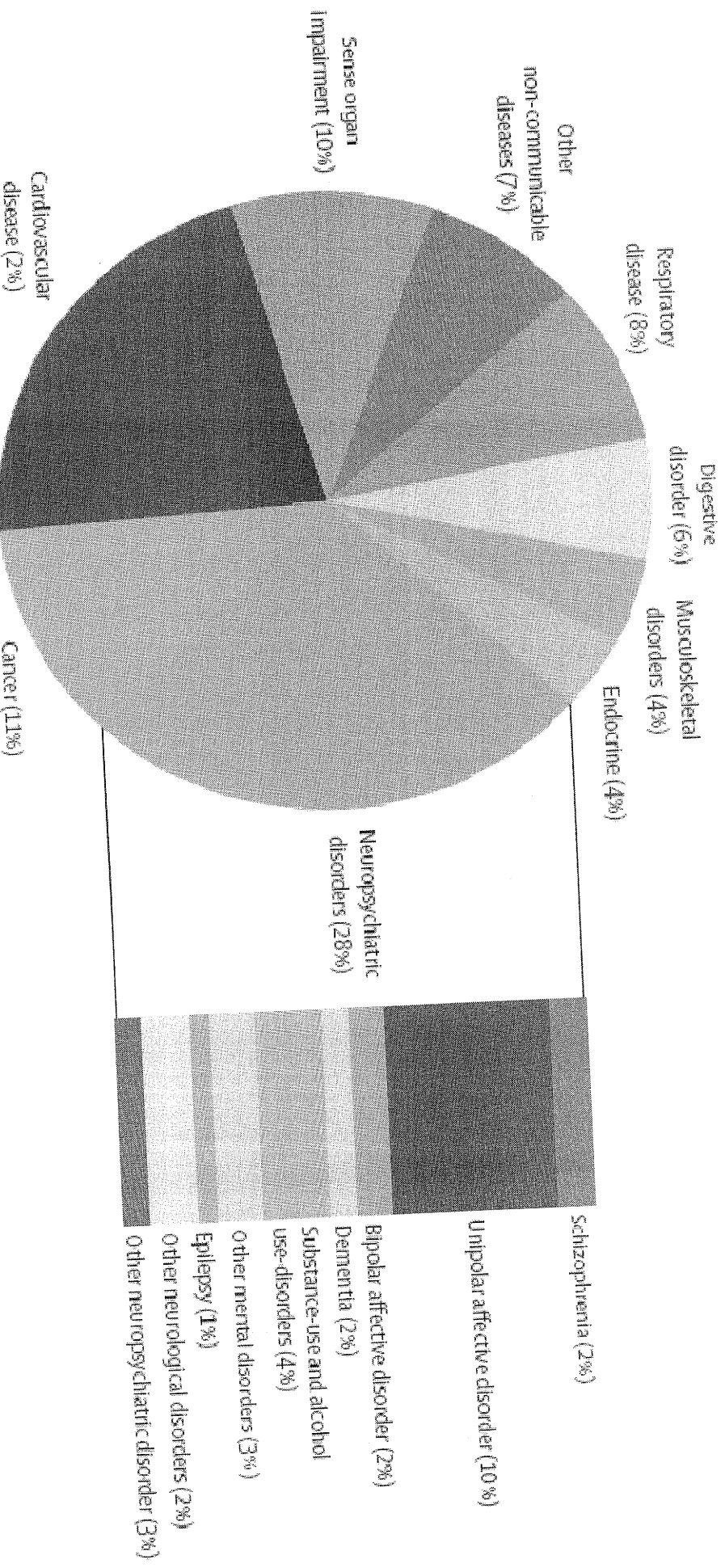
## **6) Lack of preventive health care**

- **Immunization**
- **Prenatal care**
- **Cancer screening**
- **Prediabetes**
- **Prehypertension**
- **Conditional cash transfers for preventive health care**

## 7) Mental health risk

- Schizophrenia
- Mood disorders
- Anxiety disorders
- Suicide
- Somatization

# Global Prevalence of Mental Health Disorders



Ref: Prince M, Patel V, Saxena S, et al. No health without mental health. *Lancet*. 2007;370:859-877.

#### 4 Recognition as a psychological case of current ICD-10 disorders by treating physicians

	Depression	Generalized anxiety disorder	Somatization disorder	Any diagnosis (except harmful use of alcohol)*	Harmful use of alcohol
	% recognized	% recognized	% recognized	% recognized	% recognized
Rio de Janeiro, Brazil	44	32	43	36	0
Santiago, Chile	74	61	89	74	98
Shanghai, China	21	20	12	16	45
Paris, France	62	50	66	47	46
Berlin, Germany	57	55	56	56	14
Mainz, Germany	56	65	95	60	29
Athens, Greece	22	13	11	17	0
Bangalore, India	46	35	31	40	0
Verona, Italy	70	74	100	75	10
Nagasaki, Japan	19	23	0	18	4
Groningen, Netherlands	60	59	75	51	31
Ibadan, Nigeria	40	67	33	55	33
Ankara, Turkey	28	26	34	24	21
Manchester, United Kingdom	70	72	100	63	7
Seattle, United States of America	57	47	80	57	12
Total	54	46	64	49	Not available

\* In addition to the diagnoses listed above, dysthymia, agoraphobia, panic, hypochondriasis, and neurasthenia

Source: adapted from Ustin & Sartorius 87



Depression is now the #1 global cause of disability

- *121 million people currently suffer from depression.*
- *5.8% of men and 9.5% of women will experience a depressive episode in any given year.*

[WHO fact sheet]

**#1 leading cause of years of life lived with disability (YLLDs)**

[WHO World Health Report 2001]



## The evidence in support of behavioural depression treatment (Patel et al., 2009)

Depression Treatment	Evidence from LMICs
Detection and monitoring	<ul style="list-style-type: none"> <li>-GHQ, K6, and SRQ in primary care in India [14]</li> <li>-SRQ for perinatal depression in Ethiopia [15]</li> <li>-K6 for postnatal depression in Burkina Faso [16]</li> <li>-SRQ for women of childbearing age in Mongolia [22]</li> <li>-GHQ in 15-site primary care study [23]</li> <li>-HSCL in pregnant women positive for HIV in Tanzania [59]</li> <li>GHQ and SRQ in primary care in Chile and in Brazil [17, 18, 20, 21]</li> <li>-CIS-R in the community setting in Chile [19]</li> </ul>
Cognitive-behavioural therapy (CBT)	<ul style="list-style-type: none"> <li>RCT of CBT delivered by community health workers for perinatal depression in Pakistan [46]</li> <li>RCT of group CBT for depressed primary care patients in Chile [35]</li> </ul>
Interpersonal therapy (IPT)	<ul style="list-style-type: none"> <li>RCT of group interpersonal psychotherapy [47, 48]</li> </ul>

## Cognitive-behavioural therapy for perinatal depression in women in Pakistan

- Mothers in the intervention clusters received the Thinking Healthy Programme through 40 specially trained Lady Health Workers .
- The intervention consisted of a session every week for 4 weeks in the last month of pregnancy, three sessions in the first postnatal month, and nine 1-monthly sessions thereafter.
- Health workers received monthly supervision, and were monitored by the research team to ensure that they were attending the scheduled visits.

# Thinking Healthy Programme

- *Cognitive behaviour therapy techniques:*
- active listening,
- collaboration with the family, guided discovery (i.e., style of questioning to both gently probe for family's health beliefs and to stimulate alternative ideas), and
- homework (ie, trying things out between sessions, putting what has been learned into practice), and applied these to health workers' routine practice of maternal and child health education.

# Comparison of changes in rates of diagnosable major depression after intervention at 6 & 12 months

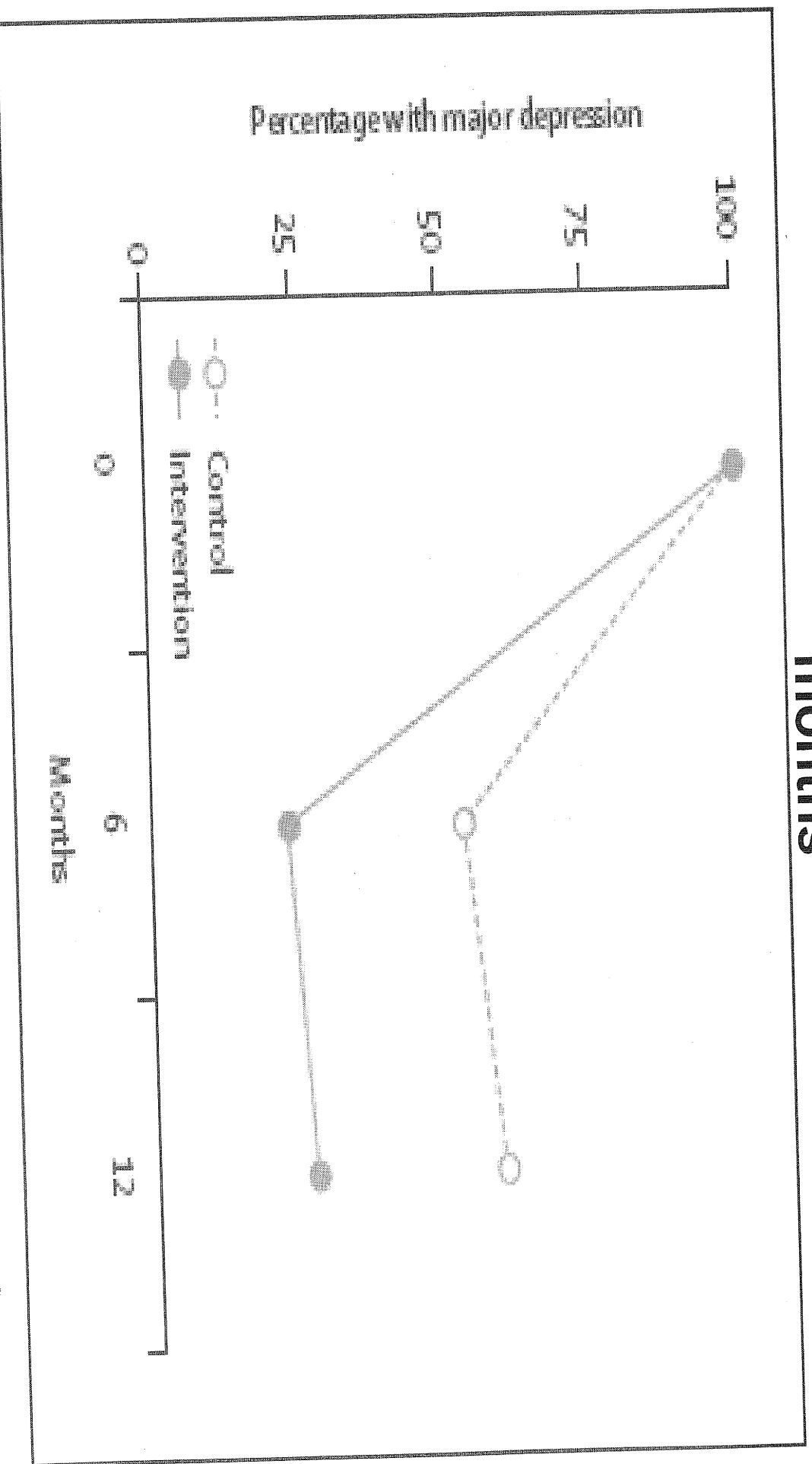


Figure 2: Rates of depression in women in the control and intervention groups at 6 months and 12 months

## Suicide/self-directed violence

- 877 000 deaths were due to suicide in the year 2002; the majority of which (85%) occurred in low- and middle-income countries.
- Self-inflicted injuries represented 1.4% of the global burden of disease in 2002 and are expected to increase to 2.4% by 2020.
- Attempted suicide can be up to 40 times more frequent than completed suicide.
- Many of those who attempt suicide require medical attention and they are at high risk for completed suicide.

(WHO, 2002)

# Prevention of self-directed violence

## 1) Treatment of mental disorders

The early identification and appropriate treatment of mental disorders is an important prevention strategy – depression and other psychiatric problems, alcohol and substance abuse problems.

## 2) Behavioural approaches

People who are suicidal generally express difficulty in solving problems. Behavioural therapy approaches are designed to probe underlying factors and to help patients develop problem-solving skills. Evidence-> effective in reducing suicidal thoughts and behaviour

## Brief intervention and contact for suicide attempters (Brazil, India, Sri Lanka, Iran, China)

- Suicide attempters:
- a 1-hour individual information session about suicidal behaviour as a sign of psychological and/or social distress, risk and protective factors, basic epidemiology, repetition, alternatives to suicidal behaviours, and referral options
- after discharge, nine follow-up contacts (phone calls or visits, as appropriate) according to a specific time-line up to 18 months
- conducted by a person with clinical experience (e.g. doctor, nurse, psychologist).

(Fleischman et al. 2008)



# Suicide prevention trial outcome

Table 2. Mortality of subjects at 18-month follow-up

Status	TAU N = 827		BIC N = 872		$\chi^2$	P-value
	(n)	(%)	(n)	(%)		
Died of any cause	22	2.7	11	1.3	4.36	0.037
Died by suicide	18	2.2	2	0.2	13.83	< 0.001

TAU, treatment as usual; BIC, brief intervention and contact.

## 8) Vector risk

- Malaria
- Helminth infections