

GBD PROFILE: BOTSWANA

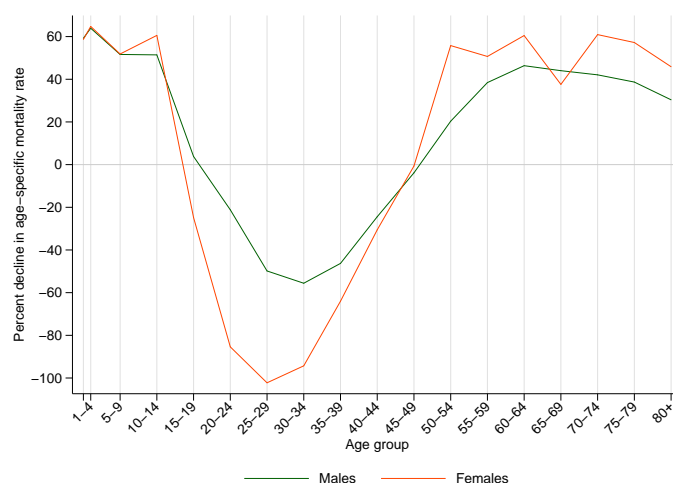
GLOBAL BURDEN OF DISEASES, INJURIES, AND RISK FACTORS STUDY 2010

The Global Burden of Disease Study 2010 (GBD 2010) is a collaborative project of nearly 500 researchers in 50 countries led by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington. It is the largest systematic scientific effort in history to quantify levels and trends of health loss due to diseases, injuries, and risk factors. GBD serves as a global public good to inform evidence-based policymaking and health systems design.

PROFILE OVERVIEW

- In terms of the number of years of life lost (YLLs) due to premature death in Botswana, HIV/AIDS, tuberculosis, and interpersonal violence were the highest ranking causes in 2010.
- Of the 25 most important causes of burden, as measured by disability-adjusted life years (DALYs), lower respiratory infections showed the largest decrease, falling by 64% from 1990 to 2010.
- The leading risk factor in Botswana is alcohol use.

Percent decline in age-specific mortality rate by sex from 1990-2010 in Botswana



ALL-CAUSE MORTALITY RATE

- This chart shows the change in mortality rate at every age range. The points above 0 on the chart indicate positive declines in the all-cause mortality rate, while points below 0 indicate an increase in mortality rate between 1990 and 2010.
- The greatest reductions in all-cause mortality rate were experienced by females aged 1-4 years (65%). Females aged 25-29 years saw the largest increase in mortality rate (102%).

CAUSES OF PREMATURE DEATH

Years of life lost (YLLs) quantify premature mortality by weighting younger deaths more than older deaths.

Ranks for top 25 causes of YLLs 1990-2010, Botswana

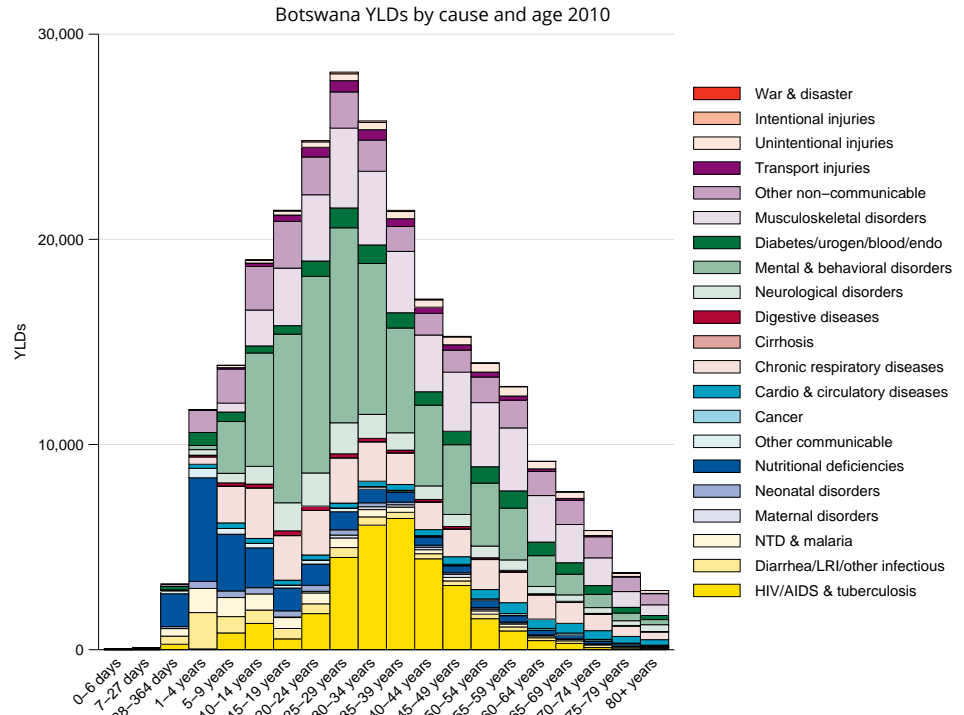
# YLLs in thousands (% of total)	Rank and disorder 1990	Rank and disorder 2010	# YLLs in thousands (% of total)	% change
79 (18.5%)	1 HIV/AIDS	1 HIV/AIDS	203 (40.1%)	158
53 (12.3%)	2 Diarrheal diseases	2 Tuberculosis	22 (4.3%)	29
36 (8.4%)	3 Lower respiratory infections	3 Interpersonal violence	21 (4.2%)	209
25 (5.9%)	4 Preterm birth complications	4 Diarrheal diseases	21 (4.1%)	-61
17 (4.1%)	5 Tuberculosis	5 Road injury	16 (3.2%)	82
15 (3.5%)	6 Neonatal encephalopathy	6 Stroke	14 (2.8%)	42
10 (2.5%)	7 Congenital anomalies	7 Preterm birth complications	14 (2.8%)	-46
10 (2.3%)	8 Stroke	8 Lower respiratory infections	12 (2.4%)	-66
11 (2.5%)	9 Mechanical forces	9 Maternal disorders	13 (2.6%)	40
9 (2.2%)	10 Road injury	10 Mechanical forces	13 (2.5%)	35
9 (2.1%)	11 Maternal disorders	11 Ischemic heart disease	9 (1.8%)	59
9 (2.1%)	12 Measles	12 Neonatal encephalopathy	8 (1.5%)	-48
7 (1.6%)	13 Interpersonal violence	13 Diabetes	7 (1.4%)	86
7 (1.6%)	14 Neonatal sepsis	14 Congenital anomalies	7 (1.3%)	-35
6 (1.3%)	15 Ischemic heart disease	15 Malaria	10 (1.9%)	140
6 (1.4%)	16 Typhoid fevers	16 Hypertensive heart disease	5 (1.0%)	59
4 (1.0%)	17 Meningitis	17 Epilepsy	4 (0.9%)	47
4 (0.9%)	18 Diabetes	18 Cardiomyopathy	4 (0.8%)	61
4 (0.9%)	19 Syphilis	19 Typhoid fevers	6 (1.1%)	-11
3 (0.8%)	20 Fire	20 Other cardio & circulatory	4 (0.8%)	32
3 (0.8%)	21 Hypertensive heart disease	21 Other transport injuries	4 (0.8%)	77
4 (1.0%)	22 Malaria	22 Self-harm	4 (0.7%)	83
3 (0.8%)	23 Protein-energy malnutrition	23 Neonatal sepsis	4 (0.7%)	-47
3 (0.7%)	24 Other cardio & circulatory	24 Meningitis	3 (0.7%)	-22
3 (0.7%)	25 COPD	25 Cirrhosis	3 (0.7%)	109
	27 Epilepsy	26 Fire		
	28 Cardiomyopathy	32 COPD		
	31 Other transport injuries	39 Syphilis		
	34 Self-harm	52 Protein-energy malnutrition		
	35 Cirrhosis	62 Measles		

This chart shows the change in the top 25 causes of YLLs due to premature mortality from 1990 to 2010. Solid lines indicate a cause has moved up in rank or stayed the same. Broken lines indicate a cause has moved down in rank. The causes are color coded by blue for non-communicable diseases, green for injuries, and red for communicable, maternal, neonatal, and nutritional causes of death.

YEARS LIVED WITH DISABILITY (YLDs)

Years lived with disability (YLDs) are estimated by weighting the prevalence of different conditions based on severity. The top five leading causes of YLDs in Botswana are HIV/AIDS, major depressive disorder, iron-deficiency anemia, low back pain, and chronic obstructive pulmonary disease.

The size of the colored portion in each bar represents the number of YLDs attributable to each cause. The height of each bar shows which age groups had the most YLDs in 2010. The causes are aggregated. For example, musculoskeletal disorders include low back pain and neck pain.

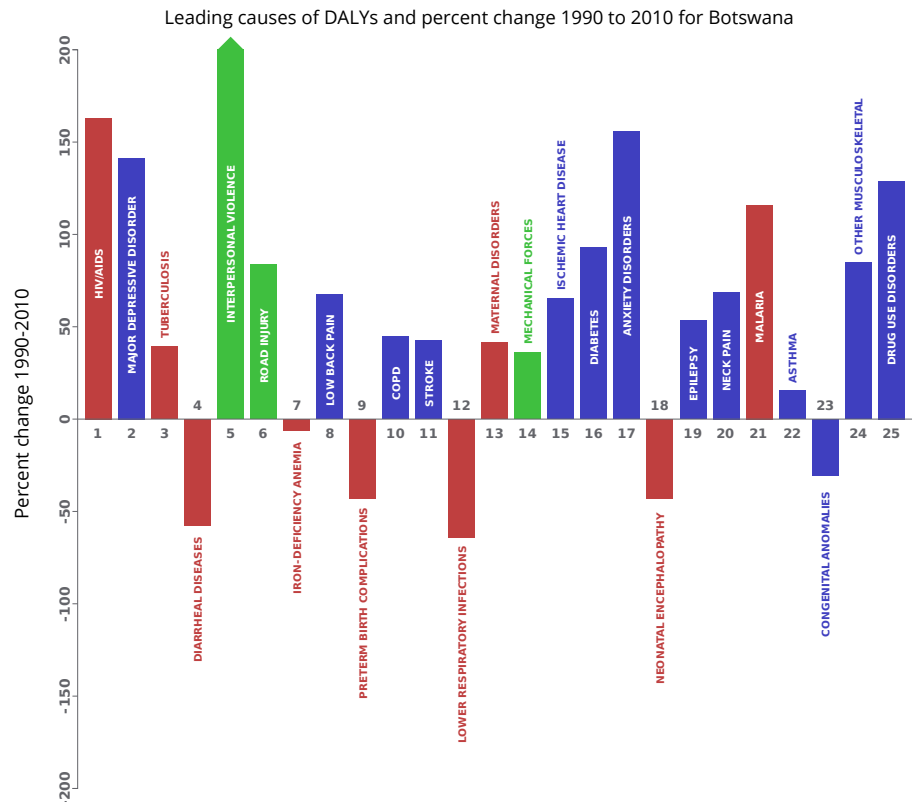


DISABILITY-ADJUSTED LIFE YEARS (DALYs)

Disability-adjusted life years (DALYs) quantify both premature mortality (YLLs) and disability (YLDs) within a population. In Botswana, the top three causes of DALYs in 2010 were HIV/AIDS, major depressive disorder, and tuberculosis. The causes that were in the 10 leading causes of DALYs in 2010 and not 1990 were interpersonal violence, low back pain, and chronic obstructive pulmonary disease.

The top 25 causes of DALYs are ranked from left to right in order of the number of DALYs they contributed in 2010. Bars going up show the percent by which DALYs have increased since 1990. Bars going down show the percent by which DALYs have decreased. Globally, non-communicable diseases and injuries are generally on the rise, while communicable, maternal, neonatal, and nutritional causes of DALYs are generally on the decline.

- Communicable, maternal, neonatal, and nutritional
- Non-communicable
- Injuries

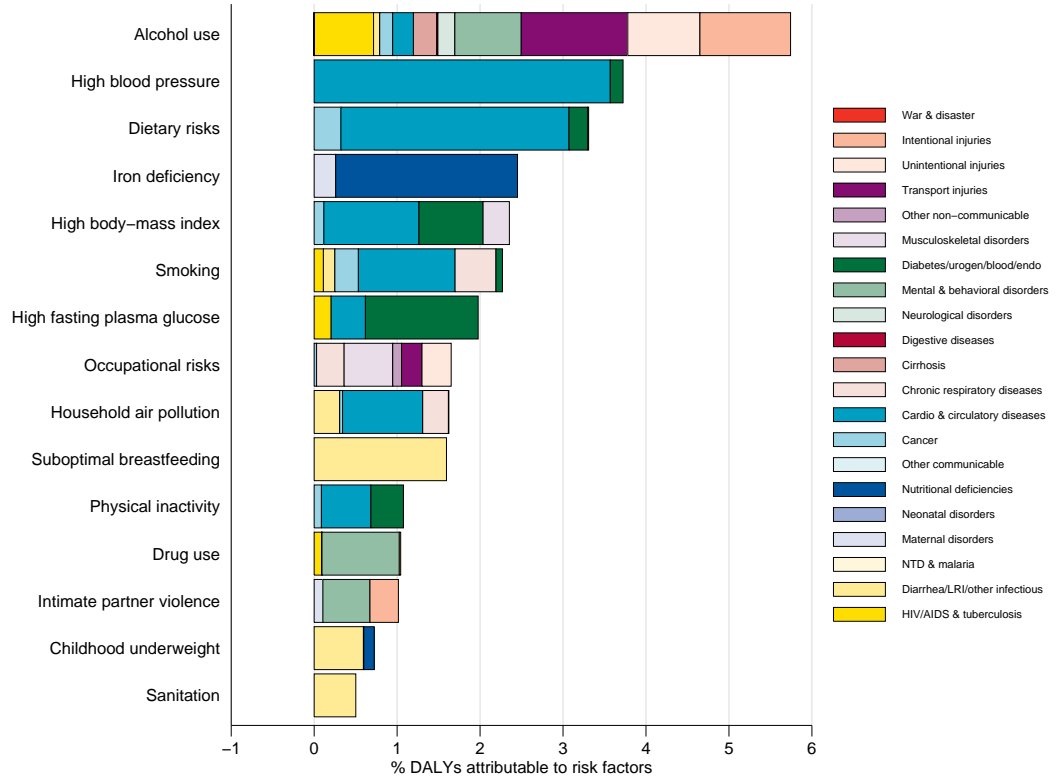


RISK FACTORS

Overall, the three risk factors that account for the most disease burden in Botswana are alcohol use, high blood pressure, and dietary risks. The leading risk factors for children under 5 and adults aged 15-49 years were suboptimal breastfeeding and alcohol use, respectively, in 2010.

Burden of disease attributable to 15 leading risk factors in 2010, expressed as a percentage of Botswana DALYs

The graph shows the top 15 risk factors for Botswana. The colored portion of each bar represents the specific diseases attributable to that risk factor while bar size represents the percentage of DALYs linked to specific risk factors.



COUNTRY BENCHMARKING OF BURDEN OF DISEASE

Understanding the relative performance of Botswana against other comparator countries provides key insight into public health successes and areas where Botswana might be falling behind. The table identifies Botswana's rank across 14 other comparator countries, selected and ordered by income per capita, for five metrics of interest, with 1 indicating the best rank and 15 indicating the worst rank.

- Age-standardized rates are used to make meaningful comparisons across time by adjusting for changes in population size and age structure.
- Life expectancy incorporates mortality, and health-adjusted life expectancy further incorporates years lived in less than ideal health.
- In 2010, Botswana ranked 8th for age-standardized death rate and 15th for age-standardized YLD rate.

Age-standardized death rates, YLL rates, YLD rates, and life expectancy at birth and health-adjusted life expectancy at birth for 1990 and 2010, both sexes combined																				
Country	Age-standardized death rate (per 100,000)				Age-standardized YLL rate (per 100,000)				Age-standardized YLD rate (per 100,000)				Life expectancy at birth				Health-adjusted life expectancy at birth			
	1990		2010		1990		2010		1990		2010		1990		2010		1990		2010	
	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	LE	Rank	LE	Rank	HALE	Rank	HALE	Rank
Latvia	914	10	703	7	23,599	9	16,613	8	11,911	10	11,751	11	69.8	9	73.9	7	60.4	9	63.8	10
Russia	953	13	952	14	25,715	11	25,387	13	11,536	7	11,444	9	68.7	12	68.9	14	59.7	11	59.9	13
Mexico	740	3	604	5	22,775	8	15,658	5	10,092	1	9,364	1	71.5	5	75.5	5	63	4	66.9	3
Chile	760	4	490	1	18,210	1	11,136	1	11,185	5	10,407	2	72.9	2	78.5	1	63.4	2	68.6	1
Gabon	1,312	15	1,432	15	46,033	15	49,393	15	14,356	15	14,462	14	60	15	58.7	15	50.8	15	49.8	15
Malaysia	825	6	726	10	19,850	4	16,000	6	11,926	11	11,186	8	71.6	4	73.7	8	62.1	6	64.4	6
Argentina	731	1	597	4	19,400	3	14,343	4	11,154	4	10,843	4	72.5	3	76	4	63.2	3	66.1	5
Botswana	951	12	715	8	31,563	14	26,692	14	13,528	14	14,557	15	66.7	14	71	12	56.6	14	59.2	14
Lebanon	775	5	514	2	21,908	6	11,877	2	11,630	9	11,150	7	71.2	7	77.5	2	61.4	7	66.7	4
Turkey	942	11	628	6	30,025	13	16,760	9	12,442	12	11,885	12	67.1	13	74.4	6	57.6	13	63.9	9
Uruguay	731	2	585	3	18,332	2	13,126	3	11,007	3	10,540	3	73	1	76.5	3	63.8	1	67	2
Belarus	877	8	914	13	22,551	7	22,829	12	11,589	8	11,578	10	70.4	8	70	13	61.2	8	60.9	12
Bulgaria	864	7	747	11	20,104	5	16,486	7	10,860	2	11,095	6	71.4	6	73.5	10	62.5	5	64.1	7
Mauritius	1,014	14	766	12	24,451	10	17,273	10	11,333	6	10,953	5	68.9	10	73.2	11	60.3	10	63.9	8
Saint Lucia	891	9	722	9	25,875	12	17,785	11	13,328	13	14,233	13	68.9	11	73.7	9	58.6	12	61.6	11

COUNTRY BENCHMARKING OF BURDEN OF DISEASE, CONTINUED

This figure shows the rank of Botswana relative to the same comparator countries for the leading causes of DALYs in 1990 (top) and 2010 (bottom).

- The columns are ordered by the absolute number of DALYs in Botswana for that particular year, with greatest burden on the left.
- The numbers indicate the rank across countries for each cause in terms of age-standardized DALY rates, with 1 as the best performance and 15 as the worst.

Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 1990																									
Country	HIV/AIDS	Diarrheal diseases	Lower respiratory infections	Preterm birth complications	Tuberculosis	Iron-deficiency anemia	Neonatal encephalopathy	Major depressive disorder	Congenital anomalies	Road injury	Stroke	COPD	Low back pain	Mechanical forces	Maternal disorders	Measles	Interpersonal violence	Asthma	Ischemic heart disease	Neonatal sepsis	Epilepsy	Diabetes	Neck pain	Meningitis	Typhoid fevers
Latvia	4	1	1	3	7	5	10	12	10	14	11	1	14	11	3	7	12	4	13	2	5	3	7	1	4
Russia	1	6	5	6	10	7	11	14	11	13	12	9	12	14	5	1	14	3	11	6	4	1	9	4	2
Mexico	11	13	12	8	11	8	12	2	8	10	1	4	1	7	11	8	15	2	2	12	12	13	6	7	5
Chile	7	5	11	5	9	2	2	3	7	3	2	2	6	10	6	4	10	7	3	3	13	4	15	8	9
Gabon	14	15	15	14	14	13	14	15	15	15	8	15	9	9	15	15	11	11	6	15	14	11	12	14	12
Malaysia	10	4	8	2	13	11	3	11	3	7	7	13	2	4	12	13	1	8	8	4	7	9	2	13	14
Argentina	8	8	4	12	6	9	5	5	9	2	6	5	7	8	7	9	8	6	7	10	1	5	14	9	7
Botswana	15	14	13	9	15	14	13	6	1	4	5	14	8	15	14	14	13	13	1	11	15	12	11	12	15
Lebanon	6	10	6	10	4	10	4	8	13	9	3	8	10	3	10	11	6	10	9	8	2	10	3	5	11
Turkey	2	12	14	13	12	12	6	13	12	8	15	11	11	2	13	10	5	12	12	13	9	7	1	15	10
Uruguay	9	7	3	7	3	4	7	4	5	5	4	3	5	13	4	6	4	9	5	9	3	6	13	10	8
Belarus	5	3	2	4	5	6	9	10	14	12	9	10	13	12	1	3	7	5	14	5	8	2	8	2	3
Bulgaria	3	2	9	1	1	3	1	1	6	6	14	7	15	5	2	2	3	1	10	1	6	8	10	3	1
Mauritius	13	9	7	11	2	1	8	7	2	1	13	12	3	1	9	12	2	15	15	7	10	15	4	6	13
Saint Lucia	12	11	10	15	8	15	15	9	4	11	10	6	4	6	8	5	9	14	4	14	11	14	5	11	6
Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 2010																									
Country	HIV/AIDS	Major depressive disorder	Tuberculosis	Diarrheal diseases	Interpersonal violence	Road injury	Iron-deficiency anemia	Low back pain	Preterm birth complications	COPD	Stroke	Lower respiratory infections	Maternal disorders	Mechanical forces	Ischemic heart disease	Diabetes	Anxiety disorders	Neonatal encephalopathy	Epilepsy	Neck pain	Malaria	Asthma	Congenital anomalies	Other musculoskeletal	Drug use disorders
Latvia	10	10	10	2	8	7	9	13	1	1	10	1	1	9	13	4	2	10	6	8	10	2	3	7	11
Russia	12	11	13	9	13	14	10	12	7	8	15	12	6	14	14	3	6	12	5	7	11	4	12	10	15
Mexico	6	1	8	13	14	12	3	1	9	4	1	9	11	8	5	13	1	11	12	6	8	1	13	11	5
Chile	4	2	3	3	7	4	2	7	5	3	2	4	5	4	2	1	11	1	13	14	3	7	7	13	9
Gabon	14	14	14	15	11	15	11	9	15	15	12	15	15	12	7	12	14	15	15	11	15	13	14	12	13
Malaysia	11	9	11	4	4	9	4	2	2	14	8	14	13	3	10	9	7	3	8	2	13	9	1	5	3
Argentina	7	7	5	7	10	6	6	6	12	6	4	13	10	7	6	5	13	7	1	15	5	6	11	15	12
Botswana	15	15	15	14	15	10	14	8	10	13	5	8	14	15	1	10	12	13	14	12	14	12	2	6	6
Lebanon	5	8	4	10	6	5	12	10	8	5	3	2	7	2	9	11	8	5	3	3	1	10	9	3	4
Turkey	1	13	9	12	1	2	13	11	13	12	11	6	8	10	11	7	15	6	9	1	6	14	15	2	8
Uruguay	8	5	2	8	5	3	5	5	6	9	6	5	4	11	4	6	10	2	2	13	2	8	4	14	7
Belarus	2	12	12	5	9	13	8	14	3	7	13	3	3	13	15	2	5	9	7	9	9	5	10	9	14
Bulgaria	3	4	6	1	2	8	7	15	4	11	14	11	2	6	12	8	4	4	4	10	7	3	6	4	2
Mauritius	13	6	1	6	3	1	1	3	11	10	9	7	9	1	8	15	3	8	10	4	12	11	8	1	1
Saint Lucia	9	3	7	11	12	11	15	4	14	2	7	10	12	5	3	14	9	14	11	5	4	15	5	8	10
Ranking Legend	1 - 3			4 - 7			8 - 11			12 - 15															