Diet high in sugar-sweetened beverages—Level 3 risk

Summary In 2019, a diet high in sugar-sweetened beverages was responsible for 6·31 million (95% UI 4·30–8·08) DALYs and 242 000 deaths (172 000–302 000). It was the 13th-leading dietary risk factor for attributable DALYs.

Definition Diet high in sugar-sweetened beverages is defined as any intake (in grams per day) of beverages with ≥50 kcal per 226·8 gram serving, including carbonated beverages, sodas, energy drinks, and fruit drinks, but excluding 100% fruit and vegetable juices.

	Total sources
Exposure	720
Relative risk	15

Table 1: Total sources used in GBD 2019 estimation

What is new in GBD 2019?

- The method of bias adjustment for non-dietary recall surveys was updated using MR-BRT.
- We updated the dose–response curve of relative risk for sugar-sweetened beverages and diabetes and ischaemic heart disease based on the most recent epidemiological evidence and a newly developed method for characterising the risk curve.
- The sugar-sweetened beverages TMREL changed from 2·5 to 0 grams/day.

|	Deaths		YLLs		YLDs		DALYs	
	Number (millions)	Rate (per 100 000)	Number (millions)	Rate (per 100 000)	Number (millions)	Rate (per 100 000)	Number (millions)	Rate (per 100 000)
2019								
Both sexes	0·242 (0·172 to 0·302)	3·1 (2·2 to 3·9)	4·90 (3·33 to 6·20)	60·1 (40·8 to 75·9)	1·41 (0·773 to 2·14)	17·0 (9·3 to 25·8)	6·31 (4·30 to 8·08)	77·1 (52·7 to 98·7)
Females	0·108 (0·0734 to 0·136)	2·5 (1·7 to 3·1)	1·89 (1·27 to 2·42)	43·4 (29·2 to 55·5)	0·685 (0·370 to 1·04)	15·8 (8·6 to 24·2)	2·57 (1·73 to 3·31)	59·2 (39·9 to 76·2)
Males	0·135 (0·0950 to 0·169)	3·9 (2·8 to 4·9)	3·01 (2·03 to 3·82)	78·3 (53·2 to 99·2)	0·726 (0·405 to 1·10)	18·4 (10·3 to 27·7)	3·74 (2·57 to 4·75)	96·6 (66·9 to 122·3)
Percentage change 2010–19								
Both sexes	21·0% (13·7 to 27·9)	−8·6% (−14·3 to −3·4)	17·9% (10·6 to 24·8)	−7·3% (−13·4 to −1·7)	44·7% (37·4 to 50·8)	14·7% (8·6 to 19·8)	23·0% (15·9 to 29·4)	−3·2% (−9·0 to 1·7)
Females	22·3% (12·7 to 31·1)	−8·1% (−15·4 to −1·6)	20·2% (10·7 to 28·3)	−6·2% (−13·7 to 0·1)	44·5% (36·4 to 52·1)	14·9% (8·4 to 20·8)	25·8% (17·0 to 33·1)	−1·4% (−8·3 to 4·6)
Males	20·1% (11·0 to 29·3)	−9·3% (−16·2 to −2·3)	16·6% (8·0 to 25·7)	−8·2% (−15·1 to −0·9)	44·9% (36·7 to 51·8)	14·4% (7·9 to 20·1)	21·2% (13·1 to 29·5)	−4·6% (−11·0 to 2·0)

Numbers in parentheses are 95% uncertainty intervals.

Table 2: Attributable global deaths, YLLs, YLDs, and DALYs in counts and age-standardised rates for both sexes combined, females, and males, 2019, with percentage change between 2010 and 2019

	Deaths	YLLs	YLDs	DALYs
1990	40th	41st	37th	44th
2010	39th	41st	35th	44th
2019	38th	39th	34th	42nd

Table 3: Rank among attributable Level 3 risks plus most detailed Level 2 risks of global deaths, YLLs, YLDs, and DALYs in 1990, 2010, and 2019 for both sexes combined
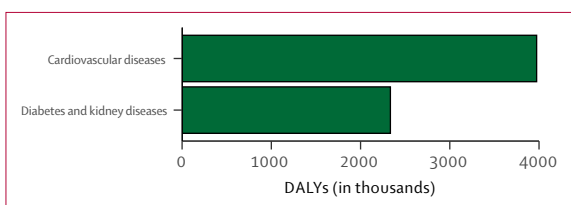
Figure 1: Composition of attributable global DALYs by constituent Level 2 causes for both sexes combined, 2019
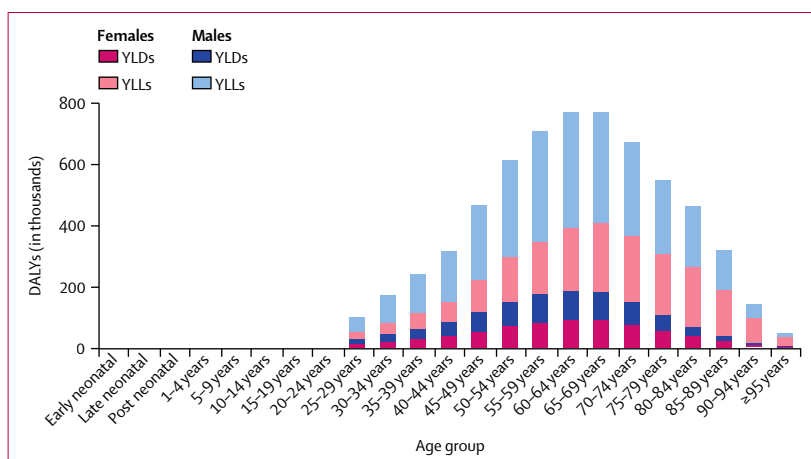
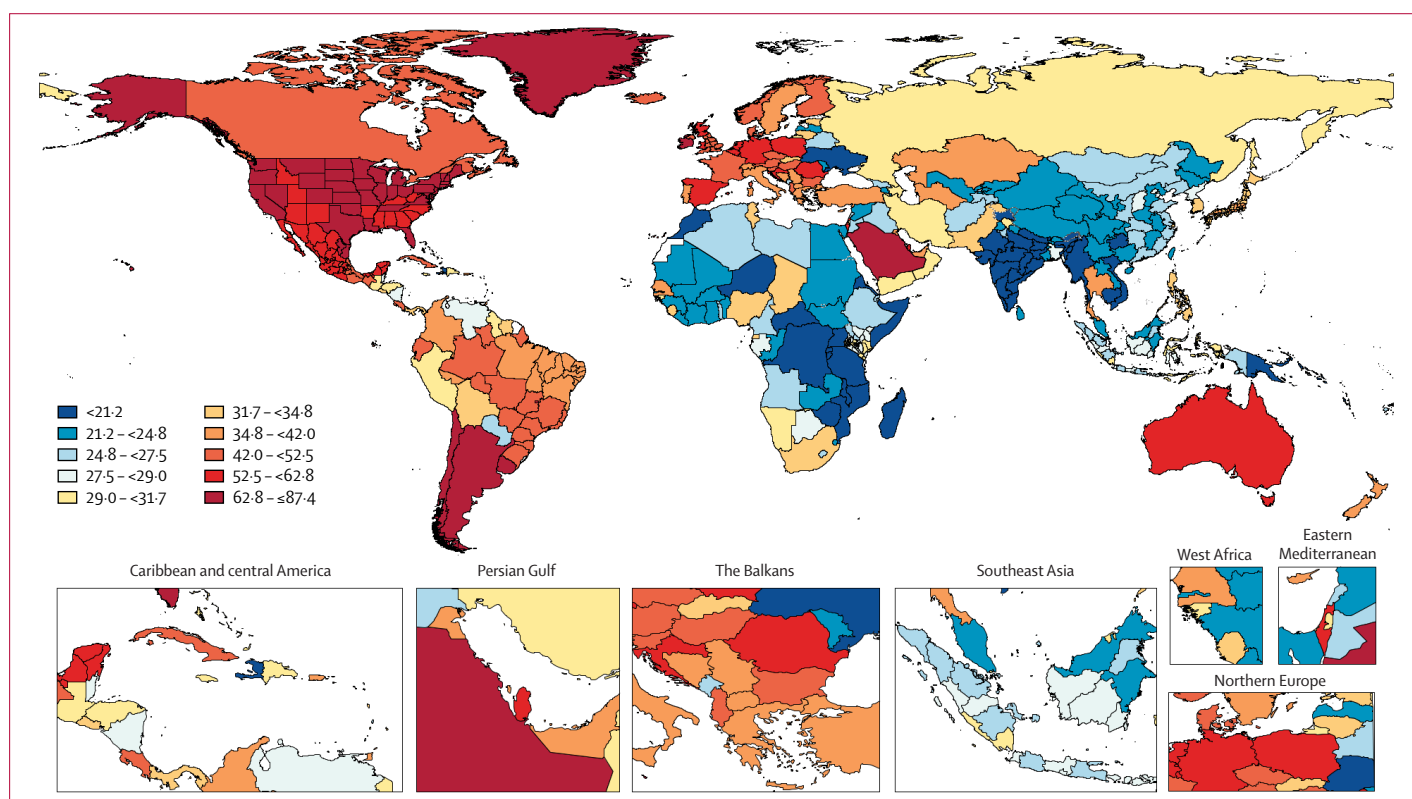*Figure 2:* Composition of attributable global DALYs by YLLs and YLDs, age group, and sex, 2019

Figure 3: Age-standardised all-cause SEV by location, both sexes combined, 2019
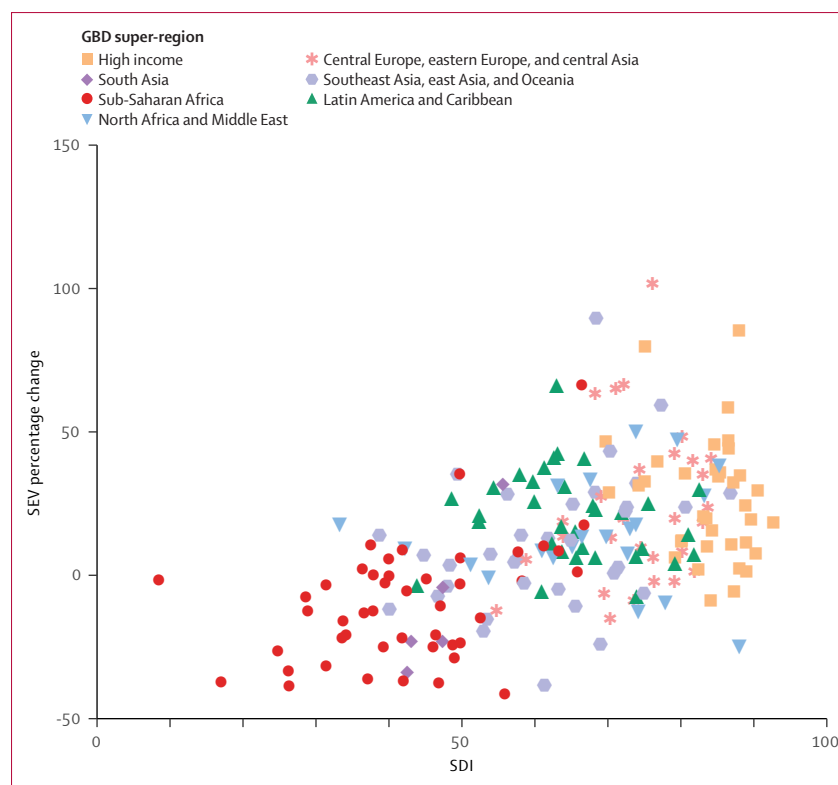

Figure 4: Percentage change in all-cause age-standardised SEV by SDI, both sexes combined, 1990–2019
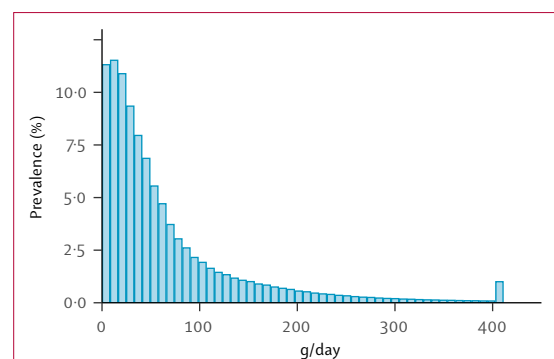

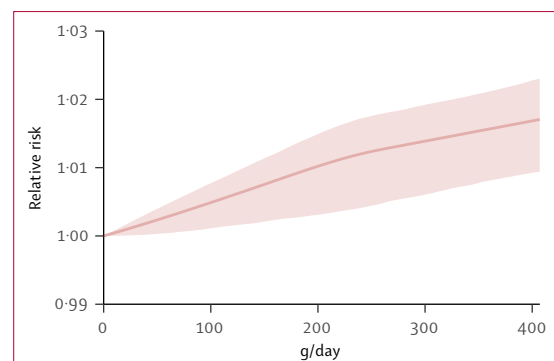*Figure 5:* Percentage of population exposed to risk factor, both sexes combined, 2019

Figure 6: All-cause mortality relative risk, both sexes combined, 2019