The global burden of sexual violence

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Agenda

1. Premise of the GBD Study
2. Measuring global burden of sexual violence
3. Results
4. Future directions

Global Burden of Disease Study

- Comprehensive assessment of health loss globally
- A burden of disease study…
  - Captures all forms of health loss (death, sickness, injury)
  - Covers all potential diseases, injuries, impairments, and risk factors
  - Facilitates comparisons between different types of health loss
- Creating comprehensive and comparable estimates (rather than focusing on segment of population or a specific disease/outcome)
- Sexual violence is one of the 350 causes of health loss that are estimated in GBD

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GBD is a global public good
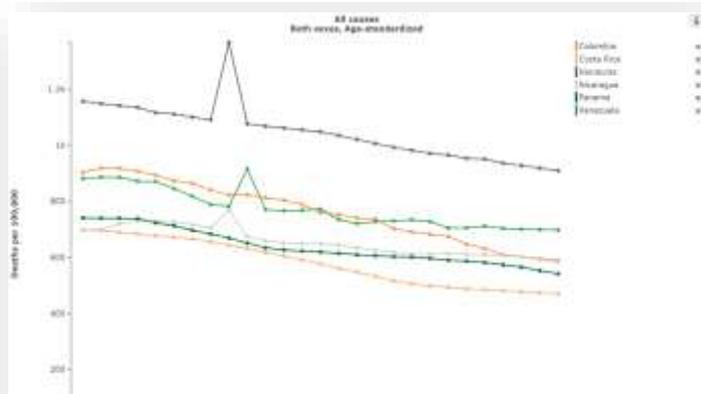
Visualization Tools

Database Query Tool

Country Profiles

Policy Briefs

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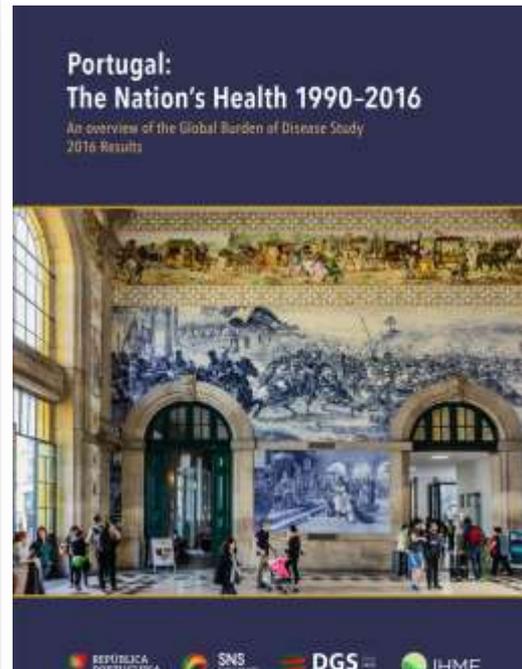
GBD is a global effort and is rapidly growing

3,824 collaborators
143 countries
2 territories

Legend:
- 0
- 1 - 5
- 6 - 20
- 20 - 60
- 61 - 200
- > 200

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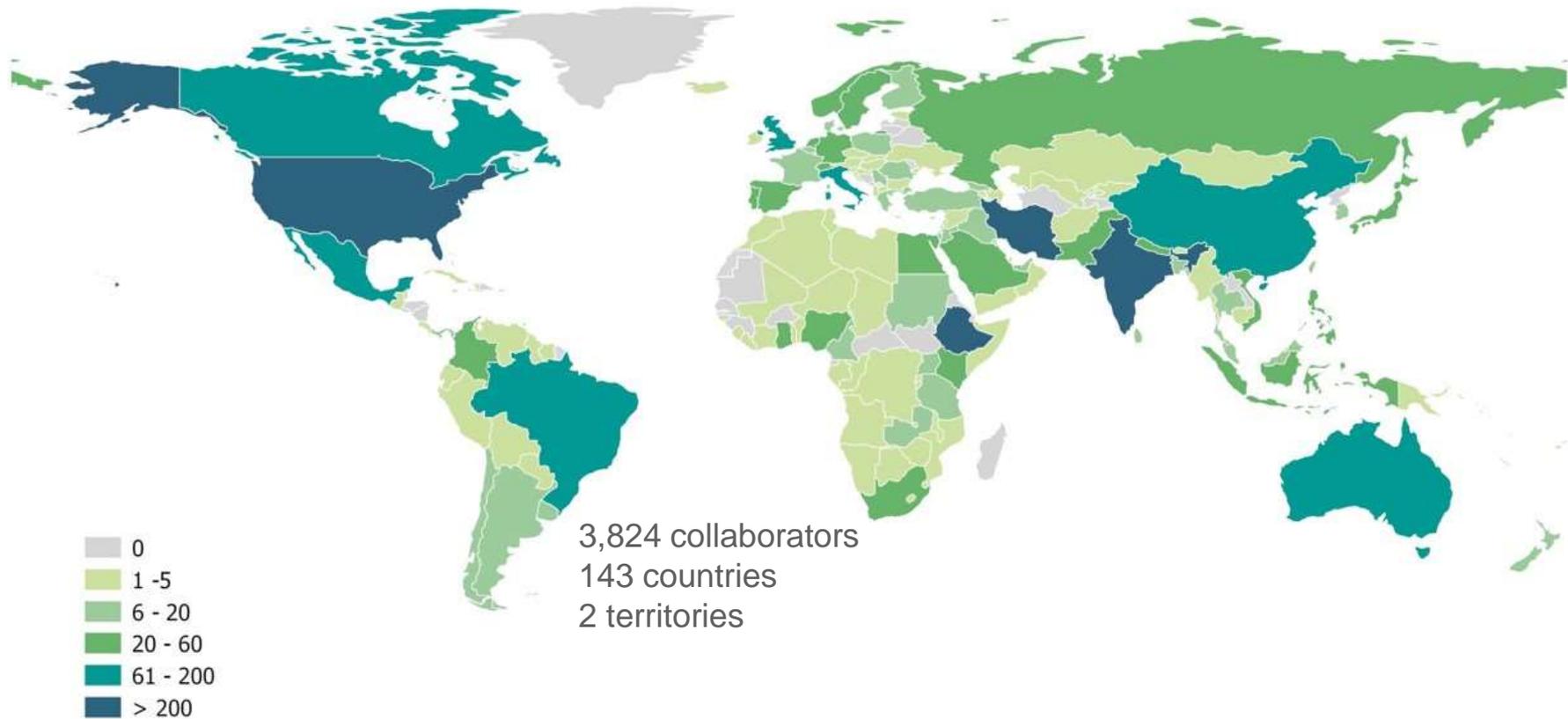
Study goal

Estimate the yearly prevalence of sexual violence, meaning the proportion of population that experienced at least one episode of sexual violence in the past year.

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Case definition

We defined sexual violence as any sexual assault including penetrative sexual violence (rape) and non-penetrative sexual violence (other forms of unwanted sexual touching).

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Data

- We conducted a systematic review for data sources in PubMed and in the Global Health Data Exchange (**GHDx**, ghdx.healthdata.org).

- Out of 195 countries in the GBD 2017 study, we identified **93 countries** which had data that could be used for our case definition with **263 total site-years** of data.

- Among these 93 countries, **19 out of 21** global regions had data.

- The majority of available data used in the subsequent modeling strategy were from health and demographic surveys such as Demographic and Health Surveys (**DHS**) and Reproductive Health Surveys (**RHS**)

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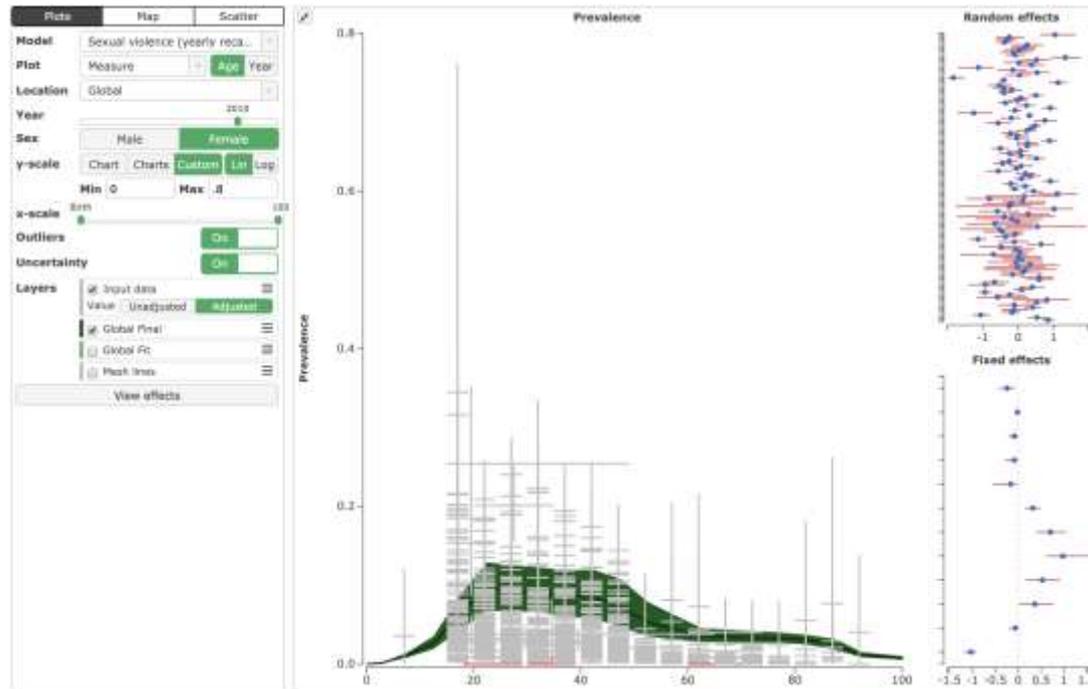
Modeling and imputation

- We used DisMod-MR 2.1, which is a Bayesian meta-regression tool for statistical epidemiology, to model the yearly prevalence of sexual violence.

- DisMod adjusted for types of survey questions and study design to account for potential biases in each source.

- Alcohol consumption was used as a country-level covariate to help inform geographical patterns.

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DisMod MR-2.1

- DisMod is a Bayesian meta-regression modeling tool
- Fitting models steps through geographical cascade
  - First fit all global data to form super-region prior
  - Fit super-region data to form regional prior
  - Fit regional data to form country-level prior
  - Fit country data to form subnational prior
- Analytical steps conducted across 1,000 draws to calculate uncertainty for final model results ("posterior")
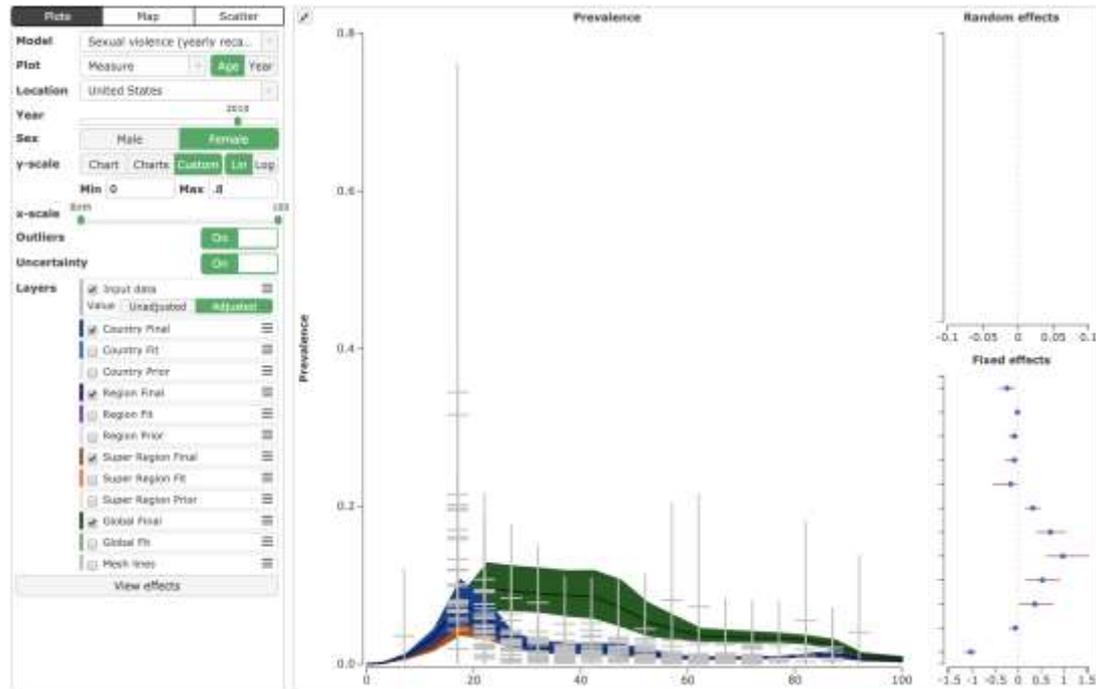
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Model fits

- Example, global, females, 2010

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Model fits

- Example, United States, females, 2010

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Model fits

- Example, Virginia, females, 2010

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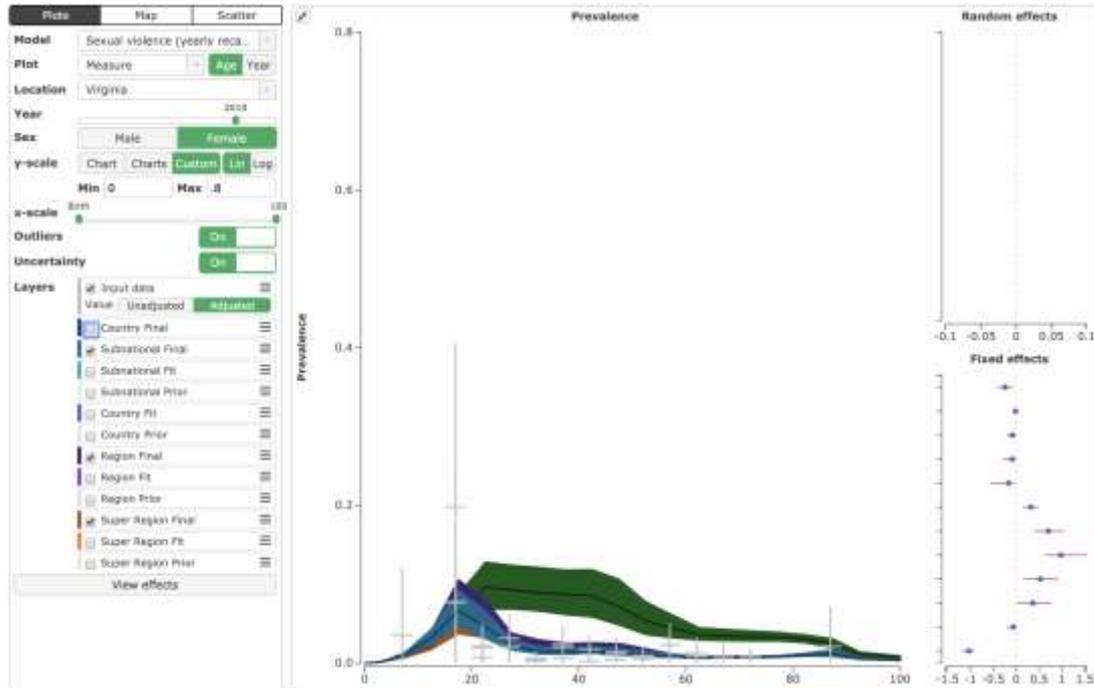
Global age pattern of prevalence, females, 2017

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Prevalence by region, females, 2017
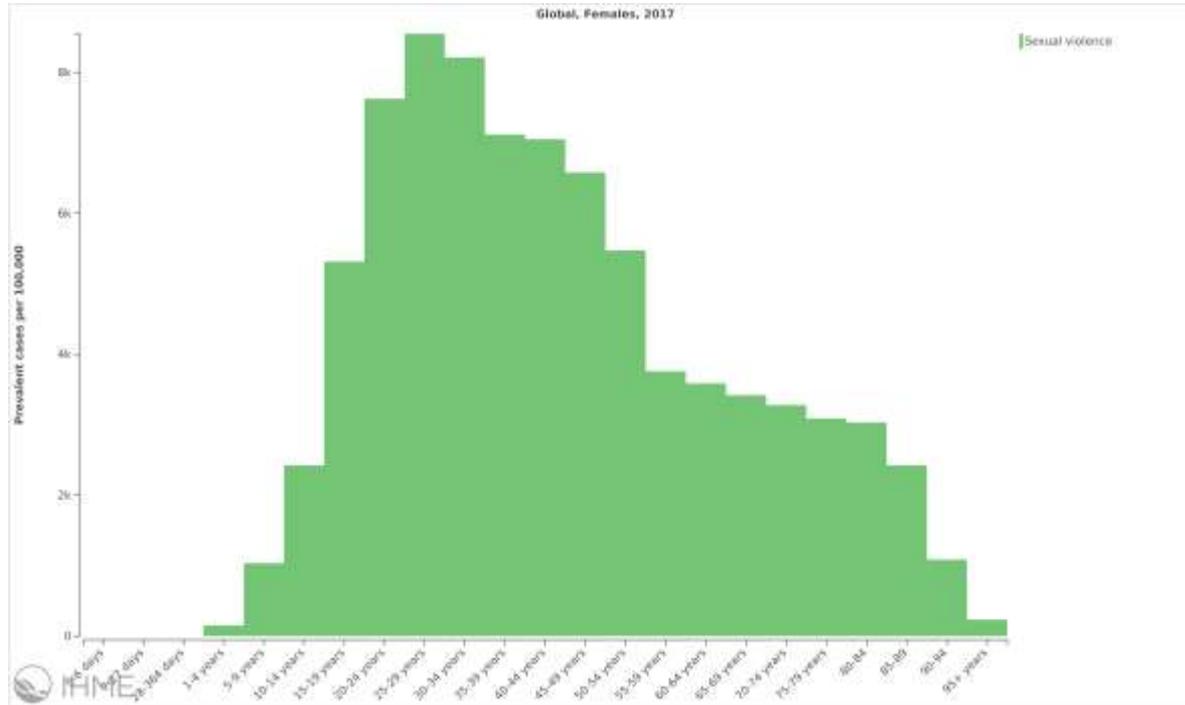
Females, Age-standardized, 2017
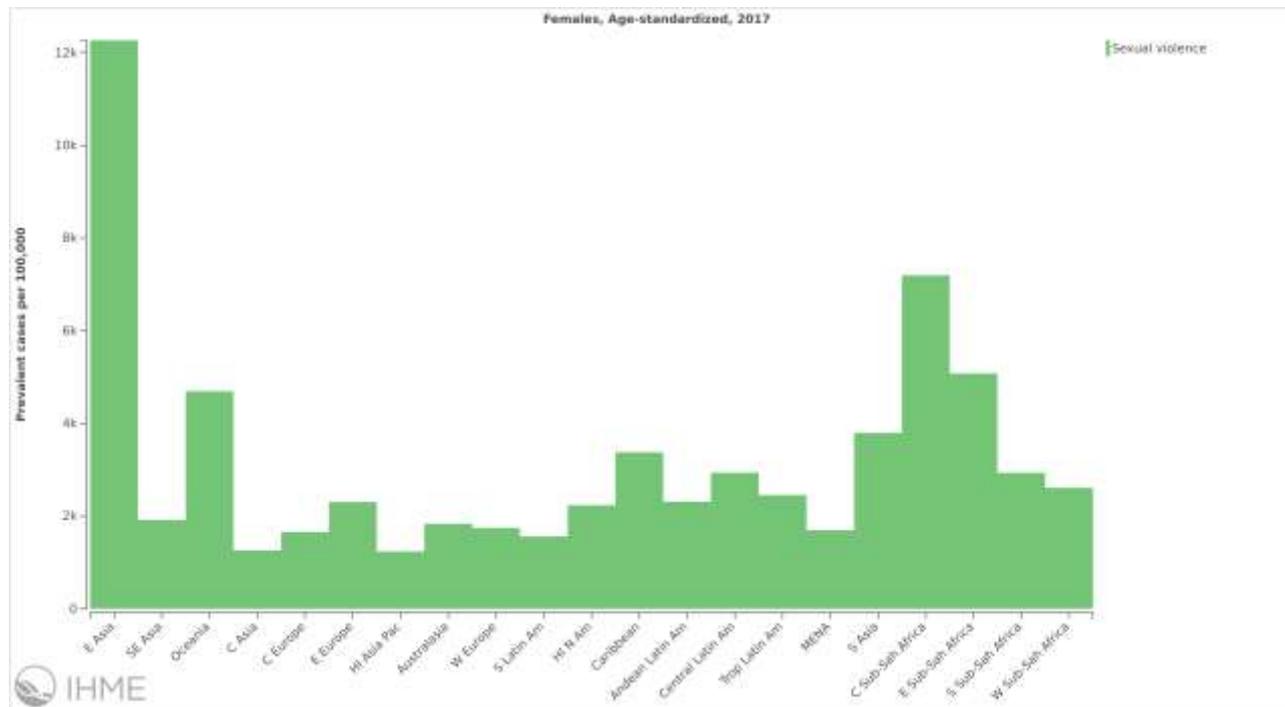
Prevalence by region, females, 1990 to 2017

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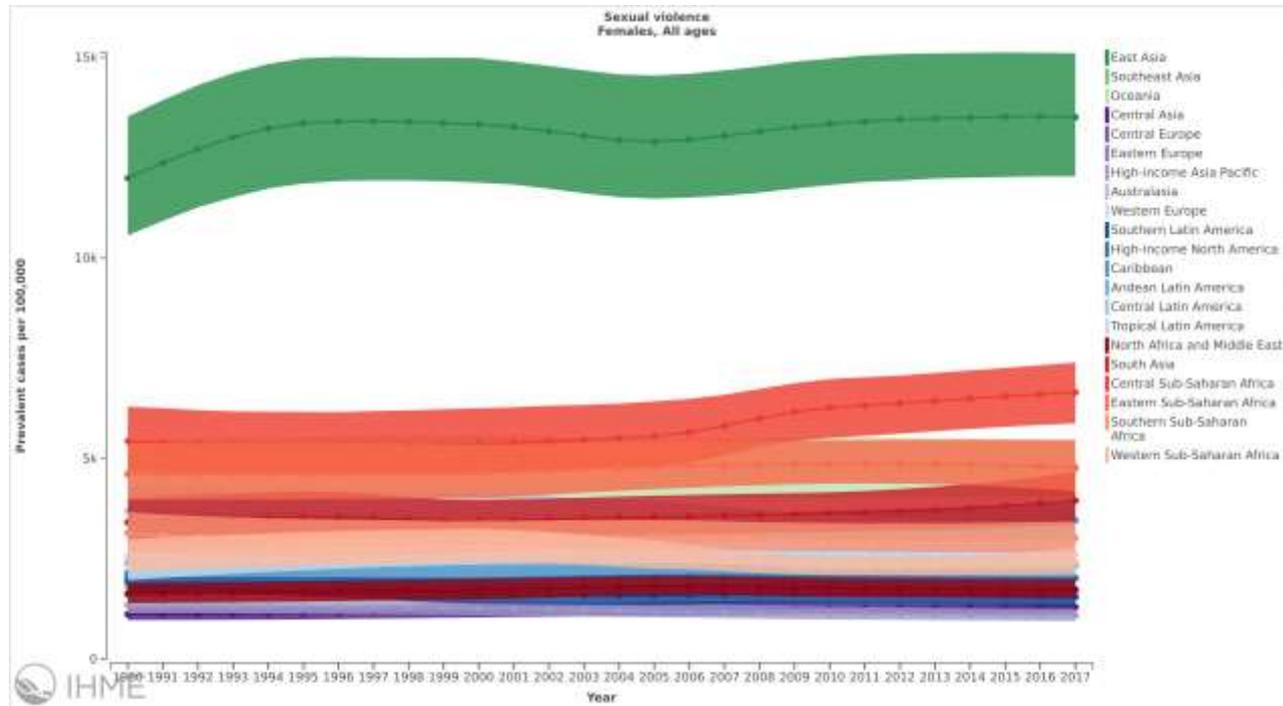
Further results

- Sexual violence estimates by age, sex, year, location are all available online

  https://vizhub.healthdata.org/gbd-compare/

- Model fits and data can be reviewed online

  https://vizhub.healthdata.org/epi

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Future directions

- Why the high estimates in East Asia?
  - High estimates in China are driven by women's health survey where respondents were interviewed in private, confidential setting
  - Not all survey modules specify confidentiality
  - Further investigation is needed to improve future data collection
- Measuring long-term disability
  - Sexual violence associated with increased risk of major depression, anxiety, self-harm, and substance use disorders
  - Incorporating long-term follow-up studies that measure relative risk can be used to estimate burden of these conditions attributable to sexual violence

Get involved

- The GBD Study welcomes new collaborators to join our research network to contribute to manuscripts, improving research methods, and adding data

http://www.healthdata.org/gbd/call-for-collaborators

Thank you

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  - Caitlin Hawley
  - Theo Vos
  - Christopher JL Murray
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