

INDICATOR ANALYSIS

FEMALE LIFE EXPECTANCY (AT BIRTH)

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FOR THE LANCET-SIGHT COMMISSION ON PEACEFUL SOCIETIES THROUGH HEALTH AND GENDER EQUALITY

How is this indicator calculated?	Life expectancy at birth is derived from life tables which are constructed by estimating the number of age-specific deaths in a time interval and dividing by the total population alive at a given point within that interval (1).
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GLOBAL TRENDS

What are the global patterns for this indicator?	Female life expectancy globally has steadily increased from 54 years in 1960 to 74 years in 2017 (2). While considerable progress has been made in closing the longevity differential between countries, large gaps remain among the richest and poorest countries (3).
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UTILITY

What does the indicator measure?	The average number of years a female newborn could expect to live, if she were to pass through life exposed to the sex- and age-specific death rates prevailing at the time of her birth, for a specific year, in a given country, territory, or geographic area (4).
What does it NOT measure - what does it miss?	This indicator does not measure the quality of life a female can expect. Moreover, risk of death is not uniform across the lifetime; life expectancy is an average (1).
If and how does the indicator relate to interface/relationship among health, gender and fragility/stability	Women generally live longer than males – on average by six to eight years. In fragile settings, these advantages are overridden by gender-based discrimination so that female life expectancy at birth is lower than or equal to that of males (4). Premature death directly or indirectly caused by conflict and fragility will be reflected in life expectancy, including child and maternal mortality.

AVAILABILITY

Sources for indicator (CRVS, DHS etc - include links)	<p>Data Collection</p> <ol style="list-style-type: none"> 1. Civil registration (preferred source); 2. Population census 3. Household surveys; (4). <p>Reporting</p> <ol style="list-style-type: none"> 1. World Bank Data Bank (country level and regional level 1960-2019): https://data.worldbank.org/indicator/SP.DYN.LE00.FE.IN 2. WHO's Global Health Observatory (country level and regional level from 2000-2019 in five year intervals): https://www.who.int/data/gho/data/indicators/indicator-details/GHO/life-expectancy-at-birth-(years) 3. World population prospects (country level and regional 1950-2020 in 5 year intervals): https://population.un.org/wpp/
Dates available	Data disseminated by the WHO provides estimates of life expectancy every five years from the year 2000 (4). Data is available from the World Bank with yearly estimates based on interpolation of world population prospect data, the most recent data reported is from 2019 (2).
Availability across geographic areas	Widely available in both WHO and World Bank databases, some values may be extrapolated where data are limited (2).
Availability in conflict affected settings	The World Bank Data Bank has data available between 1960-2018 for Yemen, South Sudan, Libya, Somalia, the DRC, Afghanistan and Syria. Data is also available in these countries from 1950-2020 in the World Population Prospects.

GRANULARITY	
<i>Disaggregation at national level</i>	
Data disaggregated by sex	N/A.
Data disaggregated by identity group (race, ethnicity)	No.
Data disaggregated by income	No.

Data disaggregated by citizenship	No.
Data disaggregated by migration background	No.
<i>Disaggregation at sub-national level</i>	
Data disaggregated by geographic region;	No.
Data disaggregated by identity group (race, ethnicity);	No.
Data disaggregated by income.	No.

SOURCES OF BIAS

What bias can exist with these data?	Complete and reliable mortality data are limited in low-income countries.
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VALIDITY

Clear and accepted international standards for indicator;	Life expectancy is a basic indicator of health and social development in the Minimum National Social Data Set endorsed by the United Nations Statistical Commission and the OECD/DAC core indicators and is one of the most frequently used statistics to compare development across countries (5).
Validity of measurement of indicator generally accepted;	Because life expectancy is calculated using mortality rates, it typically has high validity. However, validity will depend on the accuracy of the data source (6). The use of vital statistics is associated with higher validity compared to household surveys.

RELIABILITY

Reliability of indicator generally accepted;	Given the mathematical modeling of the indicator and the use of vital statistics, the results should be consistent; however, it will depend on the quality and frequency of the data collected.
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COMPLEXITY

Enables analysis across time and location.	Depending on the frequency of the data gathered, it can provide an opportunity for comparisons across time and location.
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OTHER REFLECTIONS	
Are indicator values imputed/modelled?	<p>For WHO estimates: The WHO identifies two groups of states for which inputs and estimation methods are different:</p> <p>1-Vital Registration countries which have high quality data. Life tables for these countries are mostly derived from the data with some adjustments done for completeness and missing values.</p> <p>2-Non Vital Registration countries, which are the remaining countries. Life tables for these countries are based on modelling.</p> <p>A description of the methods and data used to derive life tables for each country is provided in the Appendix of the WHO's life table methods document and is described as a "qualitative guide to uncertainty" (7). <i>Uncertainty bounds are not provided with estimates due to challenges in uncertainty quantification. As such, caution should be exercised when comparing values from Non-Vital Registration countries.</i></p> <p>For World Bank and World Population Prospects estimates: The World Bank specifies where data is sourced for each country on its Databank (2). Most values are derived from the United Nations World Population Prospects estimates which model and extrapolate some of their values and offer a description of country specific methods and data sources used to derive estimates in their metadata documentation (8). Annual data series used by the World Bank from the United Nations Population Division's World Population Prospects are interpolated data from five-year period data (2). <i>Uncertainty bounds are not provided with estimates. As such, the United Nations World Population Prospects metadata documentation should be consulted to see methods and data used to derive country specific estimates prior to analysis. Caution should be exercised when comparing model derived values that are based on limited data.</i></p> <p>Note: In the metadata documentation, indirect estimation refers to "any estimation method that depends upon models or uses consistency checks, or indeed uses conventional data in an unconventional way" (9).</p>

References

1. Ortiz-Ospina E. “Life Expectancy” – What does this actually mean? [Internet]. Our World in Data. 2017. Available from: <https://ourworldindata.org/life-expectancy-how-is-it-calculated-and-how-should-it-be-interpreted>
2. The World Bank. Life expectancy at birth, female (years) | Data [Internet]. The World Bank DataBank. Available from: <https://data.worldbank.org/indicator/SP.DYN.LE00.FE.IN>
3. United Nations. World population prospects 2019: highlights. Department of Economic and Social Affairs, Population Division. 2019;
4. WHO. Life expectancy at birth (years) [Internet]. The Global Health Observatory. Available from: [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/life-expectancy-at-birth-\(years\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/life-expectancy-at-birth-(years))
5. WHO. An overarching health indicator for the Post-2015 Development Agenda: Brief summary of some proposed candidate indicators [Internet]. 2014. Available from: https://www.who.int/healthinfo/indicators/hsi_indicators_SDG_TechnicalMeeting_December2015_BackgroundPaper.pdf
6. Pan American Health Organization. Health Indicators: Conceptual and operational considerations [Internet]. 2018. Available from: <https://iris.paho.org/handle/10665.2/49056>
7. WHO Division of Data, Analytics and Delivery for Impact. WHO methods and data sources for life tables 1990-2019 [Internet]. WHO; 2020. Available from: https://www.who.int/docs/default-source/gho-documents/global-health-estimates/ghe2019_life-table-methods.pdf?sfvrsn=c433c229_5
8. UNDESA. World Population Prospect 2019: Data Sources [Internet]. United Nations Department of Economic and Social Affairs; 2019. Available from: <https://population.un.org/wpp/Download/Metadata/Documentation/>
9. UN DESA. Indirect techniques for demographic estimation. Vol. 81. United Nations Department of Economic and Social Affairs; 1983.