Mortality by children ever born

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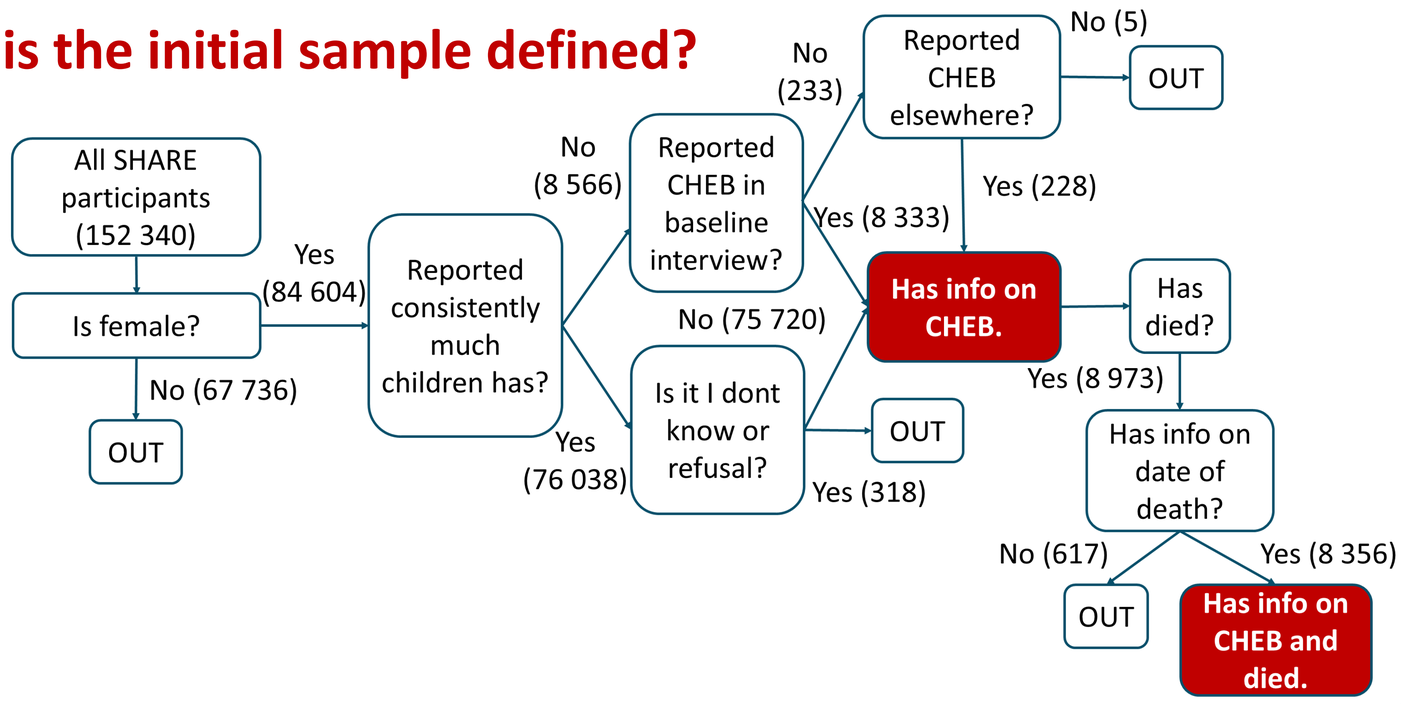
How is the initial sample defined?



Is SHARE data suitable for mortality analysis?

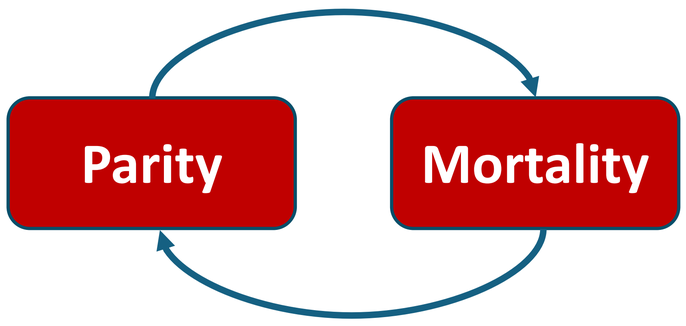
It depends on the country. Life expectancy estimates for Germany, France, Switzerland, and Spain are closely aligned with data from the HMD. By "closely aligned," we mean that the estimates differ by less than 3 years. Therefore, the analysis focuses on these countries, reducing the sample size to 17,263 individuals, of which 10% passed away between 2005 and 2019.

What is the difference in life expectancy of females by CHEB?

Table shows female life expectancy estimates for selected ages by children ever born. The life tables by parity were fitted using most important mortality models. Only results for the two best performing models are shown. The best performing models were selected by AIC.

		Age 50	Age 60	Age 70	Age 80
Kannisto model	No children	32.6	24.4	17.2	11.2
	1-2 children	34.7	25.5	17.2	10.5
	3-4 children	35.0	25.7	17.3	10.5
	5+ children	31.6	22.8	15.2	9.4
Gompertz model	No children	32.6	24.5	17.3	11.1
	1-2 children	34.7	25.7	17.5	10.6
	3-4 children	34.8	25.7	17.5	10.5
	5+ children	31.3	22.9	15.4	9.4

But of course:



Women with 1-4 children clearly have a mortality advantage at age 50. However, this benefit diminishes later in life. Could this be because women who remain childless due to selection bias tend to die prematurely, while those who are childless for other reasons generally survive longer then women with 1-4 children? Contrary to that, women with five or more children continue to face disadvantages even into the oldest age groups.

What is the difference in influence of key social determinants of mortality by parity?

To address this question, we used causal pies (sufficient cause models). These models allow to calculate the population attributable fraction (PAF), which represents the proportion of deaths that could be prevented if an intervention reduced the determinants to a target level. Additionally, we compute causal pie weights (CPW), which reflect the proportion of individuals who develop the outcome due to a synergy of determinants. We calculated both measures for subgroups of women by parity to examine whether the influence of mortality determinants varies by the number of children ever born. The results are shown on the right side of the poster.

What is the conclusion?

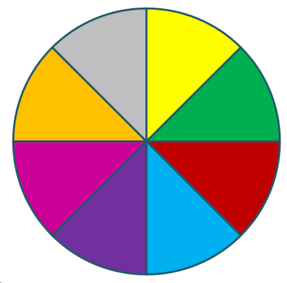
The mortality advantage observed in women with 1-4 children appears to diminish later in life. Across all cohorts and parities, living without a partner, low education, and low income were necessary factors for more than half of the deaths, with the first two factors being particularly prominent among women with no children or 3+ children. In the younger cohort, the interaction between education and cohabitation plays a significant role. Overall, social conditions tend to have a greater impact on women with extreme parities.

Sources: **Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 1-8. SHARE-ERIC.**

Data accessed via SHARE Project; **Liao, S. F., & Lee, W. C. (2010)**. Weighing the causal pies in case-control studies. *Annals of epidemiology*, *20*(7), 568-573.; **Liao, S. F., Yang, H. I., Lee, M. H., Chen, C. J., & Lee, W. C. (2012).** Fifteen-year population attributable fractions and causal pies of risk factors for newly developed hepatocellular carcinomas in 11,801 men in Taiwan. *PLoS One*, *7*(4), e34779.; **Lee, W. C., & Wu, Y. C. (2023)**. Disease attribution to multiple exposures using aggregate data. *Journal of Epidemiology*, *33*(8), 405-409.; **Pascariu, M. D., & Canudas-Romo, V. (2020).** Package 'mortalitylaws'. . *Mortalitylaws: Parametric Mortality Models, Life Tables And HMD*.; **HMD. Human Mortality Database**. Max Planck Institute for Demographic Research (Germany), University of California, Berkeley (USA), and French Institute for Demographic Studies (France). Available at www.mortality.org (data downloaded on [15. 09. 2024]).

How to read the plots?

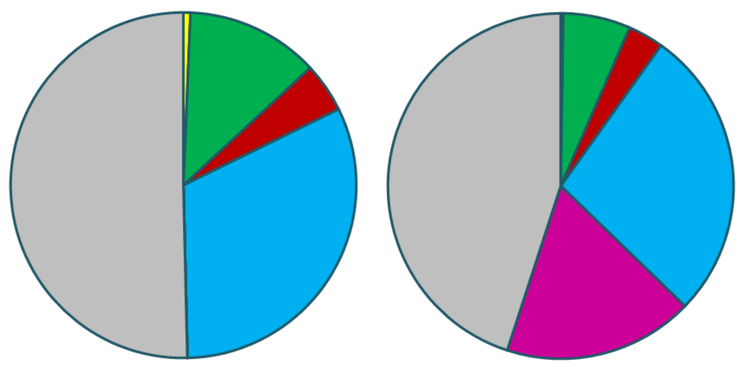
The figures display CPW, which can be interpreted as the proportion of deaths that were contingent upon the presence of specific risk factors, or their interaction.



- deaths, that happen due to living without a partner, with low education and income
- deaths, that happen due to living without a partner
- deaths, that happen due to low income
- deaths, that happen due to low education
- deaths, that happen due to living without a partner and low income
- deaths, that happen due to living without a partner and low education
- deaths, that happen due to low income and education
- deaths, that happen due to other factors

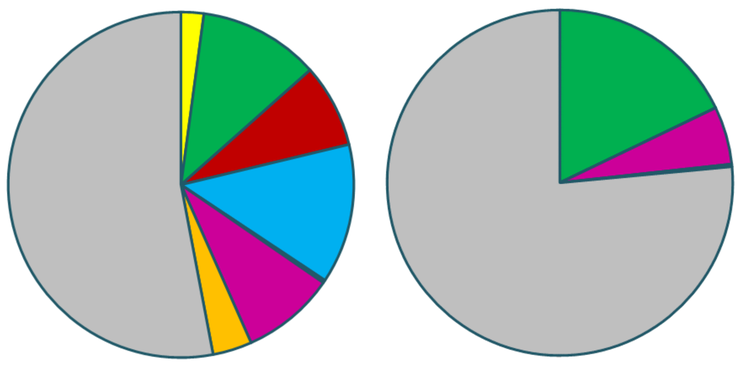
Women with 0 children

Born 1920-1934 | Born 1934-1950



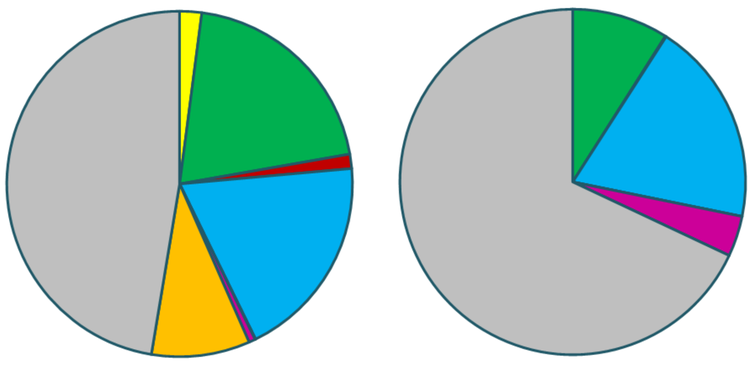
Women with 1 child

Born 1920-1934 | Born 1934-1950



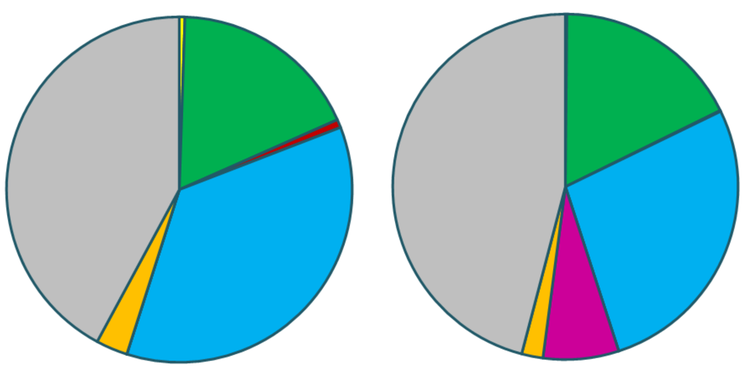
Women with 2 children

Born 1920-1934 | Born 1934-1950



Women with 3 children

Born 1920-1934 | Born 1934-1950



Women with 4 children and more

Born 1920-1934 | Born 1934-1950