

Why do women live longer than men? Literature Review

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Factors	Paper	Notes
Biological	Drevenstedt et al (2008)	-"Biological differences [between male and female infants] are highly sensitive to both the medical-technical and epidemiological contexts." "Males more susceptible to infections and conditions with prematurity and development [...]" "Strong association of prematurity with later lung dysfunction and cardiovascular risk."
	Trovato and Heyen (2006)	-[G7 countries] "In the six countries where the sex gap has narrowed, this has resulted primarily from reduced sex differences in circulatory disease mortality, and secondarily from reduced differences in male and female death rates due to accidents, violence and suicide combined."
	Austad (2006)	-Female longevity (two X chromosomes) superiority is common in nature, but not universal. True in chimpanzees (see Hill et al (2001)) and rats ¹ . Not the case in guinea pigs, mice ² , and golden hamsters. Mortality-Morbidity Paradox: despite lower female mortality at almost all ages, women have higher rates of physical illness, more disability days, more doctor visits, and hospital stays than men do.
	Austad and Fischer (2016)	-"Humans are the only species in which one sex is known to have a ubiquitous survival advantage."
	Smith and Warner (1989)	-"The genotype may be a significant determinant of longevity in humans even if it does not appear to be so in non-human animals, because causes of death are different. Determinants of longevity are based on susceptibility or vulnerability to the causes and diseases of mortality, and these differ in different species."
Behavioural ³	Preston and Wang (2006)	-[paper covers period 1948-2003] "The cohort with the maximum excess of male mortality was born shortly after the turn of the century. 3 separate sources ⁴ suggest the turnaround in sex mortality differences is consistent with sex differences in smoking by cohort."
	Beltran-Sanchez et al (2015)	-"Excess adult male mortality is clearly rooted in specific age groups, 50-70, and the sex asymmetry emerged in cohorts born after 1880 [...]" Heart disease is the main condition associated with increased excess

¹ Study has shown male rats of the Wistar, F344, BN, F344BNF1 genotype live longer than their female counterparts.

² Female mice of the C57BL/6, DBA/2, B6D2F1, B6C3F1 tend to live longer than male mice.

³Focus on lifestyle, including men's higher rates of tobacco and alcohol use. Behavioural theories have also included differential use of health care and differential health and illness behavior (Mechanic, 1976; Verbrugge, 1990). It has been observed that women are more sensitive (perceptually) and more attentive (behaviourally) to their own health needs (Verbrugge, 1985); this greater sensitivity can result in more symptom perception and reporting.

⁴ US Census Bureau for the National Cancer Institute in 1955, 3 additional National Health Interview Surveys through 2001, and lung cancer death rates (proxy for smoking prevalence) sourced from the US Census Bureau's National Centre for Health Statistics.

	<p>Wingard (1984)</p> <p>Retherford (1972)</p>	<p>male mortality for those born after 1900. [...] Smoking attributable deaths account for 30% of excess male mortality at ages 50-70 for cohorts born in 1900-1935. [...] After accounting for smoking, substantial excess male mortality at ages 50-70 remained, particularly from cardiovascular disease.”</p> <p>-Sex differences in morbidity and mortality are partially attributed to sex differences in risks acquired through social roles and behaviors, such as reporting, illness and help-seeking behaviors.⁵ Study showed men with higher ‘femininity’ scores had a lower risk of death from coronary heart disease (CHD), suggesting that men with more stereotypical ‘masculine’ behavior were at higher risk of premature mortality (see Hunt et al (2007))</p> <p>-US gap at birth increased by 3.43 years between 1900 and 1960 and decreased maternal mortality accounts for 6 months (14%) of the gap.</p>
Environmental ⁶	<p>Oksuzyan et al (2008)⁷</p> <p>Cullen et al (2016)</p> <p>Bell et al (1990)</p> <p>Goldin and Lleras-Muney (2018)</p>	<p>-“Men engage more frequently in higher risk-taking behaviors, such as cigarette smoking, alcohol consumption, more frequent use of psychoactive substances, and less safe driving, which all increase the risks of CHD, lung cancer, chronic obstructive pulmonary diseases, liver cirrhosis, and accident fatalities in comparison with women.”</p> <p>-“As societies develop, the M/F survival first declines and then increases.” Greater female resilience to mortality under socio-economic adversity after maternal mortality declines to relatively low levels i.e. in 1900-1940 in most developed countries. The M/F ratio continues to decline even after maternal mortality decline is accounted for (<i>not explored further in paper</i>).</p> <p>-Increased occupational hazards experienced by men (1980-1985)</p> <p>-“Females, more so than males, were greatly advantaged as children and as adults by the sharp reduction in infectious disease in the early twentieth century.”</p>

⁵ Gender stereotypes and related social norms made it culturally more acceptable for women to be sick, report more health problems and get advice about illness, suggesting that sex differences in health could be partially attributed to gender role expectations and responsibilities. Several studies found that women reported significantly higher mean numbers of symptoms ([Ladwig et al \(2000\)](#)), women reported more trivial and often medically unexplained symptoms ([Verbrugge et al \(1987\)](#)) and all types of symptoms ([Kroenke et al \(1998\)](#)).

⁶ Sociocultural and environmental theories concentrate on issues such as the societal and cultural pressures on men to engage in risk-taking and self destructive behavior (Smith, 1993). Likewise, women have acquired risks due to stresses, unhappiness, and multiple and conflicting role pressures (Frankenhaeuser, 1991; Verbrugge, 1990).

⁷ Authors also mention the methodological challenges in studies of sex differences in health and mortality: e.g. In the ‘Longitudinal Ageing Study of Amsterdam’ men tended to under-report health problems, whereas women over-reported malignancies and arthritis (see [Kriegsman et al \(1996\)](#)).