

The vulnerable sex

Being male is one of the largest demographic risk factors for early mortality.

Professor Randolph Nesse and **Daniel Kruger** report



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One demographic group in the UK suffers greatly disproportionate mortality. Being a member of this group increases the risk of dying throughout life from most diseases, and nearly triples the chances of dying in early adulthood.

This group is, of course, the vulnerable sex – men. Everyone who has visited a nursing home realises that the average lifespan for men is shorter than that for women. Few realise, however, that the magnitude of the excess mortality – or that men have a higher mortality rate than women throughout life.

The difference in mortality rates (percentage of individuals dying in an age interval) is best visualised by calculating the ratio of male mortality rates to female mortality rates (M:F MR), then graphing this across the lifespan. Figure 1 shows the higher mortality rates for men than women at all ages.

The difference is modest but present in childhood, peaks in early adulthood where 2.5 men die for every woman who dies, then gradually declines. Of premature deaths (before age 50), about two thirds are men. Being male is one of the largest demographic risk factors for early mortality.

Why are men so much more vulnerable to early death than women? This question needs two kinds of answers, one about what kills men more, and another about why they are vulnerable.

As shown in Figure 2, much of the rapid increase at adolescence is from accidents, suicide and homicide, but throughout life, men suffer excess mortality from most causes. While the ratios are not so dramatic late in life, the effects are more profound because that is where most mortality occurs.

Comparable data from dozens of other countries show the same general pattern of elevated mortality rates for men across the lifespan, with a sharp peak at adolescence.

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The magnitude and cross-cultural consistency of these differences surprise many people. After all, male stereotypes are vigorous and competitive. But these stereotypes reflect the very male characteristics that contribute to excess mortality. Behaviourally, males of many

species are more competitive and take more risks, for the simple reason that such traits increase the average number of offspring more for males than females. Physiologically, sexual selection has also left men more vulnerable to infectious and degenerative diseases, because investments in tissue protection and repair offer proportionately more benefits to women than men.

Of course, none of these factors act independently; every trait results from interactions of genes and environments. This is demonstrated by dramatic differences in the M:F MR across time and cultures.

One hundred years ago, sex differences in mortality were much smaller, simply because so many people were dying from equal opportunity

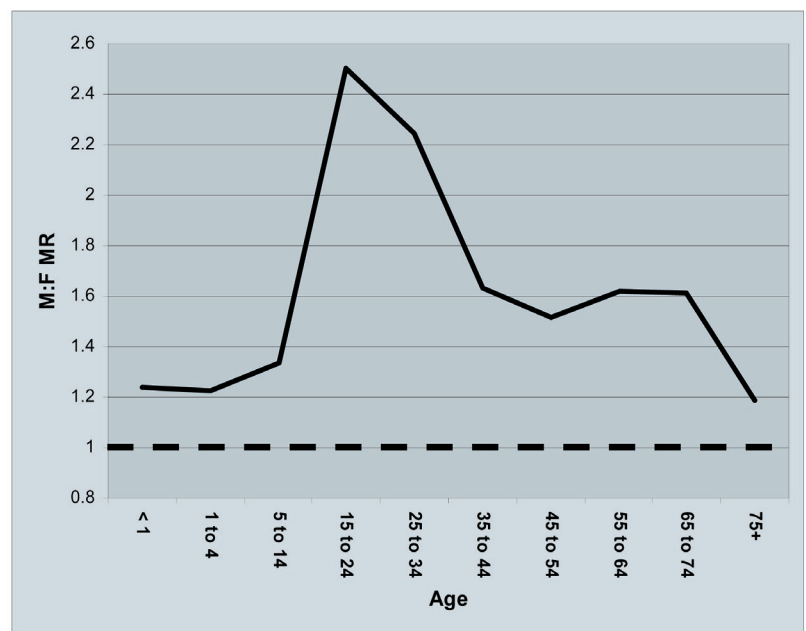


Figure 1. Male MR ÷ Female MR by Age UK 2002. The dashed horizontal line is at a M:F MR of 1.0, where mortality rates are equal. All points above this line indicate greater male than female mortality rates.

infections. The increase in the M:F MR at older ages in the second half of the past century may reflect increased smoking and increased dietary fat.

Currently, M:F MRs vary considerably by culture. They are highest in Russia and Colombia and lowest in Southeast Asian countries, with UK rates somewhat below the mean. Greater inequality and associated competition may be related to greater mortality discrepancies; being male is the strongest demographic predictor of early mortality in the USA.

A comparison between USA and UK data is telling and represents an opportunity for public health. The sex difference in mortality from homicides is much higher in the USA (peaking at 6:1 vs. 2:1 in the UK). However, the M:F MR for accidents is far higher in the UK, peaking at 5:1 in mid-life (vs. 3:1 in the USA), and the ratio for cardiovascular deaths is also far higher in the UK.

What can be done? Opportunities for improving society begin with recognition of the problem, and efforts, just now begun for male mortality, to get the facts straight. There is also a need to identify the sources of cultural differences and tailor public health campaigns in the UK to specific causes in cultural groups.

The broader evolutionary perspective also offers opportunities, however. Far from suggesting that men are doomed to die young, an evolutionary approach recognises how patterns of male competition change as social structures change. Recent suggestions that public policy decisions should aim at human happiness as well as GDP are welcome, and they may offer opportunities for structural changes that should decrease the disproportionate mortality experienced by men. ■



Norwegian daredevil Eskil Roenningsbakken, balancing on chairs on the top of the SAS Radisson Hotel, 86 metres above Copenhagen in 2002. High-risk behaviour among young men substantially increases their mortality rate.

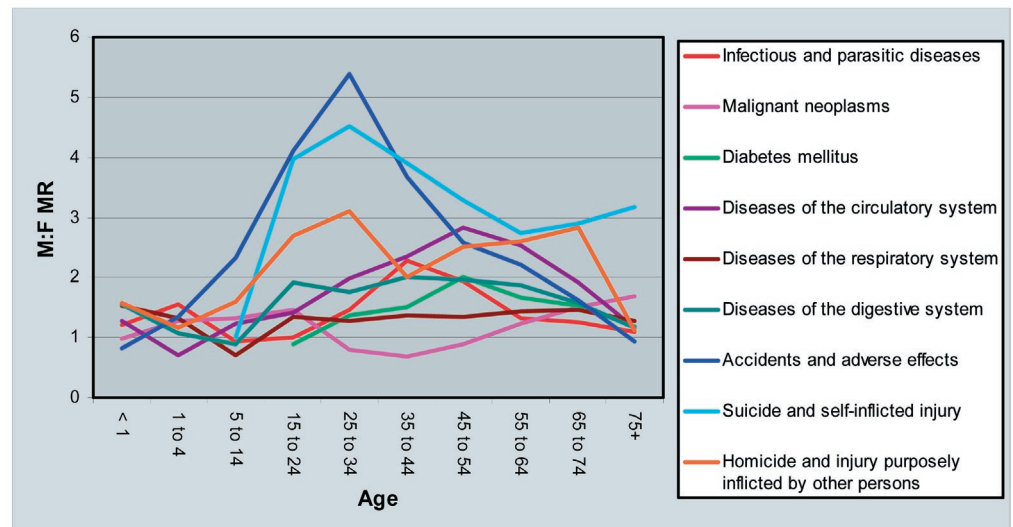


Figure 2. Male Mortality ÷ Female Mortality by age and cause, UK 2002.