Ratio of males to females in China

Is still high, but only partly because of the one child policy

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China's one child policy is one of the most controversial social policies ever implemented. The policy reduced the fertility rate and has helped raise living standards for most people in China, but it has been heavily criticised for violating human rights and having many negative social consequences, one of which is an excess number of male births.[1]

In the linked study, Zhu and colleagues assess trends and geographical patterns in the sex ratio at birth and in people under 20 years of age in China, in addition to the influence of sex selective abortion and the one child policy.[2] They find that in 2005 China had more than 32 million excess males under the age of 20, and over 1.1 million excess male births. The authors present a discouraging picture of very high and worsening male to female ratios in the reproductive age group in China for the next two decades.

By showing that sex ratios for different age groups and places of residence vary with how the one child policy is implemented, the study confirms that the policy is partially responsible for the current imbalance in the sex ratio in China. However, given that the policy is not an independent factor, the extent to which it accounts for the high male to female sex ratio is uncertain.

China, like other East Asian countries, has a cultural tradition of a preference for sons. In these countries, people think that only sons can continue the family line, and sons—rather than daughters—are responsible for their parents in illness and old age. Although it is well documented that this preference for sons is the cause of the high male to female ratio,[3] the preference itself does not directly lead to this high ratio. A preference for sons can affect the sex ratio only in the presence of widespread access to sex selective technology (for example, ultrasound) and a reduced fertility rate (by choice or by coercion). When large family size is the norm and access to contraception is limited, a preference for sons increases the fertility rate but has little effect on the sex ratio. When family sizes are small, irrespective of whether this is voluntary or compulsory, a preference for sons encourages the use of sex selection to ensure the desired number of sons are born.[4]

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Hear Therese Hesketh talk about China's one-child policy at www.bmj.com/podcasts

The tradition of a preference for sons was mainly responsible for China's high birth rate in the past, when large family size was normal and access to contraception and sex selective measures was limited. The one child policy was introduced to bring the high rate of population growth under control through fostering a culture of voluntarily having a small family. However, the policy itself is only partially responsible for the reduction in the total fertility rate. From the 1970s, before the policy was imposed, China saw an emerging culture of having a small family as a result of social and economic developments. The most dramatic decrease in the fertility rate, from 5.9 to 2.9, occurred between 1970 and 1979.[5] After the one child policy was introduced in 1979, the rate fell more gradually, and since 1995 it has stabilised at around 1.7.[6] It has therefore been suggested that China's total fertility rate would have decreased even without the one child policy.[1] This large reduction in the fertility rate, whether by choice or by coercion, has inevitably increased the male to female ratio because of the preference for sons and the availability of contraception and sex selective measures. These changes in the sex ratio would probably have occurred even without the one child policy, but their effects would probably have been less serious.[7] This idea is supported by neighbouring countries in East Asia, which have no restriction on family size but have the same preference for sons as China; these countries have some of the lowest total fertility rates in the world but also have extremely high ratios of boys to girls at birth.[1]

China's high ratio of males to females would have persisted if attitudes towards female offspring had not changed.[7] Encouragingly, it seems that the tradition of preferring sons is shifting with the socioeconomic changes that come with urbanisation and industrialisation. For example, more and more young women in the cities claim to prefer a small family, and—more importantly—they have no preference for one sex over the other.[8] Indeed, Zhu and colleagues report a decrease in the male to female ratio for the 2005 cohort,[2] which may indicate the beginning of a reduction in the male to female sex ratio for the future.

China can learn much from its neighbouring countries about reversing the worsening sex ratio. Korea was the first country to report very high male to female ratios at birth because of the preference for sons and the widespread use of sex selective technology. In 1992, the male to female ratio for fourth births in South Korea was an astounding 229:100, in sharp contrast to the overall ratio of 114:100. From the mid-1990s, however, a public awareness campaign warning of the dangers of such distortion, combined with strictly enforced laws forbidding sex selection technology, has led to a decline in the male to female ratio from 116:100 in 1998 to 110:100 in 2004.[4]

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Care of older people in China

Daunting challenges lie ahead in providing chronic care for the aged

RESEARCH, p 924

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In the linked study, Dupre and colleagues assess the relation between levels of frailty and type of death in a prospective cohort study of older adults in China, using recent data from two waves (2002 and 2005) of the Chinese longitudinal healthy longevity survey.[1] The study found that higher levels of frailty at baseline significantly increased the overall risk of death in the subsequent three year period, as would be expected. More interestingly, frailty had varying effects on people's dying experiences, mainly with respect to sex and age. In general, elderly women had a higher risk of mortality relative to men as frailty increased. Although both elderly men and women with the highest level of frailty (ranked in upper quarter of the frailty index) were most likely to have 30 or more days bedridden before death, elderly women had less pain and discomfort (as reported retrospectively by next of kin) than men before death. Furthermore, the oldest people (90 and over) were more likely to die after fewer (<30) bedridden days and without pain and discomfort than younger ones.

Although these findings are mostly consistent with previous reports from developed countries,[2-4] Dupre and colleagues' study is unique and important. Little research on disability and mortality has been done in the developing world, partly because of the lack of reliable and systematic data. The study looks at a large nationally representative sample of older adults in China and is the first of its kind in China. It supports the validity of the frailty index and its usefulness as a robust predictor of mortality, and


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perhaps of other adverse health outcomes as well.

The current evidence has several important implications, which have received only scant attention in this study and elsewhere in research on ageing, particularly in China. The frailty index is a comprehensive amalgamation of scores of health related variables, essentially based on the prevalence of chronic disabilities in older people. As the study by Dupre and colleagues shows, this index—which reflects cumulative health deficits—can be used as an accurate marker of morbidity and disability in older people. Many developing countries including China face the challenge of monitoring the frailty of their increasingly ageing populations and coping with the burden of chronic disease. As such burdens inevitably grow in the aged population, the public health implications of the frailty index, as properly measured in this study and elsewhere,[5] will become increasingly important.

A related challenge that China and similar societies will soon face is how to reform and gear their healthcare systems, which are currently focused on managing acute disease, to meeting the escalating demands of elderly people with chronic diseases. China, which is portrayed as an ageing giant,[6] faces a particularly daunting challenge considering the unprecedented scale and rapidity of the ageing of its population. The current healthcare system in China will not be able to meet this challenge, and the demands of providing chronic care for its ageing population, both in the community and in long term care institutions, will only increase.[7-9] Chinese policy makers and health practitioners need to invest more in geriatric medicine and plan future healthcare services and delivery systems accordingly.

Another important finding of Dupre and colleagues' study, which the authors mention only in passing, is the troubling association between increasing frailty and the lack of social support and social contacts in older Chinese people.[1] This finding echoes results from an earlier study, which suggested that social support factors are important determinants of frailty.[10] This association may have important implications if viewed in the rapidly changing social context of ageing in China, where profound demographic, social, economic, and cultural changes may weaken informal care networks and ultimately erode the traditional family support systems for elderly people. More research efforts are needed to improve our understanding of how these various forces interact to influence the health and well-being of older Chinese people.

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Tight control of blood glucose in long standing type 2 diabetes

Reducing glycated haemoglobin below 7% is not supported by evidence and may even be harmful

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Continued overleaf

During the past year, three important studies have provided evidence that tighter glycaemic control (to <7% glycated haemoglobin) in older adults with type 2 diabetes does not provide substantial benefit and may increase the risk of adverse outcomes. These findings, which some experts and policy makers found surprising, should lead to the re-evaluation of recommendations about what constitutes high quality care for these patients.

The management of type 2 diabetes in the United Kingdom takes place largely in primary care and is strongly influenced by the requirements of the quality and outcomes framework (QOF)—an annual reward and incentive programme, which although voluntary provides a substantial proportion of general practitioners' income. From April 2009, general practitioners in the UK will need to reduce glycated haemoglobin in half of their patients with type 2 diabetes to below 7% to earn the same amount that they are currently paid for achieving a target of 7.5%. The average practice that achieves this level of performance will be paid around £3000 (€3375; $4250). Tens of thousands of patients will need to be given additional oral treatment or will be treated with insulin. Treatment with insulin brings with it an increased risk of hypoglycaemia and the additional costs of daily blood glucose monitoring and the insulin itself. It may also result in people who drive for a living losing their jobs if the new target leads them to be treated with insulin.

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This new glycaemic target was agreed on by NHS employers and the general practitioners' committee of the BMA in October 2008, ironically just when evidence was gathering that tight glycaemic control in established type 2 diabetes has little benefit and can even be harmful. In June last year, two large randomised controlled trials of intensive glucose lowering in type 2 diabetes were published. ACCORD (Action to Control Cardiovascular Risk in Diabetes; 10 251 patients, mean age 62, median disease duration 10 years, mean follow-up 3.5 years) found no evidence of a lower risk of non-fatal myocardial infarction, non-fatal stroke, or death from cardiovascular causes in the group in which glycated haemoglobin was lowered to a median of 6.4% compared with a standard treatment group maintained at a median of 7.5%.[1] In fact, the trial was terminated early because of higher mortality in the intensively treated group. ADVANCE (Action in Diabetes and Vascular Disease; 11 140 patients, mean age 66, mean disease duration eight years, median follow-up five years) found a small reduction in total events in the tight control group (mean glycated haemoglobin 6.4% compared with 7.3%), which was mainly accounted for by a 21% reduction in nephropathy (mostly new onset microalbuminuria), but no effect on major cardiovascular events.[2] In January 2009, another randomised trial from the United States randomised military veterans with type 2 diabetes of 11.5 years' mean duration to different levels of glycaemic control (VADT; 1791 mainly male patients, mean age 60.5, median follow-up 5.6 years).[3] It found no significant differences in macrovascular or microvascular outcomes over 5.6 years between patients in the "standard treatment" group (median glycated haemoglobin of 8.4%) and those who were intensively treated (mean value 6.9%). Each of the trials showed an excess risk of hypoglycaemia in the group that was treated more intensively. Taken together, the three trials show that no reduction of clinically meaningful adverse outcomes occurred in patients with long standing type 2 diabetes treated to a glycated haemoglobin below 7.0% in the time periods studied. Moreover, intensive treatment is accompanied by substantial costs and an increased risk of hypoglycaemia and perhaps mortality.

At first glance, these findings seem to disagree with the recently published long term results of the UK Prospective Diabetes Study (UKPDS).[4] This study reported that some patients who achieved good early control show benefit at a median follow-up of 17 years, even though tight glycaemic control is usually lost after the first year. However, this study was designed to compare dietary control with intensive drug treatment in younger patients (mean age 54 years at enrolment) who were newly diagnosed with type 2 diabetes, and it provides no guidance on appropriate strategies for older patients with long standing disease.

The idea that tight glycaemic control for everyone would improve outcomes was a hypothesis that needed to be tested 30 years ago, when the UKPDS was set up in response to the finding of increased mortality from cardiovascular disease in the earlier University Group Diabetes Programme.[5] The first reports from UKPDS indicated that the strategy was successful,[6] although tight control, defined as a fasting plasma glucose concentration of 6 mmol/l, using sulfonylureas and insulin had no effect on cardiovascular disease and improved microvascular outcomes only minimally—mainly the need for retinal photocoagulation.[7] But in the wake of the three recent studies of tight glycaemic control in older patients with long standing diabetes, it is certainly "time to challenge conventional wisdom," as the subtitle of a recent commentary on the ACCORD trial states.[8] The optimal approach for patients remains to be elucidated.

Another question is whether all strategies to reduce glycated haemoglobin have the same effect; a recent systematic review of cardiovascular outcomes in oral drugs for diabetes shows that the level of our current understanding in this area is unsatisfactory.[9] We need better evidence to evaluate the balance of risk and benefit for individual patients, and we need to move away from the simplistic idea that the value of a particular drug or strategy can be predicted by its glycaemic lowering effects. Even when a drug lowers blood glucose, it may make a difference how this occurs. In UKPDS the strategy seemed to matter, with better long term outcomes seen in the overweight group treated with metformin.

The QOF in the UK has been a successful driver of evidence based improvement in the care of diabetes, particularly tight control of blood pressure and the prescription of statins. But by encouraging tighter glycaemic control in all patients with type 2 diabetes, regardless of disease duration and the drugs used to achieve control, the new QOF target encourages an outdated strategy and one that may not provide a net benefit to patients. Moreover, given the evidence and the complexity of the decision, patient preference should play a strong role in the strategy that is pursued. The change of target from 7.5% to 7% should be withdrawn before it wastes resources and possibly harms patients.

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