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Ebrahim, S (2002) The medicalisation of old age. *BMJ*, 324 (7342).  
pp. 861-3. ISSN 1468-5833 DOI: <https://doi.org/10.1136/bmj.324.7342.861>

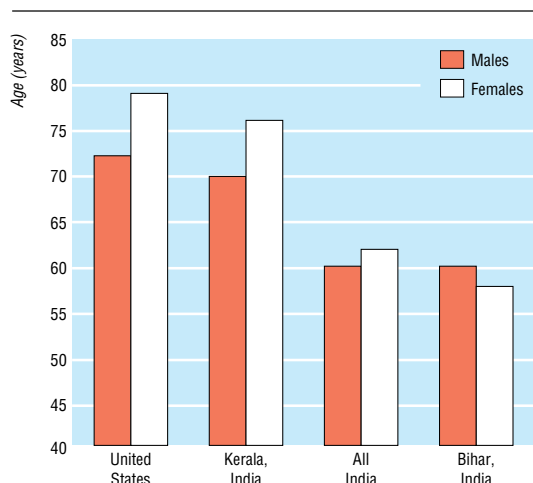
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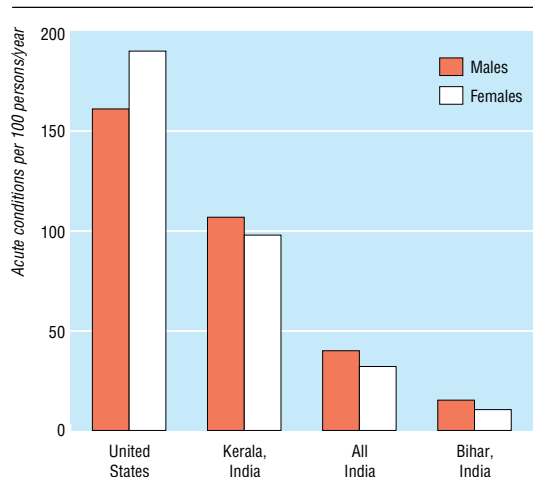
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**Fig 1** Life expectancy among males and females in India compared with United States, mid-1990s<sup>7, 8</sup>



**Fig 2** Incidence of reported morbidity in India, mid-1970s, compared with United States, mid-1980s<sup>9</sup>

the highest levels of literacy (nearly universal for the young) and longevity (a life expectancy of about 74 years) in India. But it also has, by a very wide margin, the highest rate of reported morbidity among all Indian states (this applies to age specific as well as total comparisons). At the other extreme, states with low longevity, with woeful medical and educational facilities, such as Bihar, have the lowest rates of reported morbidity

in India. Indeed, the lowness of reported morbidity runs almost fully in the opposite direction to life expectancy, in interstate comparisons.<sup>3-5</sup>

We have to ask why such dissonance arises. There is much evidence that people in states that provide more education and better medical and health facilities are in a better position to diagnose and perceive their own particular illnesses than are the people in less advantaged states, where there is less awareness of treatable conditions (to be distinguished from “natural” states of being). The medically ill-served and substantially illiterate population of Bihar may have a very low perception of illness, but that is no indication that there is little illness to perceive. This interpretation is supported also by comparing the reported morbidity rates in the Indian states and in the United States. In disease by disease comparison, while Kerala has much higher reported morbidity rates than the rest of India, the United States has even higher rates for the same illnesses.<sup>6</sup> If we insist on relying on self reported morbidity as the measure, we would have to conclude that the United States is the least healthy in this comparison, followed by Kerala, with ill provided Bihar enjoying the highest level of health, in this charmed internal comparison.

Although the internal view is privileged with respect to some information (particularly that of a sensory nature), it can be deeply deficient in other ways. There is a strong need for scrutinising the statistics on self perception of illness in a social context by taking note of levels of education, availability of health facilities, and public information on illness and remedy.<sup>3-5</sup> The internal view of health deserves attention, but relying on it in assessing health care or in evaluating medical strategy can be extremely misleading.

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## The medicalisation of old age

*Should be encouraged*

The *Oxford English Dictionary* describes medicalisation as pejorative, initially applied to the over-investigation and treatment of sexually active teenage girls. Since Ivan Illich's popularisation of the term, its use has spread to conditions such as pregnancy and childbirth, sexual orientation, mental

illness, and the menopause. There is legitimate concern about the medicalisation of dying,<sup>1</sup> and because old people die, it is tempting to extend such concern to old age.

In the 1930s, Marjory Warren showed that old people in workhouse wards had treatable diseases and

could be rehabilitated and discharged. Apparent social problems were in fact a result of patients being poorly served by health services. With the realisation that something could be done for elderly patients and that such care would make hospitals run more efficiently, geriatric medicine has grown dramatically in the United Kingdom, but less so elsewhere.<sup>2</sup> However, in the past decade the problems of elderly people have been “de-medicalised” by the movement of patients from hospitals into nursing homes, where their health care has been substituted by social care.<sup>3</sup> The warehousing of frail elderly people in nursing homes is a result of medical disinterest and of political ideology, and has led to a social model of care in which medicine is denied a role.<sup>4</sup> At a less extreme level, evidence of benefit from social interventions in the form of aids and appliances for mobility problems in old age has been reported.<sup>5</sup> But how many of these people would benefit from medical treatment?

With the increase in life expectancy over the past century, people in their 90s are commonplace, and questions are raised about the wisdom of using invasive and expensive treatments for their illnesses.<sup>6</sup> Chronological age is a poor marker of vitality and ability to benefit from treatment. Variability in the physiological reserves of very old people and the limited evidence base of treatment efficacy at ages over 80 years makes it difficult to generalise about the value of intervention at older ages. Here clinical judgment and patients' views—including living wills—are important in making treatment decisions. Diagnosing “dying” and providing palliative care rather than making futile attempts to cure is essential but difficult because of limited prognostic information about the probability of dying, and the training of doctors that emphasises cures.<sup>7</sup>

### “A fair innings?”

“The years of our life are threescore and ten, or even by reason of strength fourscore; yet their span is but toil and trouble; they are soon gone, and we fly away” (Psalms 90, 10). Traditionally the biblical threescore and ten years have been misinterpreted as a natural limit, but the psalm is concerned with the nature of life and not its span. For example, Williams states, “Anyone who achieves or exceeds this is reckoned to have had a fair innings . . .”<sup>8</sup> However, the fair innings argument as a means of rationing healthcare resources has limitations. Without compulsory euthanasia at the end of the innings, palliative care may prove more expensive than therapeutic treatments.<sup>9</sup> Concerns about medicalisation of old age may hide a desire to reduce costs.<sup>8</sup> It is dying in hospital—not an ageing population—that costs money. If people die later the costs of health care will fall later, but this is the cost of dying, not of ageing.<sup>9</sup>

As Skrabanek commented, “Since life itself is a universally fatal sexually transmitted disease, living it to the full demands a balance between reasonable and unreasonable risk.”<sup>10</sup> Even among individuals who indulge in risky lifestyles a minority succeed in exceeding the age of 70 years.<sup>11</sup> Elderly people today are probably fitter than those of two decades ago, but old age still covers a wide range of conditions and needs, from the fit to the frail. Although ageing is a natural process, it would be wrong to conclude that the

diseases that accompany it are also natural and should be excluded from medical attention. Myriad trials have shown the benefits of treating rather than ignoring the health problems of older people.<sup>12</sup> Evidence from trials of blood pressure lowering and statins shows us that old people are no different from younger people in their response to treatment, but because of their higher levels of risk, gain greater absolute benefits from effective treatments. Effective treatments for cataract, hearing impairments, angina, osteoarthritis, impotence, depression, and other common conditions exist and should be used.

### Keep young and beautiful

The growing population of affluent older people may have greater expectations of medical care, fuelled both by greater consumerism and the promotion of new medical technologies by doctors and the pharmaceutical industry. Are older people likely to demand cures for wrinkles, baldness, yellow teeth, and relief from symptoms of the menopause and andropause? You bet! “Keep young and beautiful if you want to be loved” is the message these days. We have botulinum toxin for the treatment of wrinkles, minoxidil for male pattern baldness, tooth whitening treatments; hormone replacement therapy for women (but not men, yet). But medicalisation of the two commonest social scourges of old age—poverty and loneliness—has not occurred, suggesting that medicine does recognise some limits.

Arie comments, “it is much more society's convenience that ‘medicalises’ complex problems than the avidity of doctors to take responsibility for them.”<sup>13</sup> Hollywood and the media promote positive images of older people, but it would be surprising if society's stereotypes of beauty were to be reoriented towards images of old age. So demands for medical fixes for ageing are likely to grow. Only a few of these discretionary treatments are likely to be funded in a national healthcare system. Extension of the general principles of evidence based medicine to providers of these treatments will be needed but may be resisted. Consumer and retired people's associations may be in the best position to lobby policy makers for such extension.

Medicalisation can be dangerous. Legitimate concerns exist about the risks of infection during hospitalisation, over-prescribing, inappropriate use of tranquillisers for restraint, and the hazards of pressure sores. But many of these problems occur in social care and represent poor standards of practice. Hazards associated with medical care exist at any age and are not valid reasons for forgoing the potential benefits of treatment. Furthermore, many dangers of medical care are avoidable.<sup>14</sup>

In summary, the medicalisation of old age is not to be repudiated, but should be encouraged. Greater access to medical care for older people will result in reductions in mortality and disability. Attempts to ration such care on the grounds of the fair innings argument or by chronological age are flawed. Treatments to combat the ageing process itself should be subject to the same regulatory framework as any new medical technology. In wealthy countries there is no excuse for ignoring the medical problems of older

people or attempting to redefine them as social problems, and therefore outside the remit of medicine.

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## Genetics and medicalisation

*Genetics could drive a new wave of medicalisation if genetic tests are accepted without appropriate clinical evaluation*

In the public imagination genetic science has already brought us close to a world in which tests and cures are available for most diseases. The immediate prospects are, however, decidedly more prosaic. With the exception of the relatively rare high penetrance, single gene disorders, genetic tests differ little from most other medical tests, providing evidence of statistical risk only. Inflated perceptions of the value of specific genetic tests could drive a wave of inappropriate medicalisation. Genetic claims, tests, and treatments, like others, should be subjected to evaluation to establish their clinical usefulness, so that doctors and patients can act on sound evidence.

The term "genetics" conveys two different concepts: genetics as the study of inherited characteristics, and genetics as the study of cellular processes controlled by DNA. DNA codes lie at the centre of the biological processes in all living cells and generate the protein building blocks for cellular activity. Variations in coding abound between people. The differences occasionally derive from variations in a single gene, but much more typically they derive from the interacting effects of many genes. DNA is no blind cipher, but part of a modulating system interacting with cellular mechanisms and environmental factors, that together time and modify the expression of proteins within the cells that make up the human organism.<sup>1</sup>

In the public mind, high penetrance, single gene disorders, such as Huntington's disease, dominate the image of genetics and genetic testing and are a stereotype of inevitable future disaster.<sup>2</sup> Fortunately this stereotype is misleading when applied to the more common multifactorial conditions and even to many single gene disorders that often show considerable variation in clinical manifestations. The thalassaemias, for example, show great phenotypic variation, with a variety of factors—environmental and genetic—influencing eventual outcome.<sup>3</sup>

The genes that play a part in the pathogenesis of most common disorders are for the most part as yet unidentified and their role ill understood. Individually their predictive value is low, and at present there is little to suggest that they will have any greater clinical value

than more conventional physiological risk markers, such as blood pressure or cholesterol concentrations. We believe, as do others, that the arguments for "genetic exceptionalism"—for treating genetic information and tests as somehow special—are not compelling.<sup>4,5</sup> Outside the high penetrance, single gene disorders, genetic tests, like most other medical tests, provide evidence only of statistical risks.

Most physiological deviations are continuously distributed in the population, and most pathological processes give rise to a range of severity in clinical signs and symptoms.<sup>6</sup> Clinical practice requires the establishment of agreed cut off points to identify disease and to separate people for whom treatment should be beneficial from other patients for whom the risks of diagnosis or treatment might outweigh the benefits.

Over time, the tendency has been to expand diagnostic and treatment boundaries, and to include in the "disease" category people with milder manifestations of pathology and lower levels of risk. Genetic tests for markers that may not result in symptoms for half a century or more could be new examples of a process of premature medicalisation—of attaching the "disease" label before it has been established that prevention or treatment is clearly beneficial. Treating the presence of a genetic marker as though it were the clinical disease can be very unhelpful. In haemochromatosis, less than 1% of homozygotes for the responsible genetic variant develop frank clinical manifestations.<sup>7</sup>

New testing technology is creating inexpensive ways of identifying differences in many genetic sequences all at once, but as yet there is little clinical value in knowing about such polymorphisms. Epidemiology and clinical trials will be needed to test claims linking genetic variants to disease. Unless it is established that a genetic variant is a pointer to beneficial action, there is a potential for inappropriate medicalisation through the spread of poorly understood tests. The perceptions of risk resulting from such tests may bear little relation to the scientific facts and uncertainties. Inflated ideas about risks could result in people carrying such polymorphisms being treated unfairly in many areas, including employment or insurance.<sup>8</sup>