SELECTED SUMMARY

The social hierarchy of health

BASHIR MAMDANI

811 N Oak Park Avenue, Oak Park, Illinois 60302 USA e-mail: bmamdani@comcast.net

Marmot M. Health in an unequal world. *The Lancet* 2006; 368:2081-94.

Summary

The disease and suffering of disadvantaged people in all countries are a result of the way we organise our societies. In this essay, Marmot argues that failing to meet the fundamental human needs of autonomy, empowerment, and freedom is as important a cause of ill health as economic deprivation. Promoting the active involvement of individuals and communities in decisions that affect their lives would empower them and reduce ill health. He refers to the work of various scholars to support his argument. This summary includes a mention of some of these studies.

A physician faced with a suffering patient has an obligation to make things better. If a society is making people sick, we have a moral obligation to improve public health and to reduce health inequalities as a matter of social justice. This moral obligation led the World Health Organisation to set up a Commission on Social Determinants of Health, to propose evidence-based policy recommendations on what can be done to reduce health inequalities.

Studies of migrants show that as environments change, disease rates change because a change in the environment alters social relationships amongst other factors such as diet, climate, etc. The migration of Japanese men to North America resulted in a rise in coronary heart disease and a fall in strokes in this group. There is a clear relation between degrees of acculturation and coronary heart disease rates independent of plasma cholesterol, blood pressure, or smoking. The way, both to understand disease causation and to change the rates of disease, is to pay attention to the social environment.

The social gradient in mortality is a broader issue than that of poverty and health. A study by Marmot of government workers in Whitehall, London, found that while everyone had access to clean water, sanitation, abundant food, and shelter, the risk of dying was related to where they stood in the social hierarchy. In England, the life expectancy gap between men living in rich and poor areas is 11 years and the gap is even bigger in the United States of America between whites and blacks in the same geographical region. Even in Sweden, with the least economic gap between rich and poor, there is a social gradient in mortality. A social gradient in health is also observed in many poorer countries, but there is little systematic longitudinal data.

There is a clear relation between a country's affluence and the life expectancy of its population, up to a per capita income of about $5,000. Beyond this, factors like social environment have a greater influence. The excess mortality among the poor in a rich country like the USA is from non-communicable disease and violent deaths. The infant mortality rate amongst Australian aborigines is low at 15 per 1,000 live births, yet the life expectancy is 17 years shorter than the national average. This excess mortality is due to high rates of cardiovascular, respiratory, and gastrointestinal disease, endocrine, nutritional, and metabolic diseases, and injuries and violence. These comparisons suggest that poverty in a rich country and poverty in a poor country are qualitatively different and need to be thought about, and acted on, in totally different ways.

In both poor and rich countries, poverty is more than a lack of money. For the 2000–2001 *World Development Report,* the World Bank interviewed 60,000 people in 47 countries about what relief of poverty meant to them. The answers were: opportunity, empowerment, security and dignity. In Europe, people felt themselves to be poor if they could not entertain their children's friends, have a holiday, or buy presents, etc. Poverty means not participating fully in society and having limits on leading the life one values.

Both the low-grade British civil servant and the Nairobi slum dweller lack control over their lives and cannot lead lives they value, which is determined by social conditions, which in turn determine the degree of limitation on freedom or autonomy: the greater the limitation, the worse the health. Improvements in material conditions explain why the UK civil servant has better health than the Kenyan slum dweller. However, in both cases, a low social position in their respective social hierarchies means decreased opportunity, empowerment, and security.

Improvement in health depends on material conditions for good health (food, water, sanitation, medical and public health services, etc.) and control of life circumstances, empowerment of the individual and/or her community. Empowerment reduces chronic stress and has favourable biological effects. Empowerment at the community level helps secure resources such as clean water, community clinics, etc.

Mamdani Bashir. The social hierarchy of health. *Ind J Med Ethics* 2007; 4: 87-9.

Development, in the sense of relief of poverty, is important for the improvement of health in poor countries. Amartya Sen argues that economic growth leads to an improvement in health provided that it is used for poverty reduction and expenditure on public goods. There are communities—in Kerala, Costa Rica, Cuba, Sri Lanka—that have achieved good health without rapid economic growth. Here community empowerment led to better public health measures and health indices.

This framework can be applied to the social gradient in non-communicable disease. Non-communicable disease is caused by diet, smoking, lack of physical activity, and excess alcohol, among other determinants. Once material deprivation is no longer the main issue, absolute income is less important than how much one has relative to others. Relative income, as Sen states, translates into capabilities. What you have is not as important as what you can do with what you have.

In rich countries, autonomy and social inclusion might influence disease through their effect on behaviours such as nutrition, smoking, or alcohol, or through more direct neuroendocrine pathways, ie, chronic stress. These pathways might also operate in poorer countries, but have been less studied. Similarly, at the community level, empowerment could lead to better availability of resources for health, or operate through psychosocial processes linked to social capital.

Two different models have replaced the old idea that managers at the top of the hierarchy are under more stress than people below them. The demand control model posits that stress at work is not caused by how much demand there is, but how much control there is in relation to demand. The second model suggests that imbalance between efforts and rewards are the determinant of chronic stress. Both of these models were shown to contribute to coronary artery disease risk and to the social gradient in the Whitehall study as well as in studies done in the Czech Republic, Poland, and Russia.

Lisa Berkman showed that participation in social networks with multiple social ties is important for health. Marriage is one obvious domain: in Hungary and the Czech Republic the rise in mortality during the last two decades of the communist period was more rapid in unmarried men than in married men. The disadvantage of the unmarried state was more marked in men than in women, which aids the speculation that marriage is more supportive for men than for women.

If autonomy—leading the life one values—is central, then resources are important in creating autonomy and social engagement. For example, having a ready supply of potable water, adequate shelter, and bathroom facilities makes leading the life one values more of a possibility.

Why should there be social gradients in important risk factors for chronic disease? This is not well understood. Autonomy and social engagement might be important in themselves or through influencing behaviours; people who are socially disadvantaged and have little opportunity to control their lives or gain personal fulfilment might have little motivation for healthy behaviours.

A third type of pathway, linking autonomy and engagement to health, is through chronic stress pathways. Robert Sapolsky has linked social circumstances and status to health in non-human primates. Low status is associated with more frequent stressful encounters and higher levels of cortisol or stress hormone.

Andrew Steptoe has linked stressful stimuli to cardiovascular, endocrine, and immune responses, and said that these responses differ according to socio-economic position. One interesting finding was that it was not so much that the height of the biological stress response differed by socio-economic position, but that low-grade civil servants had slower rates of biological recovery after stress.

There is no question that part of improving health in poorer countries, as in richer countries, is the provision of comprehensive primary care. In a well-organised society there should be universal access to high quality medical care. However, universal provision does not guarantee universal access. Policies have to be not only pro-poor in intent but also in effect.

Among rich countries, there is little relation between expenditure on medical care and health. The US spends twice the amount the UK does on medical care; yet more Americans have chronic disease than the British. The higher rate of reported illness is consistent with the higher age-specific mortality rates of the US compared with the UK in the age range 0–74 years. Perhaps it has to do with the circumstances in which people live and work—the social determinants of health.

If empowerment is so important for health, how does it arise? Nicholas Stern conceives of three classes of influence. First, individual endowments: assets and human capital. Second are external constraints that come from the context of family, community (including caste and religion), society, and systems of governance. Third, individuals have internal constraints on their actions associated with their preferences and perceptions of their role. These classes of influence might be inter-related.

One telling example of societal determinants of empowerment comes from a study of 11-12 year-old children in India. High-caste and low-caste children were given mazes to solve. Despite the high-caste children having higher levels of parental education, the two groups of children did identically on the tests. The tests were then repeated on different groups, but this time attention was drawn publicly to the caste of the children. Under these circumstances, the lower-caste children did substantially worse. The researchers put this decrement in performance down to an expectation of lower-caste children that they would be treated unfairly—it was part of their powerlessness. Confirmation for this speculation was provided by randomly rewarding children, rather than having the decision apparently made by the investigator. Once the rewards were deemed to be fair, the performance of the lower-

caste children again matched that of the higher caste.

Power, then, is the key. Control, autonomy, and freedoms might sound like psychological properties of the individual. Power relations in society, as they operate through social institutions and the opportunities afforded to those in relatively disadvantaged positions, are the social causes of degrees of empowerment. Freedom does not imply privileging the rights of some individuals at the expense of the well-being of others. Human rights can be taken as implying an obligation on society to do what is necessary to bring about the important freedoms for everyone.

Marmot explains how a richer understanding of poverty, based on control and social engagement, links poverty and health. He says the focus should be not only on extremes of income poverty but on the opportunity, empowerment, security, and dignity that disadvantaged people want in rich and poor countries alike. We need a biological understanding of disease but we need to also understand how society influences biology, in order to change disease risk. This social understanding is central to reduce the burden of disease.

Commentary

We have long recognised that abject poverty lowers the life expectancy of the poor through a myriad of acute infections, violence and lack of access to health care. Marmot's work with the white-collar civil servants at Whitehall has shown that even *relative poverty* is a risk factor for *chronic* disease. The "social gradient" in mortality is a reflection of the progressive lack of control and increasing stress levels as we progress down the social ladder. The theoretical underpinnings for the source of chronic stress and the heath effects of chronic stress come from Sapolsky's primate studies showing that chronic stress in species such as us, primates, comes from other members of the species within their social groupings.

Sapolsky (1) discusses the biomedical literature that supports Marmot that " … individuals are more likely to activate a stress response … if they: (a) feel as if they have minimal control over stressors, (b) feel as if they have no predictive information about the duration and intensity of the stressor, (c) have few outlets for the frustration caused by the stressor, (d) interpret the stressor as evidence of circumstances worsening, and (e) lack social support for the duress caused by the stressors."

The poor carry a disproportionate burden of both physical and psychological stress, which limits their sense of control while poverty deprives them of the means to ease stress: as Sapolsky states: "… despite the heart warming stereotype of the "poor but loving community," the working poor typically have less social support than the middle and upper classes, thanks to the extra jobs, the long commutes on public transit, and other burdens (1)."

Sapolsky cites research to show that "…the objective state of *being* poor adversely affects health, at the core of that result is the subjective state of *feeling* poor." That "… in our global village, we are constantly made aware of the moguls and celebrities whose resources dwarf ours (1)."

Sapolsky says, "…Interestingly, Wilkinson has shown that lesser income inequality actually equates to lower mortality rates for both the rich and the poor in the country. Egalitarian societies do seem to improve the life expectancy for all strata of society as …truly symmetrical, reciprocal, … support exists only among equals (1)."

As Sapolsky argues, the greater the income inequality is in a community, the worse are the health indices. And the less the wealthy have to gain from expenditures on the public good, the more incentive the wealthy will have to oppose public expenditures benefiting the community—a scenario that ultimately leads to "private affluence and public squalor." This could be a description of India where the poorer health measures for our upper middle class and the rich may well be a result of the wide income disparity in our communities where the very rich live cheek by jowl with the abject poor. As Sapolsky concludes, there is far more to poverty than simply not having enough money. .

Reference

1. Sapolsky R. Sick of poverty. *Scientific American* 2005 Dec: 93-9.