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Thesis

Do we face a third revolution in human history? If so, how will public health respond?

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ABSTRACT

Background A range of evidence suggests that the dominant culture associated with the economic systems of 'modern' societies has become a major source of pressure on global resources and may precipitate a third revolution in human history, with major implications for health and well-being.

Objective This paper aims to consider whether there are historical analogies with contemporary circumstances which might help us make connections between past and present predicaments in the human condition; to highlight the underpinnings of such predicaments in the politico-economic and cultural systems found in 'modern' societies; to outline questions prompted by this analysis, and stimulate greater debate around the issues raised.

Methods We draw on evidence and arguments condensed from complex research and theorizing from multiple disciplines.

Results Contemporary evidence suggests that global depletion of a key energy resource (oil), increasing environmental degradation and imminent climate change can be linked to human socio-economic and cultural systems which are now out of balance with their environment. Those systems are associated with Western-type societies, where political philosophies of neo-liberalism, together with cultural values of individualism, materialism and consumerism, support an increasingly globalized capitalist economic system. Evidence points to a decline of psychological and social well-being in such societies.

Conclusion We need to work out how to prevent/ameliorate the harms likely to flow from climate change and rising oil costs. Public health professionals face the challenge of preventing adverse health consequences likely to result from continued adherence to the have-it-all mindset prevailing in contemporary Western societies. Equally, we need to seek out the potential health dividends that could be realized in terms of reduced obesity, improved well-being and greater social equity, while not under-estimating the likelihood of profound resistance, from many sectors of society, to unwanted but inevitable change.

Keywords health promotion, mental health, public health

Introduction

This paper has a number of aims: firstly, to consider the question of whether there are historical analogies with contemporary circumstances which might help us make connections between past and present predicaments in the human condition; secondly, to highlight the underpinnings of these predicaments in the politico-economic and cultural systems found in 'modern' societies and thirdly, to outline some of the questions prompted by this analysis, and to stimulate greater debate around the issues raised. The arguments we present have been condensed from complex research and theorizing from multiple disciplines, in line with a disciplinary tradition of drawing on knowledge from other fields. We are, however, aware that there are some tensions between evidence and speculation throughout the paper and have,

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wherever possible, sought to ensure that speculation is plausible and consistent with the evidence.

The first section refers to suggestive historical arguments that populations outgrew key resources in the past, causing an imbalance between human systems and their environment. The point is that adaptive responses were accompanied by substantial changes, not just in terms of technological innovation, but also to social and economic structures, beliefs and value systems, and population health and well-being. There may be parallels here with contemporary conditions. In the second and third sections of the paper, we outline thinking from multiple disciplines which point to the close relationship between contemporary politico-economic systems, social structures and cultural values; this relationship impacts on individual, social and global levels of well-being. The final sections raise a number of questions for public health, identify some significant challenges, and call for greater debate on the issues raised.

A historical perspective

Developments in human progress which led to the 'modern' world include the agricultural revolutions (both the early shift from hunter-gatherer to agrarian societies, and its later manifestation in seventeenth–eighteenth-century Europe), and the major industrial revolution which followed this. From one perspective, these revolutions were positive developments which made greater resources available to more people and, thus, spurred population growth. From another, population growth itself drove such developments, as resources for any particular way of life became depleted. From either perspective, some key environmental changes have arguably been of humanity's own making, prompted by insufficient resources to supply a population's way of life at any one time. These remain contentious areas of debate for historians, with accounts perhaps owing something to shifting ideologies about human development and progress as much as 'facts'.

According to some, three major factors—population growth, technological development and increasing consumption—lie behind our increasingly damaging impact on the planet.[1] An alternative perspective suggests that it is neither technology nor consumption *per se* which is at fault, but the adoption of a particular form of economic system that uses ever-increasing consumption as its basis for growth, thus leading to high levels of resource depletion which are incompatible with a large and growing population. From this more nuanced perspective, human history is the story of increasing numbers of people, the development of increasingly invasive and disruptive forms of technology by some societies and increasing levels of consumption by those societies. The economic and cultural practices of some societies are, we suggest, the fourth compounding feature underpinning present problems.

We know that modes of human social organization and associated cultural beliefs and value systems changed, in parallel with the two revolutions, with both beneficial and harmful outcomes for population health. Social classes emerged from the earliest agricultural revolution, as did warfare and slavery. Fossil and other forms of evidence suggest that physical health declined. We know that culture also changed, with the development of ideologies which—ultimately—legitimated the domination of all men over nature, some men over other men and most men over women. Individual and social well-being may have declined, as evidence from contemporary hunter–gatherer societies suggests that their levels of well-being and happiness are higher than that of people living in more 'developed' societies.[2]

The health and social costs of the Western industrial revolution, in terms of urban overcrowding, unsanitary living conditions and associated rise in infectious diseases, accompanied by appalling poverty and misery for many people, are too well known to need rehearsing. These developments were later accompanied by environmental problems such as land degradation, vast amounts of chemical fertilization, water pollution and phenomena such as acid rain, red tides and global warming. Cultural and ideological change is also associated with the early part of this period—and was legitimated by Enlightenment thinking—in that the natural world came to be viewed as a material resource to be pillaged and a challenge to be overcome by humankind's apparently limitless technical ingenuity, in the name of progress. The development of a capital-based economic system was a key factor in driving widespread social change, as large numbers of people were required to serve the mechanized factory system.[3] Other longer-term cultural legacies and consequences are explored below.

A crisis of 'modern culture'?

A key point is that humans adapt through cultural, rather than genetic, evolution: we have learned how to manipulate our environments through the use of multiple forms of technology, mechanized and otherwise. Our successes have kept us at the top of the food chain and helped foster the concept of humankind as the endpoint of evolution[4]—a notion which resonates with the traditions of Judaeo-Christian theology in Western society. This in turn has led many in the 'developed' world to believe that humankind can escape the controls of nature; contemporary

global problems demonstrate this to be a dangerous illusion.[5] It is undeniable that modern, Western-type societies have seen an unprecedented growth in wealth and material comfort over recent decades and many causes of suffering that afflicted people in past centuries, such as absolute forms of poverty and certain diseases, have now been eliminated or reduced.[6] Most of us live longer lives than in earlier (industrial) times, and few would choose to return to hunter–gatherer lifestyles. Nevertheless, there is also good evidence that average levels of individual well-being (whether conceived as subjective happiness or life satisfaction) within such societies appear not to have increased.

Research suggests that the main sources of well-being in 'advanced' economies are friendships and a good family life, and that once one is beyond the poverty level, a larger income contributes little.[7–11] Moreover, family solidarity and community integration appear to have been eroded over recent decades, while individuals become more distrustful of each other and their political institutions. We therefore have an apparent paradox whereby economic growth within market democracies is accompanied by a gradual rise in various forms of individual and social disorders, evidenced by increased rates of depression and other forms of mental illness,[12,13] high rates of suicide in some areas,[14] increasing levels of inter-personal violence,[15] a range of addictive behaviours (such as alcoholism, illegal drug use, obesity and gambling),[16] family breakdown, degradation of the social fabric and widening health and social inequalities.[17,18] These complex and coincidental trends are not, of course, proof of a causal relationship but are at least suggestive of connections between a specific politico-economic system[12] and psycho-socio-cultural problems.

More speculative findings from evolutionary psychology[6] and neuroscience[19] suggest that neural structures and chemistry render the human species particularly vulnerable to damaging social comparisons; humans are believed to be subject to evolutionary drives towards rivalry and competition, which motivates individuals to pursue positional goods (i.e. social status, wealth and material possessions). This positional psychology, thus, explains the individual's urge to stay on the 'hedonic treadmill', practising the relentless accumulation of material things in the belief that this will make him or her happy—even though this is an irrational, zero sum game when many others in the same society are in similar social positions, all struggling for the same coveted forms of status or possessions. Moreover, psychological evidence tells us that humans quickly adapt to changes in status, meaning that we are never satisfied for long with what we achieve and acquire. We are also profoundly averse to losses.

Recent public health research suggests that the well-being across 'modern' societies is being damaged by particular aspects of contemporary culture. These aspects are economism, materialism, consumerism and individualism.[20] Economism is the tendency to view the world through the lens of economics, to regard a nation as an economy rather than a society and to believe that economic considerations and values are the most important ones while other values get squeezed out. Materialism and consumerism derive from the belief that meaning, happiness and fulfilment are to be acquired through the possession of material things. In the modern consumer society, material values rank higher than spiritual values, and the relationships of the marketplace dominate. Individualism means that, while many of us are freer of some of the constraints of earlier societies, we are also viewed as responsible for success in life, and are blamed for any failures. Individualisation means that people are subject to reduced social support and social control, in a context of increased individual expectations, all of which result in a sense of increased insecurity, anxiety and stress.[3]

Confirmation of this diagnosis can be found in social and political science literature which focuses on the ways in which socio-economic structures and cultural systems shape views of the good life in 'modern' societies. The neo-liberal politico-economic systems of such societies are ostensibly based on the utilitarian philosophy of happiness (i.e. the greatest good for the greatest number) but, according to some, these systems have contributed to our dissatisfaction with life.[21] While consumption is a normal part of all human societies, the consumerism found in 'modern' economies involves the relentless commodification of many aspects of life and human relationships.[3,22] Moreover, the search for well-being, status and identity in wealthy societies through consumer goods is an unending quest, fed by multi-billion dollar advertising and media industries, but doomed to the perpetual disappointment upon which our economic system actually depends for its survival.[23–26] Put bluntly, consumption rarely fulfils the promise of happiness it holds out—but we apparently never tire of its pursuit.

At the global level (the natural environment on which we all depend), the apparently unstoppable rise in over-consumption by comparatively small numbers of people may ultimately render the physical world uninhabitable for humankind and other species.[28] At the same time, vast numbers still need to escape absolute levels of poverty, so continued economic growth is a necessity for many nations[29] although some reduction in population growth will also be required. One conclusion from the findings rehearsed above is that the dominant cultural norms and

values of (over)consumption, found in many contemporary Western societies, have resulted in a marked imbalance between our way of life and the environmental carrying capacity of the planet on which all humanity depends. Humanity faces looming global changes as at least a partial consequence[30]: these include climate change,[31] which may precipitate socio-economic impacts such as mass migration. We may well have passed the peak in oil production[32,33]; the loss of an energy resource on which most Western societies depend will lead to dramatic social changes,[34] possibly even oil wars (some would say that we are already in this position).

Yet despite much rhetoric, tokenistic change seems the predominant response from wealthy nations to emerging crises. Action on recycling waste products in high income nations, for example, takes place side by side with virtually unchanged consumption patterns; many apparently espouse 'green' discourses while still seeking to 'have it all', in the form of overseas holidays, car ownership and the latest consumer gadgets.[35] 'Downshifting' may be on the increase but it remains far from the norm.[36] In short, the cumulative consequences of modern consumerism have resulted in unsustainable lifestyles for high-income countries, while low-income countries suffer a continued disadvantage.[37]

The implications for Public Health: new challenges, emergent responses

A number of important questions are raised by the analysis presented above. If human behaviour is shaped and driven by evolutionary factors which predispose us towards (over)-consumption, how are these to be overcome? If all societies will ultimately need to move away from wealth- and status-based economic growth, and from consumerism, how can this be achieved? How can we deal with the consequences of a foreseeable collapse in the current economic system? What, for example, are the implications for employment—given that most people are now employed in consumption or service industries, rather than in production or manufacturing industries? And what might be the likely responses of people, industry and government? If we are currently experiencing a change of age, as argued in this paper, what are the implications for public health?

The history of public health contains examples of practitioners who acted to protect public health in ways that would not be tolerated in today's more liberal society. There has been a long disciplinary tradition of championing economic and social change where there is a clear impact on the health of the population, which can be traced from the nineteenth century demands for urban sanitation made by Edwin Chadwick.[38] Today, public health leaders and practitioners operate in a world shaped by modern social and political philosophies which value individual choice, rights and freedoms. These values inform their work, meaning that public health may try to apply a model derived from voluntary behaviour change to phenomena like climate change. Yet public health has always remained capable of radical responses to emergent problems, from work in the 1980s on the potential impact of the use of nuclear weapons[39] to recent studies of excess mortality associated with the latest Iraq war.[40] Although the public health *task*—that of preventing disease and promoting health—remains unchanged, the *form* which public health challenges take will change because this is, in some respects, unique to each age and therefore requires specific responses.

The first challenge is to recognize that the components of effective adaptation to the future will be *unpredictable and emergent* rather than predictable and planned. At the beginning of the industrial revolution, infectious diseases were dominant but alcohol consumption, crime and illegitimate births (to quote just three indices) were also substantially higher in most UK and American cities than they are today.[41] If we were able to go back in time and visit one of the original medical officers of health in a great industrial UK city, he would probably not be able to set out his plans for health improvement in detail. Instead, he might explain the approach he was adopting and the types of interventions that would probably be needed, in the face of emergent problems. He would obviously not be aware that what would emerge over time would be a public health focus on clean water, sanitation and legislation, nor would he be able to foresee the importance of co-operative societies, modern police forces, health visitors, universal education, orphanages and much else, which were supported by grass-root efforts to create and sustain a whole series of informal norms and behaviours that were, in their time, important for social order.

We are surely in an analogous position. If we are to be as successful as those early champions of public health, then we will need to seek similarly emergent solutions, recognizing that these will be no easier for us to predict than the panoply of solutions eventually devised in response to the industrial revolution. How the future unfolds for public health will be determined by the mindset adopted; this provides our second challenge. The current mindset of many is still, apparently, denial; once denial comes to an end, it can be followed by tokenistic action. Others may express an optimistic faith in the ability of science and technology to solve problems associated with rising energy costs and

climate change, and for individual and community action to deal with obesity, declining well-being and rising inequalities. Others might be less optimistic but still look to technical solutions: these may involve the use of power to ensure the continued health of the industrialized nations by maintaining their current economies and lifestyles.

We suggest that new circumstances will require a new ideology: one that emphasizes the rights of all global citizens while seeking a sustainable solution to current and future ecological challenges. Those who wish to embrace this will need to accept that, while new social and technical solutions will be vital, our way of life will change radically as we move towards a 90% cut in CO_2 emissions and independence from fossil fuels. Although economic growth, as traditionally measured, is likely to suffer, we could see a reprioritization of society towards values which promote well-being, health and equity, while reducing inequalities and over-consumption.

The balance of public health methods will also have to change—our third challenge—although 'the basics' will remain the same (i.e. define the problem, gather intelligence, analyse and formulate solutions that are disseminated, implemented and evaluated). At present we are 'prisoners of the proximate',[42] in the sense that we prioritize epidemiological studies of relatively proximate causes of disease, at the expense of a synthesis from a wide spectrum of fields which might help us grasp the sheer breadth of the emerging challenge. New methods to be considered include analysis of 'futures', scenario planning,[42] eco-epidemiology[43] and a radical synthesis of knowledge from such disparate disciplines as philosophy, ethics, cultural studies, politics and economics, with the more familiar public health sciences. A key task for public health will then be to capture the ideas of innovators and 'positive deviants',[44] and enhance them through an iterative cycle of learning, implementation and improvement.

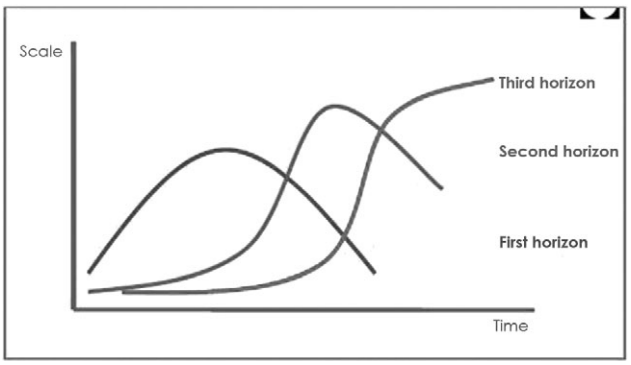

Fig. 1 The three horizons model.

An example of a tool that can facilitate new thinking is the 'three horizons' framework[45] (see Fig. 1).

In Horizon 1 we may see a system under strain, beginning to show signs of failing or facing challenges of sustainability. In Horizon 3 we see the eventual evolution of a more sustainable system, adapted to new conditions (having taken several decades to reach this stage). In Horizon 2, however, we see the struggle between these two: the old system declining in importance and the new struggling to be born. Essentially, Horizon 2 is a period of transition from one form of infrastructure to another. Each horizon is also associated with a particular mindset. In the first horizon the priority is to shore up the existing system; this mindset is likely to regard third horizon proponents as irrelevant but will seek to capture successful second horizon innovations in order to perpetuate their own (failing) system, often in the guise of 'scaling up' successful experiments. The mindset of the second horizon is that of dissatisfaction with Horizon 1, believing it to be ultimately unsustainable; it regards the third horizon as inspirational and so its future priority is to shift policy and practice towards the new model. It may be that we are approaching Horizon 2 at present. The third horizon is visionary, seeing the first as misguided and the second as promising. Its priority is to sow the seeds of a radically new future, usually 'under the radar' of the first.

Although all three of these perspectives exist and have their advocates and their bodies of evidence in the present, our existing policy processes are fairly inflexible when it comes to working with such multiple viewpoints. Yet, a policy option that has little to recommend it in the first horizon may have a large part to play in a possible third horizon, and is therefore worth investing in, as a second horizon innovation. The point is that the use of 'horizons' thinking enables formal recognition of at least three different world views and three simultaneous views of the present; such recognition might make for a 'smarter' policy debate and better long-term decision-making.

Conclusions?

The great revolutions in human history (agricultural and industrial) might have been prompted by growth in human numbers and consequent resource pressures, though there is comparatively little certainty about this. Nevertheless, population growth, resource pressures and chronic over-consumption by some societies are undeniable features of the contemporary world. We may, then, face a different form of revolution – one which will see dramatic change in the established material comforts of wealthy societies, with knock-on

effects for nations seeking to follow Western patterns of comparatively short-term economic success (but longer-term failure of sustainability). As the International Panel on Climate Change points out, the world needs to move towards 'contraction and convergence'; i.e. wealthy nations *must* reduce their carbon use in order to achieve sustainability, and all nations need to converge on a more equitable level of consumption, whether they want to or not.

There may be cause for (cautious) optimism. Many of the most revolutionary steps in the evolution of life and human society seem to have come about as the result of environmental or other crises, but humans are not passive in the face of such problems. They adapt, for example, by changing technology levels, fertility levels and consumption patterns, and they change ways of managing the environment. A crisis can be creative by providing an opening to an alternative future created from the ruins of older systems. However, adaptation does not appear to have been a matter of human choice but rather of response to an emergency. Given that evidence suggests human well-being declined for substantial periods following profound historical change, we may reasonably expect similar outcomes in future. This is particularly the case given the high value placed on individual choices, autonomies and freedoms by modern (Western-type) societies which do not respond well to constraint. In those (non-Western) cultures which privilege social inter-dependence over individual independence, the transition may be easier; such societies may well lead the way for the rest of us.

Although much has inevitably been omitted or over-simplified through our cross-disciplinary/synthetic approach, we believe it useful in bringing together knowledge about the harmful impacts of 'modern' culture with evidence from earlier periods of human history which display warning parallels. Because the human population is now much larger, and certain socio-economic and cultural systems more intensive in their influence and extensive in their global reach, the impact on health and well-being of the trends we discuss is likely to be far greater. If there is a role for public health professionals in facing new, twenty-first century challenges, then it will probably stem from the desire to prevent the adverse health consequences likely to result from continued adherence to the have-it-all, cornucopian mindset prevailing in contemporary Western societies. We need to work out how to prevent (or at least ameliorate) the harms likely to flow from climate change and rising oil costs. Equally, we need to seek out the potential health dividends that could be realized in terms of reduced obesity, improved well-being and greater social equity, while not under-estimating the likelihood of profound resistance, from many sectors of society, to unwanted but inevitable change.

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