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Short communication

Beyond inequality: Acknowledging the complexity of social determinants of health

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Abstract
The impact of inequality on health is gaining more attention as public and political concern grows over increasing inequality. The income inequality hypothesis, which holds that inequality is detrimental to overall population health, is especially pertinent. However the emphasis on inequality can be challenged on both empirical and theoretical grounds. Empirically, the evidence is contradictory and contested; theoretically, it is inconsistent with our understanding of human societies as complex systems. Research and discussion, both scientific and political, need to reflect better this complexity, and give greater recognition to other social determinants of health.

Key words
Complexity, culture, health, inequality, social determinants, wellbeing

Introduction

There was a time, about 20 years ago, when research into the social determinants of health seemed to tell a simple, coherent and compelling story (Eckersley 2001, 2005 pp. 59-76, 2006). The research focused on inequality, especially income inequality, and it showed that there were social gradients in health, such that at any point in the social hierarchy, people on average had worse health than those above them and better health than those below them. More unequal societies had more unequal health--i.e., steeper gradients in health. And more unequal societies appeared to have poorer average health--i.e., inequality was bad for everyone's health, not just those of lower socio-economic status. In other words, income inequality produces health inequalities both within and between countries.

Since then, the science of health inequalities has become widely known outside the field, thanks largely to two publications: The report of the WHO Commission on Social Determinants of Health (2008), headed by Michael Marmot; and the 2009 best-selling book, *The spirit level,* by Richard Wilkinson and Kate Pickett (2010a). The WHO report, *Closing the gap in a generation: Health equity through action on the social determinants of health*, centres on inequities (or avoidable inequalities) in health, both within and between societies. *The spirit level* also covers both effects, but deals mainly with population-level impacts of inequality measured between countries, as emphasised in its subtitle, 'Why equality is better for everyone'. This has become known as the income inequality hypothesis.

In the past few years, the topic of inequalities in health has gained renewed and wider relevance as a result of growing public and political concern about rising inequality and its social and economic costs (Stiglitz 2012; SSCCA 2014; Hardoon 2015). *The spirit level*, in particular, has generated a great deal of public debate and argument, with some critics deriding it as 'a sweeping theory of everything' (Equality Trust 2010; Saunders 2010, Snowdon 2010; Rowlingson 2011; Zagorski et al.

2014). Much of the debate has focused on the validity of its statistical analyses, and been framed in terms of an ideological contest between the political left and right.

In their defence, Wilkinson and Pickett say *The spirit level* is not a 'theory of everything' (although the quotation, from a *Guardian* review, is on the cover of the cited edition), but a theory of problems which have social gradients--problems which become more common further down the social ladder (Wilkinson and Pickett 2010b). 'We have never claimed that income inequality is the only cause of worse health and social problems in a society.'

Nevertheless, it is easy to understand why people have thought otherwise. Reflecting the emphasis on inequality in the research on social determinants in general, Wilkinson and Pickett (2010a) attach great importance to tackling inequality in shaping social outcomes, including improving the health and quality of life of all of us. More than this, reducing inequality would help us to address other problems: We can regain a sense of optimism that social and environmental problems can be solved, they write (p.272), knowing that 'greater equality will help us rein in consumerism and ease the introduction of policies to tackle global warming' (p. 272). Their vision has seen health inequalities become part of broader debates about progress and sustainability (e.g. Costanza et al. 2014).

However, the research emphasis on socio-economic status and inequality can be challenged on both empirical and theoretical grounds. This argument applies especially to the income inequality hypothesis, on which current research focuses, but also, by extension, to health inequalities research more broadly and to the research on the social determinants of health, given its dominant theme has been health inequality. As a corollary, science and politics need to pay more attention to other social determinants. This is the focus of my paper: the paradox between the growing political and public awareness and influence of the research on health inequalities and its contested scientific status. The paper draws on my own transdisciplinary analysis of progress and wellbeing, which includes social determinants of health and, in particular, cultural influences and young people's health and wellbeing.

The paper is not, then, a comprehensive review of the research on inequality and health and the debate that swirls around it; nor is it a review of the literature on culture and health or young people's health. Rather I use culture and youth health to illustrate, briefly and from different perspectives, the multidimensional and still unresolved nature of the social determination of health. Thus my analysis differs from those that dominated the debate several years ago: it is conceptual rather than methodological, scientific rather than ideological. Its justification and relevance derive from the renewed political significance of health inequalities in a time of increased concern over rising inequality, as noted above.

Empirical and theoretical doubts

As public and political interest in inequality and health has increased, the scientific story appears to have become less straightforward. It remains true that poverty and disadvantage harm health, and that most societies have social gradients in health (WHO 2008). But more unequal societies do not necessarily have more unequal health (Mackenbach et al. 2008), raising doubts about whether reducing inequality would reduce health inequalities. And whether more unequal societies have worse health overall--the income inequality hypothesis-- remains contested and inconclusive, despite hundreds of studies over several decades. Empirical findings are inconsistent and contradictory and there is still no consensus among researchers; researchers who support the hypothesis acknowledge this (Barford et al. 2010; Kondo et al. 2009).

Even by the early 2000s, some reviews were challenging the view that income inequality was a major determinant of differences in population health (Eckersley 2006).The debate continues to this day.

In a meta-analysis of multi-level studies, Kondo et al. (2009) found only a 'modest' effect of income inequality on health, and call for further investigations. Zagorski et al. (2014) showed in a recent multi-level analysis of data for 28 European countries that there were simple correlations between income inequality and a range of measures of health and wellbeing. However, unequal societies were on average much poorer; once per capita GDP was controlled, national inequality did not reduce health or wellbeing. 'These results all imply that directing policies and resources towards inequality reduction is unlikely to benefit the general public in advanced societies', they say.

Theoretically, the emphasis on a single factor--inequality--defies what we know about human societies as complex adaptive or dynamical systems (Eckersley 2005 pp. 8-15; Helbing 2013; McKenzie 2014). These systems are dynamic and self-organising, and display openness, fuzziness, messiness, novelty and learning. They exist within other interdependent systems; are driven by multiple and diffuse interactions between their components; and are governed by feedback. Change in one part of the system can cause changes, often non-linear and unpredictable, in other parts. These can be rapid, triggering amplifying and cascading effects that are often hard to identify and map. Rather than deterministic one-to-one relationships between 'causes' and 'effects', there are many possible paths between them.

Importantly, complex systems show emergence: i.e., their characteristics 'emerge' from the collective behaviour of the whole system, not from the behaviour of its individual components; in other words, the whole is more than the sum of its parts. If we do not understand the patterns of interactions between the components of a system, we will not understand how it works. Problems in complex systems are often not amenable to permanent solutions, but instead tend to 'morph' into new predicaments, including as a result of interventions to deal with them; they have to be constantly monitored and managed (McKenzie 2014).

Complexity science implies that it is a mistake to focus too heavily on one or a few factors in understanding patterns and trends in population health. It also suggests, in the concept of emergence, that we need to look at entire systems, rather than breaking them down into components, as research so often does. A striking example is the mapping of the causal pathways to obesity, prepared for the UK Government's Foresight Programme, which identified a multitude of interacting factors --resembling a bowl of spaghetti--that lies behind rising rates of obesity (Butland et al. 2007).

This is not to say that complexity is completely ignored in the social determinants literature; it is one aspect of the contested nature of the science. For example, a 2001 study concluded that population health was the product of a complex interaction of history, culture, politics, economics and the status of women and ethnic groups (Lynch et al. 2001). In health and medical sociology, research into 'fundamental causality' acknowledges complexity in 'the potential for a massive multiplicity of connections' in which no individual mechanism is dominant (Lutfey and Freese 2005).

The literature also recognises the political ideology that lies behind growing inequality. Kawachi and Subramanian (2014) state that some scholars do not consider income inequality to be the real problem, which is the underlying political ideology which gave rise to the widening gap between the 'haves' and 'have nots'. 'According to this view, the mal-distribution of income is a by-product, or an epi-phenomenon, resulting from broader adversarial class relations.'

Nevertheless, the full implications of the science of complexity and complex systems for population health appear to have had little effect in shifting the emphasis of research away from socio-economic status and inequality. This is particularly evident in the 2008 WHO commission report and

The spirit level, as well as in the wider political and public understanding of the social determinants of health.

The complexity of causation and the role of culture

Two decades ago, the scientific debate about health inequalities centred on the mechanisms or pathways by which inequality affected health: were they primarily, or fundamentally, material--resulting from differences in material living conditions and experiences? Or were they psychosocial--stemming from people's position in the social hierarchy and their perceptions of relative disadvantage (Eckersley 2005, pp.59-76, 2006)?

Psychosocial processes concern the interactions between social conditions and individual psychology and behaviour, and how perceptions, expectations and values influence the intrinsic meanings of life events and social situations, and so affect our emotional responses (Eckersley 2006). The psychosocial perspective on health inequalities, championed by Marmot and Wilkinson, reinforced my interest in cultural influences on health.

At the core of Wilkinson and Pickett's argument is the effect of inequality on social relations: 'greater equality is the material foundation on which better social relations are built', they write (2010a, p. 272). In explaining how inequality gets 'under the skin', they stress the importance of social judgements and evaluations to wellbeing, and of inequality as a cause of 'social evaluation anxieties' (pp. 42-43). At the most fundamental level, they write (p. 233), reducing inequality is about 'shifting the balance from the divisive, self-interested consumerism driven by status competition, towards a more socially integrated and affiliative society'. 'Greater equality can help us develop the public ethos and commitment to working together which we need if we are going to solve the problems which threaten us all.'

Within this conceptualisation, culture is cast as a minor player in the social determination of health, a subsidiary variable in explaining health inequalities. The research regards culture mainly in categorical terms of class, subcultures, ethnicity or race, and so as a dimension of socio-economic status (Corin 1994; Eckersley 2001, 2006). The WHO Commission on Social Determinants of Health (2008) acknowledges culture and social norms and values as important distal, or 'upstream', determinants, but only briefly in the context of the structural determinants of social hierarchy and inequity. As quoted above, Wilkinson and Pickett (2010a) mention materialism, self-interest and consumerism, and 'a more individualistic economic philosophy or view of society' (p. 193), but reject culture as a major influence on wellbeing. Like the WHO Commission's report, Wilkinson and Pickett believe inequality comes first and influences culture. Cultural factors cannot be regarded as 'rival explanations' of the associations of social and health problems with inequality, they say (p. 191). Rather than blaming things like parenting, religion, values, or education, 'we will show that the scale of inequality provides a powerful policy lever on the psychological wellbeing of all of us' (p. 5).

However, it is conceptually and empirically flawed to attribute qualities like self-interest and consumerism so narrowly to inequality. If psychosocial factors are involved in social inequalities in health, then culture needs to be given more attention because it is a powerful influence on psychosocial processes. Culture affects the extent to which a society tolerates, or even promotes inequality, rather than discouraging it. If perceptions of social status influence levels of stress and anxiety, then cultural factors also play a critical role: for example, amplifying a sense of relative deprivation through media images of 'the good life' and celebrity lifestyles that are increasingly beyond the reach of most people; or moderating it by providing alternative cultural models, such as downshifting and simple living, that undermine conventional social comparisons. Culture also influences the social distribution of risk behaviours like smoking and alcohol use, modifying income-

related health gradients and helping to explain why more unequal countries do not always have more unequal health (Mackenbach et al. 2008).

More importantly, culture has a wider significance as a system of meanings and symbols that defines how people see the world and their place in it, and gives meaning to personal and collective experience (Corin 1995). Every aspect of reality is embedded within webs of meaning that define a certain worldview and that vary with individuals, times and societies. In other words, cultures define what we know about the world, and so what we do; in this sense they are fundamental to population health and wellbeing. It is not obvious, for example, that income inequality would have more impact on social relations, including social comparisons and status competition, than the way modern Western culture construes the self and its relations to others through qualities such as individualism and materialism, as discussed later (Eckersley 2001, 2006, 2007).

The effect on health of culture, in the broader sense of the dominant or defining belief system of a society, is gaining more attention in the population health literature (Corin 1994, 1995; Eckersley 2001, 2006, 2007; Carlisle and Hanlon 2007; Hanlon and Carlisle 2009). It is also examined in other disciplines such as psychology, sociology and anthropology. However, each discipline defines and conceptualises culture differently, making it a contentious and difficult subject to research (Eckersley 2007).

So, to be clear, I have emphasised culture not because it has been totally overlooked, or to claim that it is the dominant determinant, or to make sharp distinctions with structure, but to highlight its underestimation in the research on social determinants of health, especially as reflected in the income inequality hypothesis, and to illustrate the complexity of factors affecting health. This includes the ways in which cultural influences interact, often multiply and reciprocally, with structural factors like inequality, but also act on health independently of inequality.

In other words, Inequality might well be one important determinant of health. It could also be seen as a key mediating variable, one social lens (age, sex and ethnicity are others) through which more fundamental structural and cultural changes in modern societies (e.g., economic growth, globalisation, urbanisation, technological change, growth of mass and social media, environmental damage, individualisation, materialism and neoliberalism) are 'refracted' to produce differing outcomes.

Young people's wellbeing

The patterns and trends in the health and wellbeing of young people, whose lives best reflect contemporary society, are another way to demonstrate the complex nature of social impacts on health. The research here poses several challenges to the purported importance of income inequality on health: generally speaking, adverse trends in youth wellbeing in developed countries began when inequality was falling, and appear to have plateaued and even declined since the 1990s (at least on some measures, including suicide and crime), when inequality has been rising (Twenge 2011; Collishaw 2015). Some studies show little or no socio-economic gradients in young people's psychological wellbeing, and some even higher levels of disorder among the well-off (Eckersley 2008). And even where socio-economic gradients exist, they do not explain changes over time: increases have occurred across all social groups.

Research implicates a wide range of factors in young people's wellbeing, going well beyond inequality to include changes in the domains of family, education and work; media and communication technologies; religion and spirituality; diet; residential mobility; social relationships and isolation; physical activity, outdoor play and experience of nature; and exposure to environmental contaminants (Eckersley 2012).

Beyond these specifics - and acting on many of them - are broader cultural factors including--to give just two specific examples in Western nations--excessive materialism and individualism. Research shows, for example, that materialism--giving priority to money and what it buys--has increased among young Americans over several generations, a rise attributed to cultural reinforcement and social instability and disconnection (Twenge and Kasser 2013). Materialism was already rising rapidly in the 1970s (the earliest data used in the study) and peaked in about 1990, so the trend does not track that of inequality. Materialistic values are associated with: lower life satisfaction, happiness and vitality, and higher depression and anxiety; less prosocial and cooperative behaviours, and more antisocial and competitive behaviours; and more environmentally damaging and unsustainable choices and lifestyles.

Reflecting increasing individualism as well as materialism, other studies have found that extrinsic goals (money, image, fame) have become more important since the 1960s among American high school and college students, and intrinsic goals (self-acceptance, affiliation, community) less important; concern for others, civic orientation and environmental action have declined (Twenge, Campbell and Freeman, 2012). Such trends have obvious implications for the quality of social relations, and so health and wellbeing. Other US studies have taken adverse trends in young people's psychological health back as early as the 1930s, so spanning a sustained period of declining inequality (Twenge et al. 2010).

In arguing for a new narrative of *declining* health and wellbeing among young people in developed countries, I have suggested that the central dimension of the changed trajectory in their health over recent decades is a shift in relative importance from structural determinants to cultural; from socio-economic deprivation to psychosocial deprivation (Eckersley 2011). The costs include a loss of social integration, intrinsic worth, moral clarity and existential confidence. One result is that mental health problems have become more significant, accounting for by far the biggest share of the burden of disease in at least some Western countries. Most mental illness begins in childhood, adolescence and early adulthood and affects younger people in the most productive years of life, increasing the personal, social and economic costs (Eckersley 2008). In contrast, the burden of chronic physical diseases such as cancer, stroke and heart disease falls predominantly on the elderly.

Science and ideology

I have argued that the impact of inequality, especially income inequality, on health has become widely known and accepted outside the research community, despite that the relationship between inequality and health remains contested among researchers after decades of investigation. One reason that research into health inequalities, both within and between countries, has attracted so much attention and support is that it resonates with a progressive ideology, which emphasises social justice and equity, at a time when neoliberalism or market fundamentalism has become more powerful, and inequality is rising in many countries.

This appeal is understandable: the research fits within the current political paradigm, with its contest between the progressive left and the conservative right. Inequality is also relatively easily addressed through changes in public policy in areas such as taxation, housing, education and health. On the other hand, recognising the complex dynamics of social influences on health suggests far deeper, systemic changes in society are required (Eckersley 2012).

In raising my doubts about the role of inequality in health with epidemiological colleagues, one cautioned against a 'narcissism of small differences' (where differences are exaggerated to enhance or distinguish one's own position). The key is to bring together people who want to move society forward rather than emphasising differences, even when these are not that small, he said.

However, science must strive to rise above ideology, and this is especially important in politically laden issues like inequality. Furthermore, there are costs in overstating the importance of inequality (as distinct from poverty and disadvantage) to health. First, given the legitimate doubts and uncertainties about the research, it risks weakening the arguments for equality. More importantly, in the wider context of humanity's problematic future, the case for fundamental change becomes much stronger when we look, not just at inequality, but at all the structural and cultural foundations of modern life, and the multiplicity of their interactions. Reducing inequality may well be a good thing for many reasons, including improving health, but it will not solve the persistent and sometimes worsening problems of population health and wellbeing.

Conflict of Interest

The author declares that he has no conflict of interest.

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