9-2017

Tackling the health gap: The role of psychosocial processes

Nancy E. ADLER
University of California, San Francisco

Jacinth J. X. TAN
Singapore Management University, jacinthtan@smu.edu.sg

Commentary: Tackling the health gap: the role of psychosocial processes

International Journal of Epidemiology, 2017, 1329–1331
doi: 10.1093/ije/dyx167
Advance Access Publication Date: 1 September 2017

Nancy E Adler* and Jacinth JX Tan

Center for Health and Community, University of California San Francisco, San Francisco, CA, USA

*Corresponding author. Center for Health and Community, UCSF, 3333 California Street, Suite 465, San Francisco, CA 94115, USA. E-mail: Nancy.Adler@ucsf.edu

Accepted 25 July 2017

In *The Health Gap*, Michael Marmot describes how, starting even before birth, social conditions set individuals on trajectories that eventuate in inequities in health and longevity. In addition to race and ethnicity, socioeconomic status linked to income and education plays a major role in determining health trajectories. The effects emerge not only at the very bottom of the socioeconomic spectrum, but across the whole range.[1]

The fact that health effects persist at levels where resources are more than adequate to fulfill material needs suggests that the health gap is not due only to material privation associated with poverty, but also to social processes created by relative disadvantage. Given this, understanding and addressing the experience of relative deprivation is needed along with tackling adversities of material deprivation.

Absolute versus relative disadvantage

Marmot's work, along with that of others, shows that the question of whether absolute or relative poverty matters more for health is the wrong one to ask—both matter. Absolute poverty—and policies that can change the distribution of material resources—rightly capture our attention. However, if we ignore the impact of relative status and the psychosocial processes that damage health, we will be ignoring potentially potent levers for improving health and eliminating inequalities.

Research using the MacArthur Ladder of Subjective Socioeconomic Status (SSS) has directly examined the association of with people's perceptions of where they stand vis-a-vis others on the key elements of socioeconomic status (SES). The measure is a simple drawing of a 10-rung ladder on which individuals place themselves relative to those at the top (those with the most money and education and best jobs) and the bottom (those with the least money and education and worst jobs or no job). As they should given the instructions, scores on the ladder reflect objective income and education but are not perfectly correlated with them. In both cross-sectional and longitudinal studies, ladder scores are significantly related to a wide range of outcomes, including health behaviours, mental health and self-reported and objective measures of physical health (e.g. blood pressure, biomarkers of cortisol and immune function, and mortality rates). When examined together in relation to a given health outcome, SSS shows an independent association, beyond that with objective indicators.

The robust findings for SSS may be due to its ability to capture both objective and subjective status. In reporting where they stand relative to others, people may not only consider the objective indicators of their income and education, but also more nuanced aspects of what benefits and constraints these confer. For example, two people may have the same number of years of schooling, but the quality of the education may endow them with different skills and opportunities. Similarly, individuals with degrees from elite universities are likely to have more life opportunities and enjoy more respect than those graduating from 'lesser' schools. In placing themselves on the ladder, people may factor in both the objective fact that they possess a college degree and the subjective reality of what it actually gives them.

Opinions vary about the utility of the ladder as a tool in understanding the health gap. Some have suggested using the SSS ladder as the only measure of SES, given the findings noted above. Others have criticized its use out of concern that it 'psychologizes' socioeconomic disadvantage and ignores the adverse conditions of those in poverty. We believe neither response is correct. Echoing Marmot's 'both/and' conclusion about absolute and relative socioeconomic position, we would argue for a 'neither/nor' conclusion about abandoning or relying exclusively on the ladder to characterize SES. A complete assessment of SES should engage both the objective components and the person's subjective assessment of how these combine to determine their overall position and experience.

Psychosocial processes

Both absolute and relative socioeconomic status influence health and longevity by getting 'under the skin' and affecting disease processes. The direct biological consequences of factors such as undernutrition and exposure to carcinogens and toxins, which occur frequently with absolute poverty, are easily recognized, whereas psychosocial pathways that reflect the experience of relative deprivation are less visible. The following are some examples of these less visible processes.

Chronic stress

Lower SES individuals are more likely to live and work in environments where they encounter conflict and threat, and have fewer options for managing such stressors. The combination of threat and lack of control engages the HPA (hypothalamic-pituitary-adrenal) axis to increase levels of cortisol and mobilize energy for 'fight or flight'. When the immediate threat passes, cortisol levels return to baseline. Although this stress response is adaptive in dealing with imminent threat, repeated cycles can create wear and tear on the body (described as 'allostatic load'), suppress immune system functioning and lead to adverse cardiometabolic consequences.[2]

Cognitive adaptations

Cognitive adaptation to the exigencies of one's environment can engender health-damaging processes. Repeated exposure to threat can heighten a person's expectations of future threats and increase the chances that a given encounter will be appraised as threatening. Such an appraisal triggers a stress response. In contrast, appraising it as a tractable challenge elicits a more benign physiological response.[3] In a self-reinforcing cycle, more frequent experiences of stress can heighten feelings of hopelessness and lack of control, which, in turn, increase the likelihood that subsequent events will be appraised as threats rather than as challenges.

Along with generating greater stress, resource-poor conditions encourage cognitive strategies that deal with immediate threats but which carry longer-term costs of their own. For instance, deprived environments tend to promote risk aversion and greater discounting of future consequences, which deter financial investments that provide greater pay-offs at a later time. These cognitive patterns may also limit investments in one's long-term health.[3]

Affect

Affective states associated with lower relative status may affect physiological risk and suppress the immune system. Social comparisons made by those in lower socioeconomic positions can elicit feelings of shame and anxiety. These two 'social' emotions have been linked to both elevated cortisol levels, and proinflammatory cytokine activity.[5] Frequent encounters with others of higher status that prompt perceptions of unfairness may also engender feelings of distrust and hostility. These affective states have been found to predict a higher risk of cardiovascular disease.[6]

Health behaviours

Health behaviours, such as smoking, exercise and diet, are major contributors to morbidity and mortality. As Marmot observes, these are not simply lifestyle choices but are determined by social conditions associated with SES. Impoverished individuals and communities often lack resources that enable healthier choices, and face greater obstacles to engaging in health-promoting behaviours. Health-damaging behaviours are driven, as well, by psychosocial processes linked to stress exposure. For instance, smoking and eating 'comfort foods' can help individuals regulate negative emotions resulting from stress exposure, but increase the risk of obesity, diabetes, lung cancer and cardiovascular disease.

Understanding the functions served by health-damaging behaviours may help us avoid blaming individuals for whom such behaviours are not freely chosen. In line with this, we have argued elsewhere for a 'behavioural justice' frame.[7] Echoing environmental justice, this perspective emphasizes that the powerful effect of behaviours on health makes it unjust for those lower on the SES hierarchy to be deprived of the resources they need to engage in healthy behaviours. This places primary focus on the availability of resources, whereas personal responsibility is invoked only when resources are adequate. Ultimately, it places the onus on society to generate the conditions that allow healthy choices, and deflects blame from individuals constrained by inadequate resources.

Inequality as an independent contributor

In addition to discussing health effects of absolute and relative differences in socioeconomic status, Marmot raises the question of whether income inequality plays an independent role. Income inequality has been growing in a number of nations, with economic resources increasingly concentrated in fewer hands at the very top. Greater income inequality may exacerbate the health gap associated with absolute income to the extent that greater income inequality discourages investments in public resources and reduces material resources for the less affluent. It could also exacerbate the health gap associated with

relative status by generating more adverse social comparisons and greater stress. The impact of the former would fall most heavily on those with the least resources, whereas the impact of the latter could affect people at all income levels.

Research findings on the relationship of the Gini coefficient to morbidity or mortality have been mixed; effects appear to vary by the level at which inequality is assessed and by other contextual factors.[8] Most studies consider the health of the whole population, but a few have looked at the association of inequality and health specifically among the most and least affluent. Chetty *et al.* (2016)[9] examined life expectancy of those in the bottom and top income quartiles of the entire US population. The usual graded association of income and life expectancy was found in the whole population. Furthermore, parallel to findings reported by Marmot,[1] life expectancy across metropolitan areas differed more for low- than for high-income individuals. Unexpectedly, however, no association emerged between the Gini coefficient of communities and the life expectancy of those in the bottom income quartile living in those areas. In fact, the three most unequal communities in the US—Miami, New York and Los Angeles—were among those in which low-income residents had the longest life expectancy. The authors' speculation about this finding invokes both absolute and relative status. They argue that even if they are more unequal, more affluent and educated communities may have more resources to support public expenditures (also found by Boustan *et al.* 2013)[10], as well as social norms and policies favouring health-promoting behaviours.

In contrast, in the most affluent quartile, Chetty *et al.* (2016)[9] found higher mortality in communities with greater income inequality. This may reflect psychosocial processes stemming from social comparisons. Income has expanded most for the top 1% (and even within this group, the top 0.01%). Those in the top quartile may be affected by the growth in the number of super-rich above them. They may experience more competition for some kinds of resources, along with more negative upward comparisons and stronger feelings of relative deprivation.

Closing the health gap

After many years of research describing health inequities and identifying some of the underlying mechanisms, Marmot, and others like ourselves, hope to inform and encourage policies and interventions that will reduce the health gap. Just as multilevel analyses provide a more complete understanding of the determinants of the gap, it is our strong belief that multilevel interventions are likely to be most effective in changing population health outcomes. Interventions involving psychosocial mechanisms such as health behaviours, sense of control and social comparisons are not substitutes for more upstream efforts to close the gap; rather, they expand the targets for change.

Consideration of psychosocial processes together with material conditions should enable more effective policies and programmes. Modifying structural factors that generate and maintain socioeconomic inequalities will have the most extensive impact in the long run, but structural change is slow and uncertain. Psychosocial interventions that buffer the impact of existing socioeconomic conditions can benefit individuals and populations in the interim, and may potentiate the impact of structural changes as they occur. In brief, no one approach is more important; both structural- and individual-level approaches are indispensable paths to take to mitigate—and eventually eliminate—the health gap.

Conflict of interest: None declared.

References

1. Marmot M. The health gap: the challenge of an unequal world. *Int J Epidemiol* 2017.
2. Seeman T, Epel E, Gruenwald T, Karlamangla A, McEwen B. Socio-economic differentials in peripheral biology: Cumulative allostatic load. *Ann N Y Acad Sci* 2010;**1186**:223–39.
3. Blascovich J, Mendes WB. Challenge and threat appraisals: The role of affective cues. In: Forgas J (ed). *Feeling and Thinking: The Role of Affect in Social Cognition*. Paris: Cambridge University Press, 2000.
4. Haushofer J, Fehr E. On the psychology of poverty. *Science* 2014;**334**:862–67.
5. Kemeny ME, Shestyuk A. Emotions, the neuroendocrine and immune systems, and health. In: Lewis M, Haviland-Jones JM, Barrett LF (eds). *Handbook of Emotions*. New York, NY: Guilford Press, 2008.
6. Gallo LC, Matthews KA. Understanding the association between socioeconomic status and physical health: Do negative emotions play a role? *Psychol Bull* 2003;**129**:10–51.
7. Adler NE, Stewart J. Reducing obesity: Motivating action while not blaming the victim. *Milbank Q* 2009;**87**:49–70.
8. Wilkinson RG, Pickett KE. Income inequality and population health: A review and explanation of the evidence. *Soc Sci Med* 2006;**62**:1768–84.
9. Chetty R, Stepner M, Abraham S *et al*. The association between income and life expectancy in the United States, 2001–2014. *JAMA* 2016;**315**:1750–66.
10. Boustan L, Ferreira F, Winkler H, Zolt EM. The effect of rising income inequality on taxation and public expenditures: Evidence from U.S. municipalities and school districts, 1970–2000. *Rev Econ Stat* 2013;**95**:1291–302.