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Understanding why the accomplishments of the welfare state generally will not reduce health inequalities as they are typically measured

Lawlor et al.[1] premise their study of association between childhood socioeconomic position (SEP) and cardiovascular disease risk among a population born in Scotland in the 1950s on the expectation that improvement in the socioeconomic circumstances of low SEP groups after the introduction of the welfare state would reduce or eliminate that association. They then find that, against a backdrop of overall declines in cardiovascular disease, there has been no evident weakening of the relationship between cardiovascular disease and childhood SEP.

The authors' expectation, however, is unwarranted. The authors failed to consider the tendency whereby the rarer an outcome the greater the relative difference in experiencing the outcome. Such tendency is a consequence of the facts that as adverse outcomes decline they are increasingly concentrated among the most susceptible segments of the overall population and that disadvantaged groups comprise larger proportions of each increasingly more susceptible segment of the overall population. A corollary to the increase in the proportion that disadvantaged groups comprise of those continuing to experience an adverse outcome is an increase in the relative difference in rates of experiencing the outcome. An appraisal of whether such an increase that results solely from a decline in the prevalence of the outcome reflects a meaningful worsening of the relative situation of a disadvantaged group, however, must take into account that a decline in prevalence tends also to reduce relative differences in rates of avoiding the outcome.[2-6.]

Thus, as cardiovascular disease declines, there will be a tendency for relative socioeconomic differences in cardiovascular disease rates to increase. Such tendency may be partly or entirely offset (or enhanced) by genuine changes in the risk profiles of the groups being compared. But it is a sufficiently powerful tendency that marked declines in the prevalence of an outcome usually will result in increasing relative differences in rates of experiencing the outcome, and that rarer adverse outcomes will usually show larger relative socioeconomic differences than more common ones.

One observes an example of the latter pattern in the Lawlor study. While the authors consider the magnitude of the association with childhood SEP to be similar for coronary heart disease and stroke, the relative difference seems rather larger for stroke, the rarer outcome, than for cardiac heart disease (CHD). For example, Table 3 of the study shows that the hazard ratio of Category V versus with Category I/II is 3.4 (7.8 over 2.3) for stroke compared with 2.5 (20.5 over 8.3) for CHD. Whether or not the difference between these ratios is statistically significant, the pattern is one that one ought to expect.

In any case, given the substantial declines in cardiovascular disease in recent decades it should not be surprising that relative socioeconomic differences in experiencing these outcomes would continue (or increase) following the introduction of the welfare state, even if the welfare state was in fact making the risk distributions of the different social classes more similar. Further, the general impression that health inequalities in the United Kingdom worsened after the introduction of the welfare state,[7,8] a view based on increasing relative differences in mortality rates, needs to be reexamined. The recent recognition in The Public Health Observatory Handbook of Health Inequalities Measurement that relative differences in experiencing or avoiding adverse outcomes will tend to move systematically in opposite direction as the prevalence of an outcome changes may promote that reexamination.[9]

References:

1. Lawlor DA, Ronalds G, Macintyre S, et al. Family Socioeconomic position at birth and future cardiovascular disease risk: findings from the Aberdeen children of the 1950s cohort study. *Am J Public Health* 2006;96:1271-1277.
2. Scanlan JP. Can we actually measure health disparities? *Chance* 2006;19(2):47-51:
http://www.jpscanlan.com/images/Can_We_Actually_Measure_Health_Disparities.pdf
3. Scanlan JP. Measuring health disparities. *J Public Health Manag Pract* 2006;12(3):294 [Ltrr]: http://www.nursingcenter.com/library/JournalArticle.asp?Article_ID=641470
4. Scanlan JP. Race and mortality. *Society* 2000;37(2):19-35:
http://www.jpscanlan.com/images/Race_and_Mortality.pdf
5. Scanlan JP. Divining difference. *Chance* 1994;7:38-39,48:
http://jpscanlan.com/images/Divining_Difference.pdf
6. Scanlan JP. The misinterpretation of health inequalities in the United Kingdom. Paper presented at: British Society for Population Studies Annual Conference 2006, Southampton, England, Sept. 18-20, 2006:
http://www.jpscanlan.com/images/BSPS_2006_Complete_Paper.pdf
7. Shaw M, Dorling D, Gordon D, and Davey Smith G. *The Widening Gap: Health Inequalities and Policy in Britain*. The Policy Press: Bristol; 1999.
8. Davey Smith G, Shaw M, Mitchell R, Dorling D, and Gordon D. Inequalities in health continue to grow despite government's pledges. *BMJ* 2000;320:582.
9. Carr-Hill R, Chalmers-Dixon P. *The Public Health Observatory Handbook of Health Inequalities Measurement*. Oxford: SEPHO; 2005:
http://www.sepho.org.uk/extras/rch_handbook.aspx