

Study Guide #4, 10/04-10/06: Epidemiological Transitions

- Omran, Abdel R. "The Epidemiologic Transition: A Theory of the Epidemiology of Population Change." *Milbank Memorial Fund Quarterly* 49 (Oct 1971): 509-538.
- McKinlay, John B., and Sonja M. McKinlay. "The Questionable Contribution of Medical Measures to the Decline of Mortality in the United States in the Twentieth Century." *Milbank Memorial Fund Quarterly* (Summer 1977): 405-428.
- Wilkinson, Richard G. "The Epidemiological Transition: From Material Scarcity to Social Disadvantage?" *Daedalus* 123 (Fall 1994): 61-77.
- Marmot, Michael G. "Social Differentials in Health Within and Between Populations." *Daedalus* 123 (Fall 1994): 197-216.

Although historians have traditionally relied on written sources (e.g. journals, books, newspaper accounts, etc.), since the 1960s they have increasingly turned to quantitative sources and statistical analysis. Led by economic and demographic historians, these researchers have compiled data about everything from economic productivity (e.g. number of bales of cotton produced per year), consumer costs (e.g. price of food required to feed a plantation), or health status (e.g. stature of adults over time). They use this data to reveal historical trends over time (e.g. decreasing price of cotton) and to make historical arguments (e.g. the economic problems of plantation economies caused the Civil War).

In this phase of the course, I have used a wide range of quantitative data to describe and explain changing patterns of health and disease: data about population growth and decline, infant mortality, life expectancy at different ages, disease incidence and prevalence, etc. Sometimes the data has been central to our discussions, sometimes peripheral. This week's readings dive head first into detailed analyses of quantitative data. As a result, they require a different set of skills than the previous readings. These readings will also provide both models of analysis and sources of data for the first paper assignment (which will be distributed on Tuesday, 10/04).

When you do the readings, and when you encounter quantitative analysis in any field, whether history, social science, basic science, or engineering, it is crucial to remember a fundamental point: a fact or argument is not true simply because it is quantitative. Sources of data, especially as you go further back into history, can be extremely flawed (e.g. recall the problems with estimates of American Indian population sizes). And even if the data are correct, data can be analyzed incorrectly or presented in incredibly misleading ways (e.g. as amply

demonstrated in any presidential campaign). Therefore, as you read the four articles this week, always keep in mind the following questions. 1) What are the sources of their quantitative data? 2) Are these sources credible and, if not, in what directions are they likely to be biased? 3) Are the data presented in an honest and straight-forward way? 4) Are the authors reaching the best conclusions based on the available data? 5) What other data would you like to have to be convinced?

Omran, “Epidemiological Transition”: An Egyptian-born epidemiologist, Abdel Omran trained at Columbia, worked briefly on the Navajo reservation in the 1950s, and went on to become a leading figure in international public health. This article, written in 1971, has become one of the most cited articles in the field of public health. Although the idea of an “epidemiological transition” might seem obvious and intuitive to us now, Omran was really the first to describe and attempt to explain the phenomena. This article is an attempt to distill order out of chaos, by defining different models of the transition (classical, accelerated, delayed), with each model tracking a population through the same stages (age of pestilence, age of receding epidemics, age of man-made diseases). He also makes some preliminary speculations about the causal factors behind the demographic transition. Is this a helpful model? Are his explanations plausible? Keep one thing in the back of your mind: subsequent work has shown that the fertility transition (which Omran sees as secondary) is likely the driving force behind the epidemiologic transition; fertility is much harder to study than mortality, and remains poorly understood.

McKinlay and McKinlay, “Questionable Contribution”: John McKinlay is an epidemiologist and medical researcher at Boston University and Massachusetts General Hospital. Sonja McKinlay is a biostatistician who specializes in clinical trials. The two co-founded the New England Research Institute, a large public health research company based in Watertown. This paper was written in the 1977, at an early stage in what has become a heated debate. As discussed in lecture on 09/29 (and by the McKinlays), Thomas McKeown argued that medical care made little contribution to the decline of tuberculosis. This critique of medicine became extremely popular in the 1960s and 1970s as anti-establishment radicals challenged established authorities and institutions in society. Medicine, and especially psychiatry, came under fierce attack, with some arguing that organized medicine was a “nemesis” that actually threatened the health and well-being of societies (for the most recent version of this, see Tom Cruise’s recent exchange with Brooke Shields about postpartum depression). This article was an attempt to make a reasoned contribution to this debate. They acknowledge the flaws of health data, then justify why they use them anyway (pp. 410-411) -- do you agree? They say figure 2 reveals an “absurdity” -- can you think of a good reason why health care spending would be expected to

increase as mortality decreased (see figure 3)? Take time to understand the data presented in table 1, which is re-presented in part in the graphs in figure 4. Do you accept the italicized conclusions on p. 425? Those of you interested in medical careers should think especially carefully about this (as do I -- as a doctor, am I simply a misguided drain on the national budget?).

Wilkinson, "Material Scarcity to Social Disadvantage": Richard Wilkinson is a professor of social epidemiology at the University of Nottingham Medical School in England. His immensely productive (countless books and articles) research has focused on the social determinants of health and health inequalities. He uses his findings to offer advice on how the significant ill-health in many countries could be relieved. What is the "health climacteric" (p. 67), and why is it important, both historically and for public policy? What evidence does he present to demonstrate the impact of income inequality on health outcomes? Are you convinced? He argues that social supports are a crucial determinant of health. Is this plausible -- is having friends good for your health? He does not think that the goal of economic development should be to increase per capita income. Why not? What else should it be? Do you agree?

Marmot, "Social Differentials": Sir Michael Marmot, a professor of epidemiology at University College of London, has spent twenty years as the principal investigator of the Whitehall studies of British civil servants. He was knighted in 2000 for services to epidemiology and understanding health inequalities (are you as impressed as the Queen was?). What is the Whitehall study? What features of its research subjects make it an enormously useful vehicle for Marmot's arguments? How does the data from the second Whitehall study advance the arguments made from the first Whitehall study? Marmot has become interested in the problem of "relative deprivation" (p. 204). How might relative deprivation cause ill health? Are you convinced? What policy recommendations does Marmot make? Do you agree with them? Are there others that would be suggested by the data?