Multilevel models and scientific progress

Multilevel models and scientific progress in social epidemiology

Jeffrey B Bingenheimer

Formidable institutional barriers stand in the way of rigorous theory development in social epidemiology.

Innovation in the technical means of empirical inquiry is a necessary and perhaps inevitable component of scientific progress. New tools not only allow investigators to study phenomena that had previously been inaccessible to them, but also permit them to look at existing phenomena in novel ways, and occasionally provide metaphors that serve as building blocks of original theory.1–2 Yet technical innovation also poses dangers. Among these is the possibility that people lacking the requisite training effectively will be excluded from meaningful participation in scientific discourse. As the methods of empirical research grow more specialised, those who have mastered their use may become increasingly insulated from the criticism of their peers. And science without criticism is bound to go badly.

The question, then, is not whether ownership of the “black box” approach to chronic disease epidemiology with a multilevel ecological perspective.

Formidable institutional barriers stand in the way of rigorous theory development in social epidemiology. Governmental and other funding sources are interested almost exclusively in supporting empirical research targeting specific health outcomes. Promotion, tenure, and other forms of professional recognition follow along the same lines. Yet somehow we social epidemiologists must find ways of rewarding serious theoretical work on a par with empirical work. For without strong theory we have little basis for knowing what parameters are truly worth measuring—what data to collect, what statistical models (multilevel or otherwise) to fit to them, and how to interpret the results. Continued progress of our field may depend more critically at this point upon our ability to promote theoretical innovation than upon our proper use of the latest statistical methodology.

What this paper adds

This manuscript places the emergence of multilevel statistical models into the context of a critical evaluation of the field of social epidemiology.

Policy implications

The manuscript implicitly suggests that institutional sources of funding for health research should provide more support for the development of social epidemiological theory.

REFERENCES

Speaker’s corner

Prevention neglect. A utopian vision or time for a new social health contract?

Since the founding of the medical contract, several series of ethical norms based on the Hippocratic oath (460-370 BC) have been oriented to provide health care to those who are in need. The professional practice has generated some problems such as negligence (lack of due diligence or care; omission of duty; heedlessness), iatrogenia (disease produced as a consequence of medical or surgical treatment), or new modalities under the scope of the so called medical errors (http://www.ahrq.gov/qual/errorsix.htm).

When these problems are considered from the preventive point of view, the matter is not clearly solved, particularly in developing countries, where prevention has not reached a peak value. This gap can be explained by multiple factors and determinants that range from lack of health literacy to the absence of political awareness on the potential consequences of the omission of effective preventive interventions on a population’s health.

From the individual perspective and for certain groups of diseases, a set of clinical preventive services can be provided by the health system with verified benefits: screening, immunisations/chemoprophylaxis, and counselling. Community based interventions and public policies were also validated in terms of their effectiveness.

In developing countries, the right that a citizen has to claim for clinical preventive services or preventive public policies is not met with the same vehemence as with medical care. It is probable that both factors have a common denominator: absence of debate on setting health priorities and an impoverished society, especially in terms of civil rights.

Some vignettes coming from developing countries can enlighten the discussion: (1) 20 years ago, the death of a child by measles was accepted as “natural”, (the same situation today can ignite an institutional-political conflict), (2) women dying because of lack of accessibility to screening programmes for cervix cancer as an expression of the inequity in the access to preventive care, (3) poor health attributable to lack of health literacy in sexual and reproductive health behaviours as a proxy indicator for low coverage in health counselling activities to prevent sexually transmitted infections, (4) lack of state policies and regulations against tobacco as the most important contributing factor for the dissemination of the tobacco epidemic.

The question is: Can prevention needs be transformed into a human rights issue or, should the omission of effective preventive interventions be interpreted as a matter of negligence? Perhaps this is the moment to coin the term prevention neglect as an alternative concept to redefine the contract between policy makers, healthcare providers, and the community as a way to describe the cost of doing nothing.

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