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Latin American critical ('Social') epidemiology: new settings for an old dream

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Background Epidemiology's role as the 'diagnostic' arm of public health has submitted epidemiological reasoning and practice to the crossfire of oppositional social values and demands. In Latin America, the visible signs of extreme social and political authoritarianism and inequity, as well as the growing unfairness of the World economy, inspired a culture of social critique and a corresponding academic reform movement, which nurtured a profound social awareness among health scientists.

Aims The authors' aim is to call attention to the need to overcome this scientific North/South divide. An imperative, at a moment when the demolition of health standards under the pressures of global economic acceleration and 'unhealthy health policies,' confront us all with the common challenge of cross-fertilizing the strengths of academic traditions from both South and North.

Methods The present paper offers a fresh perspective from the South about the relevance of progressive Latin American public health (termed 'collective health') by highlighting a number of its hard scientific contributions which, unfortunately, remain almost unknown to mainstream medical and public health researchers outside Latin America.

Results An armed form of structural greed has now placed the world on the brink of destruction. At the same time, however, fresh winds blow in the continent.

Conclusion This paper is an invitation to confront the menacing forces producing our unhealthy societies and an opportunity to form fraternal partnerships on the intercultural road to a better world, where only an epidemiology of dignity and happiness will make sense.

Keywords critical epidemiology, social epidemiology, health science epistemology, collective health, Latin American

Over the past decades, epidemiology has evolved into an indispensable interpretative tool for understanding collective health in different societies. Its role as the 'diagnostic' arm of public health has, however, permanently submitted epidemiological reasoning and practice to the crossfire of oppositional social values and demands.

As is true of any scientific field—but particularly those, which provide tools for assessing the quality of life of a population and the success of its economic

and political providers—the paradigms and research models applied in epidemiology are not merely the result of the free will and autonomous decisions of its specialists—academic or non-academic; rather, they are a product of the interplay between individual ideas and operations, on the one hand, and the social forces, rules, facilities and obstacles, under which they must operate, on the other.

This complex determination implies that the science of epidemiology, like 'any other symbolic operation . . . is a transformed, subordinate, transfigured and sometimes unrecognizable expression of the power relations of a society'.¹ This is we can observe, in every period of history, confrontations between opposed

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epidemiological paradigms: the clash of conservative contagionism with the more progressive miasmatic doctrine in the 19th century; the confrontation between uncausal explanations and the initial ingenious social works in the first half of the 20th century and the opposition of the multicausal model and its operational arm, the risk paradigm, to critical epidemiology ever since.^{2,3}

In Latin America, the visible signs of extreme social and political authoritarianism and inequity, as well as the growing unfairness of the World economy, inspired a culture of social critique and a corresponding academic reform movement (entrenched in the major public universities). Together, these nurtured a profound social awareness among health scientists whose academic or public health roles placed them in direct contact with the devastating effects of hunger and poverty. This is the controversial trajectory under which epidemiology has developed since the late 1970s, transforming from a basic *knowledge formation* built around certain processes to a *discipline* constructed around partially defined objects, to becoming, finally, a *science* structured around clearly defined objects of study.⁴

The principal objective of this article is to offer a fresh perspective from the South about the relevance of progressive Latin American public health (termed 'collective health') by highlighting a number of its 'hard' scientific contributions, which, unfortunately, remain almost unknown to mainstream medical and public health researchers outside Latin America. This scientific discrimination has been blatant. As Charles Briggs and Howard Waitzkin have recently noted, 'two of the most significant developments in health scholarship and practice of our era—the social medicine and critical epidemiology movements in Latin America',⁵ remain largely unknown in the North, in spite of the pioneering 'theoretical, methodological, and empirical advances'⁶ produced by their practitioners.

The goal of this article is, therefore, to call attention to the need to overcome this scientific North/South divide. This is imperative at a moment when the demolition of health standards and the expansion of the so called 'pathologies of power',⁷ under the pressures of global economic acceleration and 'unhealthy health policies',⁸ confront us all with the common challenge of cross-fertilizing the strengths of academic traditions from both South and North in order to consolidate sound, critical, socially sensitive and intercultural epidemiology.

The Latin American critique of lineal reductionist epidemiology and the construction of critical ('Social') epidemiology

Modern mainstream epidemiology has expressly defined empiricism and positivism as its philosophical and theoretical roots, and adopted Hume's notion

of causation as the paramount principle of all epidemiological reasoning.^{9,10} Under this conceptual umbrella, a 4-fold interpretative manoeuvre continues to impoverish epidemiological analysis, consisting of: (i) a reductionist explanation of phenomena related to the generation of health (The *reductionist approach* consists of explaining wider domains of reality in terms of component units and interpreting that the individual parts of a social totality are ontologically precedent and explain the whole.); (ii) a resilience of the cause/effect association as the 'great organizer and logic of the Universe'¹¹ and of health causation; (iii) the reification of such causal relations as a formal scheme for identifying 'risk factors', and finally; (iv) the reduction of the notion of 'exposure' to an individual problem of a probabilistic nature.¹²

In the late 1970s, early foundational works of Latin American critical epidemiologists, which circulated in Spanish and Portuguese versions throughout the region, denounced the fact that McMahan's doctrine of multicausalism and its formal expression in the multicausal web, by then defining the canon of conventional epidemiology, did not solve the restrictive vision of uncausality. This model's failure was rooted in its tendency to reduce 'the determinant analysis to a set of lineal causal associations, [which] places social determinants in a peripheral [and] less important site within the web, with respect to factors that, according to this paradigm, [in fact] play a direct and more important role in the generation of problems'.¹³ It was nearly two decades later that a strikingly similar but late criticism appeared in the Northern literature, questioning McMahan's causal web because, in it, 'hierarchies are collapsed, and interest centres on estimating "independent" effects'. In doing this, the model implicitly tends to favour more proximate (and therefore biologic and individual/level) determinants over more distal and society-level ones.^{14,15} So even progressive epidemiologists of the North were misinformed or willing to disregard well known Latin American works in this field and blatantly ignored the original discussion the latter proposed about the category of 'social determination', as an alternative approach to understanding the problem of causation. This is not necessarily a problem of researchers' lack of willingness, but rather one of different scientific paradigms and action standards.

In fact, the construction of contemporary critical ('social') Latin American epidemiology started 30 years ago during the period of regional industrialization. Its *early formative period* was clearly influenced by labour health demands and based on a corporatist and unicultural theoretical matrix, which operated from the political horizon of a state-centred public health movement. Critical epidemiological analysis, at the time, mainly focused on proposing an alternative model of objectivity, which was needed to position social class inequity within the construction of epidemiologic studies.¹⁶

Later, during the late 1980s and early 1990s, social movements and progressive researchers faced the advent of economic neo-liberalism, the structural adjustment programmes of the World Bank, and ideological neoconservatism. In effect, these were the golden years of economic acceleration and the breakdown of public health, advanced by way of three main mechanisms: productive recomposition and high tech instantaneity of fluxes;¹⁷ fast track dispossession¹⁸ of vital public resources and the imposition of market fundamentalism, which opened the doors to a rapid penetration of overprotected foreign investments in fields like mining, agriculture and health. Rapid entrepreneurial expansion through economic monopolization provoked clearly unhealthy results, including social exclusion and massive labour force migration, the rupturing of familial units, the loss of nutritional, health and environmental sovereignty, the aggravation of inequitable resource distribution and the deterioration of ecosystems.¹⁹ These trends have taken such an unhealthy direction lately that a 'disaster' or 'shock' economy is no longer merely a metaphor; it is now, rather, an unashamed reality, deliberately proposed by the architects of utmost inequity and rapaciousness.²⁰ Through these pathways, collective health deterioration and environmental degradation multiply in the name of corporate progress and consumerism.²¹

Under such historical circumstances, the task of counter-hegemonic epidemiology became especially complex. An immediate challenge was to deconstruct the official discourse of conservative multiculturalism and of culturally relativistic interpretations of health problems, which worked parallel to the neoliberal political economy to justify the dissolution and decentralization of public health epidemiological programmes.²² In essence, the idiom of 'modernization' concealed a hidden agenda of privatization. Against this, epidemiological theory faced the need to construct a counterbalance to conservative 'post-normal' health theory and the tendency of affected actors to disperse their strategies for attaining health rights. This evolved into a second period of critical epidemiology, which focused on *diversifying the study of inequity and understanding the linkages between the ways that social, ethnic and gendered power relations were affected by the generalized mechanisms of economic acceleration*. Finally, during the late 1990s, the idea of an alternative knowledge and subjectivity matured, coinciding with the outburst of critical multiculturalism and indigenous people's demands for intercultural knowledge.²³

Global acceleration, therefore, appears to be the key issue necessary for contextualizing the new setting that progressive epidemiology confronts, in which the market economy and the increased reproduction rates of profit and capital are inversely proportional to the constriction of spaces for the fulfilment of life and health.

Some relevant contributions of critical epidemiology from Latin America

A complete review of all important contributions of Latin American critical epidemiology exceeds the scope of this article. Some publications²⁴ and international web pages²⁵ present detailed information about them, covering a wide range of authors by their country of origin. For the purpose of this abridged analysis, we may highlight some key developments needed to sustain a careful epistemological and methodological analysis and to enable a North-South epidemiological alliance to contribute to a more penetrating kind of public health.

In Latin American academic environments, reflection about a new critical health theory has linked three crucial elements that are inherently interrelated: health as an *object*; health as a *methodological concept* and health as a *field of action*.²⁶ Our proposition has been that it is not possible to develop a progressive critical content of any of the three elements if the other two are not simultaneously transformed; therefore, Latin American researchers have insisted that in order to develop a critical epidemiological paradigm we must intertwine three complementary transformations: first, the rethinking of health as a complex, multidimensional object, submitted to a dialectical process of determination; second, innovation of methodological categories and operations and, third, a transformation of the practical projections and relations of mobilized social forces.

In this final section we will try to organize a very brief synthesis of some of the fundamental methodological and health advocacy problems Latin American scholars have addressed (Figure 1). The fundamental categories of epidemiological description are: place (space), time, causation/exposure and subjectivity. Each of these categories has been directly or indirectly addressed, by different disciplines, in our attempt to produce a critical analysis of collectively relevant problems.

For instance, *Cristina Laurell's* central concerns have been economic structure, work and health policy. She pioneered the study of economic structural change and epidemiological patterns²⁷ before examining, with *Mariano Noriega*, the forms of human attrition under capitalist productive relations²⁸ and, more recently, the social determination of health policies.²⁹

Juan Samajás writings have been centrally concerned with issues of epistemology, semantics and the dialectical debate about method. His most important work holds some of the most powerful explanations of social dialectics, related to the movement between individual and collective social orders and the generative capacity of persons vs the social reproduction capacity of structural collective conditions. He also advanced a particularly insightful definition of multidimensionality as 'multiple determination under

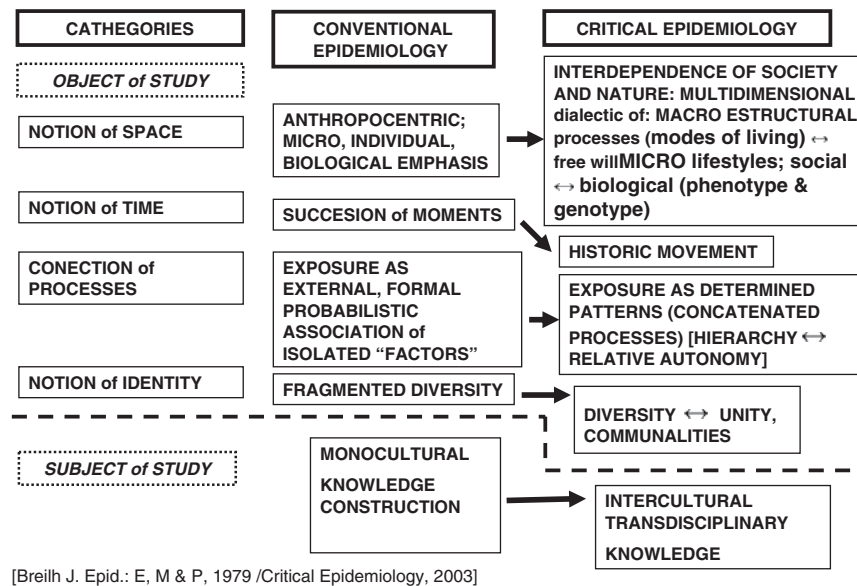


Figure 1 Latin American critical epidemiology: brief systematization of methodological contributions (70s to present)

hierarchical interphases'.^{30,31} Samaja's discussions have clarified a number of debates central to the field of epidemiology³² and any social science. He has provided fundamental indications for ways to operationalize theory into empirical data and for understanding the semantic structure of data itself.³³

Naomar Almeida has produced some of the most refined epistemological and historical analysis about health and epidemiological reasoning. His first theoretical incursions intervened into the debate about the object of epidemiology and the corresponding disjunctives regarding study designs. He scrutinized instrumental construction problems and key notions of validity, adding fundamental aspects to the debate about causation and calling attention, at the same time, to the importance of Bungés theory of causation³⁴ (of which, Breilh published a similar call years before in 1979).¹³ In a later work,³⁵ Almeida refreshed epistemological debate by undertaking a profound deconstruction of the concept of 'risk', a line of analysis that had also received deep attention by *Ricardo Ayres*. Ayres developed a historical reconstruction of the long road that epidemiology took from the perceptive era of contagion (in the 17th century), to the notion of observable transmission (in the middle of the 19th century) and finally to the probabilistic rationale of risk (in the middle of the 20th century).³⁶ Almeida has further proposed a particular notion of the 'mode of life' as a key category of epidemiological analysis, linked to his anthropological and ethnographical perspective of epidemiology. Almeida's contribution came after other Latin American epidemiologists had proposed a similar notion from different perspectives, such as *Ana Maria Tambellini*³⁷ and *Laurell and Noriega*,³⁸ who wrote from an occupational epidemiology perspective, and *Breilh*,

who adopted the modes of life perspective as a structured and dynamic dimension of the 'epidemiological profile'¹³ which articulates class, ethnic and gender power relations, which condition living structured patterns within specific collectivities.³⁹ All these authors stress the importance of collective determination over free will and individual life styles, Breilh's work assumed inequity power relations as a nodal category in epidemiology. *Cesar Victora*^{40,41} linked socially determined inequity to the understanding of its empirical evidence (inequality), with the powerful tool of refined mathematical analysis.

The authors own contributions have been produced in dialogue with the above social and academic actors making up this prolific Southern scenario of critical thinking about health. An early critique of positivism and causation and the pioneering proposal of the category of determination¹³ unchained a diverse methodological search⁴² constructed around the links of determination, both with the nature/society dialectic as well as with the multidimensional power structure of market societies. The tripartite notion of class, gender and ethnic inequity⁴³ was of central importance to his work for many years. Epidemiological research on the linkages between agro-industrial work and indigenous communities led to the study of intercultural knowledge building, the relations between modes of life and exposure patterns²³ and the design of community-based instruments for assessing the prevalent impacts of irresponsible and unsustainable production effects like toxicity and stress.⁴⁴

The Latin American authors cited above are merely illustrative examples of a significant intellectual and scientific community in the global South, whose production remains almost invisible to mainstream

science of the North. With their penetrating work, they have in many cases inspired, or directly pushed forward some powerful struggles for social and health rights. They have constructed a sound institutional and academic platform from which to exercise a democratic projection of science and mold an alternative public health movement. In doing so, many have learned that the knowledge of the people, their ancestral and present wisdom, is much more than a resource of sophisticated ethno-medical, and therapeutic knowledge. New, hard epidemiology has also much to learn from them, about integral notions of space, sustainable relations between nature and mankind, a healthy conception of time, a harmonious management of the planet's energies and about a fair, equitable and protective construction of social relations. Therefore, it's not surprising, the proximity in meanings of the indigenous kichwa word 'sumak kausai' (good living) with our academic 'healthy mode of life'.

An armed form of structural greed has now placed the world on the brink of destruction. At the same time, however, fresh winds blow in the continent. This article is an invitation to confront the menacing forces producing our unhealthy societies and an opportunity to form fraternal partnerships on the intercultural road to a better world, where only an epidemiology of dignity and happiness will make sense.

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