

# Introduction to Social Epidemiology

The study of social conditions and how these influence and determine the health situation of populations have always been a subject of interest and importance for public health in general. In recent years, a stronger tie between epidemiology and the social sciences has been forged,<sup>1</sup> promoted by the need to recognize and document the wide spectrum of health determinants, from a micro level, where individual biological factors operate, to a macro level that expresses social conditions in which populations live. This endeavor has given birth to the so-called “social epidemiology.”

The principal concern of social epidemiology is the study of how society and different forms of social organization influence the health and well-being of individuals and populations. In particular, it studies the frequency, distribution, and social determinants of the states of health in a population. Thus, social epidemiology goes beyond the analysis of individual risk factors to include the study of the social context in which the health-disease phenomenon occurs.<sup>2</sup>

In order to explain the path between exposure to social characteristics of the environment and its effects on public health, social epidemiology enriches the traditional epidemiological approach with concepts and techniques from social disciplines such as economics, sociology and demography, as well as biology. This fusion of techniques from different fields creates a methodological challenge. Examples of development in this field include the growing use of methods

of multi-level analysis in ecological design, control of the ecological fallacy, and the use of new applications of already known tools and techniques.

A constant and current concern in the global sanitary landscape is the presence of inequalities — particularly *social inequalities* — in health. Social epidemiology makes it possible to incorporate the social experience of populations in the traditional etiological approach to public health and, as a result, permits a better understanding of how, where and why inequalities affect health. In this regard, social epidemiology can contribute significantly to the health management process and the reduction of inequities in health.

As an introduction to this branch of epidemiology, we provide the readers of the *Epidemiological Bulletin* with an overview of its vocabulary, taking advantage of the Glossary for Social Epidemiology prepared by Dr. Nancy Krieger of the Harvard University School of Public Health. This glossary was recently published in the *Journal of Epidemiology and Community Health*, which kindly authorized its reproduction in the *Bulletin*. It will be published in two parts. The second part will be included in the June 2002 issue of the *Bulletin*.

## References:

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## A Glossary for Social Epidemiology

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### PART I

Why “social epidemiology”? Is not all epidemiology, after all, “social” epidemiology? In so far as people are simultaneously social and biological organisms, is any biological process ever expressed devoid of social context?—or any social process ever unmediated by the corporal reality of our profoundly generative and mortal bodies?<sup>1,2</sup> Yet, despite the seeming truism that social as well as biological processes inherently shape population health—a truism recognized even in the founding days of epidemiology as a scientific discipline in the early 19th century—not all epidemiology is “social epidemiology”.<sup>3,4</sup> Instead, “social epidemiology”

(which first attained its name as such in English in 1950<sup>3,5</sup>) is distinguished by its insistence on explicitly investigating social determinants of population distributions of health, disease, and wellbeing, rather than treating such determinants as mere background to biomedical phenomena. Tackling this task requires attention to theories, concepts, and methods conducive to illuminating intimate links between our bodies and the body politic; toward this end, the glossary below provides a selection of critical terms for the field.

One brief note of explanation. Some entries contain only one term; others include several related terms whose mean-

ings are interdependent or refer to specific aspects of a broader construct. Additionally, each entry is cast in relation to its significance to social epidemiology; explication of salience to other disciplines is beyond the scope of this particular glossary.

### **Biological expressions of social inequality**

*Biological expressions of social inequality* refers to how people literally embody and biologically express experiences of economic and social inequality, from in utero to death, thereby producing social inequalities in health across a wide spectrum of outcomes.<sup>1,2,6</sup> Core to social epidemiology, this construct of “biological expressions of social inequality” has been evident in epidemiological thought—albeit not always explicitly named as such—since the discipline’s emergence in the early 19th century, as exemplified by early pathbreaking research (for example, conducted by Louis René Villermé (1782–1863)) on socioeconomic gradients in—and effects of poverty on—mortality, morbidity, and height.<sup>3,7,8</sup>

Examples include biological expressions of poverty and of diverse types of discrimination, for example, based on race/ethnicity, gender, sexuality, social class, disability, or age. Whether these biological expressions of social inequality are interpreted as expressions of innate versus imposed, or individual versus societal, characteristics in part is shaped by the very social inequalities patterning population health.<sup>1,6</sup> The construct of “biological expressions of social inequality” thus stands in contrast with biologically deterministic formulations that cast biological processes and traits tautologically invoked to define membership in subordinate versus dominant groups (for example, skin colour or biological sex) as explanations for social inequalities in health.

### **Discrimination**

*Discrimination* refers to “the process by which a member, or members, of a socially defined group is, or are, treated differently (especially unfairly) because of his/her/their membership of that group”.<sup>9</sup> This unfair treatment arises from “socially derived beliefs each [group] holds about the other” and “patterns of dominance and oppression, viewed as expressions of a struggle for power and privilege”.<sup>10</sup>

People and institutions who discriminate adversely accordingly restrict, by judgement and action, the lives of those against whom they discriminate.<sup>6</sup> At issue are practices of dominant groups—both institutionally and interpersonally—to maintain privileges they accrue through subordinating the groups they oppress (intentionally and also by maintaining the status quo) and the ideologies they use to justify these practices, with these ideologies revolving around notions of innate superiority and inferiority, difference, or deviance.<sup>6</sup> Predominant types of adverse discrimination are based on

race/ethnicity, gender, sexuality, disability, age, nationality, and religion, and, although not always recognised as such, social class. By contrast, positive discrimination (for example, affirmative action) seeks to rectify inequities created by adverse discrimination.

Social epidemiological analyses of health consequences of discrimination require conceptualising and operationalising diverse expressions of exposure, susceptibility, and resistance to discrimination, as listed below, recognising that individuals and social groups may be subjected simultaneously to multiple—and interacting—types of discrimination:<sup>6</sup>

*Aspects of discrimination:*

*Type:* defined in reference to constituent dominant and subordinate groups, and justifying ideology

*Form:* structural, institutional, interpersonal; legal or illegal; direct or indirect; overt or covert

*Agency:* perpetrated by state or by non-state actors (institutional or individuals)

*Expression:* from verbal to violent; mental, physical, or sexual

*Domain:* for example, at home; within family; at school; getting a job; at work; getting housing; getting credit or loans; getting medical care; purchasing other goods and services; by the media; from the police or in the courts; by other public agencies or social services; on the street or in a public setting

*Level:* individual, institutional, residential neighbourhood, community, political jurisdiction, national, regional, global

*Cumulative exposure to discrimination:*

*Timing:* intrauterine period; infancy; childhood; adolescence; adulthood

*Intensity:* severe to mild

*Frequency:* chronic; acute; sporadic

*Duration:* timespan over which discrimination is experienced

Responses to discrimination can similarly be analysed.<sup>6</sup>

### **Ecosocial theory of disease distribution**

*Ecosocial*<sup>1,2</sup> and other emerging multi-level epidemiological frameworks<sup>11,12</sup> seek to integrate social and biological reasoning and a dynamic, historical and ecological perspective to develop new insights into determinants of population distributions of disease and social inequalities in health. The central question for ecosocial theory is: “*who and what is responsible for population patterns of health, disease, and wellbeing, as manifested in present, past, and changing social inequalities in health?*” Adequate epidemiological explanations accordingly must account for both persisting and changing distributions of disease, including social inequali-

ties in health, across time and space. To aid conceptualisation, ecosocial theory uses a visual fractal metaphor of an evolving bush of life intertwined with the scaffolding of society that different core social groups daily reinforce or seek to alter.<sup>1,2</sup> A fractal metaphor is chosen because fractals are recursive structures, repeating and self similar at every scale, from micro to macro.<sup>2</sup> Thus, ecosocial theory invites consideration of how population health is generated by social conditions necessarily engaging with biological processes at every spatiotemporal scale, whether from subcellular to global, or nanoseconds to millennia.<sup>1</sup>

Core concepts for ecosocial theory accordingly include<sup>1</sup>:

(1) *embodiment*, a concept referring to how we literally incorporate, biologically, the material and social world in which we live, from in utero to death; a corollary is that no aspect of our biology can be understood absent knowledge of history and individual and societal ways of living.

(2) *pathways of embodiment*, structured simultaneously by: (a) societal arrangements of power and property and contingent patterns of production, consumption, and reproduction, and (b) constraints and possibilities of our biology, as shaped by our species' evolutionary history, our ecological context, and individual histories, that is, trajectories of biological and social development.

(3) *cumulative interplay between exposure, susceptibility, and resistance*, expressed in pathways of embodiment, with each factor and its distribution conceptualised at multiple levels (individual, neighbourhood, regional or political jurisdiction, national, inter-national or supra-national) and in multiple domains (for example, home, work, school, other public settings), in relation to relevant ecological niches, and manifested in processes at multiple scales of time and space.

(4) *accountability and agency*, expressed in pathways of and knowledge about embodiment, in relation to institutions (government, business, and public sector), communities, households, and individuals, and also to accountability and agency of epidemiologists and other scientists for theories used and ignored to explain social inequalities in health; a corollary is that, given likely complementary causal explanations at different scales and levels, epidemiological studies should explicitly name and consider the benefits and limitations of their particular scale and level of analysis.

More than simply adding “biology” to “social” analyses, or “social factors” to “biological” analyses, the ecosocial framework begins to envision a more systematic integrated approach capable of generating new hypotheses, rather than simply reinterpreting factors identified by one approach (for example, biological) in terms of another (for example, social).<sup>1</sup>

## Embodiment

A core concept for understanding relationships between the state of our bodies and the body politic; see definition in entry on “ecosocial theory”.

## Gender, sexism, and sex

Gender refers to a social construct regarding culture-bound conventions, roles, and behaviours for, as well as relationships between and among, women and men and boys and girls.<sup>13–15</sup> Gender roles vary across a continuum and both gender relationships and *biological expressions of gender* vary within and across societies, typically in relation to social divisions premised on power and authority (for example, class, race/ethnicity, nationality, religion).<sup>6, 15</sup> *Sexism*, in turn, involves inequitable gender relationships and refers to institutional and interpersonal practices whereby members of dominant gender groups (typically men) accrue privileges by subordinating other gender groups (typically women) and justify these practices via ideologies of innate superiority, difference, or deviance.<sup>6, 13–15</sup> Lastly, *sex* is a biological construct premised upon biological characteristics enabling sexual reproduction.<sup>14, 16</sup> Among people, biological sex is variously assigned in relation to secondary sex characteristics, gonads, or sex chromosomes; sexual categories include: male, female, intersexual (persons born with both male and female sexual characteristics), and transsexual (persons who undergo surgical and/or hormonal interventions to reassign their sex).<sup>14</sup> Sex linked biological characteristics (for example, presence or absence of ovaries, testes, vagina, penis; various hormone levels; pregnancy, etc) can, in some cases, contribute to gender differentials in health but can also be construed as *gendered expressions of biology* and erroneously invoked to explain *biological expressions of gender*.<sup>1, 16</sup> For example, associations between parity and incidence of melanoma among women are typically attributed to pregnancy related hormonal changes; new research indicating comparable associations between parity and incidence of melanoma among men, however, suggests that social conditions linked to parity, and not necessarily—or solely—the biology of pregnancy, may be aetiologically relevant.<sup>17</sup>

## Human rights and social justice

*Human rights*, as a concept, presumes that all people “are born free and equal in dignity and rights”<sup>18</sup> and provides a universal frame of reference for deciding questions of equity and social justice.<sup>18–21</sup> Operationally, translated to the realm of political and legal accountability, “international human rights law is about defining what governments *can* do to us, *cannot* do to us, and *should* do for us”<sup>19</sup> [italics in the original], so as to respect, protect, and fulfill their human rights obligations.<sup>19, 20</sup> Human rights norms are premised, in the first instance, upon the 1948 Universal Declaration of Human

Rights<sup>18</sup> and its recognition of the indivisibility and interdependence of civil, political, economic, social, and cultural rights.<sup>18–21</sup> A “health and human rights” framework thus not only spurs recognition of how realisation of human rights promotes health but also helps translate concerns about how violation of human rights potentially harms health into concrete and actionable grievances that governments and the international community are legally and politically required to address. Understanding of what prompts violation of human rights and sustains their respect, protection and fulfillment is, in turn, aided by *social justice* frameworks, which explicitly analyse who benefits from—and who is harmed by—economic exploitation, oppression, discrimination, inequality, and degradation of “natural resources”.<sup>21–24</sup> Together, both frameworks provide concepts relevant for analysing social determinants of health and for guiding action to create just and sustainable societies.

### Lifecourse perspective

*Lifecourse perspective* refers to how health status at any given age, for a given birth cohort, reflects not only contemporary conditions but embodiment of prior living circumstances, in utero onwards.<sup>25–27</sup> At issue are people’s developmental trajectories (both biological and social) over time, as shaped by the historical period in which they live, in reference to their society’s social, economic, political, technological, and ecological context. One component may involve what has been termed “biological programming”, referring to “the process whereby a stimulus or insult, at a sensitive or “critical” period of development, has lasting or lifelong significance”<sup>27</sup>; which of these processes, under what circumstances, are reversible is an important empirical and public health question.

### Multi-level analysis

*Multi-level analysis* refers to statistical methodologies, first developed in the social sciences, which analyse outcomes simultaneously in relation to determinants measured at different levels (for example, individual, workplace, neighborhood, nation, or geographical region existing within or across geopolitical boundaries).<sup>28–31</sup> If guided by well developed conceptual models clearly specifying which variables are to be studied at which level,<sup>28</sup> these analyses can potentially assess whether individuals’ health is shaped by not only “individual” or “household” characteristics (for example, individual or household income) but also “population” or “area” characteristics; the latter may be “compositional” (for example, proportion of people living in poverty) or “contextual” (irreducible to the individual level, for example, income distribution, population density, or absence of facilities, such as supermarkets, libraries, or health centres).<sup>30,31</sup>

### Poverty, deprivation (material and social), and social exclusion

To be *impoverished* is to lack or be denied adequate resources to participate meaningfully in society. A complex construct, *poverty* is inherently a normative concept that can be defined—in both absolute and relative terms—in relation to: “need”, “standard of living”, “limited resources”, “lack of basic security”, “lack of entitlement”, “multiple deprivation”, “exclusion”, “inequality”, “class”, “dependency”, and “unacceptable hardship”<sup>32</sup>; see “socioeconomic position” (below). Also relevant is whether the experience of poverty is transient or chronic.

According to the United Nations, as elaborated in the *Human Development Report 2000*, two forms of poverty can be distinguished: “human poverty” and “income poverty”.<sup>21</sup> *Human poverty* is “defined by impoverishment in multiple dimensions—deprivations in a long and healthy life, in knowledge, in a decent standard of living, in participation”; *income poverty*, by contrast, “is defined by deprivation in a single dimension—income”.<sup>21</sup> From this perspective, income poverty constitutes a critical (but not exclusive) determinant of human poverty, including the latter’s expression in compromised health status.

*Deprivation*<sup>33</sup> can be conceptualised and measured, at both the individual and area level, in relation to: *material deprivation*, referring to “dietary, clothing, housing, home facilities, environment, location and work (paid and unpaid),” and *social deprivation*, referring to rights in relation to “employment, family activities, integration into the community, formal participation in social institutions, recreation and education”.<sup>34</sup> *Poverty thresholds* accordingly can be set at: (a) An income level (for example, poverty line) determined inadequate for meeting subsistence needs, or (b) “the point at which resources are so seriously below those commanded by the average individual or family that the poor are, in effect, excluded from ordinary living patterns, customs, and activities”, such that the poverty line equals “the point at which withdrawal escalates disproportionately to the falling resources”.<sup>33</sup>

*Social exclusion*, another term encompassing aspects of poverty, in turn focuses attention on not only the impact but also the process of marginalisation.<sup>33, 35</sup> Avenues by which social groups and individuals can become excluded from full participation in social and community life include: (a) legal exclusion (for example, de jure discrimination), (b) economic exclusion (due to economic deprivation), (c) exclusion due to lack of provision of social goods (for example, no translation services or lack of facilities for disabled persons), and (d) exclusion due to stigmatisation (for example, of persons with HIV/AIDS) and de facto discrimination.

# Psychosocial epidemiology

A psychosocial framework directs attention to both behavioural and endogenous biological responses to human interactions.<sup>1</sup> At issue is the “health-damaging potential of psychological stress”, as “generated by despairing circumstances, insurmountable tasks, or lack of social support”<sup>36</sup>. Typically conceptualised in relation to individuals, its central hypothesis is that chronic and acute social stressors: (a) alter host susceptibility or become directly pathogenic by affecting neuroendocrine function, and/or (b) induce health damaging behaviours (especially in relation to use of psychoactive substances, diet, and sexual behaviours).<sup>1, 4, 36</sup> “Social capital” and “social cohesion”, in turn, are proposed (and contested) as population level psychosocial assets that potentially can improve population health by influencing norms and strengthening bonds of “civil society”, with the caveat that membership in certain social formations can potentially harm either members of the group (for example, group norms encourage high risk behaviours) or non-group members (for example, harm caused to groups subjected to discrimination by groups supporting discrimination).<sup>1, 37–40</sup>

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Source: This article was initially published in the Journal of Epidemiology and Community Health (*J Epidemiol Community Health* 2001;55:693–700)