

Epidemics

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DEFINITION

Epidemic (from the Greek *epi*, upon, and *demos*, the people) is commonly defined as the greater than expected occurrence of illness and health-related behavior, in a given place, within a given period. Over time, usage of the term has broadened from its initial focus on infectious disease to include non-infectious diseases such as cancer, health-related behavior (drug use, suicides, obesity), and, more recently, social phenomena such as computer viruses – “anything that adversely affects a large number of persons or objects and propagates like a disease” (Martin and Martin-Granel 2006, 979). The term “pandemic” is generally reserved for epidemics that spread globally and give rise to universal concern.

Before the 1970s, many assumed that modern medicine had conquered or contained infectious disease. With the emergence of HIV/AIDS, followed by SARS and avian flu, expectations quickly shifted from an overly optimistic to a pessimistic scenario of a world threatened by the return of infectious disease. A US National Academy of Sciences, Institute of Medicine report (Lederberg, Shope, and Oaks 1992), which called attention to emerging (and/or resurgent) infectious disease (EID), focused on the contributing factors: demographic and environmental conditions, advances in technology, economic development, changes in land use, and international trade and travel. Another impetus to renewed interest in epidemics was the concern with bioterrorism sparked by the sarin attack in

Japan, anthrax threats in the United States, and the general security climate following the terrorist attacks of September 11, 2001.

SOCIAL HISTORY AND RELEVANCE

Reference to epidemic disease figures in the accounts of early civilizations and has given rise to culturally various systems of explanation, prevention, and treatment, including scientific medicine.

Beginning with Hippocrates in 430 BCE, medicine has been the best known and earliest discipline concerned with epidemics. As a discrete scientific field, epidemiology (literally the scientific study of epidemics) emerged in the seventeenth century to focus upon the distribution of patterns of mortality and morbidity within and between populations. Epidemiology, in turn, gave rise to the applied science of public health. From a public health perspective, Krieger (2011) notes several stages in the development of epidemiological theory: the shift from theories of miasma and contagion to microbes and genes in the late nineteenth/early twentieth century; the emerging interest in the broader social environment in the 1930s; and, beginning in the 1950s, the consolidation of mainstream theory modeled on scientific medicine, with its focus on biomedicine and lifestyle. In addition to mainstream epidemiological theory, Krieger also notes the importance of more critical alternative frameworks such as social/political epidemiology with its roots in the work of Virchow and Engels in the late nineteenth century, and ecologically based theories that link societal and ecological systems.

These approaches emphasize that epidemics are not solely the provenance of medicine

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or public health but are deeply embedded in social/historical processes. For example, epidemics figure prominently in the evolving history of cities. The outbreak of plague in early medieval European cities is linked to new forms of regulation and social control, as well as to the development of local infrastructure and administration – sanitation systems, hospitals, departments of public health and safety (Hall and Tewdwr-Jones 2011). Social and biological scientists have linked the emergence and spread of infectious disease to other major social, political, and economic trends: industrialization (Engels 1845; Virchow 1985 [1848]), expanding networks of trade and production (Diamond 1997), new consumption patterns and standards of living, new technologies and forms of warfare. Current concerns with globalization and the threat of biological terrorism continue these dynamic linkages.

This has made for an increasingly complex view of the relationship between the various elements of the social, political, and ecological system within which an epidemic may emerge, spread, and/or be contained. In the words of one public health historian, “germs, if they are involved at all, are merely one part” (Alcabes 2009, 119). One consequence of this reformulation is that interest in epidemics has become more broadly multidisciplinary and is currently the purview of diverse social sciences – anthropology, sociology, political science, geography, social psychology, international relations (security studies), and media studies, along with the biological sciences, public health, and health policy; of researchers as well as practitioners.

SOCIAL SCIENCE PERSPECTIVES

Looking at current research and practice, several thematic and analytic concerns dominate current macro and micro approaches to epidemics.

Risk and uncertainty

The concept of risk is probably the most widely used and the most influential of these concerns. Epidemiologically, risk refers to the statistical probability of morbidity and mortality associated with different population groups. Risk has moved into sociological and cultural studies through the writings of Douglas on cultural usage and cultural variation (1992), Beck on risk society (1992), and Foucault on governmentality, a discourse which enables social control (1991). Emphasizing the cultural, political, and social aspects of risk, these perspectives view risk as socially constructed and thus innately political (Lupton 1999).

The concept of risk has been used by scholars to critically examine the perception and response to epidemics by the mass media, the public, and government agencies; more conventionally, by policymakers to assess and manage the epidemiological and social impact of epidemic disease. There are tensions between these two approaches and uses. For example, the use of outbreak analysis or mathematical modeling to calculate the risk of a given event or to plan a public health response typically assumes risks as a given, whereas critical scholars examine the social construction of a particular epidemic by asking who defines the event as an epidemic or emerging infectious disease and how it is “staged.” Although viral ecology is dynamic and complex and although empirical research continues to underline our lack of knowledge regarding many if not all aspects of epidemics (origins, incidence, mitigation), they ask the Foucauldian question: What are the socio-political functions of using a risk discourse, with its accompanying technocratic strategies to handle uncertain events such as epidemics? Applying Beck’s formulation of “world risk society,” defined by new risks related to scientific progress as well as to globalization,

they examine how changing methods of production (agribusiness, biomedical technologies) or scientific progress itself contribute to emerging infectious disease, and link epidemics to threats from nuclear accidents and terrorism as well as earthquakes, hurricanes, or climate change.

Globalization and governance

The related concepts of globalization and governance figure prominently in epidemic policy, practice, and research. The re-emergence of infectious disease in the context of globalization has given rise to attempts to create a transnational system of global health governance under the rubric of the World Health Organization (WHO); this includes surveillance and sharing of emerging infectious disease, pandemic alerts, and distribution of vaccines and drugs. Governance issues have attracted students of international affairs and legal scholars as well as geographers and urban sociologists. In his analysis of the 2003 SARS epidemic, Fidler (2003) identified a new non-state-centric health governance template, noting that the WHO gained a significant degree of technical control over global health during the 2003 event. This thesis is not undisputed and a growing literature discusses issues related to national sovereignty and global governance. Geographers and urban sociologists link epidemics and emerging infectious disease to global cities theory with its focus on nodes and networks, transportation links, and permeable borders, making for the flow of microbes as well as people and information (Ali and Keil 2006). The governance literature raises questions about the relation between social and medical inequality, explores inequalities within global actor networks (global north and global south), and examines human rights concerns, as well as the impact of a

range of neoliberal policies on the origin, incidence, and mitigation of epidemics.

The perception of increased vulnerability that has accompanied globalization has moved biosecurity and biopolitics to center stage. One consequence is that epidemic and pandemic planning have been incorporated into national (and international) security regimes where they have become strategic research sites for social scientists as well as for public health and emergency preparedness planners.

Collective behavior, disaster studies

The study of health behavior related to epidemics has built upon sociological work on collective behavior and social deviance – stigma, moral panic, sociopsychological trajectories (Strong 1990; Goode and Ben-Yehuda 1994), as well as the sociology of disasters. Studying behavioral response to epidemic regulations, sociologists have found cultural differences associated with different diseases as well as population groups (Quah 2007). Disaster studies, initially funded by the US government for military and civil defense needs, suggest that social factors contribute to even the most seemingly natural disasters and emphasize the importance of pre-existing class-, race-, and gender-based inequities in disasters.

This is obviously not an exhaustive outline of themes in the social science literature on epidemics. Moreover, researchers and practitioners tend to draw upon more than one analytic stream in their work (Dingwall, Hoffman, and Staniland 2013).

EPIDEMICS AND SOCIAL SCIENCE

To summarize, over time we have adopted an increasingly multicausal view of both the cause and solution of epidemics. An overview of the empirical as well as the analytic literature underlines the need to look *beyond* the

microbe, at the role of social factors including technology and neoliberal development strategies. Similarly, solutions – whether forms of containment or mitigation – are equally multiplex, complicated by political and cultural diversity as well as by political economy. There are tensions between types of interventions (individual, social) and social structures (democratic, authoritarian). Civil rights are differently perceived in different societies. A democratic, society, for example, may resist social interventions and opt for individualized responsibility. Even if a strong form of global health governance succeeds, the response to a given epidemic may remain historically contingent and essentially local.

This scenario presents opportunities for social science. Although scholars and practitioners have overlapping interests and draw upon similar concepts, there is relatively little cross-disciplinary conversation. More dialogue might help identify gaps in knowledge, assess the relative contribution of differing factors, deepen analytic formulations, bridge the division between the global north and the global south, and lessen the divide between theory and practice.

SEE ALSO: Emerging and Re-Emerging Infectious Diseases; Health Policy; Infectious Disease; Pandemic Preparedness and Response; Public Health

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