HEALTH AND DEMOGRAPHY

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Keywords: health , demography , population , public health , morbidity , disability , disablement process , perceived health , physiologic frailty , health classifications , cross-sectional surveys ,chronological series , selection , attrition , health interview surveys (HIS) , health examination surveys (HES) , incidence rate , prevalence rate , summary measures of population health , health expectancy , disability-free life expectancy , lengthening of life , population ageing , gender gaps , international comparison

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Summary

The connection between health and demography is complex. Whilst demography is essentially a scientific discipline, health is a wide ranging concept. In this chapter we attempt to describe the main issues on health useful to demographers. After a brief introduction, Section 2 discusses the various ways that health has been understood and measured from different standpoints: clinical, functional and sociological as well as the more recent evolution of the notion of frailty. The major classification systems for diseases and disability are then described. In Section 3 we describe different ways in which health data is collected and the main issues concerned with the principal method that concerns demographers: the health survey. Section 4 reviews the basic population health indicators in use by epidemiologists (prevalence, incidence and mortality) and extends this to a composite summary measure, health expectancy, combining information on mortality and morbidity. The history of health expectancies is then described and how they are being used to monitor population health within Europe and the US today. In the final section we explore research questions in a specific health expectancy, that of disability-free life expectancy.

1. Introduction: The overlap between Health and Demography

The connection between health and demography is complex. Whilst demography is essentially a scientific discipline, health could be construed as more a sector of activity

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(services, industry and research). Health is also a wide ranging concept and there have been many attempts to define it. To provide a general outline of health and demography is therefore not as simple as describing the interface between two concepts such as health and population or two disciplines such as epidemiology and demography.

When we consider the health of a population we are not far removed from the notion of public health which is commonly defined as an organized effort to protect and improve the health of a community. Obviously demographers have contributed towards this common effort, through for instance, the fight against infant and maternal mortality during the 20th century or monitoring and understanding the changes in the causes of death as mortality fell, known as the epidemiological transition (Omran 1971). The usual topics shared by demographers, epidemiologists and other health specialists comprise low birthweight, infant mortality, suicide and contraception among others.

Moreover demographers have significantly invested in the social questions which emerged at the end of the 20th century, including gender inequality and age discrimination. For instance they produced significant work on "missing" females in developing countries. They became the main data providers for monitoring United Nations policies in terms of human rights, such as gender, ageing or disability mainstreaming, (*See for example: http://www.un.org/womenwatch/osagi/gendermainstreaming.htm, http://www.globalaging.org/agingwatch/events/CSD/2005/mainstreaming%20leaflet.htm, http://www.who.int/gender/mainstreaming/en/*) through participation in survey programmes such as the Generations and Gender Programme (Robine and Jagger 2007) and implementation of specific ageing or disability surveys at national or international levels. Health is always an important component of these surveys and monitoring health systems or health service access are often used to highlight inequalities between the socially advantaged and disadvantaged.

More demographic motivations such as population ageing, the lengthening of life and the emergence of extremely old persons also led the demographers to take a greater interest in population health. The introduction of health in the life table, allowing the years lived and the life expectancy to be decomposed in different kind of years according to available health information, is an example of this new interest. Henceforth, the calculation of life expectancy is completed in many countries by the calculation of disability-free life expectancy or by the calculation of life expectancy in good perceived health (for the UK see Breakwell and Bajekal 2006). The Chinese Longitudinal Healthy Longevity Survey (Yi 2004) is a good example of the new demographic surveys aiming at providing health and functioning data at the national level. Such surveys allow disability-free or active life expectancy to be calculated and prevalence of functional dependency of the oldest old to be estimated. By this means health expectancy as a measure of population health became a major topic in demography.

2. Health Data: The Different Concepts of Health and the Main Classifications

In contrast to mortality, notions such as health or morbidity are difficult to define. For the United Nations "*Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity*" (United Nations 1946). The multi-dimensional nature of health is empirically "defined" by the multiplicity of

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definitions, some of which are largely perceptual whilst others are largely functional. For Canguilhem (1979) disease is not a variation of health status; it is a new dimension of life. Health provides a degree of tolerance against environmental challenges. Therefore, to be in good health is the ability to fall ill and recover. This dynamic approach fits well with the recent notion of frailty defined as a syndrome of decreased reserve and resistance to stressors (Fried at al 2001).

In practice health is usually measured by assignment to one of several categories which lie along a unique dimension stretching from healthy (good health) to unhealthy (bad health). Perceived health is one example of this as measured by 'How would you rate your health in general? Excellent, very good, good, bad, very bad'. Sometimes the proposed categories range from perfect health to death but most of the time only the negative part of the health dimension is described. Variability in health, such as variability in robustness or variability in reserve is often overlooked. Today being healthy means things as different as:

- Having no active disease;
- Being able to fall ill and recover;
- To feel in excellent or very good health;
- To perform daily activities without difficulty;
- To be able to face daily stress;
- To have good health practices;

Diseases are often seen as the causes of unhealthy states such as poor health perception, disability or death and vice versa unhealthy states as the consequences of diseases. The first health models gave great importance to diseases whilst current models give more room to social factors such as social interaction. The classifications of disability illustrate this change. The first classification (ICIDH) focused on the disablement process from diseases and impairments to disability and social handicap whilst the second one (ICF) equally considers environmental barriers (World Health Organization 1980 and 2001a). A person with a functional limitation may perceive himself in good health. On the other hand, Canguilhem (1979) considers that good health practices are not necessarily a measure of good health since some healthy people may practice risky behaviours because of ignorance, underestimation of risk or overestimation of their capacity to maintain their health.

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Biographical Sketches

Jean-Marie Robine is a Research Director at INSERM, the French National Institute of Health and Medical Research, and head of the *Health and Demography* team at the Department of Biostatistics, University of Montpellier 1, France. He attempts to measure the impact that the continuation of increases in life expectancy may have on the health status of the population. In particular, he works on the measure of disability and on the evolution of the health status of populations. He also studies human longevity, with the aim of understanding the relations between health and longevity.

Since its creation in 1989, he has been the coordinator of the *International Network on Health Expectancy* (REVES), which brings together more than 150 researchers from more than 100 research institutes or universities in over 30 countries worldwide. He is the project leader of the *European Health Expectancy Monitoring Unit* (EHEMU), supported by the European Union. He is also responsible for the development of the *International Database on Longevity* (IDL) in association with the main research demographic centres. In the field of the genetic of longevity, he is one of the principal investigators of the *Genetic of Healthy Ageing* project (GEHA, Sixth European Research Framework, 2004-2009). Lastly, he is the chair of the *European Task Force on Health Expectancies* (EU TF-HE) established by the European Commission.

Carol Jagger is Professor of Epidemiology at the University of Leicester and Director of the Leicester Nuffield Research Unit. Carol's research areas are in the epidemiology of ageing and longevity with a focus on mental and physical functioning and in particular the disablement process and is acknowledged as the leading UK researcher on health expectancy. She has been a member of REVES, the International Network on Health Expectancy and the Disability Process, since 1992, has been co-investigator of all the Euro-REVES projects including the European Health Expectancy Monitoring Unit (EHEMU) and co-author of the book Determining Health Expectancies. Within Euro-REVES her research role has included methodological work, developing measures of the disability process for the European Core Health

Interview Survey (ECHIS) and the translation guidelines and tools for ECHIS.

She is Deputy leader of the EC Task Force for Health Expectancy and sits on the Steering Group of the European Health Survey System.

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