3 Population Health and Social Epidemiology

Learning Objectives

In this chapter, you will learn to

- Understand the origins and meaning of key concepts in population health and social epidemiology
- Understand how preventive medicine differs from the pursuit of improved population health
- describe and compare the principal theoretical frameworks that link an individual's context to his or her health
- appreciate the significance of the "gradient in health"

Chapter Overview

The chapter begins with a definition of the term *social epidemiology* and provides a brief history of the scientific developments in this field. The chapter lists key focus areas for social epidemiologists and identifies how social epidemiology differs from clinical epidemiology. Social epidemiology links individuals to the social context in which illness is produced and experienced.

The second part of the chapter is devoted to key contributors to social epidemiology, beginning with Rose's paradoxes and the importance of focusing on society-wide health initiatives when seeking to improve population health. Rose's principal conclusions demonstrate that interventions targeting high-risk individuals are not very effective on the social scale.

Next, the chapter reviews several studies in the health field that had major implications for the study of population health, such as the Whitehall Studies, the Black Report, and the works of Richard Wilkinson. The chapter also introduces the concept of social gradient in health and concludes with offering materialist, neo-materialist, and psychosocial explanations for the existence of social gradient in health.

Key Terms and Concepts

Body mass index (BMI) a commonly used measure of obesity. BMI = kg/m^2, weight in kilograms divided by height in metres squared (p. 79).

Clinical epidemiology focuses on risk factors within a host–agent model (p. 75)

Gradient in health or a health gradient, is a different level of health associated with each social position (p. 84)

Health utility index a rating scale that is applied to measure health in a population (p. 88)

Latent events events that are present, but not yet discovered (p. 77).

Materialist hypothesis suggests that the resources available to individuals (e.g. income, level of education) determine their health (p. 89)

Neo-materialist hypothesis focuses on the idea of resources available to the individual, similar to the materialist hypothesis, but it is broadened to include a range of communal and public resources, as well as tax policy (p. 90)

Placebo effect real health outcomes occurring as a result of a person's beliefs (p. 75)

Prospective cohort study a longitudinal study that follows a particular cohort for a number of years (p. 83)

Psychosocial hypothesis posits that the feelings of stress that arise regarding an individual's position ultimately drive his or her health status (p. 91)

Psychosomatic illness individual's experience of illness that is not associated with any physiological signs of disease (p. 75)

Social epidemics rapid spread of ideas, messages, and other products of social interaction among population (p. 75)

Social epidemiology the branch of epidemiology that studies how social position and context influence human health (p. 75)

Study Questions

Scroll down for answers.

1. Identify the four major features of social epidemiology.

2. Explain Rose's paradoxes.

3. Explain the main conclusions of the Whitehall Studies.

4. Explain the differences between materialist and neo-materialist hypotheses.

Critical Thinking Questions

Scroll down for answers.

1. Explain the key areas of focus for social epidemiology. How does it connect individual and society?

2. Which approach can achieve more impact on population health—targeting high risk groups or focusing on small changes to the overall population? How would Rose respond to this question? Are there cases where the focus on one over the other is warranted?

3. Explain the differences between materialist and psychosocial explanations of the social gradient in health. Which approach do you find more sound and why?

Annotated Multimedia Resources

1. Interview with Sir Michael Marmot
   https://gradlectures.berkeley.edu/lecture/inequalities-in-health-life-and-death-on-the-social-gradient/ (58 min)
   In this interview, Dr Sir Michael Marmot discusses his work on social gradient in health.

2. The Whitehall Studies: The Lower the Grade, the Higher the Mortality Rate
   https://www.youtube.com/watch?v=wR3MdpSNvMU (7:33 min).
   This short video is a clip from a documentary called Stress – Portrait of a Killer. The video explains the relationship between stress and work and discusses the findings from the Whitehall Studies.

3. Stress – Portrait of a Killer: A Documentary
   https://www.youtube.com/watch?v=eYG0ZuTv5rs (56 min)
   This documentary explains the biological and social mechanisms through which stress impacts our health. The documentary also makes references to the Whitehall Studies.

4. Ted Talk with Richard Wilkinson: How Economic Inequality Harms Societies
   https://www.youtube.com/watch?v=cZ7LzE3u7Bw (16.54 min)
   In this Ted Talk, Dr Richard Wilkinson links social and economic inequalities to poor health.

5. Health Inequalities: Social Determinants of Health Film (Glasgow)
   https://www.youtube.com/watch?v=aS3-MZZyVNI (9:02 min)
   This short video is produced by the National Social Marketing Centre and discusses social determinants of health in three countries: Scotland, Denmark, and Slovenia. The link between social policy and planning and individuals' health is explained.

6. Richard Wilkinson, Social Epidemiology
   https://www.youtube.com/watch?v=5FMYwfMDdys (3.25 min)
   In this short video, Dr Richard Wilkinson explains social epidemiology and its major focus.

7. Social Institutions: Government, Economy, Health, and Medicine. Khan Academy
   https://www.youtube.com/watch?v=L72h7bk6HZs (4:51 min)
   This video produced by the Khan Academy explains the links between government structure, economic conditions, health, and medicine.

8. The Black Report, 1980
   https://www.sochealth.co.uk/national-health-service/public-health-and-wellbeing/poverty-and-inequality/the-black-report-1980/
   This website by the Socialist Health Association summarizes the Black Report and offers a variety of resources, including interviews with key figures in health policy and the blogs related to the topics of health and social inequality.

Answers to Study Questions

1. The four major features of social epidemiology:
   - Social epidemiology takes a population-level perspective.
   - Social epidemiology concerns itself with the social context of behaviour.
   - Social epidemiology relies on multi-level analyses.
   - Social epidemiology takes a developmental, life-course perspective. (p. 76)
2. If, on the one hand, we treat only high-risk people, we will not do much to improve the overall health of the population. If on the other hand we change the average-risk profile, we will not have much effect on the average individual. (p. 80)
3. The Whitehall Studies demonstrated the existence of social gradient in health. They showed that not only people from the lower socio-economic status have more risky health behaviours and more disease, but also that this association is consistent with each decrement in social position. (pp. 84–85)
4. The materialist hypothesis focuses on the relationship between material resources available to an individual and his or her health. For instance, if I cannot afford going to the dentist, I may not be able maintain good health of my teeth. Neo-materialist hypothesis adds to this a consideration of the social safety net—what is available in society through taxation or social benefits. For instance, if Canada had free dental care, I would not need to pay out of pocket for cleaning my teeth and therefore would not be affected by the lack of money when it comes to dental care. (pp. 89–90)

Answers to Critical Thinking Questions

1. Social epidemiology concerns examination of the impact of social environment on the individual. It focuses on the interaction between the individual and society and examines how these can contribute to the health status of individuals. Since it takes a close examination of the social context, it can be argued that it closely examines the links between individuals and their social environment. It is also complex as it considers the pathways through which individuals may be predisposed to certain illnesses. Finally, it takes into account the temporality of exposure. (pp. 76–77)
2. Rose would argue that it is more beneficial to focus on making small changes to the population overall as opposed to targeting high-risk individuals. This is because proportionally fewer numbers of people are in high-risk groups. However, when the health problem is concentrated in a particular segment of the population, it makes more sense to target this population. For instance, taking population health measures to improve road safety seems reasonable, but in the case of HIV/AIDS, it would make sense to target high-risk groups. (p. 81)
3. Materialist explanations focus on the access to resources—income, education, housing, etc. The more resources an individual has, the more likely that individual will be to have good health. According to the psychosocial theories, it is not the absolute deprivation, but relative deprivation that makes a difference. If I am among the minority who is unable to get access to resources that everyone else has, it contributes to my stress levels, which, in turn, worsen my health. While both explanations seem feasible, there are some criticisms linked to the psychosocial explanations that were proposed by Wilkinson. (pp. 89–91)