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Perspective

Perspective of Epidemiology Understanding

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INTRODUCTION

The Greek terms epi, which means on or upon, demos, which means people, and logos, which means the study of, are the roots of the English word epidemiology. In other words, the word epidemiology has its roots in the study of what befalls a population. There have been many definitions put forth, but the following one best captures the fundamental ideas and public health spirit of epidemiology: Indeed, Epidemiology is the study of the frequency and causes of disease occurrence in various populations. Planning and assessing illness prevention plans as well as serving as a manual for the treatment of patients in whom disease has already manifested employ epidemiological data.

Epidemiology is the study of the prevalence and causes of health-related conditions or occurrences in particular populations, as well as the application of this study to the prevention and treatment of health issues. Epidemiologists frequently throw searchlight on "causes," "risk factors," and "modes of transmission [1].

Some of the key terms in this definition represent significant epidemiological concepts.

Study

The foundation of the scientific discipline of epidemiology is sound scientific inquiry. Epidemiology is data-driven and relies on a systematic and unbiased approach to the collection, analysis, and interpretation of data. In order to determine whether what was observed, such as the number of disease cases in a specific location during a specific time period or the frequency of an exposure among people with disease, differs from what might be expected, basic epidemiologic methods frequently rely on careful observation and the use of valid comparison groups. However, biostatistics, informatics, and the biological, economic, social, and behavioral sciences are all used in epidemiology along with other scientific disciplines [2].

In fact, epidemiology is often described as the basic science of public health, and for good reason. First off, epidemiology is a quantitative field that requires a basic understanding of statistics, probability, and reliable research techniques. In order to explain health-related behaviors, states, and occurrences, epidemiology is a way of causal reasoning that relies on formulating and testing hypotheses based on scientific disciplines like biology, behavioral sciences, physics, and ergonomics. However, epidemiology is not just a research activity but an integral component of public health, providing the foundation for directing practical and appropriate public health action based on this science and causal reasoning [3].

DISTRIBUTION

The frequency and pattern of health events in a population are of interest to epidemiology:
Frequency refers to the relationship between a population's size and the number of health events, such as the number of cases of meningitis or diabetes that occur in a population. The resulting rate allows epidemiologists to compare disease occurrence across different populations [4].

Pattern is the frequency of health-related occurrences by person, place, and time. Time patterns might be hourly, daily, weekly, monthly, annual, seasonal, workday versus weekend, or any other division of time that may affect the likelihood of contracting an illness or being injured. Place patterns include geographic variation, urban/rural differences,

and location of work sites or schools. Personal characteristics include demographics like age, sex, marital status, and socioeconomic status that may be linked to risk of disease, injury, or disability, as well as behaviors and environmental exposures [5].

DETERMINANTS

Determinant: Any element that causes a change in a health state or other defined characteristic, whether it be an event, a characteristic, or another defineable item.

Additionally, epidemiology is used to look for determinants, or the factors that contribute to the development of diseases and other health-related events. Epidemiologists believe that illness does not develop in a population at random, but rather only when an individual has the ideal confluence of risk factors or determinants. To search for these determinants, epidemiologists use analytic epidemiology or epidemiologic studies to provide the “Why” and “How” of such events. They investigate whether groups with varying rates of disease differ in their demographic traits, genetic or immunologic make-up, habits, environmental exposures, or other so-called possible risk factors. The research findings should be sufficient justification for prompt and efficient public health control and prevention actions [5].

State or Occurrence Related to Health

Epidemiology was initially only concerned with communicable disease epidemics but was later broadened to include endemic infectious diseases and non-communicable diseases. By the middle of the 20th Century, further epidemiologic methodologies had been developed and applied to chronic diseases, injuries, birth defects, maternal-child health, occupational health, and environmental health [6]. Then epidemiologists began to look at behaviors related to health and well-being, such as amount of exercise and seat belt use. With the recent explosion in molecular techniques, epidemiologists can now make significant advancements in the study of genetic risk factors for disease. Indeed, the term health-related states or events may be seen as anything that affects the well-being of a population. Nevertheless, the term "disease" is still frequently used by epidemiologists to refer to the diverse spectrum of health-related conditions and occurrences that are investigated.

Particular Populations

Although the development and control of disease are both concerns for epidemiologists and direct health-care practitioners (clinicians), they have quite different perspectives on "the patient." The epidemiologist is concerned with the overall health of a community or population; the clinician is concerned with the health of an individual. In other words, the individual is the "patient" of the clinician, whereas the community is the "patient" of the epidemiologist. As a result, when dealing with a patient who is ill, the clinician and the epidemiologist have different responsibilities. For example, when a patient with diarrheal disease presents, both are interested in establishing the correct diagnosis. The epidemiologist, on the other hand, focuses on determining the exposure or source that caused the illness, the number of people who may have been similarly exposed the possibility of further spread in the community, and interventions to prevent further cases or recurrences. While the clinician typically focuses on treating and caring for the individual [7].

Application

Epidemiology entails applying the knowledge discovered through the studies to community-based practice in addition to merely "the study of" health in a population. The profession of epidemiology is both a science and an art, much like the practice of medicine. The clinician combines medical (scientific) knowledge with experience, clinical judgment, and understanding of the patient to arrive at the correct diagnosis and recommend the best course of action for the patient. Similarly, the epidemiologist uses the scientific methods of descriptive and analytic epidemiology as well as experience, epidemiologic judgment, and understanding of local conditions in “diagnosing” the health of a community and proposing appropriate, practical, and acceptable public health interventions to control and prevent disease in the community [8].

CONCLUSION

Epidemiology is the scientific, methodical, data-driven study of the frequency, pattern, and determinants of health-related states and events (not just diseases) in specific populations (patient is community, individuals viewed collectively), as well as the application of this study to the management of health issues (since epidemiology is a discipline within public health).

REFERENCES

1. Last JM, editor. Dictionary of epidemiology. 4th ed. New York: Oxford University Press; 2001. p. 61.
2. Porta, M (2014). A Dictionary of Epidemiology (6th ed.). New York: Oxford University Press.
3. Merril, Ray M., PhD, MPH. (2010): An Introduction to Epidemiology, Fifth Edition. Chapter 2: "Historic Developments in Epidemiology". Jones and Bartlett Publishing

4. Wiemken, Timothy L.; Kelley, Robert R. (2020). "Machine Learning in Epidemiology and Health Outcomes Research". Annual Review of Public Health. 41: 21–36
5. Cates W. Epidemiology: Applying principles to clinical practice. Contemp Ob/Gyn 1982;20:147–61.
6. Beaglehole R, Bonita R, Kjellstrom T: Basic Epidemiology. World Health Organization, Geneva, Switzerland, 1993.
7. Mandell GL, Douglas RG, Jr, Bennett JE: Principles and Practice of Infectious Diseases, 3rd Ed. Churchill Livingstone, New York, 1990.
8. Greenwood M.Epidemics and crowd-diseases: an introduction to the study of epidemiology, Oxford University Press; 1935.

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