Learning Outcome

3. Understand the importance of epidemiology in relation to health promotion

3.1 Assess the significance of two aspects of epidemiology and their effects on health promotion

A Glossary of Epidemiology: transcript

Intro

When you are promoting good healthcare and practice, it is important to consider the principles of epidemiology. Why? Because epidemiology is *the scientific study of diseases and how they are found, spread, and controlled in groups of people* (Cambridge Dictionary). So, an important part of health promotion is understanding and informing people of how diseases can spread, and of what people can do to prevent or reduce this spread.

Of course, public awareness of epidemiology has increased massively since the coronavirus pandemic started to have a huge impact on our lives in early 2020. Now, we have become used to hearing about terms such as *the R number, contact tracing*, *quarantine*, *social distancing* and *flattening the curve* in the news every day.

For your assignment, you need to:

- Analyse the significance of two aspects of epidemiology in relation to health promotion initiatives

Therefore, the purpose of this video is to introduce and explain some common terms from the field of epidemiology. As you watch, think about how each of these terms might apply in the fight against the Covid 19 pandemic, or to any other health issue which you might be involved in promoting.

The word epidemiology comes from the Greek words epi, meaning "on or upon," demos, meaning "people," and logos, meaning "the study of." We'll now look at some definitions and explanations of other key terms, listed in alphabetical order.

The first term we're going to look at is "branches". There are two distinct branches of epidemiology. A descriptive epidemiologist will describe the patterns, trends and data of a disease. By contrast, an analytical epidemiologist will look for results by comparing how a disease affects different demographics
D is for data. Epidemiology is a data-driven science, as it deals with monitoring diseases across a huge number of people. Reliable data is essential to get a good understanding of the spread of the disease, and of the effectiveness of preventative measures.
The distribution of a disease refers to a combination of the pattern, such as which groups are most affected, and the frequency, which looks at the number of cases, as well as the level of risk to those who do not have the disease
I is for incidence. There are several ways that epidemiologists measure incidence, and the most straightforward of these is the incidence proportion. You just need to take a sample

pool of people who do not have a specific condition, and count how many of them develop the disease over a set period of time. For example, if, over the course of one year, five women are diagnosed with breast cancer, out of a total female study population of 200 (who do not have breast cancer at the beginning of the study period), then we would say the incidence of breast cancer in this population was 2.5%. (or 25 per 1000 women).

On the other hand, there are some more complex formulae needed to calculate statistics such as the incidence rate, which also take into account factors such as how much time it takes for a person to develop a condition.

Morbidity simply refers to the state of having an illness or disease. Therefore, "morbidity rate" is actually an umbrella term to count people within a population that have certain conditions, and it includes the subcategories of incidence and prevalence. We'll come onto prevalence shortly.

In medicine, the term "morbidity" is also used to refer to a condition itself. For example, diabetes, Alzheimer's disease, and cancer are all morbidities.

The second M in our list is for mortality. Mortality is another term for counting deaths. A mortality rate is the number of deaths due to a disease divided by the total population. This is often expressed per 1000 people. If there are 25 lung cancer deaths in one year in a population of 30,000, then the mortality rate for that population is 0.83 per 1000, or 0.083%

Because monitoring mortality is so useful to public health authorities, mortality registration is mandatory in almost all countries. Vital statistics systems record certain information on each death, such as name, age at death, and cause of death, then sum the number of deaths periodically to calculate mortality rates.

The pattern of the spread of a disease describes geographical, cultural, socio-economic and other demographical differences in the incidence. These are generally grouped into three categories: characteristics of person, place and time.

You have probably heard many examples in the news about inequalities in the mortality rate of Covid 19 in terms of factors such as ethnicity, sex, or socio-economic status. This all goes to show that epidemiology goes beyond medical and physiological themes in its study.

The prevalence of a disease is the proportion of a population that is affected by the disease at a specific time. Remember, this is not the same in incidence, as that counts new cases, whereas prevalence counts all existing cases as well. For example, if a measurement of cancer is taken in a population of 40,000 people and 1,200 were recently diagnosed with cancer and 3,500 are living with cancer, then the prevalence of cancer is 4,700 per 40,000, (or 117.5 per 1000 persons) or 11.75%.

Prevalence is an appropriate measure only for relatively stable, chronic conditions, not for acute diseases, such as flu or measles.

Even in a chronic condition, such as back pain, the problems can be intermittent. Therefore, calculating the prevalence based on a single examination of everyone in the population at one point in time will probably underestimate the true prevalence of back pain. (This type of

assessment is known as "point prevalence.") Instead, it's better to perform repeated or continuous assessments of the same population over a longer period, such as 12 months or more.
If you compare mortality rates or other epidemiological data from two countries or two cities, the results might not be reliable if there are many variables that differ between the populations being compared. For example, if one country has a higher proportion of elderly people, this will affect the mortality rate. Standardisation attempts to overcome these anomalies, and give more helpful data. There are two methods of standardisation commonly used in epidemiological studies. Standardising for age is known as "direct standardisation", while standardising for other factors is known as "indirect standardisation".

Conclusion

This video has given you a short introduction to some key concepts of epidemiology, but you will need to do further research to fully get to grips with the two aspects that you choose to explore in your assignment. For your future studies, look out for real-life examples where data from epidemiology has driven genuine change in health promotion. Look for evidence of why certain data might be so important, or perhaps why it could also be misleading. And check that you thoroughly understand where epidemiologists, both descriptive and analytical, sit in the field of health promotion.

References

- https://www.cdc.gov/csels/dsepd/ss1978/lesson3/