Community

_ Incidence and prevalence.

_ Association and causation in Epidemiological studies

_ Measures of Association in Epidemiology _ Activity.

TEST BANK

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Incidence and prevalence

What is the definition of incidence rate ?

.A. The proportion of a population with a disease at a specific point in time

.B. The proportion of new cases of a disease over a specific period

.C. The ratio of deaths due to a disease to the total population

.D. The total number of people affected by a disease during their lifetime

Answer: B

Slide 6

Which of the following is NOT a type of morbidity measure?

A. Incidence rate

B. Prevalence rate

C. Mortality rate

D. Cumulative incidence

Answer: C

Slide 5

What does prevalence measure?

.A. The proportion of a population that has a disease at a specific point in time or over a period

.B. The rate at which new cases of a disease occur

.C. The risk of dying from a disease

.D. The average duration of a disease in the population

Answer: A
slide 12

How is cumulative incidence calculated?

.A. Number of new cases divided by the total population at risk at baseline

.B. Number of existing cases divided by the total population

.C. Ratio of the total cases to total deaths

.D. Number of new cases multiplied by the average duration of the disease

Answer: A

Slide 7

What does the term “attack rate” refer to ?

.A. The total number of disease cases over the lifetime of an individual

B. A specific type of incidence rate used during disease outbreaks in a defined population over a .short period

.C. The proportion of the population with chronic illnesses

.D. The prevalence of infectious diseases in a country

Answer: B

Slide 20

If the incidence of a disease decreases but the average duration of the disease increases, what happens to prevalence ?

.A. It remains the same

.B. It decreases

.C. It increases

.D. It fluctuates randomly

Answer: C

Slide 16,17

Which of the following is true about the relationship between prevalence, incidence, and duration?

A. Prevalence = Incidence × Average Duration

B. Incidence = Prevalence ÷ Average Duration

C. Duration = Prevalence ÷ Incidence

D. Prevalence × Duration = Incidence

Answer: A

Slide 15

Which of the following can be a challenge when measuring incidence rate?

A. Static population with no births or migrations

B. Easy identification of the population at risk

C. Population fluctuation due to births, deaths, and migrations

D. Constant disease duration in all individuals

Answer: C

Slide 11

All of these are true except:

A. when incidence increases the prevalence also increase

B. The Average duration of disease increase due to increase in death

C. decrease in recovery rate lead to increase in prevalence rate

D. All of the above are true
Answer : B

Slide 15

Association and causation in Epidemiological studies

What is the definition of an association in epidemiology?

A. The direct cause of a disease

B. The occurrence of two variables more often than by chance

C. The relationship between exposure and cure

D. The statistical difference between two unrelated variables

Answer: B

Slide 4

Which type of association refers to a situation where two variables are linked due to an underlying third factor?

A. Direct association

B. Spurious association

C. Indirect association

D. Causal association

Answer: C

Slide 4

Which of the following is a step in establishing a "Cause & Effect" relationship?

A. Using a large sample size without consideration for bias

B. Ensuring the results are accurate and not due to spurious factors

C. Ignoring statistical significance

D. Avoiding comparison between groups

Answer: B

Slide 8 and 9

What is selection bias?

A. The tendency to misclassify data unintentionally

B. A systematic error due to the way participants are chosen

C. Random errors in data analysis

D. Errors caused by software malfunction

Answer: B

Slide 13

How can confounding be controlled during the design stage of a study?

A. By randomization, restriction, and matching

B. Through extensive post-study data analysis

C. By avoiding the inclusion of multiple exposures

D. By selecting only healthy participants

Answer: A

Slide 16

What is the importance of 'temporality' in causal inference?

A. It ensures the exposure occurs after the disease

B. It ensures that the cause precedes the effect

C. It emphasizes the co-occurrence of exposure and disease

D. It suggests the effect causes the exposure

Answer: B
Slide 25

Which of the following is NOT part of Hill's Criteria for causality?

A. Biological plausibility

B. Consistency

C. Strength of association

D. Randomization

Answer: D

Slide 20 and 21

What does 'biological gradient' refer to in epidemiological studies?

A. A random association between exposure and disease

B. A "dose-response" relationship where higher exposure leads to a greater risk of disease

C. The absence of association between two variables

D. The consistency of exposure over time

Answer: B

Slide 29

Which type of bias is related to systematic differences in data collection?

A. Recall bias

B. Selection bias

C. Information bias

D. Measurement bias

Answer: C

Slide 13

According to Hill’s criteria, why is ‘coherence’ important for establishing causality?

A. It ensures findings are statistically significant

B. It confirms findings align with established biological and epidemiological knowledge

C. It provides a basis for speculation about disease causes

D. It guarantees data accuracy

Answer: B

Slide 31

Measures of Association in Epidemiology

What does a Chi-square test in cross-sectional studies determine?

a) The strength of association between exposure and disease

b) Whether an association exists between two categorical variables

c) The risk difference between exposed and non-exposed groups

d) The probability of a disease occurring in a population

Answer: b) Whether an association exists between two categorical variables

Slide 7

In cohort studies, how is Relative Risk (RR) calculated?

a) The odds of disease among the exposed divided by the odds of disease among the non-exposed

b) The risk of disease in the exposed group compared to the non-exposed group

c) The difference in incidence between the exposed and non-exposed groups

d) The number of disease cases per 1,000 people

Answer: b) The risk of disease in the exposed group compared to the non-exposed group

Slide 8

What does a Relative Risk (RR) of 1 indicate?

a) There is no association between the exposure and the disease

b) The exposed group is twice as likely to develop the disease

c) The exposure is a protective factor

d) The exposure reduces the risk of disease by half

Answer: a) There is no association between the exposure and the disease

Slide 12

What does an Odds Ratio (OR) measure in a case-control study?

a) The risk of developing disease in the exposed group compared to the non-exposed group

b) The odds of exposure among the diseased versus the non-diseased

c) The attributable risk in exposed versus non-exposed individuals

d) The prevalence of disease in the general population

Answer: b) The odds of exposure among the diseased versus the non-diseased

Slide 13

Under what conditions is the Odds Ratio (OR) a good estimate of Relative Risk (RR)?

a) When the disease is common

b) When the cases and controls are not representative of the population

c) When the controls are representative of the general population, and the disease is rare

d) When the disease occurs equally in both exposed and non-exposed groups

Answer: c) When the controls are representative of the general population, and the disease is rare

Slide 15

What does Attributable Risk (AR) represent in epidemiological studies?

a) The total risk of disease in the population

b) The risk of disease in the non-exposed group

c) The risk difference between the exposed and non-exposed groups

d) The percentage of disease that occurs due to unknown factors

Answer: c) The risk difference between the exposed and non-exposed groups

Slide 19

Which of the following outcomes indicates a negative association between exposure and disease?

a) Relative Risk (RR) > 1

b) Attributable Risk (AR) = 0

c) Relative Risk (RR) < 1

d) Odds Ratio (OR) > 1

Answer: c) Relative Risk (RR) < 1

Slide21

What does Attributable Risk Percent (AR%) estimate?

a) The proportion of disease in the exposed population that is due to the exposure

b) The total percentage of disease cases in a population

c) The odds of exposure in non-diseased individuals

d) The protective effect of a preventive factor

Answer: a) The proportion of disease in the exposed population that is due to the exposure

Slide 20

What is the strength of association if the Relative Risk (RR) is 2?

a) High

b) Moderate

c) Weak

d) No association

Answer: b) Moderate

Slide 12

What is the primary difference between Relative Risk (RR) and Odds Ratio (OR)?

a) RR is used in case-control studies, while OR is used in cohort studies

b) OR estimates the risk of disease, while RR measures the strength of association

c) RR is used in cohort studies, while OR is commonly used in case-control studies

d) OR is more accurate than RR in all study designs

Answer: c) RR is used in cohort studies, while OR is commonly used in case-control studies

Slide 13