Descriptive Epidemiology

Organizes, summarizes, and describes epidemiologic data by person, place, and time

Presents data in various formats inlcuding tables, graphs, and numerical summaries

Utilizes statistical methods to effectively communicate public health issues

Why is descriptive epidemiology helpful?

Provides information about a disease or condition

Provides clues to identify a new disease or adverse health effect

Identifies the extent of the public health problem

Obtains a description of the public health problem that can be easily communicated

Identifies the population at greatest risk

Assists in planning and resource allocation

Identifies avenues for future research

Four types of descriptive studies:

Ecologic studies

Case reports

Case series

Cross-sectional surveys

Four general types of data:

Nominal data (dichotomous or binary)

Ordinal data

Discrete

Continuous

Measures for describing dichotomous data:

Ratios

Proportions

Rates

Crude and age-adjusted rates:

Crude rate: calculated without any restri-ctions, such as by age or sex

Age-adjusted rate: calculated to account for differences in age distribution between groups

Standardized morbidity (or mortality) ratio (SMR):

Used when age-specific rates are unstable or missing

SMR = Observed / Expected

Types of Tables:

Line listing

Frequency distribution

Types of Graphs:

Bar chart, pie chart Histogram

Histogram

Epidemic curve

Box plot

Two-way (or bivariate) scatter plot

Spot map

Area map

Line graph

Numerical methods:

Measures of central tendency: Mean, Median, Mode

Measures of dispersion: Range, Inter-qua-rtile range, Variance, Standard deviation, Coefficient of variation, Empirical rule, Chebychev’s inequality

Evaluating Variable Association Strength:

Correlation coefficient (r)

Coefficient of determination (r^2)

Spearman’s rank correlation coefficient

Slope coefficient based on regression analysis

Slope coefficient based on multiple regression analysis

Cross-Sectional Studies

Cross-sectional studies analyze single-ti-mepoint population data, assessing health outcomes, determinants, and population features. They're cost-effective for initial evidence but can't establish event sequences, study rare conditions, or avoid response bias.

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