



Major Role of Epidemiology and its Relationship between Observational Variable and Experimental Variable

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DESCRIPTION

Epidemiology is the study of the distribution and determinants of health-related states or events in defined populations, as well as the application of this knowledge to the prevention and treatment of health problems. Epidemiology is the study of disease outcomes in relation to a vulnerable population. The population at risk is defined as the group of people, healthy or sick, who would be counted as cases if they had the disease under investigation. For example, if a general practitioner were to track how frequently patients consult him about deafness, the population at risk would include those on his list who if they had a hearing problem would see him about it. Patients who had moved to another area but were still on the list would not consult that doctor. As a result, they would not be part of the vulnerable population [1].

Epidemiological studies are classified into two types

Observational studies: We do not intervene in the disease process, but instead simply observe the disease and its associated factors. The combinations are self-selected or are "natural experiments." Investigators are limited to observational studies for questions where assigning factors would be unethical. Because of the possibility of large confounding biases when there is an unknown association between a factor and an outcome, observational studies provide weaker empirical evidence than experimental studies. The symmetry of unknown confounders is broken. The greatest benefit of these studies is that they provide preliminary evidence that can be used to test hypotheses in larger experimental studies, such as randomised controlled trials. Researchers in this cluster study population health and the health determinants, including demographic, socioeconomic, psychological, behavioural, environmental, and biological risk and protective factors, using administrative databases existing health survey databases, as well as investigator-led populations, community health, and clinical studies [2].

Experimental studies: Entail making a deliberate intervention and observing the effect of that intervention. The goal of

experimental research is to find a relationship between two variables: the dependent variable and the independent variable. The completion of an experimental research study, a correlation between a specific aspect of an entity and the variable being studied is either supported or rejected [3].

Dependent variable vs independent variable

There are two types of variables in analytical health research. We expect independent variables to influence dependent variables. What happens as a result of the independent variable is referred to as the dependent variable. For example, if we want to investigate whether high levels of vehicle exhaust influence the incidence of asthma in children, we would use vehicle exhaust as the independent variable and asthma as the dependent variable [4,5].

- An experiment can have many variables, but the two key variables that are always present are the independent and dependent variables.
- The independent variable is the one that the researcher changes or controls on purpose.
- The dependent variable is the factor that the study looks at. It changes in response to or is dependent on the independent variable [6].

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