

Study Designs Used in Occupational Epidemiology

Since occupational epidemiology is the study of the distribution and causes of illness and injury that result from these hazards; qualitative and quantitative exposure assessment is of outmost importance to the validity of epidemiological research. Occupational epidemiology studies objectives are to identify and quantify associations between workplace exposures and risks affecting health (Checkoway, Pearce, & Kriebel, 2004).

According to Checkoway, Pearce, & Kriebel (2004) study designs used in occupational epidemiology include case series, cohort studies, case-control studies, registry- based case control studies, proportionate mortality studies, and cross- sectional studies. The case series is essentially a case-control study without controls which identify and report a disease cluster of a disease in the workforce. Case studies are mainly informative of rare disease occurrences and do not provide causal inferences. Case- control studies provides odd ratios or estimates of relative risks, registry-based studies are less informative than case control studies, proportionate mortality rate compares proportional distribution of causes of death among workers and a reference population, and cross sectional studies study the prevalence of disease compared among groups of workers according to exposure status.

Cohort studies can be prospective or historical design. Both designs include the entire available population rather than only a sample. Cohort studies resemble the standard experimental study design in that cohort studies provides follow-up observations over time on exposed and non-exposed groups of adverse health effects. Cohort study design is the preferred study design used in occupational epidemiology (Checkoway, Pearce, & Kriebel, 2004).

Conclusion

Even though cohort study design is the preferred study design in occupational epidemiology not a single epidemiological study can provide a definite conclusive answer of causation. In occupational epidemiology it is not possible follow the experimental scientific method of research replication since population and exposure circumstances are unique and differ among studies, therefore, observational studies are powerful in providing causal hypothesis.

Reference:

Checkoway, H., Pearce, N., & Kriebel, D. (2004). *Research Methods in Occupational Epidemiology*. New York: Oxford University Press.