

Epidemiology

Lec:5 Case-

control

Studies

Epidemiology Lecture #5

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4. Chapter: Lec:5 Case-control Studies

1. Lec:5 Case-control Studies Questions

4.1.1. You have learned that conducting case-control studies can be diffic...

Author: Janet Forrester

You have learned that conducting case-control studies can be difficult as they are subject to a wide variety of biases. In what circumstances would an investigator choose to conduct a case-control study?

- If the outcome is a rare disease, such as lupus, a case-control study may be the only practical study design to identify risk factors for the disease.

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Question: [You have learned that conducting case-control by Dr. Janet Forrester](#)

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4.1.2. Both retrospective cohort and case-control study designs are classi...

Author: Janet Forrester

Both retrospective cohort and case-control study designs are classified as observational studies. What is the essential difference between the design of a retrospective cohort study and the design of a case-control study?

- In cohort studies, including retrospective cohort studies, the groups are assembled based of their exposure status. In a case-control study, the groups are assembled based on the disease status.

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4.1.3. If an investigator is conducting a hospital-based case-control stud...

Author: Janet Forrester

If an investigator is conducting a hospital-based case-control study, what is the best source of controls for that study?

- Hospital based case-control studies should use hospital controls. Community controls may not represent the catchment population of the hospital (i.e. the population that uses that hospital).

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4.1.4. Why do we use the odds ratio as the measure of association in a cas...

Author: Janet Forrester

Why do we use the odds ratio as the measure of association in a case-control study?

- The investigator determines how many cases and controls will be in a study based on sample size requirements. Hence, we cannot use these data to estimate incidence as we can in cohort or RCT studies. Since we do not have incidence data, we cannot calculate a relative risk and are, therefore, confined to calculating an odds ratio. The odds ratio approximates the RR when the disease is rare. Since case-control studies are usually done when outcomes are rare, the OR is a good measure of association for this study design. (When the disease is not rare, the OR over-estimates the RR).

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4.1.5. What challenges does measurement of the exposure in a case-control ...

Author: Janet Forrester

What challenges does measurement of the exposure in a case-control study present?

- Case-control studies, being retrospective require that the exposure is measured retrospectively. Sometimes it is difficult to get good quality data on the exposure.

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Question: [What challenges does measurement of the by Dr. Janet Forrester @Tufts](#)

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4.1.6. What was the exposure(s) of interest? What was the outcome(s) of in...

Author: Janet Forrester

Consider the case-control study below to answer Questions 6 and 7

Maternal coffee and alcohol consumption during pregnancy, parental smoking and risk of childhood leukemia

Florence Menegaux et al. Cancer Detection and Prevention 29 (2005) 487-493. Accessed from PubMed.gov

We investigated the role of maternal alcohol and coffee drinking and parental

smoking on the risk of childhood acute leukemia in a multicenter case-control study. Methods: The study

included 280 incident cases and 288 hospitalized controls, frequency matched with the cases by age,

What was the exposure(s) of interest? What was the outcome(s) of interest?

- The exposures of interest were maternal smoking and the consumption of coffee and alcohol during pregnancy. The outcome of interest was acute leukemia (ALL or ANLL) in the child This is an example of a case-control study that examined more than one exposure in relation to a single outcome.

Check the answer of this question online at QuizOver.com:

Question: [What was the exposure s of interest What Consider case-control study](#)

Flashcards:

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4.1.7. In conducting the face-to-face standardized interviews, what form o...

Author: Janet Forrester

Consider the case-control study below to answer Questions 6 and 7

Maternal coffee and alcohol consumption during pregnancy, parental smoking and risk of childhood leukemia

Florence Menegaux et al. Cancer Detection and Prevention 29 (2005) 487-493. Accessed from PubMed.gov

We investigated the role of maternal alcohol and coffee drinking and parental

smoking on the risk of childhood acute leukemia in a multicenter case-control study. Methods: The study

included 280 incident cases and 288 hospitalized controls, frequency matched with the cases by age,

In conducting the face-to-face standardized interviews, what form of bias would you want to be sure the investigators avoided? How would you assure yourself that they did avoid this bias?

- Case-control studies are prone to recall bias. This is when a mother of a child with leukemia "recalls" coffee consumption during pregnancy differently from a mother whose child does not have leukemia. You would want to know that at the time of the face-to-face interviews that the parents responding were not aware of the study hypothesis because that could influence how mothers reported their coffee consumption during pregnancy. If they thought the investigators suspected that coffee consumption increase the risk of leukemia, the mothers whose children were diagnosed with leukemia might report less (or more) coffee consumption than actually occurred. This could be done by embedding the coffee questions in a general survey about eating and exercise habits during pregnancy.

Check the answer of this question online at QuizOver.com:

Question: [In conducting the face-to-face standardized Consider case-control](#)

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4.1.8. How would you interpret the odds ratio of 3.1 for the association o...

Author: Janet Forrester

How would you interpret the odds ratio of 3.1 for the association of coffee consumption of > 8 cups a day with acute lymphocytic leukemia?

- The OR is interpreted like a relative risk. You would interpret this OR as meaning that a woman who consumes more than 8 cups of coffee per day during pregnancy is 3.1 times as likely to have a child who will be diagnosed with acute lymphocytic leukemia (ALL).

Check the answer of this question online at QuizOver.com:

Question: [How would you interpret the odds ratio of by Dr. Janet Forrester](#)

Flashcards:

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