

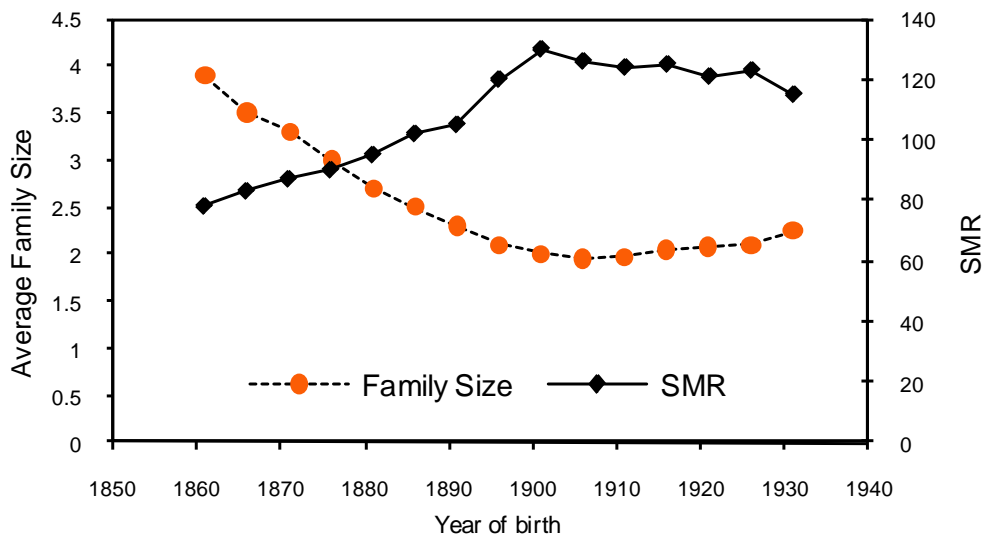
CHAPTER 4: Study design QUESTIONS

1. What type of study is each of the following:
 - (a) All members of a particular health fund are sent a questionnaire asking about their quality of life over the past 4 weeks.
 - (b) A sample of people were selected at random from the local telephone directory and sent a questionnaire asking about their lifestyle and health over the past 4 weeks.
 - (c) A doctor notices that several of his patients taking a new blood pressure drug are experiencing severe headaches and he wonders if these might be due to the new drug.
 - (d) 500 women recently diagnosed with lung cancer and 500 women without lung cancer are interviewed about their diet and lifestyle.
 - (e) 100 men who recently experienced a heart attack are asked about the amount of physical activity they did in the 2 hours before their heart attack and about how much physical activity they normally do.
 - (f) All of the mothers attending ante-natal classes at a city hospital during a one year period are asked about the amount of alcohol they drank during their pregnancy and their babies are assessed at yearly intervals after birth to look for developmental problems.
 - (g) The rates of cancer in 50 countries worldwide are compared with their rates of obesity to see if countries with higher levels of obesity also have higher cancer rates.

2. What study design would you choose to answer the following questions and why:
 - (a) Does taking vitamin C supplements reduce your risk of catching the common cold?
 - (b) Does taking vitamin C supplements reduce the duration of the common cold?
 - (c) Does taking vitamin C supplements reduce a man's risk of developing prostate cancer?
 - (d) Are veterans who have served in armed conflicts more likely to die from heart disease than non-veterans?
 - (e) How common is depression in the general population?
 - (f) Do artificial sweeteners increase the risk of a rare type of kidney cancer?

3. You want to conduct research to discover the long-term prognosis of children who have febrile seizures.
 - (a) What study design would you use to answer the question?
 - (b) Who would you include in the study?
 - (c) Name some other critical features of the design or conduct of this type of study that are necessary to ensure that the results are valid.

4. Which of the following is not a strength of a well-designed RCT?
- randomisation
 - ethical issues are minimal
 - measurement bias is minimal
 - causal determination
 - harm detection
5. A study compared changes in ovarian cancer mortality rates (Standardised Mortality Ratios) and average family size over time in England and Wales and the results are shown in the graph below.



Changes in average family size and age-standardised ovarian cancer mortality (SMR) among women born in different years in England and Wales

Drawn from data in: Beral, V., Fraser, P. and Chilvers, C. (1978). Does pregnancy protect against ovarian cancer? *Lancet*, **311(8073)**: 1083-1086.

- Describe the results shown in the figure.
- What type of study is this?
- How convincing are the data for evaluating whether having a large family protects a woman against ovarian cancer?
- What study design do you think would be most practical to evaluate this relationship more convincingly and why?