

Title: Study Design and Confounder Control in Observational Studies: two Cases.

Author: John Harraway, University of Otago. Email : jharraway@maths.otago.ac.nz

Keywords: Statistics teaching; observational data; confounder control; DVD

Abstract: Study design should be introduced early in the teaching of statistics; in particular, discussion of observational studies versus experiments, longitudinal cohort studies versus cross-sectional surveys, and confounder control. Two studies are described in a DVD, sections of which will be shown. The studies motivate statistics teaching, and data files are available on a CD accompanying the DVD.

The first study is a longitudinal study of babies, born in 1972, followed during their lifetime. Information is recorded on whether the children had been circumcised by age three and whether they had acquired herpes by age 26. The hypothesis is that circumcision protects against herpes. The study is observational and allowance must be made for factors such as sexual behaviour of the men if the true effect of circumcision is to be established. This effect is reported in the DVD, and students can investigate using the data in the CD.

The second study is cross-sectional based on a random sample of 323 infants. It investigates diet and social factors influencing iron levels in young children. Infection also affects iron levels, but there has been no control for infection when sampling the children. Allowance must therefore be made for infection in the analysis. This is reported in the DVD and students can investigate this and other problems using the data in the CD.