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Standard analysis 4-2

The purpose of this note is to present a standard analysis of comparing paired binary data using the binomial model. The data concerning the sex of sibling were used in Exercise 4-3.

Statistical methods

The chance of a boy in the first and second sibling was compared using the paired binomial model. The difference in the chance of a boy was estimated with 95% confidence interval, and the statistical significance was accessed using the McNemar test.

Results and conclusion

The chance of a boy in the first sibling was 50.3% (95% CI: 47.2-53.4%) and in the second sibling 49.6% (95% CI: 46.5-52.7%). The difference in the chance of a boy between the first and second sibling was 0.7% (95% CI: (-3.9)-5.3%), which is not statistical significant (p=0.79).

Do file

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*************************************************************************
* Standard4-2.do
* Task: A standard analysis of paired binary data using the binomial
*       model. The data were used in Exercise 4-3.
* Erik Parner: 10-2-2016.
*************************************************************************

graph drop _all

cd "D:\Teaching\BasicBiostat\Exercises"

capture log close
log using Standard4-1.log , text replace

use siblings.dta, clear

* Many STATA commands expect 0/1 variable.
* We need to recode sex1 and sex2.
recode sex1 (1=1 "Boys") (2=0 "Girls") , gen(boy1)
recode sex2 (1=1 "Boys") (2=0 "Girls") , gen(boy2)
tabu boy1 sex1
tabu boy2 sex2

* Estimated the chance of a boy in the second sibling.
tabu boy1 boy2,row
* In Stata 14 the syntax is: ci proportions boy2 if boy1==0
ci prop boy1
```

```
ci prop boy2

* Comparing the chance of a boy in the second sibling.
mcc boy2 boy1


log close
```