

Solution to Exercise 3: Survival analysis

Key points:

- In this simplified example, there was no censoring, people either had the event or they didn't
- Survival analysis requires two variables, the time when the event occurred or the endpoint of observation, and whether there was an event or not

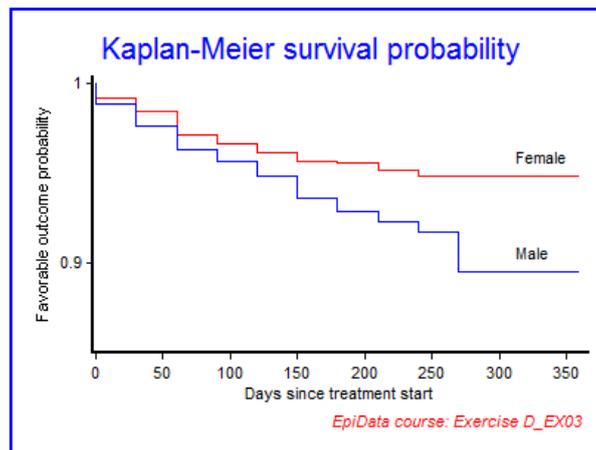
Tasks

The purpose of the exercise is to demonstrate quantitatively the probability of remaining without an event.

We use to this end a real dataset from a tuberculosis program, although we have removed any identifier and most variables, and retained to simplify your work only records of patients who have an exact date of treatment start and an exact date of treatment end. The dataset is provided as a supplementary file `d_ex03.rec_required`.

- 1) *Define a binomial outcome, where “favorable” is cured or treatment completed and all other outcomes are “unfavorable”*
- 2) *Do the lifetable analysis only for new sputum smear-positive cases and show the survival probability stratified by sex*

The graphic output produced by the program `D_EX03.PGM`:



The program `D_EX03.PGM` to produce the above graphic output:

- * Part D, Exercise 3
- * Survival analysis
- * Tuberculosis case register:
- * Treatment outcome

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- * First version: 30 Oct 2010
- * Last revision: 29 Apr 2013

```

cls
close
logclose

*****
* Create dataset

cls
close
read "d_ex03_required.rec"

define advout #
            advout=1 // adverse outcome
if outcome<=2 then advout=0 // favorable outcome
label advout "Treatment outcome"
labelvalue advout /0="Favorable"
labelvalue advout /1="Adverse"

gen i case=0
if sm00>0 and sm00<9 then case=1
select case=1
select sex<>9
select category=1

keep sex advout interval
savedata "temp_01.rec" /replace

*****
* Analysis

cls
close

read "temp_01.rec"

cls
set option graph=/sizex=600 /sizey=350
set graph font size=9
lifetable advout interval \
    /by=sex \
    /i=b30 /adj \
    /nocl \
    /ymin=0.85 \
    /ymax=1 \
    /t \
    /ti="Kaplan-Meier survival probability" \
    /fn="EpiData course: Exercise D_EX03" \
    /xtext="Days since treatment start" \
    /ytext="Favorable outcome probability" \
    /text="335,90,Female,0" \
    /text="335,155,Male,0"

```