Estimation of Boag Parameters and Mean Survival Using BOAG.xlsm

Click the "BOAG" button and open the "BOAG" program. Then, BOAG Menu appears on the screen showing seven steps. From here on what you need to do is either fill the blank colorless cells with appropriate numbers or characters, or click a button.

Step I: Select data files

Click Step I. To run this application program, a pair of data files are required; the survival data file of cancer patients and the life-table of the matched contemporary population. In this ATMS StatMate, two data files of cancer patients are available; one is of gastric cancer patients from our hospital (GC_TENRI.xlsm) and the other is of acute leukemia patients from Acute Leukemia Group B (ALL_ALGB.xlsm). It would be easier for you to try one of these data files before analyzing your own data. Select the desired survival data file by clicking the Browse button. Also, select the appropriate life table among six tables including America (LIFETAB_A), Britain (LIFETAB_B), Netherlands (LIFETAB_D), France (LIFETAB_F), Germany (LIFETAB_G), and Japan (LIFETAB_J). Return to BOAG menu by clicking the BOAG Menu button in the right upper corner.

Step II: Survival variables

Click Step II.

1) Enter the column numbers of the five variables in the corresponding blank cells. These variables are required for survival analysis. The required column number (or variable No) is found in the left-side table.

2) Enter the six code numbers in the blank cells. These are required to distinguish between the six categories of the outcome. If there is no corresponding category in the data file, enter 9999. Return to BOAG Menu.

Step III: Define study group

Click Step III.

To define a study group you have to set some criteria according to which patients are either included in, or excluded from the study group.

1) Enter the column number of each variable selected to define a study group (Variable No). You may select up to 3 variables whose values are used as inclusion criteria. For example, suppose that you wish to study a group of female patients aged 70 to 80 inclusive in the GC_TENRI.xlsm file. You first enter 1 (variable No. for sex) in the white blank cell, and press Enter (or Tab). The computer promptly returns Sex (variable name for variable 1), followed by its range (1=male to 2=female). So, you enter 2 twice in the next two blank cells, indicating that only women are allowed to join the group.

Likewise, in the second row, you enter 2, followed by 70 and 80. Patients whose variable values are smaller than the lower limit or greater than the upper limit are excluded from the study group.
2) Finally, click either one of the option buttons (blank white circles) to show whether you assume that some patients in this group are curable (Boag model) or all are incurable (accelerated failure time model). Select only one option. When the desired button is already on, leave it on. For more detailed explanation of the two models, see Overview. Return to BOAG Menu. When the program reconfirms your reply, click the Yes button.

Step IV: Estimate parameters

Click the Step IV button. Usually estimation of the Boag parameters converges quickly to the maximum likelihood values as indicated on the window. Then, click the Step V button. Occasionally, however, the estimates may fail to converge because the initial parameter estimates are inappropriate, or the model does not fit the data. In that case you should return to BOAG Menu and end the program.

Step V: Results

The maximum likelihood estimates of the Boag parameters and mean survivals (MS) of the patient group are displayed as well as the MS of the contemporary population. Thereafter, you have three options, 1) return to BOAG Menu (and exit), 2) view the survival curves of the defined group (Survival Curve), or 3) analyze a new group (New Group Analysis). Click either one of these command buttons in the left upper corner.

Step VI: Survival curve

If you choose Survival Curve, you can adjust the X-scale by determining its maximal value and, if you prefer a log scale, by checking the dialogue box. When you press the Plot button, a total of five survival curves are plotted; the Kaplan-Meier disease-specific and Kaplan-Meier overall survival curves, estimated overall survival curve, the Boag parametric curve and overall survival curve of the matched contemporaries. If you wish to copy the graph and paste it to another file or sheet, click the Copy button. To modify the survival graph you can change the X-scale parameters and repeat the same procedures. If you end the program or analyze a new group, return to BOAG Menu.