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Programs for a binary outcome representing a time-dependent event (with log-hazards regression)

and a time-independent classification (with logistic regression) using the same simulated data.

There is no repeated measurement in the dataset, hence no random or repeated statements.

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\*Import the data using the following code or find and double-click **binary outcome odds or hazards data.xlsx** in SAS Studio;

FILENAME REFFILE '/folders/myshortcuts/ExternalFiles/Projects/Mixed-model Workshop/Generalized linear models/binary outcome odds or hazards data.xlsx';

PROC IMPORT DATAFILE=REFFILE

DBMS=XLSX replace

OUT=WORK.IMPORT;

GETNAMES=YES;

RUN;

\*proc print;

run;

data bindata;

set import;

BaseTrainStd=BaselineTraining;

LnMonitorWeeks=log(MonitorWeeks);

proc standard data=bindata out=bindata1 mean=0 std=0.5;

var BaseTrainStd;

run;

ods noproctitle;

ods graphics / imagemap=on;

title "Log-hazard regression, no repeated measurement";

proc glimmix data=bindata1;

class GroupID;

model DepVar=GroupID GroupID\*BaseTrainStd/link=cloglog dist=binomial offset=LnMonitorWeeks;

estimate "Overall mean" int 1 GroupID 0.5 0.5 /cl exp alpha=0.1;

estimate "";

estimate "Control mean" int 1 GroupID 1 0/cl exp alpha=0.1;

estimate "Exptal mean " int 1 GroupID 0 1/cl exp alpha=0.1;

estimate "Exptal/Control mean" GroupID -1 1/cl exp alpha=0.1;

estimate "";

estimate "Control mean @ -1SD BaseTrain" int 1 GroupID 1 0 GroupID\*BaseTrainStd -0.5 0/cl exp alpha=0.1;

estimate "Control mean @ +1SD BaseTrain" int 1 GroupID 1 0 GroupID\*BaseTrainStd 0.5 0/cl exp alpha=0.1;

estimate "Control +1SD/-1SD BaseTrain" GroupID\*BaseTrainStd 1 0/cl exp alpha=0.1;

estimate "";

estimate "Exptal mean @ -1SD BaseTrain" int 1 GroupID 0 1 GroupID\*BaseTrainStd 0 -0.5/cl exp alpha=0.1;

estimate "Exptal mean @ +1SD BaseTrain" int 1 GroupID 0 1 GroupID\*BaseTrainStd 0 0.5/cl exp alpha=0.1;

estimate "Exptal +1SD/-1SD BaseTrain" GroupID\*BaseTrainStd 0 1/cl exp alpha=0.1;

estimate ":";

estimate "Exptal/Control mean BaseTrain reference" int 1 GroupID 0.5 0.5

GroupID\*BaseTrainStd -0.5 -0.5/cl exp alpha=0.1;

estimate "blank";

estimate "Exptal/Control +1SD/-1SD BaseTrain" GroupID\*BaseTrainStd -1 1/cl exp alpha=0.1;

run;

title "Logistic regression, no repeated measurement";

proc glimmix data=bindata1;

class GroupID;

model DepVar=GroupID GroupID\*BaseTrainStd/link=logit dist=binomial;

estimate "Overall mean" int 1 GroupID 0.5 0.5 /cl exp alpha=0.1;

estimate "";

estimate "Control mean" int 1 GroupID 1 0/cl exp alpha=0.1;

estimate "Exptal mean" int 1 GroupID 0 1/cl exp alpha=0.1;

estimate "Exptal/Control mean" GroupID -1 1/cl exp alpha=0.1;

estimate "";

estimate "Control mean @ -1SD BaseTrain" int 1 GroupID 1 0 GroupID\*BaseTrainStd -0.5 0/cl exp alpha=0.1;

estimate "Control mean @ +1SD BaseTrain" int 1 GroupID 1 0 GroupID\*BaseTrainStd 0.5 0/cl exp alpha=0.1;

estimate "Control +1SD/-1SD BaseTrain" GroupID\*BaseTrainStd 1 0/cl exp alpha=0.1;

estimate "";

estimate "Exptal mean @ -1SD BaseTrain" int 1 GroupID 0 1 GroupID\*BaseTrainStd 0 -0.5/cl exp alpha=0.1;

estimate "Exptal mean @ +1SD BaseTrain" int 1 GroupID 0 1 GroupID\*BaseTrainStd 0 0.5/cl exp alpha=0.1;

estimate "Exptal +1SD/-1SD BaseTrain" GroupID\*BaseTrainStd 0 1/cl exp alpha=0.1;

estimate "";

estimate "Exptal/Control mean BaseTrain reference" int 1 GroupID 0.5 0.5

GroupID\*BaseTrainStd -0.5 -0.5/cl exp alpha=0.1;

estimate "blank";

estimate "Exptal/Control +1SD/-1SD BaseTrain" GroupID\*BaseTrainStd -1 1/cl exp alpha=0.1;

run;