

The PSHREG macro - Changes in Version 2014.09

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09 October 2014

In the new version 2014.09, two important changes have been made to the macro %pshreg:

- 1) the default of the option `missing` was changed
- 2) a new macro option `admin` was introduced

ad 1): the option `missing`

In order to keep the estimated weight function $G(t)$ compatible with the scope of observations used in a Fine-Gray regression analysis, we redefined the default setting of the option `missing` as `drop`. This will drop all observations with missing values in the explanatory or outcome variables before the modified data set is created.

ad 2) the option `admin`

With the new macro option `admin`, a variable containing administrative censoring times can be specified. In case that there is no random censoring, i.e., every subject was followed up until a specified administrative censoring date (end of follow-up), the Fine-Gray model simplifies considerably. Then, it can be estimated by a Cox regression model in which times to competing events are replaced by times to administrative censoring and censored (cf. Bakoyannis and Touloumi, Statistical Methods in Medical Research 2012). This simplification assumes that it would have been possible for subjects who experienced an event to follow them up until the administrative censoring date.

Use of the new option `admin` is illustrated by the following SAS example code:

```
* PSHREG Example for administrative censoring;  
* if there is only administrative censoring and no random censoring, then  
* the new option admin can be used to incorporate a common follow-up date  
for all patients;
```

```

* this speeds up computation as the data set has not to be modified;

data sim;
do i = 1 to 10000;
    end='30JUN2006'd;          *** the administrative end-of-follow-up date;
    start=ranuni(240981)*365+'31DEC2004'd;
                                *** the start date: a random day in 2004;

    x=rannor(58301);
    xdich=(x>0);
    y=(-log(ranuni(58821))/exp(x))**(1/3)*365;
    cause=ranbin(58301,1,0.3)+1;
    if start+y > end then do;
        y=end-start;
        cause=0;
    end;
    admin=end-start;          *** this is the administrative follow-up time;
    output;
end;
run;

title "Example for administrative censoring";
%pshreg(data=sim, time=y, cens=cause, varlist=xdich, admin=admin,
cuminc=1);

* not run;;
* %pshreg(data=sim, time=y, cens=cause, varlist=xdich, cuminc=1);

```

In this example code, we assume that there is only administrative but no random censoring. By the last commented call to %pshreg, PROC PHREG would take approx. 7 minutes to compute the cumulative incidence curves, and approx. 15 minutes to estimate the Fine-Gray model. With the administrative censoring option, execution of both tasks takes only a few seconds.

We are grateful to two anonymous referees for suggesting these changes.