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/** MACRO THAT MY WUSS 2019 PAPER/PRESENTATION WILL BE BASED ON.  
I WILL SIMPLIFY THE MACRO FOR THE PURPOSES OF THE PRESENTATION  
(E.G., REMOVE TIME MACRO VARIABLES, REDUCE THE NUMBER OF EVENTS TO SUBMIT  
AND RENAME VARIABLES/DATASETS TO BE MORE OBVIOUS)
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/** Create rate/RR data for first 12, 48 months for CRASH/CITATION data **/
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```
%macro crashrate (dsin=, events=, eventnum=, time=, timenum=, dsout=);  
%macro null; %mend null;
```

```
%do i=1 %to &eventnum.;  
%do t=1 %to &timenum.;
```

```
proc sql;  
create table _rates_&i._&t. as  
select  
adhdpopstatus,  
"%scan(&events.,&i.)" as Event,  
count(month) as MonthSum,  
sum(offsetVALID) as MonthDenom,  
sum(%scan(&events.,&i.)) as Count,  
10000*sum(%scan(&events.,&i.))/sum(offsetVALID) as Rate  
from &dsin.  
where month<=%scan(&time.,&t.)  
group by adhdpopstatus;  
quit;
```

```
/** CRUDE model **/
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```
ods output convergencestatus=_conv_&i._&t.  
estimates=_est_&i._&t. ;
```

```
proc genmod data=&dsin.;  
class patient_id adhdpopstatus (ref='No' param=ref);  
model %scan(&events.,&i.) = adhdpopstatus  
/ dist = poisson link = log offset = log_offsetVALID type3 pscale;  
repeated subject=patient_id / corr=IND modelse;  
estimate "%scan(&events.,&i.)" adhdpopstatus 1 ;  
where month<=%scan(&time.,&t.);  
run;
```

```
proc sql;  
select max(status)  
into :c_status  
from _conv_&i._&t.;  
quit;
```

```
%if &c_status > 0 %then %do;  
data combo_&i._&t. (keep=period adhdpopstatus event month: count rate Adjusted);  
length event $30;  
set _rates_&i._&t.;
```

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by event;
Period=%scan(&time.,&t.);
Adjusted='No crude model    ';
run;
%end;

%else %if &c_status = 0 %then %do;

  /** Limited adjusted model controlling for sex and age at licensure only **/
ods output convergencestatus=_aconv_&i._&t.
      estimates=_aest_&i._&t. ;
proc genmod data=&dsin.;
class patient_id adhdpopstatus (ref='No' param=ref) PROB_AGE4CAT sex_num ;
model %scan(&events.,&i.) = adhdpopstatus PROB_AGE4CAT sex_num
    / dist = poisson link = log offset = log_offsetVALID type3 pscale;
repeated subject=patient_id / corr=IND model;
estimate "%scan(&events.,&i.)" adhdpopstatus 1 ;
where month<=%scan(&time.,&t.);
run;

proc sql;
select max(status)
into :a_status
from _aconv_&i._&t.;
quit;

%if &a_status > 0 %then %do;
data combo_&i._&t. (keep=period adhdpopstatus event month: count rate cRR: Adjusted);
length event $30;
merge _rates_&i._&t.
      _est_&i._&t. (rename=(label=Event meanestimate=cRR meanlowercl=cRR_L meanuppercl=
by event;
Period=%scan(&time.,&t.);
Adjusted='No adjusted model';
run;
%end;

%else %if &a_status = 0 %then %do;

  /** Fully adjusted model controlling for sex and age at licensure, plus race/ethnicity
      income (zip), population density (zip), last primary care location, birthyear, mon
ods output convergencestatus=_fconv_&i._&t.
      estimates=_fest_&i._&t. ;
proc genmod data=&dsin.;
class patient_id adhdpopstatus (ref='No' param=ref)
      PROB_AGE4CAT sex_num race_ethnicity payor_miss DBDpopstatus seizure inc_quintile
model %scan(&events.,&i.) = adhdpopstatus PROB_AGE4CAT sex_num month month*month
      race_ethnicity payor_miss DBDpopstatus seizure inc_quintile
    / dist = poisson link = log offset = log_offsetVALID type3 pscale;
repeated subject=patient_id / corr=IND model;
estimate "%scan(&events.,&i.)" adhdpopstatus 1 ;
where month<=%scan(&time.,&t.);
run;

proc sql;
select max(status)

```

```

into :f_status
from _fconv_&i._&t.;
quit;

%if &f_status > 0 %then %do;
  data combo_&i._&t. (keep=period adhdpopstatus event month: count rate cRR: aRR: Ad
  length event $30;
  merge _rates_&i._&t.
        _est_&i._&t. (rename=(label=Event meanestimate=cRR meanlowercl=cRR_L meanupper
        _aest_&i._&t. (rename=(label=Event meanestimate=aRR meanlowercl=aRR_L meanupper
  by event;
  Period=%scan(&time.,&t.);
  Adjusted='Limited';
  run;
%end;

%else %if &f_status = 0 %then %do;
  data combo_&i._&t. (keep=period adhdpopstatus event month: count rate cRR: aRR: Ad
  length event $30;
  merge _rates_&i._&t.
        _est_&i._&t. (rename=(label=Event meanestimate=cRR meanlowercl=cRR_L meanupper
        _fest_&i._&t. (rename=(label=Event meanestimate=aRR meanlowercl=aRR_L meanupper
  by event;
  Period=%scan(&time.,&t.);
  Adjusted='Full  ' ;
  run;
%end;
%end;
%end;

proc datasets library=work;
delete _:;
quit;

%end;
%end;

data &dsout.;
set
  %do ii=1 %to &eventnum.;
    %do tt=1 %to &timenum.;
      combo_&ii._&tt.
    %end;
  %end;
;
CrashCite=scan(event,1,'_');
run;

proc sort data=&dsout;
by period descending CrashCite descending adhdpopstatus descending count ;
run;

%mend crashrate;

ods select none;

```

```
%crashrate
(dsin=driver_months,
events=CRASH_ALL CRASH_ALCEVID CRASH_ATFAULT CRASH_INJURY CRASH_NIGHT11 CRASH_NIGHT0911
CRASH_PEERONLY CRASH_PASS2PLUS CRASH_SINGLE CITATION_ALCDRUG CITATION_ALL CITATION_CARELESS
CITATION_ELECTRONIC CITATION_FAILSTOP CITATION_MV
CITATION_SEATBELT CITATION_SPEEDING,
eventnum=17,
time=12 48,
timenum=2,
dsout=CrashRates)
quit;

data output.crashrates;
set crashrates;
run;
```