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*****;
* Project          : ZRHM-REXA-07-JP
*
* Program name     : T1502043401_ZRHM-REXA-07_V1.sas
*
* Author           : L. Yan
*
* Date created     : 05/20/2015
*
* Purpose          : Table T1502043401
*
* Revision History :
*
* Date            Author      Ref      Revision (Date in YYYYMMDD format)
*
*****;

%let prgname=T1502043401_ZRHM_REXA_07_JP_V1;
options mprint;

options sasautos=("W:\pmp07\macros" sasautos) notes;
%init(delivery=9);

%titlecsv(prgname=&prgname., version=5);

%put &title1;
%put &title2;
%put &APPENDIX;
%put &endpoint;
%put &outname.;

options missing="";

%macro cal_sumary_pvalue(wher=, outnum=, var=, in=, pflg=, decimal=0);

proc sort data=&in. out=anadt_&outnum.;
by usbjid;
where &wher. ;
run;

proc sort data=anadt_&outnum.;
by trtcd;
run;

proc means data = anadt_&outnum. noprint;
by trtcd;
var &var.;
output out=xlab_&outnum. n=n mean=mean median=med std=sd min=min max=max q1=q1 q3=q3 lclm=lclm uclm=uclm;
run;

data xlab_&outnum.;
set xlab_&outnum.;
n1 = trim(left(compress(put(n, 8.))));
%if &decimal=1 %then %do;
if sd > . then mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' ('||trim(left(compress(put(ceil(sd*1000)/1000, 8.%eval(&decimal+2))))))||')';
else mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' (NA)';
ci1=trim(left(compress(put(floor(lclm*100)/100, 8.%eval(&decimal+1))))||', '||trim(left(compress(put(ceil(uclm*100)/100, 8.%eval(&decimal+1))))));
%end;
%if &decimal=0 %then %do;
if sd > . then mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' ('||trim(left(compress(put(ceil(sd*100)/100, 8.%eval(&decimal+2))))))||')';
else mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' (NA)';
ci1=trim(left(compress(put(floor(lclm*10)/10, 8.%eval(&decimal+1))))||', '||trim(left(compress(put(ceil(uclm*10)/10, 8.%eval(&decimal+1))))));
%end;

median1 = trim(left(compress(put(med, 8.%eval(&decimal+1)))));
q1q3 = trim(left(compress(put(q1, 8.%eval(&decimal+1))))||', '||trim(left(compress(put(q3, 8.%eval(&decimal+1))))));
;
min1 = trim(left(compress(put(min, 8.%eval(&decimal+0))))||', '||trim(left(compress(put(max, 8.%eval(&decimal+0))))));
run;

proc transpose data = xlab_&outnum. out=xlab_1_&outnum.;
id trtcd;
var n1 mean1 median1 q1q3 min1;
run;

data rep_&outnum.;
length _name_ _1 _2 _3 ord1 $100;
set xlab_1_&outnum.;

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ord1="&outnum";
ordnum=input(ord1, best.);
groupid=1;
if upcase(_name_)="N1" then do; _name_="n"; sord=0; end;

if upcase(_name_)="MEAN1" then do; _name_="Mean (SD)"; sord=1; end;
if upcase(_name_)="CI1" then do; _name_="95% CI"; sord=2; end;
if upcase(_name_)="MEDIAN1" then do; _name_="Median"; sord=3; end;
if upcase(_name_)="Q1Q3" then do; _name_="Q25, Q75"; sord=4; end;
if upcase(_name_)="MIN1" then do; _name_="Min, Max"; sord=5; end;
run;

data rep;
set rep rep_&outnum.;
run;
%mend;

%macro cal_freq_part_pval(where=, outnum=, var=, maxn=, minn=, fmt=, in=, pflg=);
proc sort data=&in. out=anadt_&outnum;
by usubjid;
where &where.;
run;

proc sort data=anadt_&outnum;
by trtcd;
run;

proc freq data = anadt_&outnum noprint;
tables trtcd*&var. / out = set1_&outnum;
run;

data temp1;
do i = 1 to 3;
do j= &minn. to &maxn.;
&var.=j;
trtcd=i;
count=0;
output;
end;
end;
run;

proc sort data=temp1;
by trtcd &var.;
run;

proc sort data=set1_&outnum;
by trtcd &var.;
run;

data set1_&outnum;
merge temp1 (in=a) set1_&outnum;
by trtcd &var.;
if a;
run;

data charv1_&outnum;
set set1_&outnum;
length col $100;

if trtcd = 1 then denom =&trt1;
if trtcd = 2 then denom =&trt2;
if trtcd = 3 then denom =&trt3;

if denom > 0 and &var. >=0 then col = put(count, 4.) || ' (' || strip(put((count/denom)*100, 8.1)) || ')';
else col=put(count, 4.);

keep col &var. trtcd;
run;

proc sort data=charv1_&outnum;
by &var. trtcd;
run;

proc transpose data=charv1_&outnum out=charv_&outnum;
by &var.;
id trtcd;
var col;
run;

data charv_&outnum (drop=i);
set charv_&outnum;

array alltox{*} _1 _2 _3;

do i = 1 to dim(alltox);
if alltox{i} = '' then alltox{i} = ' 0';

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end;
run;

data rep_&outnum;
length ordnum 8.;
set charv_&outnum;
ord1=&outnum;
ordnum=input(ord1, best.);
run;

data rep_&outnum;
length _name_ $100 ord1 $100 sord 8.;
set rep_&outnum;
ord1=&outnum;
groupid=2;

ordnum=input(ord1, best.);
if . < &var < 0 then do; _NAME_="N"; sord=&var.+6; end;
else if &var>=0 then do; _NAME_=put(&var, &fmt.); sord=&var. +6; end;
run;

data rep;
set rep rep_&outnum.;
run;

%mend;

%macro cal_summary_pvalue1(where=, outnum=, var=, in=, pflg=, decimal=0);
proc sort data=&in. out=anadt_&outnum.;
by usbjid;
where &where. ;
run;

proc sort data=anadt_&outnum.;
by trtd;
run;

proc means data = anadt_&outnum. noprint;
by trtd;
var &var.;
output out=xlab_&outnum. n=n mean=mean median=med std=sd min=min max=max q1=q1 q3=q3 lclm=lclm uclm=uclm;
run;

data xlab_&outnum.;
set xlab_&outnum.;
n1 = trim(left(compress(put(n, 8.))));
%if &decimal=1 %then %do;
if sd > . then mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' ('||trim(left(compress(put(ceil(sd*1000)/1000, 8.%eval(&decimal+2))))))||')';
else mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' (NA)';
ci1=trim(left(compress(put(floor(lclm*100)/100, 8.%eval(&decimal+1))))||', '||trim(left(compress(put(ceil(uclm*100)/100, 8.%eval(&decimal+1))))));
%end;
%if &decimal=0 %then %do;
if sd > . then mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' ('||trim(left(compress(put(ceil(sd*100)/100, 8.%eval(&decimal+2))))))||')';
else mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' (NA)';
ci1=trim(left(compress(put(floor(lclm*10)/10, 8.%eval(&decimal+1))))||', '||trim(left(compress(put(ceil(uclm*10)/10, 8.%eval(&decimal+1))))));
%end;

median1 = trim(left(compress(put(med, 8.%eval(&decimal+1)))));
q1q3 = trim(left(compress(put(q1, 8.%eval(&decimal+1))))||', '||trim(left(compress(put(q3, 8.%eval(&decimal+1))))));
;
min1 = trim(left(compress(put(min, 8.%eval(&decimal+0))))||', '||trim(left(compress(put(max, 8.%eval(&decimal+0))))));
run;

proc transpose data = xlab_&outnum. out=xlab_1_&outnum.;
id trtd;
var n1 mean1 median1 q1q3 min1;
run;

data rep_&outnum.;
length _name_ _1 _2 _3 ord1 $100;
set xlab_1_&outnum.;
ord1=&outnum;
ordnum=input(ord1, best.);
groupid=1;
if upcase(_name_)="N1" then do; _name_="N"; sord=0; end;

if upcase(_name_)="MEAN1" then do; _name_="Mean (SD)"; sord=1; end;

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if upcase(_name_)="CI1" then do; _name_="95% CI"; sord=2; end;
if upcase(_name_)="MEDIAN1" then do; _name_="Median"; sord=3; end;
if upcase(_name_)="Q1Q3" then do; _name_="Q25, Q75"; sord=4; end;
if upcase(_name_)="MIN1" then do; _name_="Min, Max"; sord=5; end;
run;

data rep;
set rep rep_outnum.;
run;
%mend;

%macro cal_freq_part_pval1(where=, outnum=, var=, maxn=, minn=, fmt=, in=, pflg=);
proc sort data=&in. out=anadt_&outnum;
by usbjid;
where &where.;
run;

proc sort data=anadt_&outnum;
by trtcd;
run;

proc freq data = anadt_&outnum noprint;
tables trtcd*&var. / out = set1_&outnum;
run;

data temp1;
do i = 1 to 3;
do j= 1.1 to 1.3 by 0.1;
&var.=j;
trtcd=i;
count=0;
output;
end;
do j= 2.1 to 2.3 by 0.1;
&var.=j;
trtcd=i;
count=0;
output;
end;
do j= 3.1 to 3.3 by 0.1;
&var.=j;
trtcd=i;
count=0;
output;
end;
end;
run;

proc sort data=temp1;
by trtcd &var.;
run;

proc sort data=set1_&outnum;
by trtcd &var.;
run;
/*
data set1_&outnum;
merge temp1 (in=a) set1_&outnum;
by trtcd &var.;
if a;
run;
*/
data charv1_&outnum;
set set1_&outnum;
length col $100;

if trtcd = 1 then denom =&trt1;
if trtcd = 2 then denom =&trt2;
if trtcd = 3 then denom =&trt3;

if denom > 0 and &var. >=0 then col = put(count, 4.) || ' (' || strip(put((count/denom)*100, 8.1)) || ')';
else col=put(count, 4.);

keep col &var. trtcd;
run;

proc sort data=charv1_&outnum;
by &var. trtcd;
run;

proc transpose data=charv1_&outnum out=charv_&outnum;
by &var.;
id trtcd;
var col;
run;

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data charv_&outnum (drop=i);
  set charv_&outnum;

  array alltox{*} _1 _2 _3;

  do i = 1 to dim(alltox);
    if alltox{i} = '' then alltox{i} = ' 0';
  end;
run;

data rep_&outnum;
  length ordnum 8.;
  set charv_&outnum;
  ord1=&outnum;
  ordnum=input(ord1, best.);
run;

data rep_&outnum;
  length _name_ $100 ord1 $100 sord 8.;
  set rep_&outnum;
  ord1=&outnum;
  groupid=2;
  ordnum=input(ord1, best.);
  indent=2*180+87;;
  if . < &var < 0 then do; _NAME_="N"; sord=&var.+6; end;
  else if &var>=0 then do; _NAME_ = '^R"\fi-87\li' || strip(put(indent,best.)) || ' ' !!strip(put(&var, &fmt.)); sord=&var. +6; end;
run;

data rep;
  set rep rep_&outnum.;
run;

%mend;

proc sort data=adam.adsl out=trt;
  by usubjid;
  where PPROT4FL="Y";
run;

data trt;
  set trt;
  if TRT01A="THSm2.2" then trtcd=1;
  else if TRT01A="mCC" then trtcd=2;
  else if TRT01A="SA" then trtcd=3;
run;

proc sort data=adam.ADQSDND out=anald;
  by usubjid;
  where (paramcd in ("FTNDSC") and avisitn>=1) and PPROT4FL="Y" and anl01fl="Y";
run;

data anald;
  set anald;
  if aval>0 then logaval=log(aval);
run;

proc sort data=anald out=check(keep=paramn avisitn avisit) nodupkey;
  by paramn avisitn avisit;
run;

data trt_1;
  set trt;
run;

data anald;
  set anald;
  if TRTA="THSm2.2" then trtcd=1;
  else if TRTA="mCC" then trtcd=2;
  else if TRTA="SA" then trtcd=3;
run;

data check;
  set check;
  ord=_n_;
run;

%*cal_summary_pvalue(where=1, outnum=1, var=aval, in=anald, pflg=1);

data rep;
run;

data _null_;
  set check;
  call execute ('%cal_summary_pvalue(where=%str(avisitn=||avisitn||) and paramn=||paramn||) , outnum=||ord||', var

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=aval, in=anald);');
run;

data anald;
set anald;
if AVALCAT1="Mild" then AVALCAT1n=1;
if AVALCAT1="Moderate" then AVALCAT1n=2;
if AVALCAT1="Severe" then AVALCAT1n=3;
run;

proc format;
value avalf
1="Mild (0 3) , n(%)"
2="Moderate (4 6) , n(%)"
3="Severe (7 10) , n(%)"
;
run;

proc sort data=trt_1 nodupkey;
by trtcd usubjid;
run;

proc freq data = trt_1 noprint;
tables trtcd/ out= denom;
run;

%global trt1 trt2 trt3;

data _null_;
set denom end=eof;

retain total 0;

total = total+count;

if trtcd= 1 then do;
call symput('trt1', trim(left(put(count,8)))));
end;
if trtcd= 2 then do;
call symput('trt2', trim(left(put(count,8)))));
end;
if trtcd= 3 then do;
call symput('trt3', trim(left(put(count,8)))));
end;

run;

%put trt1=&trt1 trt2=&trt2 trt3=&trt3;

data _null_;
set check;
call execute ('%cal_freq_part_pval(where=%str(avisitn=||avisitn|| and paramn=||paramn|| ), outnum=||ord||', var=A
VALCAT1n, maxn=3, minn=1, fmt=avalf., in=anald);');
run;

data rep1;
set rep;
run;

data rep;
run;

data _null_;
set check;
if avisitn>100;
call execute ('%cal_summary_pvalue1(where=%str(avisitn=||avisitn|| and paramn=||paramn|| ), outnum=||ord||', va
r=CHG, in=anald);');
run;

data anald;
set anald;
if SHIFT1="Mild to Mild" then SHIFT1n=1.1;
if SHIFT1="Moderate to Mild" then SHIFT1n=1.2;
if SHIFT1="Severe to Mild" then SHIFT1n=1.3;
if SHIFT1="Mild to Moderate" then SHIFT1n=2.1;
if SHIFT1="Moderate to Moderate" then SHIFT1n=2.2;
if SHIFT1="Severe to Moderate" then SHIFT1n=2.3;
if SHIFT1="Mild to Severe" then SHIFT1n=3.1;
if SHIFT1="Moderate to Severe" then SHIFT1n=3.2;
if SHIFT1="Severe to Severe" then SHIFT1n=3.3;

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run;

proc format;
value avalff
1.1="Mild to Mild, n(%)"
1.2="Moderate to Mild, n(%)"
1.3="Severe to Mild, n(%)"
2.1="Mild to Moderate, n(%)"
2.2="Moderate to Moderate, n(%)"
2.3="Severe to Moderate, n(%)"
3.1="Mild to Severe, n(%)"
3.2="Moderate to Severe, n(%)"
3.3="Severe to Severe, n(%)"
;
run;

data _null_;
set check;
if avisitn>100;
call execute ('%cal_freq_part_pval1(where=%str(avisitn=||avisitn||' and paramn=||paramn||' ), outnum=||ord||', var=
SHIFT1n, maxn=3, minn=1, fmt=avalff., in=anald);');
run;

data check1;
set anald;
if avisit="Day 90";
run;

proc freq data=check1 noprint;
table trtcd*shift1 *shift1n/out=check3;
run;

proc sort data=check1 out=check2(keep=shift1 SHIFT1n) nodupkey;
by shift1 SHIFT1n;
run;

data rep2;
set rep;
rename _1=_4 _2=_5 _3=_6;
run;

proc sort data=rep1;
by ordnum sord;
run;

proc sort data=rep2;
by ordnum sord;
run;

data frep;
merge rep1 rep2;
by ordnum sord;
run;

data frep;
set frep;
ord=ORDNUM;
run;

data frep;
merge frep(in=a) check;
by ord;
if a;
if avisitn>.;
run;

data smalln;
set frep;
if _name_="n";
run;

data smalln;
set smalln;
_name_="Missing, n(%)"
sord=0.1;
if _1 ne "" then _1=strip(put((&trt1-input(_1, best.)), 8.0))||" ("||strip(put((&trt1-input(_1, best.))*100/&trt1, 8.1))
||")";
if _2 ne "" then _2=strip(put((&trt2-input(_2, best.)), 8.0))||" ("||strip(put((&trt2-input(_2, best.))*100/&trt2, 8.1))
||")";
if _3 ne "" then _3=strip(put((&trt3-input(_3, best.)), 8.0))||" ("||strip(put((&trt3-input(_3, best.))*100/&trt3, 8.1))
||")";
if _4 ne "" then _4=strip(put((&trt1-input(_4, best.)), 8.0))||" ("||strip(put((&trt1-input(_4, best.))*100/&trt1, 8.1))
||")";
if _5 ne "" then _5=strip(put((&trt2-input(_5, best.)), 8.0))||" ("||strip(put((&trt2-input(_5, best.))*100/&trt2, 8.1))
||")";

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if _6 ne "" then _6=strip(put((&trt3-input(_6, best.)), 8.0))||" ("||strip(put((&trt3-input(_6, best.))*100/&trt3, 8.1))
||")";

run;

data frep;
set frep smalln;
run;

data frep;
set frep;
if _1 in ("0 (0.0)" " ") and _2 in ("0 (0.0)" " ") and _4 in ("0 (0.0)" " ") and _5 in ("0 (0.0)" " ") and _3 in ("0
(0.0)" " ") and _6 in ("0 (0.0)" " ") then delete;
run;

data frep;
set frep;
if _1="0 (0.0)" then _1="0";
if _2="0 (0.0)" then _2="0";
if _3="0 (0.0)" then _3="0";
if _4="0 (0.0)" then _4="0";
if _5="0 (0.0)" then _5="0";
if _6="0 (0.0)" then _6="0";

if _1=" 0 (0.0)" then _1="0";
if _2=" 0 (0.0)" then _2="0";
if _3=" 0 (0.0)" then _3="0";
if _4=" 0 (0.0)" then _4="0";
if _5=" 0 (0.0)" then _5="0";
if _6=" 0 (0.0)" then _6="0";

if _4="0" and _5="0" and _6="0" then delete;

run;

proc sort data=frep;
by paramn avisitn avisit sord;
run;

proc sort data=anald out=fmt(keep=paramn param) nodupkey;
by paramn param;
run;

data fmt;
set fmt;
fmtname="grp";
start=paramn;
label=param;
run;

proc format cntlin=fmt;
run;

%macro cal_part_main();

data frep;
set frep;
avisit=propcase(avisit);

if AVISIT="Day 0" then avisit="Baseline";
if avisit="Screening" then avisit="Baseline";
%do i = 1 %to 100;
  if (&i-1)*1<ordnum<=&i*1 then pagen=&i;
%end;

run;

%mend;

%cal_part_main();
data frep;
set frep;
space=" ";
run;

data odata.&prgname.;
set frep;
run;

%global totalpage1;

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data _null_;
  set freq end=eof;

  if eof then do;
    call symput('totalpage1', trim(left(put(pagen,8)))));
  end;

run;

%put totalpage1=&totalpage1;

%*title(prgname1=&prgname.);

%trtrtfp(pgmname=&outname., pgmid=1, new=0, style=, bookmark=%lowcase(&outname.));

%macro reppart;

  %do i = 1 %to &totalpage1;

proc report data=freq headskip headline spacing=4 nowd split='-' style=[outputwidth=100%] style(header column)=[protect
specialchars=off];
  where pagen=&i.;
  column pagen paramn avisitn avisitn groupid sord _name_ (" \brdrb\brdrs THSm2.2 (N=&trt1.)" _1 _4) space (" \brdrb\brdrs
mCC (N=&trt2.)" _2 _5) space (" \brdrb\brdrs SA (N=&trt3.)" _3 _6);
  define pagen /order order=internal noprint;
  define paramn /order order=internal noprint;
  define avisitn /order order=internal noprint;
  define avisit /order "Time point" flow style(column)=[cellwidth=6% just=l];
  define groupid /order order=internal noprint;

  define sord /order order=internal noprint;

  define _name_ /display "Statistic" flow style(column)=[cellwidth=20% just=l];
  define _1 /display "Raw value" flow style(column)=[cellwidth=10% just=c];
  define _4 /display "Change/~Shift(1)" flow style(column)=[cellwidth=10% just=c];
  define space /display " " flow style(column)=[cellwidth=0.5% just=c];

  define _2 /display "Raw value" flow style(column)=[cellwidth=10% just=c];
  define _5 /display "Change/~Shift(1)" flow style(column)=[cellwidth=10% just=c];
  define space /display " " flow style(column)=[cellwidth=0.5% just=c];

  define _3 /display "Raw value" flow style(column)=[cellwidth=10% just=c];
  define _6 /display "Change/~Shift(1)" flow style(column)=[cellwidth=10% just=c];

/*
  COMPUTE before paramn ;
  LINE @1 "Parameter: " paramn grp.;
  ENDCOMP;
  */
  COMPUTE after groupid ;
  LINE @1 "";
  ENDCOMP;

  compute before pagen;
  line @1 "";
  endcomp;

  compute before _page_ /style=[fontweight=bold fontsize=3.75];
  line @1 "&title1 &title2";
  line @1 " ";
  LINE @1 "Parameter: " paramn grp.;
  line @1 "Product Use Time Period: Period 4";
  line @1 "%R/RTF'\brdrb\brdrs\brdrw30\brsp20\b ' ";
  endcomp;

  compute after _page_ /style=[fontsize=1.75];
  line @1 "Note: mCC = Menthol conventional cigarettes; SA = Smoking abstinence; THSm2.2 = Tobacco Heating System 2.2 Ment
hol.";
  line @1 "Note: [1] change/shift from baseline, where baseline is defined as the last assessment prior to first randomize
d product use in mCC / THS 2.2 Menthol arms or the last assessment prior to 10 AM on Day 1 in the SA arm.";
  line @1 "&APPENDIX.";
  line @1 "Study ID:ZRHM-REXA-07-JP Program: &fprgname..sas Status: &repversion./&fdate. Page: &i.
of &totalpage1";
  endcomp;
run;
%end;

%mend;
%reppart;

ods listing;

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```
ods rtf close;
```