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/*-----
Covance Study ID      : COV-000000106343
Program Name          : d_2adqspa.sas
Purpose               : Program to create ADQSPA dataset
Author                : cvn_pshe
Date of Creation      : 31MAR2015

Input Data            : ADAM.ADSL, SDTM.QS,
Output Data           : ADAM.ADQSPA
Macros Called         : m_printto,%m_totper, m_perall, m_logchk, m_attrib_adam

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----- Modification History -----

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Modified by          :
Modification Date    :
Modification Description:
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options notes nosource;
proc datasets lib=work nolist memtype=data kill; quit;
* macro to save output and log to appropriate areas ;
%m_printto;
options notes source source2 nofullstimer validvarname=upcase missing=' ' mprint symbolgen;
ods _all_ close;
ods listing;

*=====;
* START OF PROGRAM CODE                               ;
*=====;
libname sdtm "/cvn/projects/prj/data/000000106343/datasets/sdtm/sdtmx";
*****;
* bring in ADSL ;
*****;
data adsl;
  set adam.adsl;
  keep studyid usubjid subjid subjidn siteid age race sex: dthfl height weightb1 bmi ucpdgr1 ucpdgr1n /*nicogr1 nicogr1n
    targr1 targr1n*/ randfl enrfl scrffl exfl exnotrfl enfl complfl fupfl SAFBFL SAFAFL FASFL pprot1fl pprot2fl pprot3fl pprot4fl
    TRTSDTM TRTSTMF TRTSDT TRTSDAY TRTEDTM TRTETMF TRTEDT TRTEDAY trt01p trt01pn trt01a trt01an
;
run;

*****;
* bring in QS ;
*****;
data qs1;
  set sdtm.qs(where = (qscat in ('HUMAN SMOKING TOPOGRAPHY QUESTIONNAIRE')));
  format paramcd $8. parcat1 $200. avisit $40. paramn parcat1n avisitn 8. aval best. param $100.
    avalc $50. adt date9. adtm datetime13. atm time5. desc $200.;

* parameter variables ;
parcat1 = propcase(qscat);
parcat1n=2;

if qstestcd in ('TASTE', "HSTASTE") then do;
  qstestcd='HSTASTE';
end;

paramcd = qstestcd;
param = propcase(qstest, '.');

if qstestcd='HSMOK' then paramn=1;
else if qstestcd='HSENJ' then paramn=2;
else if qstestcd='HSTAST' then paramn=3;
else if qstestcd='HSTASTE' then do; param='Smoking Taste'; paramn=3; end;
else if qstestcd='HSEASY' then paramn=4;
else if qstestcd='HSDISTU' then paramn=5;
else if qstestcd='QSALL' then paramn=99;

* analysis variables ;
if qsstresn ^= . then acal =qsstresn;
else do;
  if scan(qsstresc,1,'-')='STRONGLY DISAGREE' then aval=1;
  else if scan(qsstresc,1,'-')='DISAGREE' then aval=2;
  else if scan(qsstresc,1,'-')='NEITHER AGREE NOR DISAGREE' then aval=3;
  else if scan(qsstresc,1,'-')='AGREE' then aval=4;
  else if scan(qsstresc,1,'-')='STRONGLY AGREE' then aval=5;
end;

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    avalc = propcase(scan(qsstresc,1,'-'),'/');
    descclen = index(qsstresc,'-');
    if index(qsstresc,'-') then desc = propcase(substr(qsstresc,descclen+1),'.');
    desc=tranwrd(desc,' i ',' I ');

* visit details ;
    avisit = propcase(visit);
    avisitn = visitnum;

* dates;
    if length(qsdtc) gt 10 then do;
        ADTM=DHMS(INPUT(SCAN(QSDTC,1,'T'),YYMMDD10.),HOUR(INPUT(SCAN(QSDTC,2,'T'),TIME5.)),MINUTE(INPUT(SCAN(QSDTC,2,'T'),TIME5.)),0);
        adt = datepart(adtm);
        atm = timepart(adtm);
        end;
    else if length(qsdtc) = 10 then adt = input(qsdtc,yyymmdd10.);

    keep usubjid qsseq param: parcat: aval: desc avisit: adt: atm qsstat qsreasnd qsdtc qsdyc epoch ;
run;

data qs1_base (rename=(aval=base avalc=basec));
    set qs1 (where=(avisit='Day 0'));
    keep usubjid paramn aval avalc;
run;

proc sort data=qs1_base;
    by usubjid paramn;
run;

proc sort data=qs1;
    by usubjid paramn;
run;

data qs1_b;
    merge qs1 qs1_base/*(drop=aval avalc)*/;
    by usubjid paramn;
    format chg pchg best. ablf1 $2.;
    if avisit='Day 0' and aval ne . then ablf1='Y';
/*    if nmiss(aval, base)=0 then do;*/
    chg=.; /*per email from John, set these two variable to null*/
    pchg=.;
/*    end; */
run;

data qs2;
    set sdtm.qs(where = (qscat in ('MODIFIED CIGARETTE EVALUATION QUESTIONNAIRE')));
    format paramcd $8. parcat1 parcat2 $200. avisit $40. paramn parcat1n parcat2n avisitn aval 8. param $100. avalc $50. adt date9.

    adtm datetime13. atm time5. desc $200.;

* parameter variables ;
    parcat1 = propcase(qscat);
    parcat1n =1;

    if qstestcd in ('DIZZY' 'NAUSEO') then do;
        parcat2 = 'Aversion';
        parcat2n = 1;
    end;
    else if qstestcd = 'CRAVING' then do;
        parcat2 = 'Craving';
        parcat2n = 2;
    end;
    else if qstestcd = 'SENSAT' then do;
        parcat2 = 'Sensations';
        parcat2n = 3;
    end;
    else if qstestcd in ('CALM' 'AWAKE' 'IRRITAB' 'CONCEN' 'HUNGER') then do;
        parcat2 = 'Psychological';
        parcat2n = 4;
    end;
    else if qstestcd in ('SATISFY' 'TASTE' 'ENJOY') then do;
        parcat2 = 'Satisfaction';
        parcat2n = 5;
    end;

    paramcd = qstestcd;
    param = propcase(qstest, '.');

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if qstestcd = 'SATISFY' then paramn = 6;
else if qstestcd = 'TASTE' then paramn = 7;
else if qstestcd = 'SENSAT' then paramn = 8;
else if qstestcd = 'CALM' then paramn = 9;
else if qstestcd = 'AWAKE' then paramn = 10;
else if qstestcd = 'IRRITAB' then paramn = 11;
else if qstestcd = 'CONCEN' then paramn = 12;
else if qstestcd = 'HUNGER' then paramn = 13;
else if qstestcd = 'DIZZY' then paramn = 14;
else if qstestcd = 'NAUSEO' then paramn = 15;
else if qstestcd = 'CRAVING' then paramn = 16;
else if qstestcd = 'ENJOY' then paramn = 17;
else if qstestcd='QSALL' then paramn=99;
else put 'USER WARN' 'ING: check parameter names as paramn not allocated:' qstestcd = ;

* analysis variables ;
if qsstresc='NOT AT ALL' then aval=1;
else if qsstresc='VERY LITTLE' then aval=2;
else if qsstresc='LITTLE' then aval=3;
else if qsstresc='MODERATELY' then aval=4;
else if qsstresc='A LOT' then aval=5;
else if qsstresc='QUITE A LOT' then aval=6;
else if qsstresc='EXTREMELY' then aval=7;

avalc = propcase(scan(qsstresc,1,'-'),' / ');
descclen = index(qsstresc,'-');
if index(qsstresc,'-') then desc = propcase(substr(qsstresc,descclen+1),' ');
desc=tranwrd(desc,' i ',' I ');

* visit details ;
avisit = propcase(visit);
avisitn = visitnum;

* dates;
if length(qsdtc) gt 10 then do;
    ADTM=DHMS(INPUT(SCAN(QSDTC,1,'T'),YYMMDD10.),HOUR(INPUT(SCAN(QSDTC,2,'T'),TIME5.)),MINUTE(INPUT(SCAN(QSDTC,2,'T'),TIME5.)),0);
/* 19) KB 01Jul2014 */
    adt = datepart(adtm);
    atm = timepart(adtm);
end;
else if length(qsdtc) = 10 then adt = input(qsdtc,yyymmdd10.);

keep usubjid qsseq param: parcat: aval: desc avisit: adt: atm qsstat qsreasnd qsdtc qsdyc epoch;
run;

data qs2_base;
    set qs2 (where=(avisit in ('Day -1' 'Day 0' 'Day 1')));
/* keep usubjid paramn aval avalc ;*/
run;

proc sort data=qs2_base;
    by usubjid parcat1n parcat2n avisitn qsdtc qsdyc atm;
run;

data qs2_base;
    set qs2_base;
    by usubjid parcat1n parcat2n avisitn adtm;
    retain adtmb;
    if last.parcat2n then do;
        adtmb=.;
    end;

    if avisit='Day 1' then do;
        if adtm < dhms(adt,10,00, 0) then adtmb=adtm;
        else adtmb=.;
    end;
    else do;
        if avisit='Day 0' then adtmb=adtm;
        else if avisit='Day -1' then adtmb=adtm;
    end;
    if adtmb =. then delete;
run;

proc sort data=qs2;
    by usubjid parcat1n parcat2n avisitn;
run;

data qs2_base;
    set qs2_base;

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    by usubjid parcat1n parcat2n avisitn adtmb;
    if last.parc2n;
run;

data qs2_b;
    merge qs2 qs2_base(drop=QSSEQ QSSTAT QSREASND EPOCH DESC paramcd parcat1 avisit paramn aval param avalc adt adtm parcat2 qsdte q
sdy atm in=inbase);
    by usubjid parcat1n parcat2n avisitn;
    if inbase then do;
        ablf1 = 'Y';
    end;
run;

proc sort data=qs2_b;
    by usubjid parcat1n parcat2n param avisitn atm;
run;

data qs2_b;
    set qs2_b;
    by usubjid parcat1n parcat2n param avisitn atm;
    format basec $50.;
    retain base basec;
    if first.param then do; base=.; basec=''; end;
    if ablf1 = 'Y' then do; base=aval; basec=avalc; end;
run;

data qs2_b;
    set qs2_b;
    if nmiss(aval, base)=0 then do;
        chg=aval-base;
        pchg=(aval-base)/base*100;
    end;
run;

* derive subscale scores ;
proc sort data = qs2_b;
    by usubjid parcat1n parcat2n avisitn qsdte qsdym adtm adt atm;
run;

data qs2_1;
    set qs2_b;
    where paramcd ne "QSALL";
run;

proc summary data = qs2_1 (where = (upcase(parcat1) = 'MODIFIED CIGARETTE EVALUATION QUESTIONNAIRE')) noprint;
    var aval;
    by usubjid parcat1n parcat1 parcat2n parcat2 avisitn avisit qsdte qsdym adtm adt atm;
    output out = mean(drop = _) mean = mean n = n nmiss = nmiss;
run;

data mean2(drop = mean n nmiss);
    set mean;
    format paramcd $8. paramn 8. param $100. paramtyp dtype $10. aval best. avalc $50.;

    paramtyp = 'DERIVED';
    dtype = 'AVERAGE';

    if not missing (mean) then aval = round(mean,0.1);
    avalc = strip(put(aval,best.));

    if parcat2n = 1 then do;
        paramcd = 'MCEQA';
        paramn = 18;
        param = 'Aversion Subscale';
    end;
    else if parcat2n = 2 then do;
        paramcd = 'MCEQCR';
        paramn = 19;
        param = 'Craving Reduction Subscale';
    end;
    else if parcat2n = 3 then do;
        paramcd = 'MCEQERTS';
        paramn = 20;
        param = 'Enjoyment of Respiratory Tract Sensation Subscale';
    end;

    if nmiss = 0 or (nmiss > 0 and (n/nmiss)*100 > 50) then

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do;
  if parcat2n = 4 then do;
    paramcd = 'MCEQPR';
    paramn = 21;
    param = 'Psychological Reward Subscale';
  end;
  else if parcat2n = 5 then do;
    paramcd = 'MCEQSS';
    paramn = 22;
    param = 'Smoking Satisfaction Subscale';
  end;
end;
end;
else do;
  aval = .; * > 50% missing;
  avalc = ' ';
end;
run;

**Baseline for the derived **;
PROC sort data = mean2(where=(avisit in ('Day -1' 'Day 0' 'Day 1')) out=meanbase;
  by usubjid parcat1n parcat2n avisitn qsdtc qsdym atm;
run;
data meanbase;
  set meanbase;
  by usubjid parcat1n parcat2n avisitn adtm;
  retain adtmb;
  if last.parcat2n then do;
    adtmb=.;
  end;

  if avisit='Day 1' then do;
    if adtm < dhms(adtm,10,00, 0) then adtmb=adtm;
    else adtmb=.;
  end;
  else do;
    if avisit='Day 0' then adtmb=adtm;
    else if avisit='Day -1' then adtmb=adtm;
  end;
  if adtmb = . then delete;
run;

data meanbase;
  set meanbase;
  by usubjid parcat1n parcat2n avisitn adtmb;
  if last.parcat2n;
run;

data meanbase;
  merge mean2 meanbase(drop=paramcd parcat1 avisit paramn aval param avalc adt adtm parcat2 paramtyp dtype qsdtc qsdym atm in=inbase);
  by usubjid parcat1n parcat2n avisitn;
  if inbase then do;
    ablf1 = 'Y';
  end;
run;

proc sort data=meanbase;
  by usubjid parcat1n parcat2n param avisitn atm;
run;

data meanbase;
  set meanbase;
  by usubjid parcat1n parcat2n param avisitn atm;
  format basec $50.;
  retain base basec;
  if first.param then do; base=.; basec=''; end;
  if ablf1 = 'Y' then do; base=aval; basec=avalc; end;

run;

data meanbase;
  set meanbase;
  if nmiss(aval, base)=0 then do;
    chg=aval-base;
    pchg=(aval-base)/base*100;
  /* basec=strip(put(base, best.)); */
  end;
run;

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* set together ;
data qs;
  set qs1_b qs2_b meanbase;
  format asper apuper 8. asperc $40. apuperc $10. ;

  if avisitn < 101 then asper=1;
  else if 101<=avisitn<=106 then asper=2;
  else if 106<avisitn<=191 then asper=3;
  else if avisitn>191 then asper=4;

  if asper=1 then asperc= 'Pre-Randomization Period';
  else if asper=2 then asperc='Confinement Period';
  else if asper=3 then asperc='Ambulatory Period';
  else if asper=4 then asperc='Safety Follow-up Period';

  if 101<=avisitn<=106 then apuper=1;
  else if 106<avisitn<=131 then apuper=2;
  else if 131<avisitn<=161 then apuper=3;
  else if 161<avisitn<=191 then apuper=4;

  if apuper=1 then apuperc= 'Period 1';
  else if apuper=2 then apuperc='Period 2';
  else if apuper=3 then apuperc='Period 3';
  else if apuper=4 then apuperc='Period 4';

run;

proc sort data=qs;
  by usubjid;
run;

*****;
* Combine ADSL and QS data *;
*****;
* treatment period;
%m_totper;

data slqspa (drop=trt01p trt01pn trt01a trt01an);
  format aperiod trtan trtpn aday 8. trta trtp $40. aperiodc $10.;
  merge adsl qs(in=qs);
  by usubjid;
  if qs;
  if randfl='N' then do;
    ablfl = '';
    base=.;
    chg=.;
    pchg=.;
    basec='';
  end;
  if nmiss(adl, trtsdt)=0 then aday = adl - trtsdt + 1;
  * allocate treatment and period;
  %m_perall(dvar1 = adtm, dvar2 = adt);
  if not missing(aperiod) then do;
    aperiodc = 'Period ' || put(aperiod,1.);
  end;

  if TRTPN=97 | TRTPN=98 then do; APUPER=.; APUPERC = ''; end;
run;

proc sort data=slqspa;
  by usubjid paramcd avisitn ;
run;

data slqspa2;
  set slqspa;
  by usubjid paramcd avisitn ;
  format awlo awhi time5. awrange $50. anl01f1 $2.;

  if randfl='Y' and aval ^=. and first.avisitn then do;
    if parcat1n=2 then anl01f1='Y';
    else if parcat1n=1 and paramtyp='DERIVED' then anl01f1='Y';
  end;

  if parcat1 ne 'Human Smoking Topography Questionnaire' then do;
    awlo=dhms(0,20,0,0);
    awhi=dhms(0,23,0,0);
  end;

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if parcat1='Human Smoking Topography Questionnaire' then do;
if avisit in ('Day 0') then do;
awlo=dhms (0,20,0,0);
awhi=dhms(0,23,0,0);
end;
else if trta in ('THSm2.2' 'mCC') and avisit in ('Day 4', 'Day 30', 'Day 60', 'Day 90' ) then do;
awlo=dhms (0,20,0,0);
awhi=dhms(0,21,30,0);
end;
end;

if nmiss (awlo, awhi) =0 then awrange=strip(put(awlo,time5. ))||'-'||strip(put(awhi,time5.));
run;

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DATA Slqspa2;
SET slqspa2;
FORMAT DEVWC $10. DEVN BEST.;

IF QSSTAT NE 'NOT DONE' AND TRTA NE 'SA' THEN DO;
IF ATM<AWLO and nmiss(atm, awlo)=0 THEN DO;
DEVN=FLOOR((ATM-AWLO)/60);
DEVWC=COMPRESS(PUT(FLOOR((ATM-AWLO)/60),BEST.));
END;
ELSE IF ATM>AWHI and nmiss(atm, awlo)=0 THEN DO;
DEVN=CEIL((ATM-AWHI)/60);
DEVWC=COMPRESS(PUT(CEIL((ATM-AWHI)/60),BEST.));
END;
END;

IF NOT MISSING(DEVWC) THEN DO;
IF INDEX(DEVWC, '-')=0 THEN DEVWC=CATS(CATS('+',DEVWC), ' min');
ELSE IF INDEX(DEVWC, '-') THEN DEVWC=CATS(DEVWC, ' min');
END;

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RUN;

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*****;
* create output dataset ;
*****;

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options replace;

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proc sort data = Slqspa2 out=adqspa;
by usubjid avisitn parcat1 paramcd;
run;

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%m_attrib_adam (dset=ADQSPA);

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data adam.adqspa (label= 'Product Assessment Analysis Dataset');
set adqspa;
run;

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options noreplace;

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```

proc printto; run;

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%m_logchk;

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*=====;
* END OF PROGRAM CODE ;
*=====;

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