

```
/*=====
=====*
```

```
| Covance Study Number   : 000000106343      |
| Program Name           : t_anl_qsu.sas      |
| Purpose                 : Analysis of QSU    |
|                         |                    |
| Input Data              : ADQSSU            |
| Output Data             : T_15_02_04_53_01, T_15_02_04_53_02      |
| Macros Called           : m_printto, m_logchk      |
| Originally Performed by : kpothuri          |
| Date                    : 11MAY2015         |
```

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|                                     |
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| Modification History      |
|-----|
```

```
| Modified by              :                  |
| Modification Date        :                  |
| Modification Description :                  |
```

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+=====
=====*/
```

```
options notes source source2 nofullstimer validvarname=upcase missing=' ' NOQUOTELENMAX;
```

```
ods _all_ close;
```

```
ods listing;
```

```
%m_printto(route=YES);
```

```

*=====;

* START OF PROGRAM CODE                                ;

*=====;

proc datasets lib=work nolist memtype=data kill; quit;

%let TFL_Part=%scan(&_SASPROGRAMFILE,-3,%str(/));

/* Standard - leave this */

data _null_;
    tmp("&TFL_Part";
        if tmp not in ("dev" "qc") then call symput("TFL_Part", "prod");
        call symput('TFLpath', compress("&_SASPROGRAMFILE", ""));
        call symput('TFLprg',reverse(scan(strip(reverse(compress("&_SASPROGRAMFILE", ""))),1,"/")));
run;

*QSU;

data QSU;
    set adam.ADQSSU;
    where DTYPE ne "LOCF" and ANL01FL="Y" and
        avisit in ("Day 1", "Day 2", "Day 3", "Day 4", "Day 5", "Day 30", "Day 60", "Day 90");
run;

*QSU counts;

```

```

%macro count (wh=, pop=);

proc sort data=QSU out=QSU_mx&pop (where=(BASE ne . and UCPDGR1 ne " and &wh)); by trtp parcat2
avisit usbjid; run; *for proc mixed datasets;

proc freq data=QSU_mx&pop noprint;

    table trtp*parcat2*parcat2n*avisit*avisitn/out=f_QSU (drop=percent);

run;

proc sort data=f_QSU; by parcat2 avisit; run;

proc transpose data=f_QSU out=t_QSU&pop (drop=_:);

    id trtp;

    var count;

    by parcat2 parcat2n avisit avisitn;

run;

%mend count;

*PP set;

%count (wh=%str(PPROT1FL="Y" and avisit in ("Day 1", "Day 2", "Day 3", "Day 4", "Day 5")), pop=1);

%count (wh=%str(PPROT2FL="Y" and avisit = "Day 30"), pop=2);

%count (wh=%str(PPROT3FL="Y" and avisit = "Day 60"), pop=3);

%count (wh=%str(PPROT4FL="Y" and avisit = "Day 90"), pop=4);


*FAS set;

%count (wh=%str(FASFL="Y" and ablfl ne "Y"), pop=_f);


*PP set;

data count_pp (drop=SA THSM2_2 MCC rename=(SA_=SA THS_=THSM2_2 MCC_=MCC));

length SA_ THS_ MCC_ $18 _name_ $10;

```

```

set t_QSU1 t_QSU2 t_QSU3 t_QSU4;

SA_=put(SA, best.);

THS_=put(THSM2_2, best.);

MCC_=put(MCC, best.);


num=0.5;

_name_="n";

run;


data mix; *all pp set days;

    set QSU_mx1 QSU_mx2 QSU_mx3 QSU_mx4;

run;


*FAS set;

data count_f (drop=SA THSM2_2 MCC rename=(SA_=SA THS_=THSM2_2 MCC_=MCC));

length SA_ THS_ MCC_ $18 _name_ $10;

    set t_QSU_f;

    SA_=put(SA, best.);

    THS_=put(THSM2_2, best.);

    MCC_=put(MCC, best.);


num=0.5;

_name_="n";

run;

```

```

*QSU stats - PP and FAS sets;

%macro p (mx=, pop=);

proc sort data=&mx; by parcat2 parcat2n avisit avisitn; run;

proc mixed data=&mx;

    by parcat2 parcat2n avisit avisitn;

    Class trtp sex UCPDGR1;

    Model aval = base sex UCPDGR1 trtp;

    lsmeans trtp / pdiff =control('mCC') alpha=0.05 cl;

    lsmeans trtp / pdiff =control('SA') alpha=0.05 cl;

    ods output lsmeans=lsmeans (keep=parcat2 parcat2n avisit avisitn trtp lower upper estimate);
*each arm;

    ods output diffs=diffs (where=(trtp="THSm2.2") keep=parcat2 parcat2n avisit avisitn trtp _trtp lower
upper estimate); *differences;

run;


*lsmean and C.I. for differences;

data diffs_;

length labnum $10;

    set diffs;

    format lower upper estimate;

    if mod(_n_,2)=0 then labnum="SA";

        else labnum="MCC";

run;

data LSM_CL;

    set diffs_;

```

```

        Cl=compress(put(floor(100*lower)/100,12.2))||', '||compress(put(ceil(100*upper)/100,12.2));

        lsmean_=put(round(estimate,0.01),12.2);

run;

proc transpose data=LSM_CL out=t_LSM_CL (rename=(SA=ths_sa_diff mcc=ths_mcc_diff));

    id labnum;

    var lsmean_ Cl;

    by parcat2 parcat2n avisit avisitn;

run;


*figure data;

data fig&pop;

length difftyp $25;

    set LSM_CL;


    if labnum="SA" then difftyp="THSm2.2vs.SA";

    if labnum="MCC" then difftyp="THSm2.2vs.mCC";

    keep parcat2 parcat2n avisit avisitn lower upper estimate difftyp;

run;


*lsmean, C.I.;

proc sort data=lsmeans out=lsmeans_ nodupkey; by _all_; run;

data lsmeans_;

    set lsmeans_;

    format lower upper estimate;

```

```

run;

data stat;

    set lsmeans_;

    lsmean_=put(round(estimate,0.01),12.2);

    CI=compress(put(floor(100*Lower)/100,8.2))||', '||compress(put(ceil(100*Upper)/100,8.2));

run;

proc transpose data=stat out=t_stat;

    id trtp;

    var lsmean_ CI;

    by parcat2 parcat2n avisit avisitn;

run;

*put stats together;

proc sort data=t_LSM_CL; by parcat2 parcat2n avisit avisitn _name_; run;

proc sort data=t_stat; by parcat2 parcat2n avisit avisitn _name_; run;

data p;

    merge t_LSM_CL t_stat;

    by parcat2 parcat2n avisit avisitn _name_;

    if _name_="LSMEAN_" then do; _name_="LS Mean"; num=1; end;

    if _name_="CI" then do; _name_="95% CI"; num=2; end;

run;

proc sort data=p; by parcat2n avisitn num; run;

```

```

data form;

    set count&pop p;

run;

proc sort data=form; by parcat2n avisitn num; run;

data form_1;

    set form;

    by parcat2n avisitn num;

    if not first.avisitn then avisit="";

run;


data dummy;

length parcat2 $200 avisit $40;

    num=0.2; parcat2="Factor 1 - Reward"; parcat2n=1; AVISIT="Factor 1 - Reward"; AVISITN=101;
output;

    num=0.2; parcat2="Factor 2 - Relief"; parcat2n=2; AVISIT="Factor 2 - Relief"; AVISITN=101;
output;

    num=0.2; parcat2="Total Score"; parcat2n=3; AVISIT="Total Score"; AVISITN=101; output;

    num=0.2; parcat2="Factor 1 - Reward"; parcat2n=1; AVISIT="Factor 1 - Reward (cont...)";
AVISITN=105; output;

    num=0.2; parcat2="Factor 2 - Relief"; parcat2n=2; AVISIT="Factor 2 - Relief (cont...)";
AVISITN=105; output;

    num=0.2; parcat2="Total Score"; parcat2n=3; AVISIT="Total Score (cont...)"; AVISITN=105;
output;

run;


data comb;

    set dummy form_1;

```



```

run;

proc sort data=comb; by parcat2n avisitn num; run;

data final&pop;

    set comb;

    if parcat2n=1 and avisitn in (101, 102, 103, 104) then pageord=1;
    if parcat2n=1 and avisitn in (105, 130, 160, 190) then pageord=2;
    if parcat2n=2 and avisitn in (101, 102, 103, 104) then pageord=3;
    if parcat2n=2 and avisitn in (105, 130, 160, 190) then pageord=4;
    if parcat2n=3 and avisitn in (101, 102, 103, 104) then pageord=5;
    if parcat2n=3 and avisitn in (105, 130, 160, 190) then pageord=6;

run;

%mend p;

%p (mx=mix, pop=_pp);

%p (mx=QSU_mx_f, pop=_f);

%let l_name = %str(L_15_04_04_53_01);

%let t_title_l = %nrquote(Listing 15.4.4.53.1 Analysis of QSU-brief Factors and Total Scores - PP Set);

ods rtf

file="/cvn/projects/prj/data/000000106343/TFL/dev/Tables/&l_name..rtf";

title "&t_title_l";

options orientation=landscape;

%p (mx=mix, pop=_pp);

ods rtf close;

```

```
%let l_name2 = %str(L_15_04_04_53_02);
```

```
%let t_title_2 = %nrbquote(Listing 15.4.4.53.2 Analysis of QSU-brief Factors and Total Scores - FAS);
```

```
ods rtf
```

```
file="/cvn/projects/prj/data/000000106343/TFL/dev/Tables/&l_name2..rtf";
```

```
title "&t_title_2";
```

```
options orientation=landscape;
```

```
%p (mx=QSU_mx_f, pop=_f);
```

```
ods rtf close;
```

```
*Figure datasets;
```

```
data tflds.T_15_02_04_53_01_F;
```

```
    set fig_pp;
```

```
run;
```

```
data tflds.T_15_02_04_53_02_F;
```

```
    set fig_f;
```

```
run;
```

```
%macro anlout (din=, tfl=, tabname=);
```

```
%let tflno=&tfl.;
```

```
data tflds.&tflno;
```

```
    set &din end=last;
```

```
    by pageord;
```

```
    if last then call symputx("page", pageord);
```

```
run;
```

```
%put &page;
```

```
/* Standard - leave this */
```

```
options number nodate orientation=landscape missing=' ';
```

```
ods escapechar='$';
```

```
%let linetop = \brdrt\brdrs\brdrw30; * needs to be 1.5pt so calculated in twips (1/20 pt) ;
```

```
%let linebot = \brdrb\brdrs\brdrw30;
```

```
/* Standard - macro for paging */
```

```
%macro outrtf(blankn=130, halfblnk=N);
```

```
%if &halfblnk=N %then %let halfblnk=;
```

```
%else %if &halfblnk=Y %then %let halfblnk=\~;
```

```
ods path stdlib.t106343 (read) ;
```

```
ods results off;
```

```
ods rtf toc_data file="/cvn/projects/prj/data/000000106343/TFL/&TFL_Part./Tables/&tflno..rtf"
style=t106343 startpage=yes headery=1440 footery=1440 ;
```

```
ods noproctitle;
```

```
%do i=1 %to &page;
```

```
title ;
```

```
footnote;
```

```
%let wd=0;
```

```
ods proclabel = ' ';
```

```
data comp;
```

```
set tfls.&tflno end=eof;
```

```
where pageord=&i;
```

```
/* Amend title as needed */
```

```
    _firtitl="&tabname";
```

```
    _upcas=(length("Path: &TFLpath.")-
length(compress("Path:&TFLpath.",'ABCDEFGHIJKLMNOPQRSTUVWXYZ')))/2;
```

```
    len=&blankn.-length("(Page &i of &page)");
```

```
    if eof then do;
```

```
        call symput('_FSRTITL', trim(left(_firtitl)));
```

```
        call symput('_blankn', compress(put(len,best.)));
```

```
    end;
```

```
drop _firtitl _upcas len;
```

```
run;
```

```
ods listing close;
```

```
* most set up in template others below;
```

```
* title arial 12pt bold with 12pt paragraph space below;
```

```
* all headers to be arial 11pt bold;
```

```
* data arial 10pt;
```

```
* headers to be central, text values left aligned and numeric centered around decimal point;
```

```
/* Update with your variables as needed */
```

```
proc report data = comp headline headsip nowd split = '$' %if &i=1 %then %do; contents=' ' %end;  
%else %do; contents="" %end;;;
```

```
column pageord avisitn avisit _name_ THSM2_2 mcc sa THS_MCC_DIFF THS_SA_DIFF;
```

```
define pageord / order order = internal noprint;
```

```
define avisitn / order order = internal noprint;
```

```
define avisit /"Variable" display style={just=left cellwidth=3.0cm}
```

```
style(header)={just=left};
```

```
define _name_ /"Statistic" display style={just=left cellwidth=1.2cm} style(header)={just=left};
```

```
define THSM2_2 /"THSm2.2" display style={just=c cellwidth=1.2cm}
```

```
style(header)={just=center} ;
```

```
define mcc /"mCC" display style={just=c cellwidth=1.2cm}
```

```
style(header)={just=center};
```

```
define sa /"SA" display style={JUST=c cellwidth=1.2cm}
```

```
style(header)={just=center};
```

```
define THS_MCC_DIFF /"THSm2.2 - mCC$ Difference" display style={just=c
```

```
cellwidth=1.4cm} style(header)={just=center};
```

```
define THS_SA_DIFF /"THSm2.2 - SA$ Difference" display style={just=c  
cellwidth=1.4cm} style(header)={just=center};
```

```
break after pageord / page;
```

```
compute after avisitn;
```

```
line " ";
```

```
endcomp;
```

```
compute before pageord / style={protectspecialchars=off};;
```

```
line "&linetop";
```

```
endcomp;
```

```
compute before _page_ / style={just=left protectspecialchars=off};
```

```
line "\b\fs24\sa24&_FSRTITL." ; * \b = bold, \fs24 is font size 12pt, \sa24 is space after 12pt;
```

```
line "&linebot";
```

```
endcomp;
```

```
compute after _page_ / style={just=left protectspecialchars=off pretext="&linetop."};
```

```
line 'Note: Adjusted least squares (LS) means and confidence intervals (CIs) from an  
ANCOVA model conducted with baseline value, study arm, sex and mCC consumption reported at  
screening as fixed effect factors.';
```

```
line 'Note: mCC = Menthol conventional cigarettes; SA = Smoking abstinence; THSm2.2 =  
Tobacco Heating System 2.2 Menthol.';
```

```
line " ";
```

```
line 'Appendix 15.3.6.14';
```

```

line "Study ID: ZRHM-REXA-08-US   Program: &TFLprg   Status: &status"
&_blankn.*"\~\~" "&sysdate" &_blankn.*"\~\~" "(Page &i of &page)";

      endcomp;

run;

%end;

ods rtf close;

ods results on;

ods path sashelp.tmplmst (read);

%mend ;

%outrtf(blankn=36, halfblnk=N);

ods listing;

%mend anlout;

%anlout (din=final_pp, tfl=%str(T_15_02_04_53_01), tabname=%str(Table 15.2.4.53.1   Analysis of
QSU-brief Factors and Total Scores - PP Set));

%anlout (din=final_f, tfl=%str(T_15_02_04_53_02), tabname=%str(Table 15.2.4.53.2   Analysis of
QSU-brief Factors and Total Scores - FAS));

*=====;

* END OF PROGRAM CODE                               ;

*=====;

%m_logchk;

```

