

SAS PROC REPORT PROC TABULATE

Computing for Research I
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Reporting Data

- Plan the layout
 - Summary statistics, analysis output or data listings?
 - Content of columns/rows?
 - Order of columns/rows?
 - Font
- Use a report writing tool

Example (N=112)

ID	Site
1	1
2	1
3	6
4	2
5	3
6	4
7	

Proc Freq

```
proc freq;  
  tables zsiteid;  
  format zsiteid;  
run;
```

zSiteID	Frequency	Percent	zSiteID Cumulative Frequency	Cumulative Percent
001	28	25.00	28	25.00
002	4	3.57	32	28.57
003	10	8.93	42	37.50
004	2	1.79	44	39.29
005	21	18.75	65	58.04
006	5	4.46	70	62.50
007	18	16.07	88	78.57
008	24	21.43	112	100.00

RUN;

Proc Report Statement

- Input data set
- Controls layout of the report
 - Box
 - Center
 - Column width
 - Missing data option

Other Statements

Column Statement

- Describes the arrangement of columns and column headers that span >1 column

Define Statement

- Specifies how to use a report variable
 - location
 - appearance

Proc Report Code (site enrollment)

```
/*ods rtf file='l:\test_rtf.' style=sasweb;*/

options nodate pageno=1 linesize=64 pagesize=60;
proc report data=step2 headline headskip LIST nowindows center
    colwidth=10 missing;
column zsiteid freqcol;
define zsiteid /'Site' CENTER order=formatted format=site.;
define freqcol /# (%) Subjects' CENTER FORMAT=$CHAR15. ;
title 'Total Subjects By Site';
run;

/*ods rtf close;*/
```

Output Table

Total Subjects By Site

Site	# (%) Subjects
ffffffffffffffffffffffffffffffff	
008	24 (21.43%)
005	21 (18.75%)
002	4 (3.57%)
006	5 (4.46%)
001	28 (25%)
007	18 (16.07%)
004	2 (1.79%)
003	10 (8.93%)

ODS Output

Site	# (%) Subjects
008	24 (21.43%)
005	21 (18.75%)
002	4 (3.57%)
006	5 (4.46%)
001	28 (25%)
007	18 (16.07%)
004	2 (1.79%)
003	10 (8.93%)

Frequency Output for Proc Report

```
proc freq data=form00;  
  tables zsiteid/outpct out=FREQtest;  
run;  
  
data step2;  
  set FREQtest;  
  pct=round(percent, 0.01);  
  freqcol=trim(left(count))||' ('||trim(left(pct))||'%)';  
  drop count percent pct ;  
run;
```

Other Options in Proc Report

```
options nodate pageno=1 linesize=64 pagesize=60;  
proc report colwidth=10 spacing=5 headline headskip;  
  column site cost;  
  define site / order order=formatted format=$Xfmt.;  
  define cost / analysis sum;  
  compute after; line 'Total Cost for these Sites were: ' N.sum;  
  endcomp;  
run;
```

PROC TABULATE

PROC TABULATE

- Display of descriptive statistics
- Tabular format of:
 - Proc means
 - Proc frequency

Proc Tabulate Code

```
proc tabulate data=form00 format=7.0 style=[font_size=2];  
  class zsiteid /missing style=[font_size=2 foreground=black  
    background=white];  
  table (zsiteid=" ALL="Total"),( N pctn*f=7.2)  
    /box=[label=""  
      style=[font_size=2 foreground=black background=white]]  
  printmiss  
  misstext="0";  
  keylabel PCTN="%";  
  format zsiteid site.;  
  keyword PCTN /style=[font_size=2 foreground=black  
    background=white];  
  title "Subject Enrollment, By Site ";  
run;
```

Output

	N	%
MUSC(001)	28	25.00
JHU(002)	4	3.57
VMMC(003)	10	8.93
UAB(004)	2	1.79
INDIANA(005)	21	18.75
MINN(006)	5	4.46
ST LOUIS(007)	18	16.07
DALLAS(008)	24	21.43
Total	112	100.00

Display Ethnicity by Gender by Tx

ID	Ethnic	Gender	Tx
1	1	1	1
2	2	2	1
3	1	1	2
4	3	1	1
5	1	2	1
6	2	1	2
7			

Proc Freq

```
proc sort; by tx;  
proc freq; by tx;  
  tables ethnicity*gender;  
run;  
  
proc freq;  
  tables tx*ethnicity*gender;  
run;
```

PROC TABULATE

```
proc tabulate data=test;  
  class xxx;  
  table xxx;  
  var xxx;  
run;
```

Class Statement

- identifies the class variables
- determines the categories that PROC TABULATE uses to calculate statistics
- Options for this statement
 - 'Missing': if not included, missing values will exclude the observation from the summary

More Statements

Table Statement

- Required for procedure
- describes the table to create

Var Statement

- Identifies numeric variables to use as analysis variables.

Proc Tabulate Code

```
ods rtf text= "Table 1.2. Number of Subjects Randomized by Ethnicity and Gender";
proc tabulate data=demos format=7.0 style=[font_size=2] missing;
class ethnicity gender ztreatment/missing style=[font_size=2 foreground=black
background=white];
table (all='Total' ethnicity="), ztreatment="""*gender="""*(N colpctn='Percent'*F=7.2)
/box=[label="Ethnicity"
style=[font_size=2 foreground=black background=white]] printmiss
misstext="0";;
label gender='Gender';
format ethnicity ethnicity.;
format gender sex.;
format ztreatment trt.;
classlev ethnicity gender ztreatment/style=[font_size=2 foreground=black background=white];
keyword PCTN /style=[font_size=2 foreground=black background=white];
run;
```

Tabulate Output

Ethnicity	TxA				TxB			
	Male		Female		Male		Female	
	N	Percent	N	Percent	N	Percent	N	Percent
Total	5	100.00	69	100.00	1	100.00	37	100.00
Hispanic/Latino	0	0.00	0	0.00	0	0.00	1	2.70
Not Hispanic/Latino	4	80.00	64	92.75	1	100.00	34	91.89
Unknown	1	20.00	5	7.25	0	0.00	2	5.41

PROC MEANS

```
proc sort data=test; by visit;  
proc means data=test n mean std med min max;  
by visit;  
var time;  
run;
```

Proc Means Output

----- Visit =1 -----

Analysis Variable : Visit

N	Mean	Std Dev	Median	Minimum	Maximum
51	30.1372549	13.4358023	30.0000000	8.0000000	70.0000000

----- Visit =2 -----

Analysis Variable : Visit

N	Mean	Std Dev	Median	Minimum	Maximum
50	23.4200000	6.6703425	23.0000000	11.0000000	39.0000000

PROC TABULATE Code

```
proc tabulate data=time format=7.0
  style=[font_size=2];
  class visit/missing style=[font_size=2
    foreground=black background=white];
  var time;
  table time="""*(N mean std MEDIAN MIN
    MAX),visit="" All="Total"
    /box=[label="Session "
      style=[font_size=2 foreground=black
        background=white]] printmiss
```

Output

Session		1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Time	N	51	50	48	49	42	40	40	39	38	39	38	36	35	545
	Mean	30	23	17	17	22	22	20	19	16	21	18	17	15	20
	Std	13	7	6	7	7	11	8	5	8	6	6	7	6	9
	Median	30	23	16	16	22	18	19	17	15	20	17	15	13	18
	Min	8	11	9	2	9	8	9	11	8	10	10	6	7	2
	Max	70	39	36	36	38	53	47	35	44	34	35	42	31	70

Multiple Variables Within a Table

Assessments	N	Mean	Std	Median	Min	Max
HRSD	111	5	4	4	0	16
MADRS	110	4	3	3	0	16
HADS	112	8	5	7	0	26
Coping Score	110	8	7	7	0	32

SAS Code

```
proc tabulate data=Table3_2 format=7.0 style=[font_size=2];
  Var HRSDScore MDRSScore HADSScore CopingScore;
  table HRSDScore='HRSD Score'
        MDRSScore=MDRS Score'
        HADSScore='HADS Score'
        CopingScore='Coping Score',
        (N mean std MEDIAN MIN MAX)
        /box=[label=" "
              style=[font_size=2 foreground=black background=white]] printmiss
        misstext="0";
  keylabel PCTN="%";
  keyword PCTN /style=[font_size=2 foreground=black background=white];
run;
ods rtf text="** Maximum possible score of HRSD is 21; ";
ods rtf text="** Maximum possible score of MDRS is 21;";
```

SAS Online Support

<http://support.sas.com/documentation/online/doc/91pdf/index.html>

- Search 'Report Procedure' or 'Tabulate Procedure'