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The CAHPS Macro Program

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Basics of Macro

- Analyzes multi-item composites and single items from CAHPS survey data.
- Compares the performance of an entity to the average of all entities.
 - Entity – hospitals, clinics, health plans, etc.
- Accommodates weighted and stratified data
- Produces (SAS):
 - Scores for each entity
 - Case mix adjustment/coefficients
 - Standard errors and hypothesis tests
 - Tabulations for bar charts

Data Input and Output

Ex. Rating of Care item (0 – 10 scale), age and health status as adjusters

Plan name	Rating of Care	Age	Health status
A	8	65	4
A	7	77	3
A	9	74	5
B	10	66	4
B	8	64	4
B	7	70	3

Macro output

Plan name	Unadjusted mean	Adjusted mean	n used for analysis	Sample size	Variance of mean	Significance level (above mean= 3, below mean= 1)	Adjusted frequency (0 -6)	Adjusted frequency (7-8)	Adjusted frequency (9-10)
A	8.16	8.46	212	218	0.021212	2	15%	23%	62%
B	9.09	9.04	325	338	0.007142	3	7%	16%	77%

Macro Setting and Options

Main Options	Description
VAR	Name of variable
NAME	Label of variable
VARTYPE	Type of variable (1 = 1/0, 2 = 0-10, 3 = 1-4, 4 = 1-3, 5 = other)
ADJUSTER	Casemix adjuster variables
IMPUTE	1 = impute casemix adjuster, 0 = no
WGTRESP	Name of weight variable
DATASET	Name of input dataset
OUTNAME	Name of output dataset

The list of the options can be found in *2015_Instructions_for_Analyzing_Data* document.

Macro Setting and Options

Example

```
%cahps (  
    VAR           = rate_care,  
    NAME          = Rating of Care,  
    VARTYPE       = 2 ,  
    ADJUSTER      = age_ghs ,  
    IMPUTE        = 1,  
    WGTRESP       = plan_weight,  
    DATASET       = Madata ,  
    OUTNAME       = rate_care  
);
```

Imputation Option for Case Mix Variables

Original data

plan	Question 1	Question 2	Adj1	Adj2	wt
A	2	4	1	1	40
A	3	2	2	2	50
A	4	3	3	.	6
A	4	3	.	.	8
B	3	3	2	3	10
B	2	4	2	3	3
B	4	2	4	4	5
B	3	3	5	3	3
B	3	3	3	5	5



Using &Impute option

plan	Question 1	Question 2	Adj1	Adj2	wt
A	2	4	1	1	40
A	3	2	2	2	50
A	4	3	3	1.5	6
A	4	3	2	1.5	8
B	3	3	2	3	10
B	2	4	2	3	3
B	4	2	4	4	5
B	3	3	5	3	3
B	3	3	3	5	5

Composite Calculation

ID	Q1	Q2	Q3
1	2	-	3
2	3	-	2
3	2	-	1
4	-	3	3
5	4	2	3
5	2	4	4
6	1	4	2
7	3	3	-
8	3	4	3
.	.	.	.
.	.	.	.
mean	2.5	3.33	2.625

Composite score = $(2.5 + 3.33 + 2.63) / 3 = 2.82$

Current Status – CAHPS Macro 4.1

- Macro_cahps41.sas:
<https://cahps.ahrq.gov/surveys-guidance/cg/instructions/12monthsurvey.html>
- Improvement in 4.1
 - (Option) Automated weights reduction for items with disproportionately small samples
 - Composites – even weight option has been improved
 - (Option) Variance smoothing
 - To avoid a very small standard error(almost 0) due to a small sample size with all equal scores

Current Status and Development

- Ongoing project
 - User comments and requests
 - Bug fixes and code improvements
 - Improved capabilities to support new CAHPS applications
 - Include reliability calculation
 - Automatic calculation of smoothing parameters
 - Weighting options for between and within plan weights
 - R Macro version (free software)



Questions?