Biostatistics 203A: Introduction to Data Management and Statistical Computing

**Lab Assignment 3: Submission Template**

Fall 2023

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**Exercise 1**

[Insert code used to accomplish this exercise. Additionally, insert Proc Contents output here by copying and pasting the table titled ‘Alphabetic List of Variables and Attributes’.]

\*1;

proc transpose data=lb.hlth\_2009 out=hlth\_very\_long (rename=(COL1=INDICATOR)) name=WAVE;

by IND\_ID HH\_ID;

var HEADACHE\_2004

HEADACHE\_2006

HEADACHE\_2009

SORETHROAT\_2004

SORETHROAT\_2006

SORETHROAT\_2009

STOMACHACHE\_2004

STOMACHACHE\_2006

STOMACHACHE\_2009;

run;

data hlth\_very\_long;

retain IND\_ID HH\_ID WAVE SYMPTOM INDICATOR;

set hlth\_very\_long;

SYMPTOM=compress(WAVE, '\_', 'd');

WAVE = compress(WAVE, '\_', 'a');

run;

proc contents data=hlth\_very\_long;

run;

A screenshot of a diabetic list

Description automatically generated

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**Exercise 2**

[Insert code used to accomplish this exercise. Additionally, insert Proc Contents output here by copying and pasting the table titled ‘Alphabetic List of Variables and Attributes’.]

\*2;

proc transpose data=lb.hlth\_2009 out=hlth\_head (rename=(col1=HEADACHE)) name=WAVE;

by IND\_ID HH\_ID HH\_TYPE;

var HEADACHE\_2004

HEADACHE\_2006

HEADACHE\_2009;

run;

data hlth\_head;

set hlth\_head;

WAVE = compress(WAVE, '\_', 'a');

proc transpose data=lb.hlth\_2009 out=hlth\_sore (rename=(col1=SORETHROAT)) name=WAVE;

by IND\_ID HH\_ID HH\_TYPE;

var SORETHROAT\_2004

SORETHROAT\_2006

SORETHROAT\_2009;

run;

data hlth\_sore;

set hlth\_sore;

WAVE = compress(WAVE, '\_', 'a');

proc transpose data=lb.hlth\_2009 out=hlth\_stomach (rename=(col1=STOMACHACHE)) name=WAVE;

by IND\_ID HH\_ID HH\_TYPE;

var STOMACHACHE\_2004

STOMACHACHE\_2006

STOMACHACHE\_2009;

run;

data hlth\_stomach;

set hlth\_stomach;

WAVE = compress(WAVE, '\_', 'a');

data hlth\_long;

merge hlth\_head hlth\_sore hlth\_stomach;

by IND\_ID HH\_ID WAVE HH\_TYPE;

run;

proc contents data=hlth\_long;

run;

A screenshot of a table

Description automatically generated

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**Exercise 3**

[This is just one example of a table format that would suffice. Other formats are acceptable.]

A screenshot of a report

Description automatically generated

\*3;

proc format;

value dwelling 1="Urban"

2="Rural";

run;

proc tabulate data=hlth\_long;

format hh\_type dwelling.;

class wave hh\_type;

var headache sorethroat stomachache;

table (hh\_type All)\*(headache sorethroat stomachache),

wave\*(mean="%"\*F=percent8.2);

run;

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**Exercise 4**

[Insert code used to accomplish this exercise. Additionally, insert Proc Contents output here by copying and pasting the table titled ‘Alphabetic List of Variables and Attributes’.]

\*4;

data hlth\_array\_long\_headache;

set lb.hlth\_2009;

array headache\_array{3}

HEADACHE\_2004

HEADACHE\_2006

HEADACHE\_2009;

array wv{3}$ wv1-wv3 ('2004','2006','2009');

do i = 1 to 3;

WAVE = wv{i};

HEADACHE = headache\_array{i};

output;

end;

keep IND\_ID HH\_ID WAVE HEADACHE HH\_TYPE;

run;

data hlth\_array\_long\_sorethroat;

set lb.hlth\_2009;

array sorethroat\_array{3}

SORETHROAT\_2004

SORETHROAT\_2006

SORETHROAT\_2009;

array wv{3}$ wv1-wv3 ('2004','2006','2009');

do i = 1 to 3;

WAVE = wv{i};

SORETHROAT = sorethroat\_array{i};

output;

end;

keep IND\_ID HH\_ID WAVE SORETHROAT HH\_TYPE;

run;

data hlth\_array\_long\_stomachache;

set lb.hlth\_2009;

array stomachache\_array{3}

STOMACHACHE\_2004

STOMACHACHE\_2006

STOMACHACHE\_2009;

array wv{3}$ wv1-wv3 ('2004','2006','2009');

do i = 1 to 3;

WAVE = wv{i};

STOMACHACHE = stomachache\_array{i};

output;

end;

keep IND\_ID HH\_ID WAVE STOMACHACHE HH\_TYPE;

run;

data hlth\_array\_long;

merge hlth\_array\_long\_headache hlth\_array\_long\_sorethroat hlth\_array\_long\_stomachache;

by IND\_ID HH\_ID WAVE HH\_TYPE;

run;

proc contents data=hlth\_array\_long;

run;

A screenshot of a table

Description automatically generated

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**Exercise 5**

[Insert code used to accomplish this exercise. Additionally, insert Proc Print output displaying the first 8 observations of hlth\_wide.]

\*5;

proc transpose data=hlth\_array\_long out=hlth\_wide\_headache (drop=\_NAME\_) prefix= HEADACHE\_;

by IND\_ID HH\_ID HH\_TYPE;

id WAVE;

var HEADACHE;

run;

proc transpose data=hlth\_array\_long out=hlth\_wide\_sorethroat (drop=\_NAME\_) prefix= SORETHROAT\_;

by IND\_ID HH\_ID HH\_TYPE;

id WAVE;

var SORETHROAT;

run;

proc transpose data=hlth\_array\_long out=hlth\_wide\_stomachache (drop=\_NAME\_) prefix= STOMACHACHE\_;

by IND\_ID HH\_ID HH\_TYPE;

id WAVE;

var STOMACHACHE;

run;

data hlth\_wide;

merge hlth\_wide\_headache

hlth\_wide\_sorethroat

hlth\_wide\_stomachache;

by IND\_ID HH\_ID HH\_TYPE;

run;

proc print data=hlth\_wide (obs=8);

run;

A screenshot of a calendar

Description automatically generated

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**Exercise 6**

|  |  |  |
| --- | --- | --- |
|  | **N** | **%** |
| **Individuals with surveys completed at each of the following time points:** |  |  |
| 2004 and at least one subsequent time point | 9826 | 55.5 |
| 2004 and 2006 | 9120 | 51.51 |
| 2004, 2006, and 2009 | 6733 | 38.03 |
| 2006 and 2009 (but not 2004) | 1532 | 8.65 |

[Also insert code used to accomplish this task]

\*6;

data question;

set hlth\_wide;

MISS\_COUNT\_0609 = CMISS(HEADACHE\_2006, HEADACHE\_2009);

run;

data question;

set question;

if (HEADACHE\_2004 ne .) and (MISS\_COUNT\_0609 ne 2)

then WV04\_AND\_06OR09 = 1;

else WV04\_AND\_06OR09 = 0;

if (HEADACHE\_2004 ne .) and (HEADACHE\_2006 ne .)

then WV0406 =1;

else WV0406 =0;

if (HEADACHE\_2004 ne .) and (HEADACHE\_2006 ne .) and (HEADACHE\_2009 ne .)

then WV040609=1;

else WV040609=0;

if (HEADACHE\_2006 ne .) and (HEADACHE\_2009 ne .) and (HEADACHE\_2004 = .)

then WV0609\_NOT04=1;

else WV0609\_NOT04=0;

run;

proc freq data=question;

tables WV04\_AND\_06OR09 WV0406 WV040609 WV0609\_NOT04/nocum list;

run;

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**Exercise 7**

|  |  |  |
| --- | --- | --- |
|  | **N** | **%** |
| **Individuals with surveys completed at the following time points:** |  |  |
| 2004 | 12147 | 33.95 |
| 2006 | 11714 | 32.74 |
| 2009 | 11922 | 33.32 |

[Also insert code used to accomplish this task]

\*7;

proc freq data=hlth\_long (where=(headache ne .));

tables wave/nocum;

run;

///////////////////////

If all surveys completed means all of these three surveys not equal to ., then the result should be below:

|  |  |  |
| --- | --- | --- |
|  | **N** | **%** |
| **Individuals with surveys completed at the following time points:** |  |  |
| 2004 | 12146 | 33.94 |
| 2006 | 11712 | 32.73 |
| 2009 | 11912 | 33.29 |

Code:

data completed;  
set hlth\_long;  
if HEADACHE=. then delete; miss=CMISS(SORETHROAT, STOMACHACHE); run;

data percentage;  
set completed;  
if (WAVE=2004) and (miss=0) then percent\_2004=1; else percent\_2004=0;

if (WAVE=2006) and (miss=0) then percent\_2006=1; else percent\_2006=0;

if (WAVE=2009) and (miss=0) then percent\_2009=1; else percent\_2009=0;  
run;

proc freq data=percentage;  
tables percent\_2004 percent\_2006 percent\_2009/nocum list; run;

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