Codebook for Data Set: IALSA Subproject 1

Longitudinal cycle explanation

 All longitudinal data sets are organized by projid + visit or fu_year.

visit	fu_year	explanation
00	0.0	Baseline
01	1.0	1st year follow-up
02	2.0	2nd year follow-up
03	3.0	3rd year follow-up
04	4.0	4th year follow-up
XX	XX.0	XXth year follow-up

```
variable
suffix  type              explanation
-------------------------------------------------------------------------------
_bl    cross-sectional     baseline cycle score, for medical history questions, it
                             may cover the period from prior to study participation to
                               baseline visit
_ever  cross-sectional      reported in any cycle at least one time
_l     cross-sectional    last cycle score
_lv    cross-sectional     last valid score

_cum   longitudinal        reported in past history or in at least 1 follow-up
                     cycle up to this cyclev
```

Total variables: 110

Affect & Personality (count: 20)

Affect & Personality - Depression

Variable	cesdsum	CES-D - Measure of depressive symptoms	Longitudinal

References

Cerebral infarctions and the relationship of depression symptoms to level of cognitive functioning in older persons.

Bennett DA, Wilson RS, Schneider JA, Bienias JL, Arnold SE

Journal: The American journal of geriatric psychiatry : official journal of the American Association for Geriatric Psychiatry 2004 Mar-Apr; 12(2) 211-9

Association of anxiety and depression with microtubule-associated protein 2- and synaptopodin-immunolabeled dendrite and spine densities in hippocampal CA3 of older humans.

Soetanto A, Wilson RS, Talbot K, Un A, Schneider JA, Sobiesk M, Kelly J, Leurgans S, Bennett DA, Arnold SE

Journal: Archives of general psychiatry 2010 May ; 67(5) 448-57

Purpose in Life Is Associated With a Reduced Risk of Incident Disability Among Community-Dwelling Older Persons.

Boyle PA, Buchman AS, Bennett DA

Journal: The American journal of geriatric psychiatry : official journal of the American Association for Geriatric Psychiatry 2010 Jun 10 ; 18(12) 1093-102

Description

```
CES-D

Depressive symptoms were assessed with a ten-item version of the Center for Epidemiologic
Studies Depression scale (CES-D). Persons were asked whether they had experienced each of
ten symptoms in the past week, and the score was the number of symptoms reported.

If there are items with a missing value and the number of missing items is less than
5, then the score is equal to the average of the nonmissing item values multiplied by 10.

Range: 0-10

Codebook                        Codebook
variable    Coding  Calc        question
-------------------------------------------------------------------
Q1md        Yes/No  yes = +1    1. I felt that everything I did was an effort
Q2md        Yes/No  yes = +1    2. My sleep was restless
Q3md        Yes/No  yes = +1    3. I felt depressed
Q4md        Yes/No  no = +1     4. I was happy
Q5md        Yes/No  yes = +1    5. I felt lonely
Q6md        Yes/No  yes = +1    6. People were unfriendly
Q7md        Yes/No  no = +1     7. I enjoyed life
Q8md        Yes/No  yes = +1    8. I felt sad
Q9md        Yes/No  yes = +1    9. I felt that people disliked me
Q10md       Yes/No  yes = +1   10. I could not get going

Ref: McDowell, I., Newell, C. (1996). Measuring Health: A
Guide to Rating Scales and Questionnaires. (2nd. ed.). Oxford:NY

Radloff LS. The CES-D scale: A self-report depression
scale for research in the general population.
Applied Psychological Measurement 1977;1:385-340.
```

Variable	r_depres	Major Depression Dx - Clinician Rating	Longitudinal
Other Forms	_l, _lv, _bl		
Description	Major Depression Dx, by DSM-3R criteria.		

Through review of self report questions, neurological exam (when available),
cognitive testing, and interview of participant, clinician renders a diagnosis.
The clinician is first presented with algorithmic diagnosis and has the ability to
modify if necessary.

```
value   coding
1       Highly Probable
2       Probable
3       Possible
4       Not Present
```

Affect & Personality - NEO

Variable	agreeableness	NEO agreeableness - ROS	Cross-sectional
References	**Conscientiousness and the incidence of Alzheimer disease and mild cognitive impairment.**		
	Wilson RS, Schneider JA, Arnold SE, Bienias JL, Bennett DA		
	Journal: Archives of general psychiatry 2007 Oct; 64(10) 1204-12		

Description

At baseline, we administered the NEO Five-Factor Inventory
to quantify openness and 4 other traits that make up a
widely accepted 5-trait model of personality.The inventory
has 60 items, 12 for each trait. Persons rated agreement with each
item on a 5-point scale. Item scores ranged from 0 to 4 and were
summed to yield a total score for each trait with higher scores indicating
more of the trait.

Agreeableness (eg, I would rather cooperate with others than compete with them)
indicates the tendency to be altruistic and helpful. The Cronbach coefficient _,
an indicator of internal consistency reliability was 0.66 for agreeableness.
These values are comparable to those reported in the normative cohort and indicate
adequate levels of internal consistency.

```
  table 1
      response  response                                flipped (f)
      number    choice                  value*          value
        1 =     Strongly disagree         0               4
        2 =     Disagree                  1               3
        3 =     Neutral                   2               2
        4 =     Agree                     3               1
        5 =     Strongly Agree            4               0

* value = (response number -1)

variable  coding    question
per4      table1     I try to be courteous to everyone I meet.
per9      table1(f)  I often get into arguments with my family and co-workers.
per14     table1(f)  Some people think I m selfish and egotistical.
per19     table1     I would rather cooperate with others than compete with them.
per24     table1(f)  I tend to be cynical and skeptical of others  intentions.
per29     table1(f)  I believe that most people will take advantage of you if you let them.
per34     table1     Most people I know like me.
per39     table1(f)  Some people think of me as cold and calculating.
per44     table1(f)  I am hard-headed and tough-minded in my attitudes.
per49     table1     I generally try to be thoughtful and considerate.
per54     table1(f)  If I don t like people, I let them know it.
per59     table1(f)  If necessary, I am willing to manipulate people to get what I want.
```

Costa PT, McCrae RR. NEO Personality Inventory-revised. Professional manual. Lutz, FL:
Psychological Assessment Resources, 1992.

Variable	conscientiousness	Conscientiousness - ROS/MAP	Cross-sectional

References

Conscientiousness and the incidence of Alzheimer disease and mild cognitive impairment.

Wilson RS, Schneider JA, Arnold SE, Bienias JL, Bennett DA

Journal: Archives of general psychiatry 2007 Oct; 64(10) 1204-12

Description

```
We administered the NEO Five-Factor Inventory to quantify conscientiousness
and 4 other traits that make up a widely accepted 5-trait model of personality.
The inventory has 60 items, 12 for each trait. Persons rated agreement with
each item on a 5-point scale. Item scores ranged from 0 to 4 and were summed
to yield a total score for each trait that ranged from 0 to 48, with higher
scores indicating more of a trait.

Conscientiousness (eg, "I am a productive person who always gets the job done")
refers to a tendency to be self-disciplined, scrupulous, and purposeful. The
Cronbach coefficient alpha, an indicator of internal consistency reliability,
was 0.81 for conscientiousness. These values are comparable to those reported in
the normative cohort and indicate adequate levels of internal consistency.

Conscientiousness is sum of all the below items.

Range: 0-48

 table 1
     response response                         flipped (f)
     number   choice                  value*   value
       1 =    Strongly disagree         0        4
       2 =    Disagree                  1        3
       3 =    Neutral                   2        2
       4 =    Agree                     3        1
       5 =    Strongly Agree            4        0

* value = (response number -1)

ROS/MAP
variable         coding                   question
per5/clean17     table1                   1. I keep my belongings clean and neat.
per10/pacing18   table1                   2. I'm pretty good about pacing myself
                                             so as to get things done on time.
per15/method19   table1(f)                3. I am not a very methodical person.
per20/tasks20    table1                   4. I try to perform all the tasks
                                             assigned to me conscientiously.
per25/goals21    table1                   5. I have a clear set of goals and
                                             work toward them in an orderly fashion.
per30/waste22    table1(f)                6. I waste a lot of time before
                                             settling down to work.
per35/accomp23   table1                   7. I work hard to accomplish my goals.
per40/follow24   table1                   8. When I make a commitment, I can
                                             always be counted on to follow through.
per45/depend25   table1(f)                9. Sometimes I m not as dependable or
                                             reliable as I should be.
per50/product2   table1                   10. I am a productive person who
                                             always gets the job done.
per55/organiz2   table1(f)                11. I never seem to be able to get organized.
per60/excelln2   table1                   12. I strive for excellence in everything I do.
```

Variable	extraversion	NEO extraversion - ROS/MAP	Cross-sectional

References

Conscientiousness and the incidence of Alzheimer disease and mild cognitive impairment.

Wilson RS, Schneider JA, Arnold SE, Bienias JL, Bennett DA

Journal: Archives of general psychiatry 2007 Oct; 64(10) 1204-12

Description

```
We administered the NEO Five-Factor Inventory to quantify extraversion and
4 other traits that make up a widely accepted 5-trait model of personality.
The inventory has 60 items, 12 for each trait. Persons rated agreement with
each item on a 5-point scale. Item scores ranged from 0 to 4 and were summed
to yield a total score for each trait that ranged from 0 to 48, with higher
scores indicating more of a trait.

Extraversion (eg, "I laugh easily") is the tendency to be sociable, active, and
optimistic. The Cronbach coefficient alpha, an indicator of internal consistency
reliability, was 0.78 for extraversion. These values are comparable to those reported
in the normative cohort and indicate adequate levels of internal consistency.

range: 0 to 48

 table 1
      response response                         flipped (f)
      number   choice                 value*    value
        1 =    Strongly disagree         0         4
        2 =    Disagree                  1         3
        3 =    Neutral                   2         2
        4 =    Agree                     3         1
        5 =    Strongly Agree            4         0

* value = (response number -1)

variable
MAP/ROS         coding    question
people/per2     table1    I like to have a lot of people around me.
laugh/per7      table1    I laugh easily.
talking/per17   table1    I really enjoy talking to people.
alone/per27     table1(f) I usually prefer to do things alone.
cheerful/per37  table1    I am a cheerful, high-spirited person.
active/per52    table1    I am a very active person.

Costa PT, McCrae RR. NEO Personality Inventory-revised. Professional manual. Lutz, FL:
Psychological Assessment Resources, 1992.
```

Variable	neo_altruism	NEO Altruism scale - MAP	Cross-sectional

References

Conscientiousness and the incidence of Alzheimer disease and mild cognitive impairment.

Wilson RS, Schneider JA, Arnold SE, Bienias JL, Bennett DA

Journal: Archives of general psychiatry 2007 Oct; 64(10) 1204-12

Description

```
Altruism rating is based on 8 self report questions where
a higher scores indicates a increased level of altruism.  Each
question provides a statement that subject must agree or disagree with as
it pertains to their personality.

range: 0 to 32

 table 1
      response response                         flipped (f)
      number   choice                 value*    value
        1 =    Strongly disagree         0         4
        2 =    Disagree                  1         3
        3 =    Neutral                   2         2
        4 =    Agree                     3         1
        5 =    Strongly Agree            4         0

* value = (response number -1)

variable    coding    question
selfish9    table1(f)  9. Some people think I m selfish and egotistical.
courts10    table1    10. I try to be courteous to everyone I meet.
cold11      table1(f) 11. Some people think of me as cold and calculating.
consid12    table1    12. I generally try to be thoughtful and considerate.
geners13    table1(f) 13. I m not known for my generosity.
like14      table1    14. Most people I know like me.
charit15    table1    15. I think of myself as a charitable person.
help16      table1    16. I go out of my way to help others if I can.

Costa PT, McCrae RR. NEO Personality Inventory-revised. Professional manual. Lutz, FL:
Psychological Assessment Resources, 1992.
```

Variable	neo_conscientiousness	NEO Conscientiousness - MAP	Cross-sectional

References

Conscientiousness and the incidence of Alzheimer disease and mild cognitive impairment.

Wilson RS, Schneider JA, Arnold SE, Bienias JL, Bennett DA

Journal: Archives of general psychiatry 2007 Oct; 64(10) 1204-12

Description

```
Conscientiousness rating is based on 12 self report questions where
a higher scores indicates a increased level of conscientiousness.  Each
question provides a statement that subject must agree or disagree with as
it pertains to their personality.

range:  0 to 48

 table 1
      response response                            flipped (f)
      number   choice                   value*     value
        1  =    Strongly disagree          0          4
        2  =    Disagree                   1          3
        3  =    Neutral                    2          2
        4  =    Agree                      3          1
        5  =    Strongly Agree             4          0

* value = (response number -1)

variable  coding     question
clean17   table1     17. I keep my belongings clean and neat.
pacing18  table1     18. I m pretty good about pacing myself so as to get things done on time.
method19  table1(f)  19. I am not a very methodical person.
tasks20   table1     20. I try to perform all the tasks assigned to me conscientiously.
goals21   table1     21. I have a clear set of goals and work toward them in an orderly fashion.
waste22   table1(f)  22. I waste a lot of time before settling down to work.
accompl12 table1     23. I work hard to accomplish my goals.
follow24  table1     24. When I make a commitment, I can always be counted on to follow through.
depend25  table1(f)  25. Sometimes I m not as dependable or reliable as I should be.
product2  table1     26. I am a productive person who always gets the job done.
organiz2  table1(f)  27. I never seem to be able to get organized.
excelln2  table1     28. I strive for excellence in everything I do.


Costa PT, McCrae RR. NEO Personality Inventory-revised. Professional manual. Lutz, FL:
Psychological Assessment Resources, 1992.
```

Variable	neo_trust	NEO Trust - MAP	Cross-sectional

References

Conscientiousness and the incidence of Alzheimer disease and mild cognitive impairment.

Wilson RS, Schneider JA, Arnold SE, Bienias JL, Bennett DA

Journal: Archives of general psychiatry 2007 Oct; 64(10) 1204-12

Description

```
Trust rating is based on 8 self report questions where
a higher scores indicates a increased level of trust.  Each
question provides a statement that subject must agree or disagree with as
it pertains to their personality.

range: 0 to 32

 table 1
      response response                            flipped (f)
      number   choice                   value*     value
        1  =    Strongly disagree          0          4
        2  =    Disagree                   1          3
        3  =    Neutral                    2          2
        4  =    Agree                      3          1
        5  =    Strongly Agree             4          0

* value = (response number -1)

variable  coding     question
cynic1    table1(f)  1. I tend to be cynical and skeptical of others  intentions.
wellin2   table1     2. I believe that most people are basically well-intentioned.
advant3   table1(f)  3. I believe that most people will take advantage of you if you let them.
honest4   table1     4. I think most of the people I deal with are honest and trustworthy.
suspic5   table1(f)  5. I m suspicious when someone does something nice for me.
trust6    table      6. My first reaction is to trust people.
best7     table1     7. I tend to assume the best about people.
faith8    table1     8. I have a good deal of faith in human nature.

Costa PT, McCrae RR. NEO Personality Inventory-revised. Professional manual. Lutz, FL:
Psychological Assessment Resources, 1992.
```

Variable	openness	NEO openness - ROS	Cross-sectional

References	**Conscientiousness and the incidence of Alzheimer disease and mild cognitive impairment.**
	Wilson RS, Schneider JA, Arnold SE, Bienias JL, Bennett DA
	Journal: Archives of general psychiatry 2007 Oct; 64(10) 1204-12

Description

At baseline, we administered the NEO Five-Factor Inventory
to quantify openness and 4 other traits that make up a
widely accepted 5-trait model of personality.The inventory
has 60 items, 12 for each trait. Persons rated agreement with each
item on a 5-point scale. Item scores ranged from 0 to 4 and were
summed to yield a total score for each trait with higher scores indicating more of the trait.

Openness (eg, I often try new and foreign foods) refers to intellectual
curiosity and independence of judgment. The Cronbach coefficient
, an indicator of internal consistency reliability was 0.68
for openness. These values are comparable
to those reported in the normative cohort and indicate
adequate levels of internal consistency.

range: 0 to 48

 table 1

response number	response choice	value*	flipped (f) value
1 =	Strongly disagree	0	4
2 =	Disagree	1	3
3 =	Neutral	2	2
4 =	Agree	3	1
5 =	Strongly Agree	4	0

* value = (response number -1)

variable	coding	question
per3	table1(f)	I don t like to waste my time daydreaming.
per8	table1(f)	Once I find the right way to do something, I stick to it.
per13	table1	I am intrigued by the patterns I find in art and nature.
per18	table1(f)	I believe letting students hear controversial speakers can only confuse and mislead them.
per23	table1(f)	Poetry has little or no effect on me.
per28	table1	I often try new and foreign foods.
per33	table1(f)	I seldom notice the moods or feelings that different environments produce.
per38	table1(f)	I believe we should look to our religious authorities for decisions on moral issues.
per43	table1	Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement.
per48	table1(f)	I have little interest in speculating on the nature of the universe or the human condition.
per53	table1	I have a lot of intellectual curiosity.
per58	table1	I often enjoy playing with theories or abstract ideas.

Costa PT, McCrae RR. NEO Personality Inventory-revised. Professional manual. Lutz, FL:
Psychological Assessment Resources, 1992.

Affect & Personality - Negative

Variable	intrusion	Negative Social Exchnage - Intrusion - MAP	Longitudinal
Description			

Intrusion - This calculation represents the mean of three questions
which ask the participant to rate frequency of scenarios in
the past month where they experienced intrusion. The higher the
score, the more frequent the occurrence of intrusion. This is part
of the scale of Negative Social Exchange.

range: 1 to 5

```
table1
value     response
1         Never
2         Not very often
3         Sometimes
4         Often
5         Very often
```

```
variable    coding    question
negat1      table1    In the past month, how often did the people that you know
                       give you unwanted advice?
negat2      table1    In the past month, how often did the people that you
                       know question or doubt your decisions?
negat3      table1    In the past month, how often did the people that you
                       know interfere or meddle in your personal matters?
```

Variable	neglifeevents	Negative Life Events	Longitudinal
Description			

Negative Life Events - Participants are asked a series of questions regarding
life events occurrence in the past year. For each
question answered as "yes", 1 point is added to total. The
higher the score the more negative life events have
occurred in the past year.

range: 0 to 18

```
variable coding    calc       question
life1    Yes/No    Yes = +1   During the past year, did you experience an illness or
                               injury (get sick or hurt) that required staying overnight
                               or longer in a hospital (not a nursing home)?
life2    Yes/No    Yes = +1   During the past year, did you experience an illness or
                               injury (get sick or hurt) that kept you from your usual
                               activities (work, housework) for a week or more?
life3    Yes/No    Yes = +1   During the past year, did you get a divorce?
life4    Yes/No    Yes = +1   During the past year, did your husband/wife die?
life5    Yes/No    Yes = +1   During the past year, did one of your children die?
life6    Yes/No               During the past year, did your husband/wife, child, or
                               other household member move out or leave your home?
life7    Yes/No    Yes = +1   During the past year, did a close family member or friend
                               (other than husband/wife/child) die?
life8    Yes/No    Yes = +1   During the past year, did a close family member or friend
                               experience a serious illness or injury?
life9    Yes/No    Yes = +1   During the past year, did you or a family member have any
                               legal trouble (trouble with the law)?
life10   Yes/No    Yes = +1   During the past year, did your financial situation get
                               considerably worse?
life11   Yes/No    Yes = +1   During the past year, did you move?
life12   Yes/No    Yes = +1   During the past year, was your driver's license taken away?
life13   Yes/No    Yes = +1   During the past year, was your husband/wife hospitalized?
life14   Yes/No    Yes = +1   During the past year, was any other family member placed
                               in an institution or nursing home?
life15   Yes/No    Yes = +1   During the past year, were you institutionalized?
life16   Yes/No    Yes = +1   During the past year, did you begin needing help with
                               daily activities?
life17   Yes/No    Yes = +1   During the past year, did you have to assume caregiver
                               responsibilities for someone else?
life18   Yes/No    Yes = +1   During the past year, did one of your children experience
                               a serious problem?
```

Variable	negsocexchange Negative Social Exchange	Longitudinal

Description	Negative Social Exchange - This calculation represents the mean of twelve questions which ask the participant to rate frequency of scenarios in the past month where they experienced negative exchange. The higher the score, the greater the frequency of negative social exchange.

range: 1 to 5

table1
value	response
1	Never
2	Not very often
3	Sometimes
4	Often
5	Very often

variable	coding	question
negat1	table1	In the past month, how often did the people that you know give you unwanted advice?
negat2	table1	In the past month, how often did the people that you know question or doubt your decisions?
negat3	table1	In the past month, how often did the people that you know interfere or meddle in your personal matters?
negat4	table1	In the past month, how often did the people that you know let you down when you needed help?
negat5	table1	In the past month, how often did the people that you know ask for too much help?
negat6	table1	In the past month, how often did the people that you know fail to give you assistance that you were counting on?
negat7	table1	In the past month, how often did the people that you know leave you out of activities that you would have enjoyed?
negat8	table1	In the past month, how often did the people that you know forget or ignore you?
negat9	table1	In the past month, how often did the people that you know fail to spend enough time with you?
negat10	table1	In the past month, how often did the people that you know do things that were thoughtless or inconsiderate?
negat11	table1	In the past month, how often did the people that you know act angry or upset with you?
negat12	table1	In the past month, how often did the people that you know act unsympathetic or critical about a personal concern of yours?

Variable	nohelp Negative Social Exchange - Help - MAP	Longitudinal

Description	No help - This calculation represents the mean of three questions which ask the participant to rate frequency of scenarios in the past month where they experienced issues with help. This is part of the scale of Negative Social Exchange.

range: 1 to 5

table1
value	response
1	Never
2	Not very often
3	Sometimes
4	Often
5	Very often

variable	coding	question
negat4	table1	In the past month, how often did the people that you know let you down when you needed help?
negat5	table1	In the past month, how often did the people that you know ask for too much help?
negat6	table1	In the past month, how often did the people that you know fail to give you assistance that you were counting on?

Variable	panas	Panas score	Longitudinal

Description

PANAS - Positive and Negative Affect Schedule - Ten questions are asked to assess affect in the past week. The mean is taken and the higher the score, the higher the negative affect.

range: 1 to 5

table1
value	response
1	Very slightly or not at all
2	A little
3	Moderately
4	Quite a bit
5	Extremely

variable	coding	question
panas1	table1	Have you felt distressed in the past week?
panas2	table1	Have you felt upset in the past week?
panas3	table1	Have you felt guilty in the past week?
panas4	table1	Have you felt scared in the past week?
panas5	table1	Have you felt hostile in the past week?
panas6	table1	Have you felt irritable in the past week?
panas7	table1	Have you felt ashamed in the past week?
panas8	table1	Have you felt nervous in the past week?
panas9	table1	Have you felt jittery in the past week?
panas10	table1	Have you felt fearful in the past week?

Reference
Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. Journal of Personality and Social Psychology, 54(6), 1063-1070.

Variable	perceivedstress	Perceived Stress	Longitudinal

References

Early life socioeconomic status and late life risk of Alzheimer's disease.

Wilson RS, Scherr PA, Hoganson G, Bienias JL, Evans DA, Bennett DA

Journal: Neuroepidemiology 2005 ; 25(1) 8-14

Description

Perceived Stress - This calculation represents the mean of four questions which ask the participant to rate frequency of scenarios in the past month where they experienced stress. The higher the score, the higher the occurrence of perceived stress.

range: 1 to 5

table1
value	flipped value	response
0	4	Never
1	3	Almost never
2	2	Sometimes
3	1	Fairly often
4	0	Very often

variable	coding	question
stress1	table1	In the past month, how often have you felt that you were unable to control the important things in your life?
stress2	table1-flip	In the last month, how often have you felt confident about your ability to handle your personal problems?
stress3	table1-flip	In the last month, how often have you felt that things were not going your way?
stress4	table1	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Prevention in psychiatry: effects of healthy lifestyle on cognition. Merrill DA, Small GW. Psychiatr Clin North Am. 2011 Mar;34(1):249-61. Epub 2010 Dec 16. Review.

Variable	rejection	Negative Social Exchnage - Rejection - MAP	Longitudinal

Description	Rejection - This calculation represents the mean of three questions which ask the participant to rate frequency of scenarios in the past month where they experienced rejection. The higher the score, the more frequent the occurrence of rejection. This is part of the scale of Negative Social Exchange.

range: 1 to 5

table1

value	response
1	Never
2	Not very often
3	Sometimes
4	Often
5	Very often

variable	coding	question
negat7	table1	In the past month, how often did the people that you know leave you out of activities that you would have enjoyed?
negat8	table1	In the past month, how often did the people that you know forget or ignore you?
negat9	table1	In the past month, how often did the people that you know fail to spend enough time with you?

Variable	unsympathetic	Negative Social Exchange - Unsynmpathetic - MAP	Longitudinal

Description	Unsympathetic - This calculation represents the mean of three questions which ask the participant to rate frequency of scenarios in the past month where they experienced unsympathetic treatment. The higher the score, the higher the occurrence of unsympathetic treatment.

range: 1 to 5

table1

value	response
1	Never
2	Not very often
3	Sometimes
4	Often
5	Very often

variable	coding	question
negat10	table1	In the past month, how often did the people that you know do things that were thoughtless or inconsiderate?
negat11	table1	In the past month, how often did the people that you know act angry or upset with you?
negat12	table1	In the past month, how often did the people that you know act unsympathetic or critical about a personal concern of yours?

Affect & Personality - Neuroticism

Variable	anxiety_10items	Anxiety - 10 item version - ROS and MAP	Cross-sectional
References	**Negative affect and mortality in older persons.** Wilson RS, Bienias JL, Mendes de Leon CF, Evans DA, Bennett DA Journal: American journal of epidemiology 2003 Nov 1; 158(9) 827-35 **Chronic distress, age-related neuropathology, and late-life dementia.** Wilson RS, Arnold SE, Schneider JA, Li Y, Bennett DA Journal: Psychosomatic medicine 2007 Jan ; 69(1) 47-53		

Description

```
Anxiety - 10 item version - ROS and MAP

This variable is a measure of anxiety proneness. The participants are read a
series of  brief statements about anxious feelings; they responded 'yes' to
statements that indicate how they generally feel and 'no' if otherwise. The
higher the score, the more anxiety expressed.

Range: 0-10
variable                            codebook
map*      ros    coding   calc      question
-----------------------------------------------------------------
affect1   an1    Yes/No   No = +1   1. I feel pleasant
affect2   an2    Yes/No   Yes= +1   2. I feel nervous and restless
affect3   an4    Yes/No   Yes= +1   3. I wish I could be as happy as
                                       others seem to be
affect4   an8    Yes/No   Yes= +1   4. I feel that difficulties are piling up
                                       so that I cannot overcome them
affect5   an12   Yes/No   Yes= +1   5. I lack self confidence
affect6   an13   Yes/No   No = +1   6. I feel secure
affect7   an15   Yes/No   Yes= +1   7. I feel inadequate
affect8   an16   Yes/No   No = +1   8. I am content
affect9   an17   Yes/No   Yes= +1   9. Some unimportant thought runs through
                                       my mind and bothers me
affect10 an18    Yes/No   Yes= +1   10. I take disappointments so keenly
                                        that I can't put them out of my mind.

*map (questions derived from personality survey 1 -mp2pers)
```

Variable	neuroticism_12 Neuroticism - 12 item version - RMM	Cross-sectional
References	**Personality and incident disability in older persons.**	
	Krueger KR, Wilson RS, Shah RC, Tang Y, Bennett DA	
	Journal: Age and ageing 2006 Jul; 35(4) 428-33	
	Neuroticism, extraversion, and mortality in a defined population of older persons.	
	Wilson RS, Krueger KR, Gu L, Bienias JL, Mendes de Leon CF, Evans DA	
	Journal: Psychosomatic medicine 2005 Nov-Dec; 67(6) 841-5	

Description

We administered the NEO Five-Factor Inventory to quantify neuroticism
and 4 other traits that make up a widely accepted 5-trait model of personality.
The inventory has 60 items, 12 for each trait. Persons rated agreement with each
item on a 5-point scale. Item scores ranged from 0 to 4 and were summed to yield
a total score for each trait that ranged from 0 to 48, with higher scores indicating
more of a trait. Neuroticism (eg, "I often feel inferior to others") indicates proneness
to experience psychological distress. The Cronbach coefficient alpha, an indicator
of internal consistency reliability was 0.80 for neuroticism. These values are
comparable to those reported in the normative cohort and indicate adequate
levels of internal consistency. Neuroticism, an indicator of proneness to psychological
distress.

```
    table 1
        response  response                            flipped (f)
        number    choice                    value*    value
          1 =     Strongly disagree           0         4
          2 =     Disagree                    1         3
          3 =     Neutral                     2         2
          4 =     Agree                       3         1
          5 =     Strongly Agree              4         0

  * value = (response number -1)
```

Range: 0-48

```
     variable
  ros    map1*      mars       coding     question
  ------------------------------------------------------------------------------------
  per6   neo28inf   inferior   table1     I often feel inferior to others
  per11  neo18str   tense      table1     When I'm under a great deal of stress,
                                           sometimes I feel like I'm going to pieces
  per21  neo19jit   tense      table1     I often feel tense and jittery
  per26  neo9wrth   neo9wrth   table1     Sometimes I feel completely worthless
  per36  neo2ang    getangry   table1     I often get angry at the way people treat me
  per41  neo45giv   discourg   table1     Too often, when things go wrong, I get
                                           discouraged and feel like giving up
  per51  neo6help   helpless   table1     I often feel helpless and want someone
                                           else to solve my problems
  per56  neo16ash   neo16ash   table1     At times I have been so ashamed I just wanted to hide.
  per1   neo1wor    worrier    table1(f)  I am not a worrier
  per16  neo3lon    neo3lon    table1(f)  I rarely feel lonely or blue.
  per31  neo13anx   neo13anx   table1(f)  I rarely feel fearful or anxious
  per46  neo15sad   neo15sad   table1(f)  I am seldom sad or depressed

  ros and mars - questions are collected at baseline.

  *map1 -  These questions were asked via a personality survey that was completed mostly
            in years 2004,2005.  Participants that were active, alive, and non-demented
            were given the survey, so only about 50% were collected at baseline. Approximately
            20% were completed at follow-up 1, and 20% completed at follow-up 2.

  Ref: Costa PT, McCrae RR. Revised NEO Personality Inventory (NEO-PI-R)
  and NEO Five-Factor Inventory (NEO-FFI) Professional Manual. Odessa, FL:
  Psychological Assessment Resources; 1992.
```

Variable	neuroticism_6 Neuroticism - 6 item version - RMM	Cross-sectional

References	**Neuroticism, Extraversion, and Motor Function in Community-Dwelling Older Persons.**
	Buchman AS, Boyle PA, Wilson RS, Leurgans SE, Arnold SE, Bennett DA
	Journal: The American journal of geriatric psychiatry : official journal of the American Association for
	Geriatric Psychiatry 2012 Jan 10 ; 78(5) 334-41
	Neuroticism, extraversion, and mortality in a defined population of older persons.
	Wilson RS, Krueger KR, Gu L, Bienias JL, Mendes de Leon CF, Evans DA
	Journal: Psychosomatic medicine 2005 Nov-Dec; 67(6) 841-5

Description	Neuroticism_6 used in ROS, MAP, and MARS, is an indicator of proneness to psychological distress.

```
Description   Neuroticism_6 used in ROS, MAP, and MARS, is an indicator of proneness to psychological
              distress.

              neuroticism_6 calculation has the greatest overlap of the 3 main projects: ROS, MAP, and MARS.

              MAP added the neuroticism questions a few years after the study had begun.  We went back and
              attempted to collect the questionnaire on as many in vivo participants as we could.   There
              are some participants that will be missing the larger scale versions (neuroticism_12 and
              neuroticism_48) while having the 6 item scale only.


              range: 0-24

                table 1
                    response response                           flipped (f)
                    number   choice                  value*     value
                      1 =    Strongly disagree         0           4
                      2 =    Disagree                  1           3
                      3 =    Neutral                   2           2
                      4 =    Agree                     3           1
                      5 =    Strongly Agree            4           0

              * value = (response number -1)

              -------variable--------
              ros    map1*  map2*     mars     coding     question
              ------------------------------------------------------------------------------
              per1   worrier neo1wor  worrier  table1(f)  I am not a worrier
              per6   inferior neo28inf inferior table1    I often feel inferior to others
              per21  tense    neo19jit tense    table1    I often feel tense and jittery
              per36  getangry neo2ang  getangry table1    I often get angry at the way people treat me
              per41  discourg neo45giv discourg table1    Too often, when things go wrong, I get
                                                          discouraged and feel like giving up
              per51  helpless neo6help helpless table1    I often feel helpless and want someone
                                                           else to solve my problems

              ros and mars  - questions are collected at baseline

              *map1 - These questions added to baseline interview in 2001.  Some participants in
                      study ( n ~ 200) did not receive these questions at baseline, most enrolled
                      before 2001 .

              *map2 - These questions were asked via a personality survey that was completed mostly
                       in years 2004,2005.  Participants that were active, alive, and non-demented
                       were given the survey.  Some participants received both map1 and map2.  In
                       this case, we used the questions from baseline interview.


              Ref: Costa PT, McCrae RR. Revised NEO Personality Inventory (NEO-PI-R)
              and NEO Five-Factor Inventory (NEO-FFI) Professional Manual. Odessa, FL:
              Psychological Assessment Resources; 1992.
```

Clinical Diagnosis(count: 3)

Variable	dcfdx Clinical Dx Summary	Longitudinal

Other Forms	_l, _lv, _bl

Description	Clinical Dx by cycle

```
Description   Clinical Dx by cycle

              value  coding
              1      NCI - No cognitive impairment
              2      MCI - Mild cognitive impairment
              3      MCI+ - Mild cognitive impairment and other Dx
              4      AD - Alzheimer's disease
              5      AD+ - Alzheimer's disease and other Dx
              6      Other - Other Dx
              Other  Unknown
```

Clinical Diagnosis - Dementia

Variable	dementia	Dementia Diagnosis	Longitudinal
Other Forms	_l, _lv, _bl		
References	**Mixed brain pathologies account for most dementia cases in community-dwelling older persons.** Nandigam RN Journal: Neurology 2008 Mar 4; 70(10) 816; author reply 81 **Family history of dementia is a risk factor for Lewy body disease.** Woodruff BK, Graff-Radford NR, Ferman TJ, Dickson DW, DeLucia MW, Crook JE, Arvanitakis Z, Brassler S, Waters C, Barker W, Duara R Journal: Neurology 2006 Jun 27; 66(12) 1949-50		

Description	
| | ```
Dementia Dx  (see r_dement variable)

0 = no dementia present (possible or not present)
1 = dementia present  (highly probable or probable)

Through review of self report questions, neurological exam (when available),
cognitive testing, and interview of participant, clinician renders a diagnosis.
The clinician is first presented with algorithmic diagnosis and has the ability to
modify if necessary.

Dementia Dx  value      coding
dementia      1         Highly Probable
dementia      2         Probable
---------------------------------------------
no dementia   3         Possible
no dementia   4         Not Present
``` |

Clinical Diagnosis - Stroke

Variable	r_stroke	Clinical Stroke Dx	Longitudinal
Other Forms	_l, _lv, _bl		
References	**Secular trends in stroke incidence and survival, and the occurrence of dementia.** Bennett DA Journal: Stroke; a journal of cerebral circulation 2006 May; 37(5) 1144-5		

Description	
| | ```
Clinical Stroke Dx

Through review of self report questions, neurological exam (when available),
cognitive testing, and interview of participant, clinician renders a diagnosis.
The clinician is first presented with algorithmic diagnosis and has the ability to
modify if necessary.

value   coding
1       Highly Probable
2       Probable
3       Possible
4       Not Present
``` |

Cognitive(count: 28)

Cognitive - Domains

Variable	cogn_ep	Calculated Domain Score - Episodic Memory	Longitudinal
Other Forms	_l, _lv, _bl		
Description	Episodic Memory Domain		

```
Episodic Memory Domain

We formed a composite measure of episodic memory by converting raw scores on each test to z
scores, using the mean and standard deviation from the full cohort, and then averaging the z
scores to yield the composite.

Composite score of the following 7 instruments -

test score       z-score        cognitive test
cts_wli          z_WLI          word list
cts_wlii         z_WLII         word list recall
cts_wliii        z_WLIII        word list recognition
cts_ebmt         z_EBMT         East Boston immediate recall
cts_ebdr         z_EBDR         East Boston delayed recall
cts_story        z_Story        Logical memory I (immediate recall)
cts_delay        z_Delay        Logical memory II (delayed recall)


Neuropsychiatry Neuropsychol Behav Neurol. 1998 Oct;11(4):184-90. Structural correlates of
cognitive deficits in a selected group of patients with Alzheimer's disease. Caramelli P,
Robitaille Y, Laroche-Cholette A, Nitrini R, Gauvreau D, Joanette Y, Lecours AR. Source
Research
Center, Geriatric Institute, University of Montréal, Quebec, Canada.
```

Variable	cogn_global	Global cognitive score	Longitudinal
Other Forms	_l, _lv, _bl		
Description	Cogn_global is the main variable for overall (i.e. global) cognitive function.		

```
Cogn_global is the main variable for overall (i.e. global) cognitive function.

Raw scores from the tests were converted to Z scores and averaged to
yield a glob cog summary. Mean and standard deviation at baseline were
used to compute the z-scores. Z-score has mean 0 and standard deviation
of 1.  Each z-score corresponds to a point in a normal distribution.  z-score
describes how much a point deviates from a mean or specific point.  A negative
z-score simply means that someone has an overall score that is lower than the
average of the entire cohort at baseline.

The following 19 tests are used to compute the global score

      test score        z-score        cognitive test                calculated domain
   1  cts_wli           z_WLI          word list                     episodic memory(cogn_ep)
   2  cts_wlii          z_WLII         word list recall              episodic memory(cogn_ep)
   3  cts_wliii         z_WLIII        word list recognition         episodic memory(cogn_ep)
   4  cts_ebmt          z_EBMT         East Boston immediate recall  episodic memory(cogn_ep)
   5  cts_ebdr          z_EBDR         East Boston delayed recall    episodic memory(cogn_ep)
   6  cts_story         z_Story        Logical memory I (immediate)  episodic memory(cogn_ep)
   7  cts_delay         z_Delay        Logical memory II (delayed)   episodic memory(cogn_ep)

   8  cts_bname         z_BName        Boston naming (15 items)      semantic memory(cogn_se)
   9  cts_catflu        z_CatFlu       category fluency              semantic memory(cogn_se)
  10  cts_read_nart     z_read_nart    reading test - (10 items)     semantic memory(cogn_se)

  11  cts_df            z_DF           digits forward                working memory(cogn_wo)
  12  cts_db            z_DB           digits backward               working memory(cogn_wo)
  13  cts_doperf        z_DOperf       digit ordering                working memory(cogn_wo)


  14  cts_lopair        z_LOpair       line orientation              perceptual
orientation(cogn_po)
  15  cts_pmat          z_PMat         progressive matrices (16 items) perceptual
orientation(cogn_po)

  16  cts_sdmt          z_SDMT         symbol digits modality-oral   perceptual speed(cogn_ps)
  17  cts_nccrtd        z_NCcrtd       number comparison             perceptual speed(cogn_ps)
  18  cts_stroop_cname  z_cname        stroop color naming           perceptual speed(cogn_ps)
  19  cts_stroop_wread  z_wread        stroop word reading           perceptual speed(cogn_ps)
```

Variable	cogn_po	Calculated Domain Score - Perceptual Orientation	Longitudinal
Other Forms	_l, _lv, _bl		

Description	Perceptual Orientation Domain
	We formed a composite measure of visuospatial ability memory by converting raw scores on each testto z scores, using the mean and standard deviation from the full cohort, and then averaging the z scores to yield the composite.

Composite score of the following instruments -

```
test score      z-score         cognitive test
cts_lopair      z_LOpair        line orientation
cts_pmat        z_PMat          progressive matrices (16 items)
```

Neuropsychiatry Neuropsychol Behav Neurol. 1998 Oct;11(4):184-90. Structural correlates of cognitive deficits in a selected group of patients with Alzheimer's disease. Caramelli P, Robitaille Y, Laroche-Cholette A, Nitrini R, Gauvreau D, Joanette Y, Lecours AR. SourceResearch Center, Geriatric Institute, University of Montréal, Quebec, Canada.

Variable	cogn_ps	Calculated Domain Score - Perceptual Speed	Longitudinal
Other Forms	_l, _lv, _bl		

Description	Perceptual Speed Domain

We formed a composite measure of perceptual speed by converting raw scores on each test to z scores, using the mean and standard deviation from the full cohort, and then averaging the z scores to yield the composite.

Composite score of the following instruments -

```
test score          z-score         cognitive test
cts_sdmt            z_SDMT          symbol digits modality test (oral)
cts_nccrtd          z_NCcrtd        number comparison
cts_stroop_cname    z_cname         stroop color naming
cts_stroop_wread    z_wread         stroop word reading
```

Neuropsychiatry Neuropsychol Behav Neurol. 1998 Oct;11(4):184-90. Structural correlates of cognitive deficits in a selected group of patients with Alzheimer's disease. Caramelli P, Robitaille Y, Laroche-Cholette A, Nitrini R, Gauvreau D, Joanette Y, Lecours AR. SourceResearch Center, Geriatric Institute, University of Montréal, Quebec, Canada.

Variable	cogn_se	Calculated Domain Score - Semantic Memory	Longitudinal
Other Forms	_l, _lv, _bl		

Description	Semantic Memory Domain

We formed a composite measure of semantic memory by converting raw scores on each test to z scores, using the mean and standard deviation from the full cohort, and then averaging the z scores to yield the composite.

Composite score of the following instruments
```
test score          z-score         cognitive test
cts_bname           z_BName         Boston naming (15 items)
cts_catflu          z_CatFlu        category fluency (animals - fruits/vegetables)
cts_read_nart       z_read_nart     reading test - (10 items)
```

Neuropsychiatry Neuropsychol Behav Neurol. 1998 Oct;11(4):184-90. Structural correlates of cognitive deficits in a selected group of patients with Alzheimer's disease. Caramelli P, Robitaille Y, Laroche-Cholette A, Nitrini R, Gauvreau D, Joanette Y, Lecours AR. SourceResearch Center, Geriatric Institute, University of Montréal, Quebec, Canada.

Variable	cogn_wo	Calculated Domain Score - Working Memory	Longitudinal
Other Forms	_l, _lv, _bl		
Description	Working Memory Domain We formed a composite measure of working memory by converting raw scores on each test to z scores, using the mean and standard deviation from the full cohort, and then averaging the z scores to yield the composite. Composite score of the following instruments - test score z-score cognitive test cts_df z_DF digits forward cts_db z_DB digits backward cts_doperf z_DOperf digit ordering Neuropsychiatry Neuropsychol Behav Neurol. 1998 Oct;11(4):184-90. Structural correlates of cognitive deficits in a selected group of patients with Alzheimer's disease. Caramelli P, Robitaille Y, Laroche-Cholette A, Nitrini R, Gauvreau D, Joanette Y, Lecours AR. SourceResearch Center, Geriatric Institute, University of Montréal, Quebec, Canada.		

Cognitive - Test Scores

Variable	animals	Category fluency-animals	Longitudinal

Description	This is a measure of verbal fluency or semantic memory in which participant is asked to generate exemplars from that category animals in successive 1 minute trials. The primary performance measure is the number of unique exemplars generated. Similar measures have been shown to be impaired in Alzheimer's disease .
	
	Scoring: The total number of animals named is recorded.
	        Repetitions are omitted.
	
	Range: 0-75 animals named
	        98 = REFUSAL
	        99 = DON'T KNOW		

Variable	cts_bname	Boston Naming - 2014	Longitudinal

Description	SUMMARY: BOSTON NAMING, NUMBER OF ITEMS CORRECT

This test is used in the calculation of semantic memory domain (cogn_se).

This measure of visual confrontation naming, from the widely
used Boston Naming Test, include 15 items from the CERAD
version of the test. Participants are shown pictures of
certain objects. Then they are requested to name the objects.
The primary measure of performance is the number of pictures
correctly named.

Short term temporal stability and internal consistency of
the CERAD version are excellent. Longitudinal change in
visual naming in Alzheimer's disease has been previously
demonstrated.

The Boston Naming Test (BNT) represents a measure of object
naming from line drawings. Items have been rank ordered in
terms of their ability to be named, which is thought to be
correlated with their frequency. This type of picture-naming
vocabulary test is useful in the examination of children with
learning disabilities and the evaluation of brain-injured adults.

Ref: Weintraub, S., The Psychological Corporation.

Range: 00 - 15

```
variable    coding                      question
-------------------------------------------------
tree        0-error/1-correct            1. Tree
bed         0-error/1-correct            2. Bed
whistle     0-error/1-correct            3. Whistle
flower      0-error/1-correct            4. Flower
house       0-error/1-correct            5. House
canoe       0-error/1-correct            6. Canoe
toothbr     0-error/1-correct            7. Toothbrush
volcano     0-error/1-correct            8. Volcano
mask        0-error/1-correct            9. Mask
camel       0-error/1-correct           10. Camel
harmon      0-error/1-correct           11. Harmonica
tongs       0-error/1-correct           12. Tongs
hammock     0-error/1-correct           13. Hammock
funnel      0-error/1-correct           14. Funnel
domino      0-error/1-correct           15. Domino
```

Variable	cts_catflu	Category Fluency - 2014	Longitudinal

Description	Category Fluency

Participant is given a category and asked to generate as many words as possible
in 60 seconds. This score represents the summation of the
verbal fluency categories, animals and fruits/vegetables. If one of the component
scores is missing, then we multiply the remaining valid score by 2.

This test is used in the calculation of semantic memory domain (cogn_se).

CATEGORY FLUENCY [cts_animals]
Label: animals
Range: 0 to 75

CATEGORY FLUENCY [cts_fruits]
Label: fruits
Range: 0 to 75

Variable	cts_db	Digits Backwards - 2014	Longitudinal

Description	SUMMARY: DIGITS BACKWARD, TOTAL CORRECT

This test is used in the calculation of working memory domain (cogn_wo).

This measure of attention is from the Wechsler Memory
Scale - Revised. A series of number sequences of increasing
length are read out to the participants. Participants are
requested to repeat the numbers backwards. The performance
measure are the number of digit sequences correctly recalled.
The psychometric properties are well documented. It has been
used in prior epidemiologic and longitudinal studies of
Alzheimer's disease.

Note: this is one of two forms of Digit Span. (ADAMS uses
another form). Digits provided to the test taker spans from
the length of 2 to 7. Testing stops if neither string of a
given length is reversed correctly.

Range: 00 - 12

```
variable   coding            question         answer key
-----------------------------------------------------------
digbak1a   0-error/1-correct  1a. 5-1?          15
digbak1b   0-error/1-correct  1b. 3-8?          83

digbak2a   0-error/1-correct  2a. 4-9-3?        394
digbak2b   0-error/1-correct  2b. 5-2-6?        625

digbak3a   0-error/1-correct  3a. 3-8-1-4?      4183
digbak3b   0-error/1-correct  3b. 1-7-9-5?      5971

digbak4a   0-error/1-correct  4a. 6-2-9-7-2?    27926
digbak4b   0-error/1-correct  4b. 4-8-5-2-7?    72584

digbak5a   0-error/1-correct  5a. 7-1-5-2-8-6?  682517
digbak5b   0-error/1-correct  5b. 8-3-1-9-6-4?  469138

digbak6a   0-error/1-correct  6a  4-7-3-9-1-2-8?  8219374
digbak6b   0-error/1-correct  6b. 8-1-2-9-3-6-5?  5639218
```

Variable	cts_delay	Logical Memory IIa - 2014	Longitudinal

Description	Logical Memory IIa - delayed recall.

This is a measure from the Wechsler Memory Scale - Revised, 1987, in which a brief
story is read to the participants. Then the participant is asked to retell it from
memory after 30 mins (IIa). The performance measure is the number of story unites
recalled (out of 25) following the delay. The tests inter rated reliability and short
term temporal stability are excellent . It has been used in epidemiological and numerous
clinical studies of Alzheimer's disease.

This test is used in the calculation of episodic memory domain (cogn_ep).

Range: 00 to 25.

Variable	cts_df	Digits Forwards - 2014	Longitudinal

Description

```
Digits Forward

This test is used in the calculation of working memory domain (cogn_wo).

A series of numbers are read out to the participants. Participants are requested
to repeat the numbers forward. There are 6 pairs of strings of digits of a given
length (each pair is one longer than the one before). The primary measure of performance
is the number of digit sequences correctly recalled in each subpart (digits forward and
backward).Testing stops if neither string of a given length is repeated correctly.


Range: 00 - 12


variable  coding            question          answer key
------------------------------------------------------------
digFor1a  0-error/1-correct  1a. 6-2-9?         629
digFor1b  0-error/1-correct  1b. 3-7-5?         375

digFor2a  0-error/1-correct  2a. 5-4-1-7?       5417
digFor2b  0-error/1-correct  2b. 8-3-9-6?       8396

digFor3a  0-error/1-correct  3a. 3-6-9-2-5?     36925
digFor3b  0-error/1-correct  3b. 6-9-4-7-1?     69471

digFor4a  0-error/1-correct  4a. 9-1-8-4-2-7?   918427
digFor4b  0-error/1-correct  4b. 6-3-5-4-8-2?   635482

digFor5a  0-error/1-correct  5a. 1-2-8-5-3-4-6?   1285346
digFor5b  0-error/1-correct  5b. 2-8-1-4-9-7-5?   2814975

digFor6a  0-error/1-correct  6a. 3-8-2-9-5-1-7-4?   38295174
digFor6b  0-error/1-correct  6b. 5-9-1-8-2-6-4-7?   59182647
```

Variable	cts_doperf	Digit Ordering - 2014	Longitudinal

Description

```
DIGIT ORDERING

This test is used in the calculation of working memory domain (cogn_wo).

A series of numbers are read aloud to the participants. One
series at a time. After each series, participants are requested
repeat the series starting with the smallest number and going
to the largest number. Each correct answer is scored.  The test
is administered from 2 to 8 digit length pairs.  If both pairs
of a certain length are not ordered properly, testing stops.


Range: 00 - 14


variable  coding            question            answer key
------------------------------------------------------------
item1     0-error/1-correct  1. 4-1?              14
item2     0-error/1-correct  2. 9-8?              89

item3     0-error/1-correct  3. 1-0-4?            014
item4     0-error/1-correct  4. 2-6-3?            236

item5     0-error/1-correct  5. 2-4-1-3?          1234
item6     0-error/1-correct  6. 4-2-1-6?          1246

item7     0-error/1-correct  7. 3-7-5-7-0?        03577
item8     0-error/1-correct  8. 7-9-2-1-0?        01279

item9     0-error/1-correct   9. 9-5-6-2-7-2?     225679
item10    0-error/1-correct  10. 9-6-3-0-1-9?     013699

item11    0-error/1-correct  11. 8-9-5-7-9-1-4?   1457899
item12    0-error/1-correct  12. 8-5-4-7-5-3-6?   3455678

item13    0-error/1-correct  13. 2-8-9-1-8-6-9-5?   12568899
item14    0-error/1-correct  14. 6-3-5-3-4-0-9-6?   03345669
```

Variable	cts_ebdr	East Boston Story - delayed recall - 2014	Longitudinal

Description   East Boston Memory Test (Delayed Recall)

This test was used in the East Boston studies of cognitive function A three
story is read to the participant. There are two performance measures: number of story
units recalled (out of 12) immediately (see cts_ebmt) and after a distractor-filled delay
of approximately 3 minutes. Each item recalled correctly(present in recalled verion) is scored.

This test is used in the calculation of episodic memory domain (cogn_ep).

Range: 00 - 12

```
variable    coding                                question
--------------------------------------------------------
q1ebdr      1-present/0-absent/7-defer            1. Three
q2ebdr      1-present/0-absent/7-defer            2. Children
q3ebdr      1-present/0-absent/7-defer            3. House
q4ebdr      1-present/0-absent/7-defer            4. On fire
q5ebdr      1-present/0-absent/7-defer            5. Fireman
q6ebdr      1-present/0-absent/7-defer            6. Climbed in
q7ebdr      1-present/0-absent/7-defer            7. Children
q8ebdr      1-present/0-absent/7-defer            8. Rescued
q9ebdr      1-present/0-absent/7-defer            9. Minor
q10ebdr     1-present/0-absent/7-defer            10. Injuries
q11ebdr     1-present/0-absent/7-defer            11. Everyone
q12ebdr     1-present/0-absent/7-defer            12. Well
```

Variable	cts_ebmt	East Boston Story - immediate - 2014	Longitudinal

Description   EAST Boston Memory Test (Immediate Recall)

This test was used in the East Boston studies of cognitive function. A three
sentence story is read to the participant. There are two performance measures:
number of story units recalled (out of 12) immediately and after a distractor-filled
delay of approximately 3 minutes (see cts_ebdr). Each item recalled correctly (present
in recalled version) is scored.

This test is used in the calculation of episodic memory domain (cogn_ep).

Range: 00 - 12

```
variable    coding                                question
--------------------------------------------------------
q1ebmt      1-present/0-absent/7-defer            1. Three
q2ebmt      1-present/0-absent/7-defer            2. Children
q3ebmt      1-present/0-absent/7-defer            3. House
q4ebmt      1-present/0-absent/7-defer            4. On fire
q5ebmt      1-present/0-absent/7-defer            5. Fireman
q6ebmt      1-present/0-absent/7-defer            6. Climbed in
q7ebmt      1-present/0-absent/7-defer            7. Children
q8ebmt      1-present/0-absent/7-defer            8. Rescued
q9ebmt      1-present/0-absent/7-defer            9. Minor
q10ebmt     1-present/0-absent/7-defer            10. Injuries
q11ebmt     1-present/0-absent/7-defer            11. Everyone
q12ebmt     1-present/0-absent/7-defer            12. Well
```

Variable	cts_idea	Complex Ideas - 2014	Longitudinal

Description	Score, Complex Ideational Material, a tests of auditory comprehension. This is a measure of verbal comprehension from the Boston Diagnostic aphasic Examination. The first eight items are used. Each item is a simple question read aloud to the participant. The participant is requested to answer with a `yes or `no.

For all variables below, 1 point is added for each response that matches the coding.

Range: 0-8

```
Codebook                         Codebook
variable  Coding  Calc           Question
------------------------------------------------------------
sink1     Yes/No  No  = +1        1. Will a board sink in water?
sink2     Yes/No  Yes = +1        2. Will a stone sink in water?
hammer1   Yes/No  No  = +1        3. Is a hammer good for cutting wood?
hammer2   Yes/No  Yes = +1        4. Can you use a hammer to pound nails?
flour1    Yes/No  Yes = +1        5. Do two pounds of flour weigh
                                     more than one?
flour2    Yes/No  No  = +1        6. Is one pound of flour heavier than two?
boots1    Yes/No  No  = +1        7. Will water go through a good pair
                                     of rubber boots?
boots2    Yes/No  Yes = +1        8. Will a good pair of rubber boots
                                     keep water out?
```

Ref for test:
Goodglass & Kaplna, 1983. The assessment of aphasia and related disorders, 2nd edition, Philadelpha: Lea & Febiger

As described, for example, in Wilson et al. 2002, Psychology and Aging, vol 17, no2, 179-193, for ROS: the distribution is very skew; this test was not included in composite scores

Variable	cts_lopair	Line Orientation - 2014	Longitudinal

Description	Line Orientation

This test is used in the calculation of perceptual orientation domain (cogn_po).

We use a 15 item version of Judgment of Line orientation. Requires participants to estimate the angle subtended by two lines in a match-to-sample format.

'Which two lines down here [POINT TO KEY] point in the same direction as the lines up here?'

The score is based upon the number of line pairs correctly judged. The test has proven to be a sensitive measure of visual spatial perception in early Alzheimer's disease.

Range: 00 - 15

```
                    table1
        ----------------------------------------------
        value    code            value    code
          1      line 1            7       line 7
          2      line 2            8       line 8
          3      line 3            9       line 9
          4      line 4           10       line 10
          5      line 5           11       line 11
          6      line 6           12       line 12


        variable pairs    coding    question                        answer key
        -------------------------------------------------------------------------
        line1a, line1b    table1    choose line pairs that match angle   2,6
        line2a, line2b    table1    choose line pairs that match angle   8,3
        line3a, line3b    table1    choose line pairs that match angle   10,1
        line4a, line4b    table1    choose line pairs that match angle   11,8
        line5a, line5b    table1    choose line pairs that match angle   4,1
        line6a, line6b    table1    choose line pairs that match angle   9,2
        line7a, line7b    table1    choose line pairs that match angle   5,2
        line8a, line8b    table1    choose line pairs that match angle   10,7
        line9a, line9b    table1    choose line pairs that match angle   3,1
        line10a, line10b  table1    choose line pairs that match angle   10,5
        line11a, line11b  table1    choose line pairs that match angle   9,1
        line12a, line12b  table1    choose line pairs that match angle   11,9
        line13a, line13b  table1    choose line pairs that match angle   8,5
        line14a, line14b  table1    choose line pairs that match angle   11,3
        line15a, line15b  table1    choose line pairs that match angle   10,6
```

Variable	cts_mmse30 MMSE - 2014	Longitudinal
Other Forms	_l, _lv, _bl	
Description		

Description

The Mini Mental State Examination is a widely used, 30 item, standardized
screening measure of dementia severity. It has previously been used in
epidemiologic studies and is a component of the CERAD protocol. Short
term temporal stability is excellent and scores are highly correlated
with those on other scales of severity of dementia. This test provides
a global measure of cognitive function useful for descriptive purposes.
The initial ten items provide a psychometric measure of orientation.

Participants are asked a series of questions to assess orientation to time
and place, recall ability, short-term memory, and arithmetic ability.

Data is available at baseline (_bl), last (_l) and last valid (_lv) levels.

*see below for reference.

```
table1
value  coding
0      Error
1      Correct
7      Not applicable
8      REFUSAL
9      DON'T KNOW
```

Code book variables:

```
Variables   Coding    Question
q1mme       table1    1. What is the year?
q2mme       table1    2. What is the season of the year?
q3mme       table1    3. What is the date?
q4mme       table1    4. What is the day of the week?
q5mme       table1    5. What is the month?
q6mme       table1    6. What state are we in?
q7mme       table1    7. What county are we in?
q8mme       table1    8. What city are we in?
q9mme       table1    9. What room are we in?
q10amme*    table1    10a. What is the address of this place? (Street Number)
q10bmme*    table1    10b. What is the address of this place? (Street Name)
```

*Note: both q10a and q10b have to be correct to get a point

```
apple       table1    11a. I am going to name 3 objects. After I have said them, I
                           want you to repeat them. Apple (repeated successfully).

tabl        table1    11b. Table (repeated successfully).

penny       table1    11c. Penny (repeated successfully).

q12bmme     0-5       12. WORLD spelled backwards

q13amme     table1    13a. What were the three objects I asked you to remember?  Apple.

q13bmme     table1    13a. What were the three objects I asked you to remember?  Table.

q13cmme     table1    13a. What were the three objects I asked you to remember?  Penny.

q14mme      table1    14.[SHOW WRIST WATCH] What is this called?

q15mme      table1    15.[SHOW PENCIL] What is this called?

q16mme      table1    16.Repeating the phrase -No if s, and s or but s.

q17mme      table1    17. Read the words on this card, then do what it says.

paper       table1    18a. I'm going to give you a piece of paper. When I do, take the
                           paper in your right hand, fold the paper in half with both
                           hands, and put the paper down on your lap.(1 pt for each
                           completed portion of command) Takes paper in right hand.

folds       table1    18b. Folds in half

places      table1    18c. Places in lap


q19mme      table1    19. Write any complete sentence on this piece of paper for me.

q20mme      table1    20.Please copy the drawing on this piece of paper.
```

Folstein MF, Folstein SE, McHugh PR. Mini-mental state. A practical method for grading
the cognitive state of patients for the clinician. J Psychiatr Res. 1975 Nov;12(3):189-98

Variable	cts_nccrtd	Number Comparison - 2014	Longitudinal
Description	Number Comparison		

This test is used in the calculation of perceptual speed domain (cogn_ps).

The participant is presented with 48 pairs of numbers. Some of the numbers are
exactly the same while others do not match. The participants
is asked to identify pairs as "same" or "different". Each correct answer is scored.

Corrected score = number of items correctly identified minus
the total number of wrong answers including don't know and
refused responses.

Range: 0 - 48

```
table1
value   code
s       same
d       different
8       don't know
9       refusal

variable            coding      question                    answer key
Page3-item1         table1      420__460                        d
Page3-item2         table1      13897143_13897145               d
Page3-item3         table1      4327__4327                      s
Page3-item4         table1      519605__519605                  s
Page3-item5         table1      3201859__3201859                s
Page3-item6         table1      13603__17603                    d
Page3-item7         table1      621532992__621532992            s
Page3-item8         table1      2570665292__2570665292          s

Page4-item9         table1      4821__9821                      d
Page4-item10        table1      5327010538__5327010538          s
Page4-item11        table1      236__936                        d
Page4-item12        table1      5911306__5911306                s
Page4-item13        table1      49471307__47471307              d
Page4-item14        table1      341798301__341798701            d
Page4-item15        table1      347820__349820                  d
Page4-item16        table1      60971__60971                    s

Page5-item17        table1      925660752__925660752            s
Page5-item18        table1      5930582136__5730582136          d
Page5-item19        table1      27109__27109                    s
Page5-item20        table1      4951__4951                      s
Page5-item21        table1      3821043__3821043                s
Page5-item22        table1      39471307__39471507              d
Page5-item23        table1      414982__415982                  d
Page5-item24        table1      618__618                        s

Page6-item25        table1      5471075693__5471075683          d
Page6-item26        table1      647107569__647107569            s
Page6-item27        table1      17906__17906                    s
Page6-item28        table1      705__708                        d
Page6-item29        table1      24179830__24179830              s
Page6-item30        table1      619605__619505                  d
Page6-item31        table1      7215__7915                      d
Page6-item32        table1      4714306__4715306                d

Page7-item33        table1      65382__65382                    s
Page7-item34        table1      6082649875__6082647875          d
Page7-item35        table1      289414__283414                  d
Page7-item36        table1      7361408__7361708                d
Page7-item37        table1      16253948__16253948              s
Page7-item38        table1      7573__7573                      s
Page7-item39        table1      639__637                        d
Page7-item40        table1      370543141__370543141            s

Page8-item41        table1      705731195__705731195            s
Page8-item42        table1      5082__1082                      d
Page8-item43        table1      4930582136__4930582136          s
Page8-item44        table1      43210573__43710573              d
Page8-item45        table1      710__710                        s
Page8-item46        table1      4573043__4573043                s
Page8-item47        table1      923452__927452                  d
Page8-item48        table1      80537__80737                    d
```

Variable	cts_pmat	Progressive Matrices - 2014	Longitudinal
Description			

```
Progressive Matrices

This test is used in the calculation of perceptual orientation domain (cogn_po).

The participant is shown a series of visual images and asked to identify
the pattern below which would complete the pattern on top. A total
of sixteen patterns are shown. 'Tell me which piece below [POINT] would complete
the pattern on top [POINT]'

This harmonized version of this test was started in 2014.  ROS, MAP, and MARS
now all use the same 16 items.

Range: 0-16

table1
value    code
1        figure 1
2        figure 2
3        figure 3
4        figure 4
5        figure 5
6        figure 6

variable        coding        question              answer key
a2              table1        complete the pattern    figure 5
a4              table1        complete the pattern    figure 2
a5              table1        complete the pattern    figure 6
a6              table1        complete the pattern    figure 3
a7              table1        complete the pattern    figure 6
a8              table1        complete the pattern    figure 2
a11             table1        complete the pattern    figure 4
a12             table1        complete the pattern    figure 5
b1              table1        complete the pattern    figure 2
b2              table1        complete the pattern    figure 6
b3              table1        complete the pattern    figure 1
b4              table1        complete the pattern    figure 2
b5              table1        complete the pattern    figure 1
b6              table1        complete the pattern    figure 3
b8              table1        complete the pattern    figure 6
b10             table1        complete the pattern    figure 3
```

Variable	cts_read_nart	Reading Test - NART - 2014	Longitudinal
Description			

```
NART - National Adult Reading Test

Participant is requested to read aloud a series of words of increasing
difficulty.

Reading Test, a subtest of items of the National Adult Reading Test,
measures the ability to pronounce words.  Primary measure of performance
is the number of words correctly pronounced.

This test is used in the calculation of semantic memory domain (cogn_se).

This test was included in the harmonized cognitive battery in 2014 and is a new test
for MARS study.   It had previously been included in ROS and MAP since they began.

range: 0 to 10

variable        coding                question
------------------------------------------------
nart_ach        0-Error/1-Correct     1. Ache
nart_ind        0-Error/1-Correct     2. Indict
nart_deb        0-Error/1-Correct     3. Debt
nart_sie        0-Error/1-Correct     4. Sieve
nart_pla        0-Error/1-Correct     5. Placebo
nart_fac        0-Error/1-Correct     6. Facade
nart_imp        0-Error/1-Correct     7. Impugn
nart_bla        0-Error/1-Correct     8. Blatant
nart_cav        0-Error/1-Correct     9. Caveat
nart_cab        0-Error/1-Correct    10. Cabal

McGurn, B; Starr, JM; Topfer, JA; Pattie, A; Whiteman, MC; Lemmon, HA; Whalley, LJ;
Deary, IJ (2004). "Pronunciation of irregular wor ds is preserved in dementia,
validating premorbid IQ estimation". Neurology 62 (7): 11841186. PMID 15079021
```

Variable	cts_read_wrat Reading Test - WRAT - 2014	Longitudinal

Description

```
Wide Range Achievement Test (WRAT).

A measure of semantic memory.  In the test participants are shown a series of words
and asked to pronounce these words the best they can. Each correct answer is scored.
The scoring is based on the number of words correctly pronounced.

As of January 2014, the WRAT will be given only at baseline visit for ROS, MAP, and MARS.

range: 0 to 15

variable    coding              question
wrat_red    0-error/1-correct   1. red
wrat_cit    0-error/1-correct   2. city
wrat_bet    0-error/1-correct   3. between
wrat_gru    0-error/1-correct   4. grunt
wrat_plo    0-error/1-correct   5. plot
wrat_hum    0-error/1-correct   6. humidity
wrat_cla    0-error/1-correct   7. clarify
wrat_urg    0-error/1-correct   8. urge
wrat_den    0-error/1-correct   9. deny
wrat_qua    0-error/1-correct   10. quarantine
wrat_mos    0-error/1-correct   11. mosaic
wrat_aud    0-error/1-correct   12. audacious
wrat_mit    0-error/1-correct   13. mitosis
wrat_lon    0-error/1-correct   14. longevity
wrat_bea    0-error/1-correct   15. beatify


Wilkinson, G. S., & Robertson, G. J. (2006). Wide Range Achievement Test 4
professional manual. Lutz, FL: Psychological Assessment Resources
```

Variable	cts_sdmt Symbol Digit Modalities - 2014	Longitudinal

Description

```
SYMBOL DIGIT, NUMBER OF CORRECT DIGITS - Oral Version

This test is used in the calculation of perceptual speed domain (cogn_ps).

This is a measure in which the participant must learn to associate
digits with abstract symbols.  Participant is shown a series of symbol.
Each symbol corresponds to a number from 1 to 9.  The participant is
asked to call out the numbers that match the symbols shown to them one
at a time.  They are allowed 90 seconds to translate as many symbols as
the can. Total score is computed from all correctly identified symbols. Symbols
substitution measures have demonstrated excellent short-term
stability and sensitivity to aging and AD. To enhance applicability,
the oral version of this test is used with enlarged stimuli.

Range: 0 - 110

variable   coding          question
-------------------------------------------------
row1       2161246125      10 symbols displayed
row2       6341269438      10 symbols displayed
row3       4578137485      10 symbols displayed
row4       2934724516      10 symbols displayed
row5       4156798364      10 symbols displayed
row6       9583674523      10 symbols displayed
row7       7928169723      10 symbols displayed
row8       6491725684      10 symbols displayed
row9       2879378519      10 symbols displayed
row10      2143652164      10 symbols displayed
row11      2169735489      10 symbols displayed

Smith A. (1982). Symbol Digits Modalities Test manual - revised.  Los Angeles: Western
Psychological Services.
```

Variable	cts_story	Logical Memory Ia - immediate - 2014	Longitudinal

Description

```
Logical Memory - Immediate recall Ia

This is a measure from the Wechsler Memory Scale - Revised, 1987,  in
which a brief story is read to the participants. Then the participant is asked to retell
it from memory immediately and after a delay (II). There are two performance measures:
number of story unites recalled (out of 25) immediately and following an approximately
30 minute delay(see cts_delay). Inter rated reliability and short term temporal stability are
excellent. It has been used in epidemiological and numerous clinical studies of Alzheimer's
disease.

This test is used in the calculation of episodic memory domain (cogn_ep).

Range: 00 to 25

Coding:
77 = DEFERRED
98 = REFUSAL
99 = DON'T KNOW
```

Variable	cts_wli	Word List I - immediate - 2014	Longitudinal

Description

```
WORD LIST MEMORY, TRIALS 1 -3, IMMEDIATE

This test is used in the calculation of episodic memory domain (cogn_ep).

This is a measure from the CERAD set of neuropsychological performance tests. A 10-word
list is presented, three times (total of 30 words), with three immediate recall trails.
The primary measure of performance is the total number of words recalled for 3 trials.

Range:  00 - 30

Trial 1
variable    coding                          question
wordt1_1    0-error/1-correctly recalled    1. butter
wordt1_2    0-error/1-correctly recalled    2. arm
wordt1_3    0-error/1-correctly recalled    3. shore
wordt1_4    0-error/1-correctly recalled    4. letter
wordt1_5    0-error/1-correctly recalled    5. queen
wordt1_6    0-error/1-correctly recalled    6. cabin
wordt1_7    0-error/1-correctly recalled    7. pole
wordt1_8    0-error/1-correctly recalled    8. ticket
wordt1_9    0-error/1-correctly recalled    9. grass
wordt1_x    0-error/1-correctly recalled    10. engine

Trial 2
variable    coding                          question
wordt2_1    0-error/1-correctly recalled    1. ticket
wordt2_2    0-error/1-correctly recalled    2. cabin
wordt2_3    0-error/1-correctly recalled    3. butter
wordt2_4    0-error/1-correctly recalled    4. shore
wordt2_5    0-error/1-correctly recalled    5. engine
wordt2_6    0-error/1-correctly recalled    6. arm
wordt2_7    0-error/1-correctly recalled    7. queen
wordt2_8    0-error/1-correctly recalled    8. letter
wordt2_9    0-error/1-correctly recalled    9. pole
wordt2_x    0-error/1-correctly recalled    10. grass

Trial 3
variable    coding                          question
wordt3_1    0-error/1-correctly recalled    1. queen
wordt3_2    0-error/1-correctly recalled    2. grass
wordt3_3    0-error/1-correctly recalled    3. arm
wordt3_4    0-error/1-correctly recalled    4. cabin
wordt3_5    0-error/1-correctly recalled    5. pole
wordt3_6    0-error/1-correctly recalled    6. shore
wordt3_7    0-error/1-correctly recalled    7. butter
wordt3_8    0-error/1-correctly recalled    8. engine
wordt3_9    0-error/1-correctly recalled    9. ticket
wordt3_x    0-error/1-correctly recalled    10. letter
```

Variable	cts_wlii	Word List II - delayed - 2014	Longitudinal
Description			

WORD LIST RECALL, DELAYED RECALL

The participant is asked to read a list of ten words one at a time. They are presented with 3 trials with the words in different order for each trial. A few minutes later the participant is asked to identify as many words as they can recall. Each identified word is scored as correct.

This test is used in the calculation of episodic memory domain (cogn_ep).

Range: 00 – 10

```
variable    coding                          question
recall_1    0-error/1-correctly recalled     1. butter
recall_2    0-error/1-correctly recalled     2. arm
recall_3    0-error/1-correctly recalled     3. shore
recall_4    0-error/1-correctly recalled     4. letter
recall_5    0-error/1-correctly recalled     5. queen
recall_6    0-error/1-correctly recalled     6. cabin
recall_7    0-error/1-correctly recalled     7. pole
recall_8    0-error/1-correctly recalled     8. ticket
recall_9    0-error/1-correctly recalled     9. grass
recall_x    0-error/1-correctly recalled    10. engine
```

Variable	cts_wliii	Word List III - recognition - 2014	Longitudinal
Description			

WORD LIST RECOGNITION, DELAYED RECOGNITION

A measure of episodic memory. Participant is shown ten sets of four words, one set at a time, and asked to select the words from each set that (s)he was shown previously. The primary measure of performance is the number of target words correctly identified.

This test is used in the calculation of episodic memory domain (cogn_ep).

Range: 00 – 10

```
variable    coding                           question (correct answer is capitalized)
wordrec1    0-error/1-correctly identified    1. Palace, Dollar, LETTER, Railroad.
wordrec2    0-error/1-correctly identified    2. Book, River, Stone, POLE
wordrec3    0-error/1-correctly identified    3. Animal, Village, ENGINE, Diamond
wordrec4    0-error/1-correctly identified    4. Garden, ARM, Rock, Coffee
wordrec5    0-error/1-correctly identified    5. Church, QUEEN, Temple, Ocean
wordrec6    0-error/1-correctly identified    6. CABIN, Boy, Fire, Street
wordrec7    0-error/1-correctly identified    7. Machine, Officer, String, TICKET
wordrec8    0-error/1-correctly identified    8. Sky, BUTTER, Hotel, Party
wordrec9    0-error/1-correctly identified    9. GRASS, Mountain, Clock, Camp
wordrecx    0-error/1-correctly identified   10. Troops, Pipe, SHORE, Coin
```

Variable	fruits	Category fluency-fruits and vegetables	Longitudinal
Description			

This is a measure of verbal fluency or semantic memory in which participant is asked to generate exemplars from that category fruits/vegetables in successive 1 minute trials. The primary performance measure is the number of unique exemplars generated. Similar measures have been shown to be impaired in Alzheimer's disease. The CERAD implementation of this test is used with this item which adds to the reliability.

Range: 0-75

Scoring: The total number of fruits/vegetables named is recorded.
          Repetitions are omitted.

Demographics(count: 8)

Variable	age_at_visit	Age at Cycle - Fractional	Longitudinal

References

Purpose in Life Is Associated With a Reduced Risk of Incident Disability Among Community-Dwelling Older Persons.

Boyle PA, Buchman AS, Bennett DA

Journal: The American journal of geriatric psychiatry : official journal of the American Association for Geriatric Psychiatry 2010 Jun 10 ; 18(12) 1093-102

Description
```
Float variable for age at cycle.

date_ce is used to computed this age which is determined by the
   first date found for a  valid form in the following heirarchy:

   1. cognitive date
   2. clinical evaluation date (neurological exam, med hx, meds)
   3. interview date
   4. dcf date   (diagnostic classification form)
   5. neuropsychologist impression date
```

Variable	age_bl	Age at baseline	Cross-sectional

Description
```
Integer age at cycle - Baseline

date_ce is used to computed this age which is determined by the
   first date found for a  valid form in the following heirarchy:

   1. cognitive date
   2. clinical evaluation date (neurological exam, med hx, meds)
   3. interview date
   4. dcf date   (diagnostic classification form)
   5. neuropsychologist impression date
```

Variable	age_death	Age at death	Cross-sectional

References

Purpose in Life Is Associated With a Reduced Risk of Incident Disability Among Community-Dwelling Older Persons.

Boyle PA, Buchman AS, Bennett DA

Journal: The American journal of geriatric psychiatry : official journal of the American Association for Geriatric Psychiatry 2010 Jun 10 ; 18(12) 1093-102

Description
```
age of death is calculated from subtracting date of birth
from date of death and dividing the difference by days per year (365.25).

The autopsy rate of the Rush MAP exceeds 80%. Thus, for most participants from the MAP, the
exact date of death is known by being the day an autopsy was performed. In addition to their
annual evaluations, participants from both cohorts (MAP and the MARS) also are contacted
quarterly to determine vital status and changes in health, and death is occasionally learned
of during quarterly contacts. Finally, research assistants for both studies regularly search
the Social Security Death Index via the internet for the small number of persons we are unable
to contact.
```

Variable	died	Indicator of death	Cross-sectional

Description
```
Allowable codes:
1 died
0 alive
```

Variable	educ	Years of education	Cross-sectional

References

Education modifies the association of amyloid but not tangles with cognitive function.

Bennett DA, Schneider JA, Wilson RS, Bienias JL, Arnold SE

Journal: Neurology 2005 Sep 27 ; 65(6) 953-5

Educational attainment and cognitive decline in old age.

Wilson RS, Hebert LE, Scherr PA, Barnes LL, Mendes de Leon CF, Evans DA

Journal: Neurology 2009 Feb 3 ; 72(5) 460-5

Description

```
Education level-

Highest grade or year of regular school as
recorded during the baseline cognitive testing.

Elementary   0 1 2 3 4 5 6 7 8

High School  9 10 11 12

College      13 14 15 16

Graduate\Professional 17 18 19 20 21 ...

98 = REFUSAL (blaise code)
99 = DON'T KNOW (blaise code)

Years of formal education was determined with the education question from the 1990
US Census.
```

Variable	msex	Gender	Cross-sectional

Description

```
Gender

Allowable codes:
    1 = Male
    0 = Female
```

Variable	race	Participant's Race	Cross-sectional

References

Biracial population study of mortality in mild cognitive impairment and Alzheimer disease.

Wilson RS, Aggarwal NT, Barnes LL, Bienias JL, Mendes de Leon CF, Evans DA

Journal: Archives of neurology 2009 Jun ; 66(6) 767-72

A population-based study of hemoglobin, race, and mortality in elderly persons.

Dong X, Mendes de Leon C, Artz A, Tang Y, Shah R, Evans D

Journal: The journals of gerontology. Series A, Biological sciences and medical sciences 2008 Aug;

63(8) 873-8

Description

```
With which group do you most closely identify yourself?


value   coding:
1       White
2       Black, Negro, African-American
3       Native American, Indian
4       Eskimo
5       Aleut
6       Asian or Pacific Island
8       REFUSAL
9       DON'T KNOW
```

Variable	spanish	Spanish/Hispanic origin	Cross-sectional

Description

```
Are you of Spanish/Hispanic/Latino origin?

value   coding:
1       Yes
2       No
8       REFUSAL
9       DON'T KNOW
```

Disabilities(count: 6)

Variable	iadlsum	Instrumental activities of daily liviing	Longitudinal
Other Forms	_lv, _bl		

References	**Physical activity and motor decline in older persons.**
	Buchman AS, Boyle PA, Wilson RS, Bienias JL, Bennett DA
	Journal: Muscle & nerve 2007 Mar; 35(3) 354-62

Description	A measure of disability.

We assessed a series of instrumental activities of daily living (IADL) with eight questions, such as household management and self-care functions, which are required for independent living.

    1. telephone use
    2. meal preparation
    3. light housekeeping
    4. heavy housekeeping
    5. handling medications
    6. handling finances
    7. shopping
    8. traveling within the community

A participant is considered disabled on a particular item if s/he indicates that s/he could not perform that item without assistance; the total score for the scale is the sum of these individual dichotomous items. Thus, a score of zero on the scale indicates no disability as measured by that scale, and a score of the maximum possible (8 for the instrumental activities scale) indicates 100% disability, as measured by that scale.

Table 1
Allowable Codes
1 = No help
2 = Help
3 = Unable to do

variable	coding	calc	question
q10func	table1	2or3 = +1	Are you able to use the telephone - including looking up numbers and dialing - completely by yourself or does someone else help you?
q12func	table1	2or3 = +1	Are you able to prepare your own meals completely by yourself or does someone else help you?
q13func	table1	2or3 = +1	Are you able to do routine light housekeeping completely by yourself or does someone else help you?
q14func	table1	2or3 = +1	Are you able to do periodic heavy housekeeping completely by yourself or does someone else help you?
q16func	table1	2or3 = +1	Are you able to take your own prescribed medicines completely by yourself or does someone else help you?
q17func	table1	2or3 = +1	Are you able to take care of your own finances - including paying bills, writing checks, keeping track of income (but not necessarily preparing your own taxes) - completely by yourself or does someone else help you?
q21func	table1	2or3 = +1	Are you able to travel around in your community to the places you might want to go, like to church or just to be outside completely by yourself or does someone else help you?
q20func	table1	2or3 = +1	Are you able to do your own personal shopping, like for clothes, for personal things, or for household needs completely by yourself or does someone else help you?

Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. Geronotologist. 1969;9:179-186.

Variable	katzsum	Katz measure of disability		Longitudinal

Other Forms   _lv, _bl

References

Personality and incident disability in older persons.

Krueger KR, Wilson RS, Shah RC, Tang Y, Bennett DA

Journal: Age and ageing 2006 Jul; 35(4) 428-33

Purpose in life is associated with mortality among community-dwelling older persons.

Boyle PA, Barnes LL, Buchman AS, Bennett DA

Journal: Psychosomatic medicine 2009 Jun ; 71(5) 574-9

Physical activity and motor decline in older persons.

Buchman AS, Boyle PA, Wilson RS, Bienias JL, Bennett DA

Journal: Muscle & nerve 2007 Mar; 35(3) 354-62

Description

```
A measure of disability. This test measures basic activities of daily living.

The Katz activities of daily living scale measures six basic physical abilities:

     1. bathing,
     2. dressing,
     3. eating,
     4. toileting,
     5. walking across a small room,
     6. transferring from bed to chair.

Disability was assessed via the Katz scale, which includes six items that address basic
activities of daily living: walking across a small room, bathing, dressing, eating,
transferring from a bed to a chair, and toileting (24). A composite measure was created
by summing the number of items on which participants reported the need for assistance;
thus, higher scores indicated greater disability.

table 1
Allowable Codes
1 = No Help
2 = Help
3 = Unable to do

variable   coding   calc        question
Q4func     table 1  2or3 = +1    Walking across a small room?
Q5func     table 1  2or3 = +1    Bathing, either a sponge bath, tub
                                   bath or shower?
Q6func     table 1  2or3 = +1    Dressing, like putting on a shirt,
                                   buttoning and zipping, or putting on shoes?
Q7func     table 1  2or3 = +1    Eating, like holding a fork, cutting
                                   food, or drinking from a glass?
Q8func     table 1  2or3 = +1    Getting from a bed to a chair?
Q9func     table 1  2or3 = +1    Using the toilet?

Katz S, Akpom C. A measure of primary sociobiological functions. Int J Health Serv.
1976;6:493508.

Branch LG, Katz S, Kniepmann K, Papsidero JA. A prospective study of functional status
among community elders. Am J Public Health 1984, 74, 2668.
```

Variable	rosbscl	Rosow-Breslau scale	Longitudinal

Other Forms	_lv, _bl

Description	This test measures mobility disability. range: 0-3 Three questions concerning tasks/mobility are considered: doing heavy work around the house, walking up and down stairs, and walking half a mile without help. table value coding 0 Cannot perform any of the 3 tasks without help 1 Can perform exactly 1 task without help 2 Can perform exactly 2 tasks without help 3 Can perform all 3 tasks without help variable ros map coding question q1fs q1func table1 Are you ABLE to do heavy work around the house, like washing windows, walls, or floors without help? q2fs q2func table1 Are you able to walk up and down stairs to the second floor without help? q3fs q3func table1 Are you able to walk half a mile without help? Rosow, I., Breslau, N. (1966). A Guttman Health Scale for the Aged. J Gerontol; 21: 556

Variable	rosbsum	Rosow-Breslau scale	Longitudinal

Other Forms	_lv, _bl

Description	This test measures mobility disability. range: 0-3 Three questions concerning tasks/mobility are considered: doing heavy work around the house, walking up and down stairs, and walking half a mile without help. table1 value coding 0 Can perform all 3 tasks without help 1 Cannot perform 1 task without help 2 Cannot perform 2 tasks without help 3 Cannot perform all 3 tasks without help variable ros map coding question q1fs q1func table1 Are you ABLE to do heavy work around the house, like washing windows, walls, or floors without help? q2fs q2func table1 Are you able to walk up and down stairs to the second floor without help? q3fs q3func table1 Are you able to walk half a mile without help? Rosow, I., Breslau, N. (1966). A Guttman Health Scale for the Aged. J Gerontol; 21: 556

Variable	vision	Vision acuity	Longitudinal

Other Forms	_lv, _bl

Description	Vision acuity Visual acuity is with both eyes open. A card is held 14 inches from subject and they are asked to read the number on the card. The trials start with 20/70 and goes to trials with increasing or decreasing letter size upon results. range: 1 to 7 value coding 1 visual acuity=20/40 2 visual acuity=20/50 3 visual acuity=20/70 4 visual acuity=20/100 5 visual acuity=20/200 6 visual acuity=20/400 7 visual acuity=20/400G

Variable	visionlog	Visual Accutiy	Longitudinal
Other Forms	_lv, _bl		
Description	Visual Acuity: value coding 0.3 Visual acuity = 20/40 0.4 Visual acuity = 20/50 0.5 Visual acuity = 20/70 0.7 Visual acuity = 20/100 1.0 Visual acuity = 20/200 1.3 Visual acuity = 20/400 1.5 Visual acuity = 20/400G		

Frailty Measures(count: 4)

Frailty Measures - Pulmonary Functions

Variable	fev	forced expiratory volume	Longitudinal
References	**Respiratory muscle strength predicts decline in mobility in older persons.** Buchman AS, Boyle PA, Wilson RS, Leurgans S, Shah RC, Bennett DA Journal: Neuroepidemiology 2008; 31(3) 174-80		
Description	FEV - Forced Expiratory Volume This is the most important spirometry variable, short for Forced Expiratory Volume in one second. It is convenient to think of it as the average flow rate during the first second of the forced vital capacity (FVC) maneuver. It is reduced with airflow obstruction. This variable is the average of two trials to measure forced expiratory volume measured by spirometry (in liters).		

Variable	mep	maximal expiratory pressure	Longitudinal
References	**Respiratory muscle strength predicts decline in mobility in older persons.** Buchman AS, Boyle PA, Wilson RS, Leurgans S, Shah RC, Bennett DA Journal: Neuroepidemiology 2008; 31(3) 174-80 **Pulmonary function, muscle strength, and incident mobility disability in elders.** Buchman AS, Boyle PA, Leurgans SE, Evans DA, Bennett DA Journal: Proceedings of the American Thoracic Society 2009 Dec 1 ; 6(7) 581-7		
Description	MEP = Maximal Expiratory Pressure, a measure of the strength of the expiratory muscles. Average of two trials of pulmonary strength. expir1 = first trial of pulmonary strength (cm H20) expir2 = second trail of pulmonary strength (cm H20) Respiratory muscle strength was based on measures of maximal inspiratory and expiratory pressures. A hand-held device that contains a pressure sensitive transducer was used to assess maximal inspiratory pressure (MIP in cm H20) and maximal expiratory pressure (MEP in cm H20) (MicroMouth Pressure Meter MP01; MicroMedical Ltd.). Two trials of both MIPs and MEPs wee collected at baseline. The mean score for MIPs and MEPs were converted to z-scores, using the mean and standard deviation of all study participants at baseline. Both z-scores were averaged to yield a composite measure of respiratory muscle strength.		

Variable	mip	maximal inspiratory pressure	Longitudinal

References

Respiratory muscle strength predicts decline in mobility in older persons.

Buchman AS, Boyle PA, Wilson RS, Leurgans S, Shah RC, Bennett DA

Journal: Neuroepidemiology 2008; 31(3) 174-80

Pulmonary function, muscle strength, and incident mobility disability in elders.

Buchman AS, Boyle PA, Leurgans SE, Evans DA, Bennett DA

Journal: Proceedings of the American Thoracic Society 2009 Dec 1 ; 6(7) 581-7

Description

```
MIP = Maximal Inspiratory Pressure, a measure of the strength of
      the diaphragm, the primary muscle of breathing.

INSPIRATORY RESPIRATORY PRESSURE TESTING

This variable measures maximal inspiratory pressure.
It is the average of two trials:
inspir1 = first trial of pulmonary strength (cm H20)
inspir2 = second trail of pulmonary strength (cm H20)

Respiratory muscle strength was based on measures of maximal inspiratory and expiratory
pressures. A hand-held device that contains a pressure sensitive transducer was used to
assess maximal inspiratory pressure (MIP in cm H20) and maximal expiratory pressure (MEP
in cm H20) (MicroMouth Pressure Meter MP01; MicroMedical Ltd.). Two trials of both MIPs
and MEPs were collected at baseline. The mean score for MIPs and MEPs were converted to
z-scores, using the mean and standard deviation of all study participants at baseline.
Both z-scores were averaged to yield a composite measure of respiratory muscle strength.
```

Variable	pvc	pulmonary vital capacity	Longitudinal

References

Respiratory muscle strength predicts decline in mobility in older persons.

Buchman AS, Boyle PA, Wilson RS, Leurgans S, Shah RC, Bennett DA

Journal: Neuroepidemiology 2008; 31(3) 174-80

Description

```
Pulmonary Vital Capacity (PVC)

This variable is the average of two variables to measure
forced vital capacity (FVC) as measured by spirometry.
```

Genetics(count: 1)

Variable	apoe_genotype ApoE genotype	Cross-sectional
References	**Apolipoprotein E genotype in diverse neurodegenerative disorders.** Schneider JA, Gearing M, Robbins RS, de l'Aune W, Mirra SS Journal: Annals of neurology 1995 Jul; 38(1) 131-5 **The APOE epsilon4 allele is associated with incident mild cognitive impairment among community-dwelling older persons.** Boyle PA, Buchman AS, Wilson RS, Kelly JF, Bennett DA Journal: Neuroepidemiology 2010 ; 34(1) 43-9 **Analysis of postmortem ventricular cerebrospinal fluid from patients with and without dementia indicates association of vitamin E with neuritic plaques and specific measures of cognitive performance.** Hensley K, Barnes LL, Christov A, Tangney C, Honer WG, Schneider JA, Bennett DA, Morris MC Journal: Journal of Alzheimer's disease : JAD 2011 ; 24(4) 767-74	
Description	apolipoprotein E (APOE) value coding 22.00 E2E2 23.00 E2E3 24.00 E2E4 33.00 E3E3 34.00 E3E4 44.00 E4E4 DNA was extracted from PBMCs or brain. Genotyping was performed by Agencourt Bioscience Corporation utilizing high-throughput sequencing of codon 112 (position 3937) and codon 158 (position 4075) of exon 4 of the APOE gene on chromosome 19.	

Laboratory Results(count: 14)

Variable	bun BUN	Longitudinal
Description	Blood urea nitrogen (BUN)- A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.	

Variable	ca Calcium	Longitudinal
Description	Calcium - A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.	

Variable	chlstrl Cholesterol	Longitudinal
Description	Value of total cholesterol level - Units: mg/dl A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.	

Variable	cl Chloride	Longitudinal
Description	Chloride - A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.	

Variable	co2	Carbon Dioxide	Longitudinal
Description	Carbon Dioxide (Co2)-		

A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.

Variable	crn	Creatinine	Longitudinal
Description	Creatnine blood level -		

A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.

Variable	fasting	Fasting	Longitudinal
Description	Indicates whether blood was collected on fasting participant -		

A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.

```
value   coding
1       yes
2       no
3       don't know
9       missing
```

Variable	glucose	Glucose	Longitudinal
Description	Glucose level -		

These results can be fasting/non-fasting (see fasting variable).

A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.

Variable	hba1c	Hemoglobin A1c	Longitudinal
Description	hemoglobin A1c -		

A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.

Variable	hdlchlstrl	HDL cholesterol	Longitudinal
Description	Value of HDL cholesterol -		

A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.

Variable	hdlratio	HDL ratio	Longitudinal
Description	HDL ratio -		

A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.

Variable	k	Potassium	Longitudinal
Description	Potassium -		

A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.

Variable	ldlchlstrl	LDL cholesterol	Longitudinal

Description   LDL cholesterol level -

A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.

Variable	na	Sodium	Longitudinal

Description   Sodium level -

A standard procedure was used to collect blood samples. Using sterile technique, phlebotomists and nurses skilled in venipuncture collected the blood specimen in a 2-mL EDTA tube. Specimens were transferred to Quest Laboratories (Wood Dale, IL, USA) for a complete blood count analysis using a Beckan/Coulter LH750 automated processor.

Life Style(count: 10)

Life Style - Alcohol and Tobacco Use

Variable	alcohol_g	Grams of alcohol per day	Longitudinal

Other Forms   _bl

References

Negative affect and mortality in older persons.

Wilson RS, Bienias JL, Mendes de Leon CF, Evans DA, Bennett DA

Journal: American journal of epidemiology 2003 Nov 1; 158(9) 827-35

Description   Grams of alcohol per day

range: 0 to 234.6g

Participant is asked to self report how much alcohol they consumed in past 12 months in three separate questions: beer, wine, and liquor. We use these questions to determine a drink per day estimate and then multiply this quantity by the grams per drink for that type and add the three amounts together.

Variable	ldai_bl	Lifetime Daily Alcohol Intake (LDAI) - baseline	Cross-sectional

References

Negative affect and mortality in older persons.

Wilson RS, Bienias JL, Mendes de Leon CF, Evans DA, Bennett DA

Journal: American journal of epidemiology 2003 Nov 1; 158(9) 827-35

Description   Lifetime Daily Alcohol Intake - Baseline

Range: 0.0 to 6.0

Value represents the amount of alcoholic drinks (beer, wine, or liquor) consumed per day expressed by participant during the period they drank the most in their lifetime. Maximum value of 6 represents 6 or more drinks per day during this period.

Variable	q3smo_bl	Smoking quantity - baseline	Cross-sectional

Description
```
Question:  During that period of your life when you were smoking the most, about how many
           cigarettes a day did you usually smoke? [ENTER NUMBER OF CIGARETTES: 1
           PACK = 20 CIGARETTES]
Label:     Q3smo
Length:    3
Position:  N/A (see SAS Input Stmt)
Coding:    Integer

   998 = REFUSAL (blaise code)
   999 = DON'T KNOW (blaise code)

Comment:  Answered in combination with variable: q4smo.
```

Variable	q4smo_bl	Smoking duration - baseline	Cross-sectional

| Description | Question: Altogether, about how many years did you smoke this much?
        [ENTER YEARS: 01 = 1 YEAR OR LESS]
Label: Q4smo
Length: 3
Position: N/A (see SAS Input Stmt)
Coding: Integer

   998 = REFUSAL (blaise code)
   999 = DON'T KNOW (blaise code)

Comment: Answered in combination with variable: q3smo. |

Variable	smoke_bl	Smoking at baseline	Cross-sectional

| References | **Negative affect and mortality in older persons.**
Wilson RS, Bienias JL, Mendes de Leon CF, Evans DA, Bennett DA
Journal: American journal of epidemiology 2003 Nov 1; 158(9) 827-35 |

| Description | value   coding
0   never smoked
1   present/former smoker

Question: 1. Do you smoke cigarettes now?
Question: 2. Did you ever smoke cigarettes regularly?

  allowable codes
       1 = Yes
       2 = No
       8 = REFUSAL (blaise code)
       9 = DON'T KNOW (blaise code) |

Variable	smoking	Smoking	Cross-sectional

| References | **The relation of cigarette smoking to incident Alzheimer's disease in a biracial urban community population.**
Aggarwal NT, Bienias JL, Bennett DA, Wilson RS, Morris MC, Schneider JA, Shah RC, Evans DA
Journal: Neuroepidemiology 2006 ; 26(3) 140-6
Negative affect and mortality in older persons.
Wilson RS, Bienias JL, Mendes de Leon CF, Evans DA, Bennett DA
Journal: American journal of epidemiology 2003 Nov 1; 158(9) 827-35 |

| Description | The variable is computed based on smoking related
data gathered at the baseline interview.

value   coding
0   never smoked
1   former smoker
2   current smoker |

Life Style - Physical Activity

Variable	bmi	Body mass index	Longitudinal
Other Forms	_lv, _bl		

References	**Change in body mass index and risk of incident Alzheimer disease.**
	Buchman AS, Wilson RS, Bienias JL, Shah RC, Evans DA, Bennett DA
	Journal: Neurology 2005 Sep 27; 65(6) 892-7
	Body mass index in older persons is associated with Alzheimer disease pathology.
	Buchman AS, Schneider JA, Wilson RS, Bienias JL, Bennett DA
	Journal: Neurology 2006 Dec 12; 67(11) 1949-54
	Association between late-life social activity and motor decline in older adults.
	Buchman AS, Boyle PA, Wilson RS, Fleischman DA, Leurgans S, Bennett DA
	Journal: Archives of internal medicine 2009 Jun 22 ; 169(12) 1139-46
Description	BMI - Body mass index
	BMI was calculated as weight in kilograms divided by height in meters squared.

Variable	htm	Height (meters)	Longitudinal
Other Forms	_lv, _bl		
Description	Participant measured height in meters.		

Variable	phys5itemsum	Summary of self reported physical activity measure (in hours) ROS/MAP	Longitudinal
Other Forms	_lv, _bl		

References	**Participation in cognitively stimulating activities and risk of incident Alzheimer disease.**
	Wilson RS, Mendes De Leon CF, Barnes LL, Schneider JA, Bienias JL, Evans DA, Bennett DA
	Journal: JAMA : the journal of the American Medical Association 2002 Feb 13; 287(6) 742-8
	Physical activity and motor decline in older persons.
	Buchman AS, Boyle PA, Wilson RS, Bienias JL, Bennett DA
	Journal: Muscle & nerve 2007 Mar; 35(3) 354-62
Description	This variable measures the physical activity the participant engages in. The score is the sum of hours/week in 5 categories of activities.
	walktime (Walking for exercise) yardtime (Gardening or yard work) caltime (Calisthenics or general exercise) biketime (Bicycle riding -including stationary bikes) swimtime (Swimming or water exercises)
	Physical activity (1) was assessed using questions adapted from the 1985 National Health Interview Survey. Minutes spent engaged in each activity were summed and expressed as hours of activity per week. In the 5 item version the time in hours per week for the 5 physical activities is measured.
	In ROS and MAP a similar self-report physical activity measure is available: phys5itemsum summarizes the hours/week involved in 5 activities taken from the National Health Interview Survey (Wilson et al JAMA,2002).
	Ref (1): McPhillips JB, Pellettera KM, Barrett-Connor E, Wingard DL, Criqui MH. Exercise patterns in a population of older adults. Am J Prev Med 1989;5:65¬ñ72.

Variable	wtkg	Weight (kg)	Longitudinal
Other Forms	_lv, _bl		
Description	Participant measured weight in kg.		

Medical Conditions(count: 14)

Medical Conditions - Blood Pressure

Variable	bp11	Blood pressure measurement- sitting - trial 1	Longitudinal
Description	Sitting blood pressure reading:		

The subject should be seated for five minutes prior
to obtaining the seated blood pressure readings.

systolic/diastolic

Variable	bp2	Blood pressure measurement- sitting - trial 2	Longitudinal
Description	Second sitting blood pressure reading		

The subject should be seated for five minutes prior
to obtaining the seated blood pressure readings.

systolic/diastolic

Variable	bp3	Hx of Meds for HTN	Longitudinal
References	**Relation of blood pressure to risk of incident Alzheimer's disease and change in global cognitive function in older persons.** Shah RC, Wilson RS, Bienias JL, Arvanitakis Z, Evans DA, Bennett DA Journal: Neuroepidemiology 2006; 26(1) 30-6		
Description	Meds for HTN		

This question branches from lead question:

Lead Question
Baseline: Have you EVER been told by a   doctor, nurse or therapist that you
            had...1. High blood pressure?: YES SUSPECT NO
Follow-up: Since your interview on (date of last interview), have you been told
            by a   doctor, nurse or therapist that you had...1. High blood
            pressure?: YES SUSPECT NO

IF YES or SUSPECT, then:
     Has a doctor, nurse, or therapist (EVER- baseline only) told
      you to take medicine by mouth for your high blood pressure?

value   coding
blank   No HTN reported
1   Yes
2   No
8   REFUSAL
9   DON'T KNOW

Variable	bp31	Blood pressure measurement- standing	Longitudinal
Description	STANDING BLOOD PRESSURE READING		

Subject is requested to stand. The reading is repeated
after 60 seconds.

Variable	hypertension_cum Medical conditions - hypertension - cumulative	Longitudinal

References	**Relation of blood pressure to risk of incident Alzheimer's disease and change in global cognitive function in older persons.**
	Shah RC, Wilson RS, Bienias JL, Arvanitakis Z, Evans DA, Bennett DA
	Journal: Neuroepidemiology 2006; 26(1) 30-6
	Depressive symptoms, cognitive decline, and risk of AD in older persons.
	Wilson RS, Barnes LL, Mendes de Leon CF, Aggarwal NT, Schneider JS, Bach J, Pilat J, Beckett LA, Arnold SE, Evans DA, Bennett DA
	Journal: Neurology 2002 Aug 13; 59(3) 364-70
	Participation in cognitively stimulating activities and risk of incident Alzheimer disease.
	Wilson RS, Mendes De Leon CF, Barnes LL, Schneider JA, Bienias JL, Evans DA, Bennett DA
	Journal: JAMA : the journal of the American Medical Association 2002 Feb 13; 287(6) 742-8
	Negative affect and mortality in older persons.
	Wilson RS, Bienias JL, Mendes de Leon CF, Evans DA, Bennett DA
	Journal: American journal of epidemiology 2003 Nov 1; 158(9) 827-35

Description	

```
Medical History:  Hypertension - cumulative

value   coding
0       never reported in past history or in follow-up cycle
          up to this cycle (includes suspect or possible)
1       reported in past history or in at least 1 follow-up cycle up to this cycle


Baseline (visit = 00)
    Have you ever been told by a doctor, nurse or therapist
      that you had high blood pressure?

Follow-up (visit = other than 00)
    Since your interview on (date of last interview), have you been told
      by a doctor, nurse or therapist that you had high blood pressure?


          1 = Yes
          2 = Suspect or possible
          3 = No
          8 = REFUSAL (blaise code)
          9 = DON'T KNOW (blaise code)
```

Medical Conditions - Diabetes

Variable	dm_cum	Medical history - diabetes - cumulative	Longitudinal
References	**Participation in cognitively stimulating activities and risk of incident Alzheimer disease.** Wilson RS, Mendes De Leon CF, Barnes LL, Schneider JA, Bienias JL, Evans DA, Bennett DA Journal: JAMA : the journal of the American Medical Association 2002 Feb 13; 287(6) 742-8 **Depressive symptoms, cognitive decline, and risk of AD in older persons.** Wilson RS, Barnes LL, Mendes de Leon CF, Aggarwal NT, Schneider JS, Bach J, Pilat J, Beckett LA, Arnold SE, Evans DA, Bennett DA Journal: Neurology 2002 Aug 13; 59(3) 364-70 **Negative affect and mortality in older persons.** Wilson RS, Bienias JL, Mendes de Leon CF, Evans DA, Bennett DA Journal: American journal of epidemiology 2003 Nov 1; 158(9) 827-35 **Diabetes and parkinsonian signs in older persons.** Arvanitakis Z, Wilson RS, Bienias JL, Bennett DA Journal: Alzheimer disease and associated disorders 2007 Apr-Jun; 21(2) 144-9		
Description	``` Medical History - Diabetes - cumulative value coding 0 Answered No on all Hx questions related to diabetes and never indicated taking a diabetes med in past history or in follow-up cycle up to this cycle (includes suspect or possible) 1 Answered Yes to one or more Hx questions related to diabetes or reported taking a diabetes med in past history or in at least 1 follow-up cycle up to this cycle Code-book variables: q: Have you ever been told by a doctor, nurse or therapist that you had Diabetes, or sugar in the urine, or high blood sugar? q: Has a doctor, nurse or therapist, ever told you to take insulin or injections for your high blood sugar? q: Has a doctor, nurse, or therapist ever told you to take medicine by mouth for your high blood sugar? value coding 1 Yes 2 Suspect or possible 3 No 8 REFUSAL 9 DON'T KNOW Taking medication for diabetes (see variable = diabetes_rx) ```		

Medical Conditions - Thyroid

Variable	thyroid_cum	Medical Conditions - thyroid disease - cumulative	Longitudinal
References	**Participation in cognitively stimulating activities and risk of incident Alzheimer disease.** Wilson RS, Mendes De Leon CF, Barnes LL, Schneider JA, Bienias JL, Evans DA, Bennett DA		
	Journal: JAMA : the journal of the American Medical Association 2002 Feb 13; 287(6) 742-8		
	Depressive symptoms, cognitive decline, and risk of AD in older persons. Wilson RS, Barnes LL, Mendes de Leon CF, Aggarwal NT, Schneider JS, Bach J, Pilat J, Beckett LA, Arnold SE, Evans DA, Bennett DA		
	Journal: Neurology 2002 Aug 13; 59(3) 364-70		
	Negative affect and mortality in older persons. Wilson RS, Bienias JL, Mendes de Leon CF, Evans DA, Bennett DA		
	Journal: American journal of epidemiology 2003 Nov 1; 158(9) 827-35		

Description

```
Medical History:  THYROID DISEASE - cumulative

value  coding
0      never reported in past history or in follow-up cycle
         up to this cycle (includes suspect or possible)
1      reported in past history or in at least 1 follow-up cycle up to this cycle


Baseline (visit = 00)
Q: Have you ever been told by a doctor, nurse or therapist that
   you had thyroid disease?

Follow-up (visit other than 00)
Q:Since your interview on (insert date of last evaluation), have you been
  told by a doctor, nurse or therapist that you had thyroid disease?

         Allowable codes:
             1 = Yes
             2 = Suspect or possible
             3 = No
             8 = REFUSAL
             9 = DON'T KNOW
```

Medical Conditions - Vascular

Variable	chf_cum	Medical Conditions - congestive heart failure - cumulative	Longitudinal

Description

```
Medical Conditions - congestive heart failure - cumulative

Coding
0 = never reported in past history or in follow-up cycle
      up to this cycle (includes suspect or possible)
1 = reported in past history or in at least 1 follow-up cycle up to this cycle



Baseline (visit = 00)
Q: Have you ever been told by a doctor, nurse or therapist that you
   had congestive heart failure?

Follow-Up (visit other than 00)
Q:Since your last interview on (date of previous evaluation) , have you been
    told by a doctor, nurse, or therapist that you had.....congestive
     heart failure?

         Allowable codes:
             1 = Yes
             2 = Suspect or possible
             3 = No
             8 = REFUSAL
             9 = DON'T KNOW




NOT AVAILABLE IN ROS.
```

Variable	claudication_cum Medical conditions - claudication -cumulative	Longitudinal

Description

```
Medical Conditions - Claudication - cumulative

Coding
0 = never reported pain in legs or only reported pain that did not include
        the calves, from baseline to this cycle

1 = reported pain in legs while walking which includes calves, in at
        least one cycle from baseline to this cycle


table1                    table2
value  coding             value  coding
1      Yes                1      Pain includes calf/calves
2      No                 2      Pain does not include calf
8      REFUSAL            8      REFUSAL
9      DON'T KNOW         9      DON'T KNOW



variable   coding   question
legpain    table1   Do you get pain in either leg while walking?
calf       table2   IF yes, in what part of your leg do you feel it?  [IF CALVES
                    NOT  MENTIONED ASK: 'Anywhere else?' IF STILL NOT MENTIONED, CODE 2]
```

Variable	heart_cum Medical Conditions - heart - cumulative	Longitudinal

References

Participation in cognitively stimulating activities and risk of incident Alzheimer disease.

Wilson RS, Mendes De Leon CF, Barnes LL, Schneider JA, Bienias JL, Evans DA, Bennett DA

Journal: JAMA : the journal of the American Medical Association 2002 Feb 13; 287(6) 742-8

Depressive symptoms, cognitive decline, and risk of AD in older persons.

Wilson RS, Barnes LL, Mendes de Leon CF, Aggarwal NT, Schneider JS, Bach J, Pilat J, Beckett LA,

Arnold SE, Evans DA, Bennett DA

Journal: Neurology 2002 Aug 13; 59(3) 364-70

Negative affect and mortality in older persons.

Wilson RS, Bienias JL, Mendes de Leon CF, Evans DA, Bennett DA

Journal: American journal of epidemiology 2003 Nov 1; 158(9) 827-35

Description

```
Medical Conditions - Heart conditions - cumulative

value  coding
0      never reported in past history or in follow-up cycle
         up to this cycle (includes suspect or possible)
1      reported in past history or in at least 1 follow-up cycle up to this cycle


Baseline  (visit = 00)
Q:Have you ever been told by a doctor, nurse or therapist
that you had a heart attack or coronary, or coronary thrombosis,
or coronary occlusion, or myocardial infarction?

Follow-up  (visit other than 00)
Q:Since your last study interview on (insert date of last evaluation), have
you been told by a doctor, nurse or therapist that you had a heart attack
or coronary, or coronary thrombosis, or coronary occlusion, or myocardial
infarction?

      Allowable codes:
          1 = Yes
          2 = Suspect or possible
          3 = No
          8 = REFUSAL
          9 = DON'T KNOW
```

Variable	stroke_cum	Clinical Diagnoses - Stroke - cumulative	Longitudinal
References	**Participation in cognitively stimulating activities and risk of incident Alzheimer disease.** Wilson RS, Mendes De Leon CF, Barnes LL, Schneider JA, Bienias JL, Evans DA, Bennett DA Journal: JAMA : the journal of the American Medical Association 2002 Feb 13; 287(6) 742-8 **Depressive symptoms, cognitive decline, and risk of AD in older persons.** Wilson RS, Barnes LL, Mendes de Leon CF, Aggarwal NT, Schneider JS, Bach J, Pilat J, Beckett LA, Arnold SE, Evans DA, Bennett DA Journal: Neurology 2002 Aug 13; 59(3) 364-70 **Negative affect and mortality in older persons.** Wilson RS, Bienias JL, Mendes de Leon CF, Evans DA, Bennett DA Journal: American journal of epidemiology 2003 Nov 1; 158(9) 827-35

Description	

```
Clinical Diagnoses - Stroke - cumulative

Through review of self report questions, neurological exam (when available),
cognitive testing, and interview of participant, clinician renders a diagnosis.
The clinician is first presented with algorithmic diagnosis and has the ability to
modify if necessary.

value   coding
0       Stroke not present (Possible stroke dx or stroke not present) in all
           cycles, from baseline to this cycle
1       Stroke present (Highly probable or probable stroke dx) reported in
            at least one cycle from baseline to this cycle



Diagnosis of Stroke.

value   coding
1       Highly Probable
2       Probable
3       Possible
4       Not Present
```

Variable	vasc_3dis_sum Vascular disease burden (3 items w/o chf) ROS/MAP/MARS	Longitudinal
References	**Association of muscle strength with the risk of Alzheimer disease and the rate of cognitive decline in community-dwelling older persons.** Boyle PA, Buchman AS, Wilson RS, Leurgans SE, Bennett DA Journal: Archives of neurology 2009 Nov ; 66(11) 1339-44	

| Description | ```
Vascular Disease Burden - 3 item version (available in ROS/MAP/MARS)

This variable measures the participants vascular disease burden computed on the
basis of self-report questions, clinical examination, and medication inspection. Score
covers time frame from baseline, where any past history is covered, to current cycle.


range: 0 to 3, higher score indicates greater vascular disease burden

The score is the mean of following 3 scores multiplied by 3.

1. Claudication - cumulative
     Coding
       0 = never reported pain in legs or only reported pain that did not include
            the calves, from baseline to this cycle

       1 = reported pain in legs while walking which includes calves, in at
            least one cycle from baseline to this cycle


2. Stroke - cumulative
      Through review of self report questions, neurological exam (when available),
      cognitive testing, and interview of participant, physician renders a diagnosis.
       Coding
       0  =   Stroke not present (Possible stroke dx or stroke not present) in all
                 cycles, from baseline to this cycle
       1  =   Stroke present (Highly probable or probable stroke dx) reported in
                  at least one cycle from baseline to this cycle


3. Heart conditions- heart attack, coronary, coronary thrombosis, coronary
                       occlusion, or myocardial infarction - cumulative
      Coding
       0   =   never reported in past history or in follow-up cycle
                 up to this cycle (includes suspect or possible)
       1   =   reported in past history or in at least 1 follow-up cycle up to this cycle


Boyle PA, Wilson RS, Aggarwal NT, Tang Y, Bennett DA. Mild cognitive impairment: risk of
Alzheimer disease and rate of cognitive decline. Neurology. 2006;67(3):441445.
``` |

Variable	vasc_4dis_sum	Vascular disease burden (4 items) - MAP/MARS only	Longitudinal
References	**Association of muscle strength with the risk of Alzheimer disease and the rate of cognitive decline in community-dwelling older persons.** Boyle PA, Buchman AS, Wilson RS, Leurgans SE, Bennett DA Journal: Archives of neurology 2009 Nov ; 66(11) 1339-44		
Description	Vascular Disease Burden - 4 item version (available in MAP/MARS, ROS does not have CHF questions).		

Description content:

Vascular Disease Burden - 4 item version (available in MAP/MARS, ROS does not have CHF
questions).

This variable measures the participants vascular disease burden computed on the
basis of self-report questions, clinical examination, and medication inspection. Score
covers time frame from baseline, where any past history is covered, to current cycle.

range: 0 to 4, higher score indicates greater vascular disease burden

The score is the mean of following 4 scores multiplied by 4.

1. Claudication - cumulative
     Coding
     0 = never reported pain in legs or only reported pain that did not include
           the calves, from baseline to this cycle

     1 = reported pain in legs while walking which includes calves, in at
           least one cycle from baseline to this cycle

2. Stroke - cumulative
     Through review of self report questions, neurological exam (when available),
     cognitive testing, and interview of participant, physician renders a diagnosis.
          Coding
          0 =   Stroke not present (Possible stroke dx or stroke not present) in all
                     cycles, from baseline to this cycle
          1 =   Stroke present (Highly probable or probable stroke dx) reported in
                     at least one cycle from baseline to this cycle

3. Heart conditions- heart attack, coronary, coronary thrombosis, coronary
                     occlusion, or myocardial infarction - cumulative
     Coding
     0   =   never reported in past history or in follow-up cycle
               up to this cycle (includes suspect or possible)
     1   =   reported in past history or in at least 1 follow-up cycle up to this cycle

4. Congestive Heart Failure - ever (CHF not available in ROS, see vasc_3dis_sum)
        Coding
        0 = never reported in past history or in follow-up cycle
              up to this cycle (includes suspect or possible)
        1 = reported in past history or in at least 1 follow-up cycle up to this cycle

Boyle PA, Wilson RS, Aggarwal NT, Tang Y, Bennett DA. Mild cognitive impairment: risk of
Alzheimer disease and rate of cognitive decline. Neurology. 2006;67(3):441445.

Variable	vasc_risks_sum Vascular disease risk factors	Longitudinal
References	**Hypertension in women: the Women Take Heart project.** Furumoto-Dawson AA, Pandey DK, Elliott WJ, de Leon Mendes CF, Al-Hani AJ, Hollenberg S, Camba N, Wicklund R, Black HR Journal: Journal of clinical hypertension (Greenwich, Conn.) 2003 Jan-Feb; 5(1) 38-46 **The relation of cigarette smoking to incident Alzheimer's disease in a biracial urban community population.** Aggarwal NT, Bienias JL, Bennett DA, Wilson RS, Morris MC, Schneider JA, Shah RC, Evans DA Journal: Neuroepidemiology 2006 ; 26(3) 140-6	

Description	Vascular Disease Risk Factors - 3 item version (available in ROS/MAP/MARS)
	
	This variable includes the summary scores indicating each individuals vascular risk burden, computed on the basis of self-report questions on hypertension, diabetes, and smoking history. Score covers time frame from baseline, where any past history is covered, to current cycle.
	
	The mean of the following 3 calculations are multiplied by 3.
	
	range: 0 to 3, higher score indicates a higher vascular risk burden.
	
	Hypertension - cumulative
	  Coding
	     0 = never reported in past history or in follow-up cycle
	      up to this cycle (includes suspect or possible)
	     1 = reported in past history or in at least 1 follow-up cycle up to this cycle
	
	Diabetes (self report only) - cumulative
	  Coding
	     0 = never reported in past history or in follow-up cycle
	      up to this cycle (includes suspect or possible)
	     1 = reported in past history or in at least 1 follow-up cycle up to this cycle
	
	History of smoking - cumulative
	  Coding
	     0 = never smoked
	     1 = former or current smoker
	
	Boyle PA, Wilson RS, Aggarwal NT, Tang Y, Bennett DA. Mild cognitive impairment: risk of Alzheimer disease and rate of cognitive decline. Neurology. 2006;67(3):441445.	

Motor and Gait(count: 2)

Variable	gait_speed Gait Speed - MAP	Longitudinal
References	**Relation of Driving Status to Incident Life Space Constriction in Community-Dwelling Older Persons: A Prospective Cohort Study.** Shah RC, Maitra K, Barnes LL, James BD, Leurgans S, Bennett DA Journal: The journals of gerontology. Series A, Biological sciences and medical sciences 2012 Apr 30 ; 67(9) 984-9	
Description	Gait Speed in m/s unit. Based on condition of walk time. only available in MAP Gait speed was derived by timing with a stop watch how long it took a participant to walk 8 feet (2.4m) at their usual pace.	

Variable	gripavg	Extremity strength	Longitudinal
References	**Grip strength and the risk of incident Alzheimer's disease.**		
	Buchman AS, Wilson RS, Boyle PA, Bienias JL, Bennett DA		
	Journal: Neuroepidemiology 2007 ; 29(1-2) 66-73		
Description	Grip strength (lbs).		
	This variables measures the grip strength in participants.		
	Grip strength was measured using the Jamar hydraulic hand dynamometer (Lafayette Instruments, Lafayette, Ind., USA). This sealed hydraulic system features a dual-scale readout that displays isometric grip force from 0 to 200 lb. Two trials of grip strength were obtained for each hand. The four trials were averaged together to yield a composite measure of grip strength.		
	Buchman AS, WIlson RS, Bienias JL, Bennett DA. Gender differences in motor performance of older persons. Geriatr Gerontol Int 2005;5:59-65. (no pub med id- international)		