BRHS Derived variables

2014 (Q2014) Questionnaire

Included:

1. The town from which the participant was recruited at baseline in 1978-80 (Q1)
2. Social class based on longest-held occupation in 1978-80 (Q1)
3. Derived - Age at the 2014 (Q2014) Questionnaire time point

4. Frailty status (score)

Appendix 4.1 SAS code for calculating the frailty components and score

Appendix 4.2 SAS code for calculating Unintentional weight loss (frailty component)

BRHS Derived variables - BRHS 2014 (Q2014) Questionnaire

Variable description	Units/Category labels	BRHS variable name	Data access
BRHS ID number		serial	
Town of residence/recruitment at Baseline in 1978-80 (Q1)	1-24	q1town	yes
Social class at baseline 1978-80 (Q1) (Based on longest held occupation)	1 = I 2 = II 3 = III Non-Manual 4 = III Manual 5 = IV 6 = V 8 = HMF Armed forces 9 = Missing	q1sc	yes
Age	years	q14age	yes
Frailty components and score/status			
1. Low grip	0=no, 1=yes, .=missing	grip_2014	yes
2. Low physical activity	0=no, 1=yes, .=missing	phys_act_2014	yes
3. Slow walk	0=no, 1=yes, .=missing	walking_speed_2014	yes
4. Exhaustion	0=no, 1=yes, .=missing	exhaustion_2014	yes
5. Weight loss	0=no, 1=yes, .=missing	weight_loss_2014	yes
Sum of frailty components	1-5, .=missing	sumfscore_2014	yes
Frailty status (score)	0= Not frail 1=pre-frail (total score 1 or 2) 2=frail (total score 3,4 or 5) .=missing	fscore_2014	yes
<u>Additional frailty component:</u> Unintentional weight loss	0=no, 1=yes, .=missing	q14uwtloss	yes

METHODS

1. BRHS town names and numbers

These are the 24 towns in England, Scotland and Wales where BRHS were recruited from at baseline 1978-80 (Q1)

BRHS Town number	BRHS Town name
1	Harrogate
2	Shrewsbury
3	Lowestoft
4	Mansfield
5	Southport
6	Merthyr
7	Guildford
8	Burnley
9	Newcastle-Under-Lyme
10	Exeter
11	Dewsbury
12	Falkirk
13	Ipswich
14	Gloucester
15	Ayr
16	Dunfermline
17	Darlington
18	Carlisle
19	Maidstone
20	Grimsby
21	Bedford
22	Wigan
23	Scunthorpe
24	Hartlepool

2. Social class

Information collected from the Baseline (1978-80) questionnaire (question 4.4) on the longest-held occupation was coded to one of the Registrar General's six social classes, using the 1970 OPCS manual for occupational classification.

1 = I
2 = II
3 = III Non-Manual
4 = III Manual
5 = IV
6 = V
8 = HMF Armed forces
9 = Missing

3.0 Age

Age at the time participants completed the questionnaire. Calculated using the date participant completed the questionnaire (question 1.0). Where the date the participant completed the questionnaire (Q1.0 Today's date: day, month or year) was not completed or was wrong/inconsistent the date is estimated using the date the questionnaire arrived at the BRHS office - date from the date stamp at the back of the questionnaire was used. (Questionnaires were date stamped once they were received).

4.1 FRAILTY status/score

The 2014 frailty status/score is based on subjective assessments of walking speed, grip strength, weight loss, exhaustion, and physical activity derived from the questionnaire completed in 2014. They included single-item questions on self-reported (1) **exhaustion:** often feeling that everything you did was an effort or often feeling that you could not get "going; and (2) **weight loss**: decrease of weight in the last 4 years;
(3) **physical activity**: being less or much less active compared with a man who spends 2 hours on most days on activities such as walking, gardening, household chores, or do-it yourself projects; (4) **walking speed**: slow walking pace; (5) **hand grip**: fair or poor rated hand grip strength compared to other people your age.

1. Influence of Poor Oral Health on Physical Frailty: A Population-Based Cohort Study of Older British Men.
Ramsay SE, Papachristou E, Watt RG, Tsakos G, Lennon LT, Papacosta AO, Moynihan P, Sayer AA, Whincup PH, Wannamethee SG. Journal of the American Geriatrics Society. 2017.

2. Ability of Self-Reported Frailty Components to Predict Incident Disability, Falls, and All-Cause Mortality: Results From a Population-Based Study of Older British Men.
Papachristou E, Wannamethee SG, Lennon LT, Papacosta O, Whincup PH, Iliffe S, Ramsay SE
Journal of the American Medical Directors Association. 2017;18(2):152-7.

3. Fried LP, Tangen CM, Walston J, et al. Frailty in older adults: evidence for a phenotype.J Gerontol A Biol Sci Med Sci 2001;56:M146–57.

Definition of components based on responses to questions included on the 2014 Questionnaire:

1) Exhaustion:

Question 34.0 During the past week, how often did you feel that everything you did was an effort?
Question 34.1 During the past week, how often did you feel that you could not get "going"?

Exhaustion= response of *often* to questions 34.0 or 34.1

2) Weight loss:

Question 18.2 Has your weight changed in the last four years?

Weight loss**=** Response of: *yes, decreased* to question 18.2

3) Physical activity:

Question 23.5 Compared with a man who spends two hours on most days on activities such as: walking, gardening, household chores, DIY projects, how physically active would you consider yourself?

Low physical activity = response of: *Less active or Much less active* than average man to question 23.5

4) Walking speed:

Question 23.2 Which of the following best describes your usual walking pace?

Slow walking speed = response of: *slow* usual pace to question 23.2

5) Grip strength:

Question 22.0 How would you rate your hand grip strength compared to other people your age?

Low grip strength = response of: *Fair or Poor* to question 22.0

Frailty components Generated using SAS code in 4.1 (below)	**Value, labels/categories**	**BRHS Variable name**	**Data access**
1) Exhaustion- no energy	0=no, 1=yes	exhaustion_2014	yes
2) Weight loss	0=no, 1=yes	weight_loss_2014	Yes
3) Low physical activity	0=no, 1=yes	phys_act_2014	Yes
4) Slow walk	0=no, 1=yes	walking_speed_2014	Yes
5) Low grip strength	0=no, 1=yes	grip_2014	Yes
Sum of 5 components	0-5	sumfscore_2014	yes
Frailty status Score (categories)	0= Not frail	fscore_2014	yes
	1=pre-frail (total score 1 or 2)		
	2=frail (total score 3,4 or 5)		

SAS code to derive the above 5 components and toral scores can be found in **Appendix 4.1**

4.2 Additional frailty component

Unintentional weight loss

Based on participant's responses to Questions q18.2, Q18.3 and Q18.6 they were classified into those who did and didn't unintentionally lost weight in the last 4 years.

Frailty component: **Unintentional weight loss** Generated using SAS code in 4.2 (below)	**Value, labels/categories**	**BRHS Variable name**	**Data access**
Unintentional weight loss	0=no, 1=yes, .=missing	q14uwtloss	yes

APPENDIX 4.1 SAS CODE

```
*************************************************************************************************;
*                        GENERATING THE 5 FRAILTY COMPONENTS USING SINGLE SELF-REPORTED ITEMS     ;
*                                    on the 2014 BRHS QUESTIONNAIRE                               ;
*                                                                                                 ;
*                                  CODE WRITTEN BY STEVEN PAPACHRISTOU                            ;
*************************************************************************************************;

*1) GRIP STRENGTH Question 22.0 How would you rate your hand grip strength compared to other people your age?;
grip_2014=.;
if q14q22_0=3 or q14q22_0=4 then  grip_2014=1;
if q14q22_0=1 or q14q22_0=2 then  grip_2014=0;


*2) PHYSICAL INACTIVITY - Question 23.5 Compared with a man who spends two hours on most days on activities such as: walking,;
*                         gardening, household chores, DIY projects, how physically active would you consider yourself?      ;
phys_act_2014=.;
if q14q23_5=4 or q14q23_5=5 then phys_act_2014=1;
if q14q23_5=1 or q14q23_5=2 or q14q23_5=3 then phys_act_2014=0;

*3) WALKING SPEED Question 23.2 Which of the following best describes your usual walking pace?                          ;
walking_speed_2014=.;
if q14q23_2=1 then walking_speed_2014=1;
if q14q23_2=2 or q14q23_2=3 then  walking_speed_2014=0;

*4) EXHAUSTION    Question 34.0 During the past week, how often did you feel that everything you did was an effort?      ;
*                           34.1 During the past week, how often did you feel that you could not get "going"?           ;
exhaustion_2014=.;
if q14q34_0=1 or q14q34_0=2 or q14q34_1=1 or q14q34_1=2 then exhaustion_2014=0;
if q14q34_0=3 or q14q34_1=3 then exhaustion_2014=1;

*5) WEIGHT LOSS  Question 18.2 Has your weight changed in the last four years?                                          ;
weight_loss_2014=.;
if q14q18_2=3 then  weight_loss_2014=1 ;
if q14q18_2=1 or q14q18_2=2 or q14q18_2=4 or q14q18_2=5 then weight_loss_2014=0;

**************************************************FRAILTY*************************************************;

sumfscore_2014= sum (of grip_2014  phys_act_2014  walking_speed_2014  exhaustion_2014  weight_loss_2014);
fscore_2014=.;
if sumfscore_2014=0 then fscore_2014=0;
if sumfscore_2014=1 or sumfscore_2014=2 then fscore_2014=1;
if sumfscore_2014>=3 then fscore_2014=2;
RUN;
```

APPENDIX 4.2 UNINTENTIONAL WEIGHT LOSS

```
* From OP:                                ;
* Derive unintentional weight loss at Q2014;
* 0=No unintentional weight loss          ;
* 1=Unintentional weight loss             ;

if q14q18_2=3 and q14q18_3=2 then q14uwtloss=1;else q14uwtloss=0;
if q14q18_2=3 and q14q18_3=. and q14q18_6=1    then q14uwtloss=1;
if q14q18_2=. and q14q18_3=. then q14uwtloss=.;
run;
```