

HRS

HEALTH AND RETIREMENT STUDY
A Longitudinal Study of Health, Retirement, and Aging
Sponsored by the National Institute on Aging

*Sample Weights and Sample Selection
Indicator for the Physical Measures in
HRS 2004*

Documentation Report

HRS Staff

Survey Research Center
Institute for Social Research
University of Michigan
Ann Arbor, Michigan

2004

Funding

The Health and Retirement Study is funded by a grant from the National Institute on Aging (U01 AG009740) with supplemental support from the Social Security Administration. HRS is conducted by the University of Michigan.

Suggested Citation

HRS Staff. (2004). Sample Weights and Sample Selection Indicator for the Physical Measures in HRS 2004. University of Michigan.

<https://hrs.isr.umich.edu/publications/biblio/9045>

Sample Weights and Sample Selection Indicator for the Physical Measures in HRS 2004

Sample Eligibility

The physical measures sample covers the full age-range of HRS age-eligible respondents in 2004 (born prior to 1954). The sample was designed to yield approximately 100 persons at each single year of age between 51 and 80, with declining numbers after that. The total target sample size was approximately 3,900.

Respondents who were deceased, residing in a nursing home, born later than 1953, or new spouses of existing respondents in the 2004 wave were not eligible for inclusion in the physical performance measures. In addition, respondents who were interviewed by proxy or interviewed by phone were not asked to complete the physical measures, though they are part of the target sample and considered eligible for purposes of constructing the sample weights and generating response rates.

In order to achieve the target sample size at each age, the number of selected respondents at each single year of age was inflated to account for age-specific rates of mortality, nursing home residence and proxy response as observed in HRS 2002. Special effort was made to include any respondents who participated in the physical performance measures conducted as part of HRS in 1992, provided they met the eligibility criteria.

Sample Weights

We provide two weights: 1) a physical measures sample selection weight, which accounts for differential probabilities of selection into the HRS sample and into the 2004 physical measures sample (jpmsselwt); and 2) a final physical measures respondent weight, which adjusts for non-response to the physical measures (jpmwgr).

The physical measures sample selection weight is the product of two factors: a) the HRS respondent-level weight for the 2004 wave, and b) the inverse of the probability of selection into the physical measures sample. This weight is defined for all respondents who were selected and determined to be eligible for the physical measures in 2004 (codes 1, 5 and 6 on the selection indicator described below). Respondents who completed the physical measures but were not eligible (n=12; code '2' on the selection indicator) are assigned a value of '0' on this weight. All other non-eligible respondents are assigned a missing value on this weight. The variable name for this weight is 'jpmsselwt'.

The final physical measures respondent weight is the product of the physical measures sample selection weight and a non-response adjustment factor. The non-response adjustment factor was obtained from a propensity model predicting the probability of completing at least one physical measurement among all eligible cases. The propensity model was estimated by logistic regression and weighted by the physical measures sample selection weight. Predictor variables included age, sex, race/ethnicity, education, coupleness, self-rated health, cognitive status, a composite indicator of ADL, IADL and functional limitations, and two general indicators of cooperativeness: whether the respondent completed an interview in the prior wave and total

number of interviewer calls required to complete the 2004 interview. The inverse of the fitted probabilities of completion formed the non-response adjustment factor. The resulting weight was trimmed at the fifth and ninety-fifth percentiles. As a final step, the trimmed weights were then adjusted to reproduce the weighted distribution for the target sample cross-classified by age (< 65, 65-74, 75+), sex and race/ethnicity (Hispanic, non-Hispanic Black, other). This weight is defined for respondents who completed at least one physical measurement (either grip strength, lung function, or walking speed) and who were eligible for the physical measures. Respondents who completed the physical measures but were not eligible are assigned a value of '0' on this weight. All other non-eligible respondents are assigned a missing value on this weight. The variable name for this weight is 'jpmwgtr'.

Use of Physical Measures Sample Weights

Given the highly stratified sample design for the 2004 physical measures component (see Sample Eligibility above), it is important to use the physical measures sample weights in analyses of these measures, particularly for descriptive analyses and when drawing inferences to the population. This is illustrated in the table below, which compares distributions on key sociodemographic and health characteristics (Table 1) and on the physical performance tests (Table 2) weighted by the physical measures weight (jpmwgtr) versus the 2004 HRS sample weight (jwgr). We recommend use of the final physical measures weight (jpmwgtr), which adjusts for both selection into the physical measures sample and non-response to that component.

Sample Selection Indicator

The sample selection indicator for the physical measures is named 'physmeas04'. This variable is defined as follows:

physmeas04:

- 1=completed at least one physical measure; in physical measures sample; eligible
- 2= completed at least one physical measure; in physical measures sample; non-eligible
- 5=did not complete any physical measures; in physical measures sample; eligible and asked to complete the physical measures
- 6=did not complete any physical measures; in physical measures sample; eligible and not asked to complete the physical measures
- 7=did not complete any physical measures; in physical measures sample; non-eligible
- 99=not in physical measures sample
- .=not in this wave

Cooperation Rate and Response Rates

Among respondents who completed a core interview in 2004, were eligible for the physical measures, and were asked to complete this component, the *cooperation rate* is 88.1%. Among respondents who completed a core interview in 2004 and who were eligible for the physical measures (regardless of whether they were asked to complete the measures), the *response rate* is 68.3%. Factoring in the 2004 core response rate of 88.9%, the *overall response rate* is 60.7%.

Table 1. Comparison of weighted distributions on key measures for total (target) sample and physical measures samples

Measure	Total target sample ^a	Physical measures sample ^b	
		Physical measures weight (jpmwgtr)	2004 HRS sample weight (jwgtr)
Age			
51-59	41.01	41.33	34.94
60-69	27.80	28.24	20.01
70-79	19.93	14.69	23.52
80-89	9.95	11.40	18.88
90+	1.31	1.35	2.64
Sex			
Male	45.93	45.93	44.30
Female	54.07	54.07	55.70
Race/ethnicity			
Hispanic	6.88	6.88	6.46
Black, non-Hispanic	9.43	9.43	6.23
Other, non-Hispanic	83.69	83.69	87.32
Education			
< HS graduate	20.20	18.63	20.65
High school graduate	32.94	32.60	34.17
Any college	46.87	48.77	45.18
Coupleness status			
Uncoupled	33.57	34.46	35.10
Coupled	66.43	65.54	64.90
Self-rated health			
Excellent	13.24	14.00	13.07
Very good	29.25	28.95	28.92
Good	30.92	31.30	32.64
Fair	18.46	18.21	18.47
Poor	8.12	7.54	6.89
Cognition strata			
Likely demented	4.10	3.27	2.78
Borderline	5.63	4.30	4.17
Normal	90.28	92.43	93.04
ADL limitation score			
0	85.03	84.63	84.78
1-2	10.69	11.37	12.13
3+	4.28	4.00	3.08

Table 1 (cont.)

Measure	Total target sample ^a	Physical measures sample ^b	
		Physical measures weight (jpmwgtr)	2004 HRS sample weight (jwgtr)
IADL limitation score			
0	87.46	88.40	87.99
1-2	9.79	9.79	10.49
3+	2.75	1.82	1.53
Nagi limitation score			
0	27.63	27.51	24.98
1-2	28.54	28.55	29.26
3-6	27.11	27.05	29.60
7+	16.72	16.89	16.16
Total limitation score			
0	27.15	27.18	24.64
1-3	36.54	36.27	37.51
4-7	20.17	20.68	22.64
8+	16.14	15.87	15.20

^aTarget sample includes all living respondents born prior to 1954 who were interviewed in 2004 (either as a self-R or by proxy) and were not residing in a nursing home at the time of the interview.

^bPhysical measures sample includes those who completed at least one physical performance test (lung function, grip strength, walking speed).

Table 2. Comparison of means and standard errors for physical measures using physical measures selection weight, physical measures final weight, and 2004 HRS sample weight

Measure	Physical measures selection weight (jpmsewt)	Physical measures final weight (jpmwgtr)	2004 HRS sample weight (jwgtr)
Lung function			
First reading	336.81 (4.93)	330.93 (4.66)	316.74 (4.36)
Second reading	361.02 (4.91)	354.89 (4.72)	340.14 (4.25)
Third reading	370.60 (4.78)	363.98 (4.48)	349.79 (3.76)
Average reading	356.35 (4.79)	350.07 (4.57)	335.69 (4.07)
Grip strength			
Left hand			
1 st reading	30.12 (.59)	29.59 (.56)	28.17 (.49)
2 nd reading	31.07 (.60)	30.56 (.58)	29.14 (.50)
Right hand			
1 st reading	32.92 (.56)	32.44 (.51)	30.97 (.45)
2 nd reading	33.61 (.59)	33.06 (.55)	31.67 (.47)
Walking speed			
1 st trial	4.52 (.56)	4.62 (.56)	4.68 (.56)
2 nd trial	4.38 (.56)	4.47 (.56)	4.53 (.57)
Average time	4.45 (.56)	4.54 (.56)	4.60 (.56)