

MOBILITY DISABILITY SELF-REPORTING AND GAIT SPEED IN ENGLAND AND THE USA

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MOBILITY DISABILITY SELF-REPORTING AND GAIT SPEEDS IN ENGLAND AND THE USA

Summary

The aim of this analysis was to establish whether self-reported disability in walking medium distances (a quarter of a mile) in an English ageing study (ELSA) was comparable to similar self-reports in the US (NHANES) studies. Poor performance of gait speed testing was used as the objective comparator of disability. Comparisons concentrate on NHANES III, as the later NHANES 99 employed a non-comparable gait speed test and has significant missing data on self-reported mobility disability.

Although crude rates of self-reported mobility disability were similar in ELSA and NHANES III, there was evidence that self-report was not entirely the same for different walking abilities, as measured by gait speed. Participants in English studies were more likely to report 'much difficulty or unable' if they were unable to do the gait speed test due to physical limitation or safety or they had a speed of $\leq 0.4\text{m/s}$ than in a comparable US study (NHANES III), (71% compared to 61%). This difference is unlikely to be due solely to differences between the studies in classification of 'unables', similar percentages of participants analysed classed as unable were found in the two studies (6% in ELSA compared to 4% in NHANES III), and when 'unables' were removed from the analysis, similar results were found. There were small differences in self-report for participants with gait speeds greater than 0.4m/s (13% compared to 12% for English and US study respectively).

Although the difference in self-reporting of mobility disability between ELSA and NHANES III was statistically significant, its effect is modest. The actual differences found are not large enough to warrant discontinuing further comparisons of self-report between English and US studies.

MOBILITY DISABILITY SELF-REPORTING AND GAIT SPEEDS IN ENGLAND AND THE USA

The English Longitudinal Study of Ageing (ELSA) was set up with a variety of aims, including understanding disability and undertaking international comparisons, especially with the USA.

A full range of disability questions was asked in ELSA 2002. However, mobility disability was chosen as a key marker, as difficulty walking medium distances has been shown to be an early marker of the disablement process, is predictive of disability progression, and is a relatively culture free activity. The distance asked about (a quarter of a mile) would typically be covered in shopping in a supermarket or walking round shops.

Previous work has shown that thresholds for reporting disability can differ between and within populations (for example, see Lan et al.^[1]).

This report summarizes work aiming to establish whether self-reported disability in walking a quarter of a mile in an English ageing study (ELSA) was comparable to similar self-reports in the US (NHANES) studies. Poor performance of gait speed testing was used as the objective comparator of disability.

1 Methods

1.1 Studies

The English Longitudinal Study of Ageing (ELSA) sample taken in 2001-2002, provided self-reported estimates for the English population. The third National Health and Nutrition Examination Survey (NHANES III), sample taken in 1988-1994, provided self-reported estimates for the USA. The NHANES 1999-2000 (NHANES 99) study was also considered.

1.2 Measurements

1.2.1 Self-reported difficulty walking

All three studies included a question on ability to walk a quarter of a mile. The exact phrasing of the question for the three studies is given below. Responses from this question were used as a self-reporting measure of mobility.

ELSA

“The next questions ask about difficulties you may have walking a quarter of a mile because of a health problem. By health problem we mean any long-term physical, mental or emotional problem or illness.

By yourself and without using any special equipment, how much difficulty do you have walking for a quarter of a mile? Do you have no difficulty, some difficulty, much difficulty? Or, are you unable to do this?”

NHANES III

“Now I am going to read of a list of activities with which some people have difficulty because of a health or physical reason. Using the categories on this card, please tell me if you have no

difficulty, some difficulty or are unable to do these activities at all when you are by yourself and without the use of aids. Do not include temporary conditions like pregnancy or broken limbs. Walking for quarter of a mile (that is 2 or 3 blocks)?”

NHANES 99

“The next questions ask about difficulties you may have doing certain activities because of a health problem. By “health problem” we mean any long-term physical, mental or emotional problem or illness, not including pregnancy.

By yourself and without using any special equipment, how much difficulty do you have walking for a quarter of a mile [that is about 2 or 3 blocks]? Do not include temporary conditions like pregnancy or broken limbs. No difficulty, some difficulty, much difficulty, unable to do.”

1.2.2 Gait speed

To calibrate whether the populations were self-reporting in the same way, a measure of gait speed was used. In ELSA and NHANES III participants aged over 60 were timed over two walks of 8ft. In the NHANES 99 study participants aged over 50 were timed over one walk of 20ft.

1.3 Statistical Methods

Due to the difference in gait speed test NHANES 99 is not considered further in the main report. Analyses for all three studies are presented in Appendix A.

Demographic and descriptive statistics are presented for each study. To aid comparison between studies, percentages standardised to the age and sex distribution of the NHANES III sample are presented as well as the observed percentages.

Hierarchical ordered probit (HOPIT) models have been used in a series of publications by a WHO group^{[2],[3],[4]} to examine cross-population comparability of self-reported measures. These models were fitted using the Stata add-on GLLAMM. Gait speed was used as the measured, calibration variable with age and sex fitted as covariates. Since self-reported difficulty walking was being considered only on two levels simple probit models fitted in Stata give the same results. The results of the probit models, with US study, walking speed, age and sex as covariates, are presented in this report. The ELSA study was fitted as the comparator study. Standardised bar-charts are presented for each model; in this section the percentages in each study were standardised according to the age and sex distribution over all three studies.

Models to assess the sensitivity of the results to the missing values were fitted. Missing gait speed test was included as a factor and missing self-report was grouped with ‘no or some difficulty’ or ‘much difficulty or unable’ to evaluate what influence the missing values could have on the results.

2 Results

2.1 Samples and descriptive statistics

ELSA

Of the 11,234 people who were in the ELSA sample, 7,101 were aged 60 or above and therefore eligible to do the gait speed test.

NHANES III

Of the 18,162 people who were interviewed in NHANES III, 5,724 were aged 60 or above and therefore eligible to do the gait speed test.

2.1.1 Demographics

Demographics for the eligible participants are given in table 1. The age distributions in the three studies are similar, but the NHANES III sample was slightly older and had a wider age distribution. The ELSA sample contained more females than the US study (55% compared to 52% for NHANES III).

Table 1 – Demographics for the two studies

	ELSA n=7101	NHANES III n=5724
Age (yrs)– mean (sd)	71 (7)	72 (8)
Females – n(%)	3,885 (55%)	2,968 (52%)

2.1.2 Gait speed test

The outcome of the gait speed test is given in table 2. The proportion of the sample that had a usable gait speed was similar across the two studies, but was slightly less in the ELSA study (86% compared to 88% for NHANES III). The reasons for gait speed being unavailable differed slightly between studies, with the missing gait speeds from NHANES III appearing to be due mainly to participants being unwilling; however this may be due to differences in the reporting of missing values in the original data.

Table 2 – Outcome of gait speed test for the two studies

	ELSA n=7101	NHANES III n=5724
Gait speed unavailable due to circumstances	294 (4%)	29 (1%)
Participant unwilling to do test or answer screening question	236 (3%)	432 (8%)
Unknown reason	45 (1%)	0(0%)
Unable to do test due to physical limitation or safety	385 (5%)	201 (4%)
At least one gait speed test completed	6141 (86%)	5062 (88%)

The distribution of speed observed in the sample and the distribution of speed for the two studies standardised according to the age and sex distribution in the NHANES III sample are shown in figure 1. Speeds in the NHANES III study were slightly slower than ELSA. There appears to be a cut off for speeds in NHANES III study which corresponds to there being no observations for tests which took longer than 2 seconds for the 8ft walk. In the derivation of gait speed, extreme speeds were discounted in ELSA; any 8ft walk which took less than 0.54 seconds or more than 30 seconds was excluded.

Distribution of speed may not indicate whether populations have comparable walking capability. Although slow speeds indicate problems with mobility, increasing speed on the test may not necessarily indicate increasing levels of mobility. A cut-off point of 0.4m/s was chosen to classify speeds. Participants who said they were unable to do the test or where the interviewer thought it was not safe for the participant to continue were grouped with participants with speed ≤ 0.4 m/s. The observed proportions and the proportions standardised for age and sex based on the NHANES III study, are given in table 3.

Table 3 – Results of gait speed test for the two studies: observed and standardised percentage (based on age and sex distribution in NHANES III)

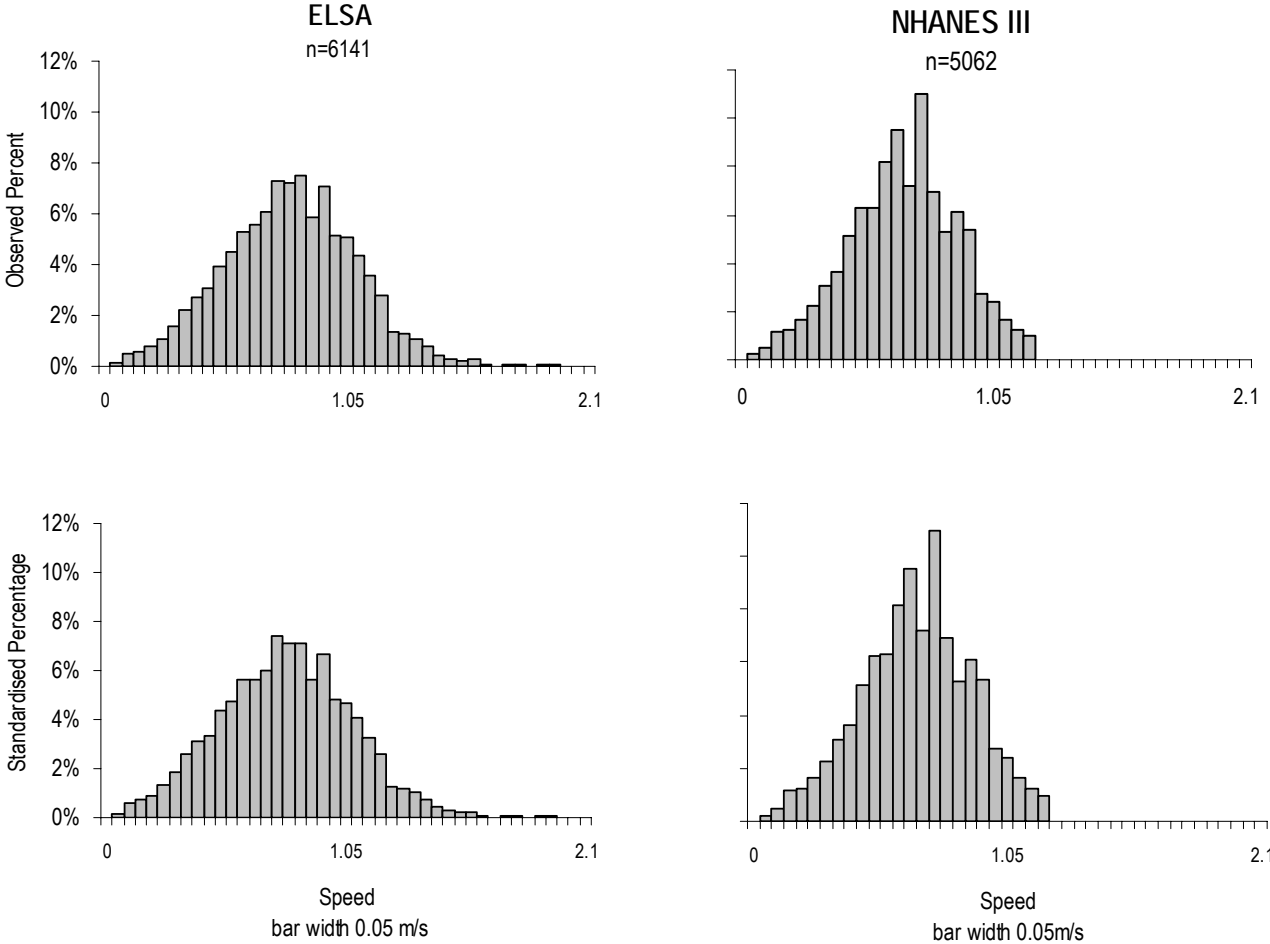
Study	Total Sample	Responders	≤0.4m/s or unable*	Observed % (95%ci)	Standardised % (95%ci)
Percentages out of responders only					
ELSA#	7101	6526 (92%)	808	12% (12% to 13%)	14% (13% to 15%)
NHANES III	5724	5263 (92%)	715	14% (13% to 14%)	14% (13% to 14%)

#: When 198 ELSA participants who did not complete gait test due to health condition were classed as unable rather than missing observed percentage for '≤0.4m/s or unable' group is 15%

*: Unable due to physical limitation or safety

The proportion of participants (standardised to the NHANES III sample) who were unable to do the test or had a speed of 0.4m/s or less was estimated to be the same in ELSA and NHANES III (14%).

Figure 1 – Distribution of speed, observed and standardised by age and sex based on NHANES III



2.1.3 Self-reported difficulty walking a quarter of a mile

The four outcome levels of the self-report measure were re-grouped into two levels: 'no or some difficulty' and 'much difficulty or unable'. The observed proportions in the two levels and the proportions standardised for age and sex based on the NHANES III study, are given in table 4.

Table 4 – Results of self-reported walking for the two studies: observed and standardised percentage (based on age and sex distribution in NHANES III)

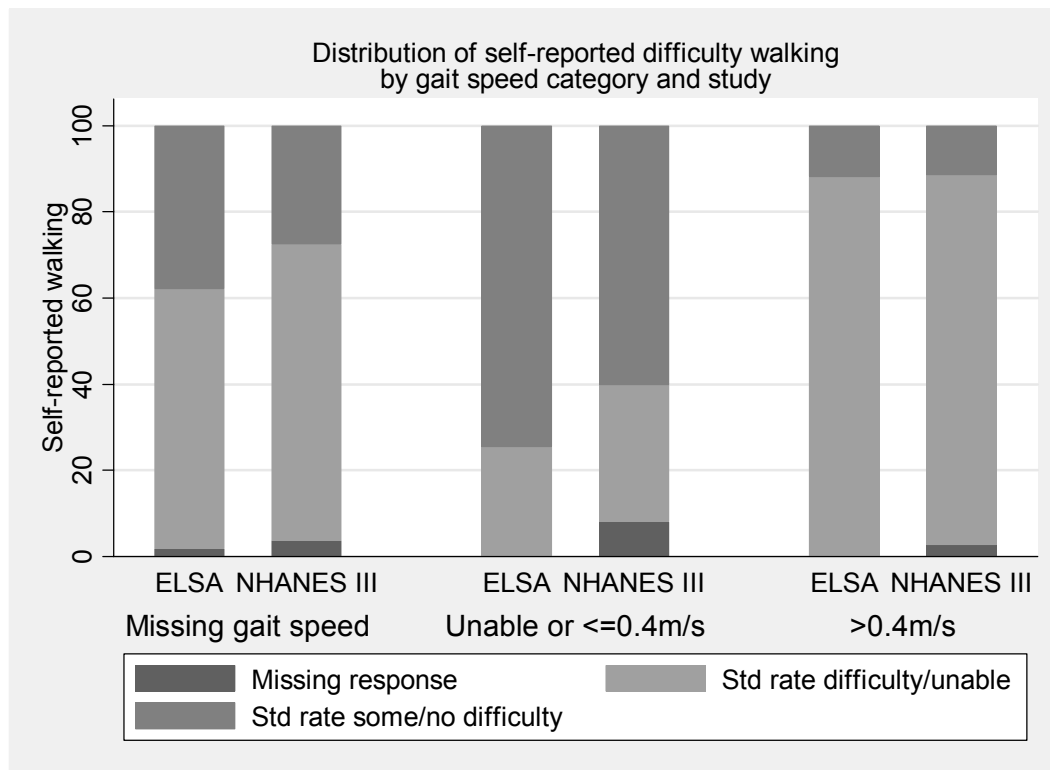
Study	Total Sample	Responders	Much difficulty or unable	Observed % (95%ci)	Standardised % (95%ci)
Percentages out of responders only					
ELSA	7101	7088 (100%)	1504	21% (20% to 22%)	23% (22% to 24%)
NHANES III	5724	5531 (97%)	1083	20% (19% to 21%)	20% (19% to 21%)

The percentage of responders was similar in the ELSA and NHANES III study (100% compared to 97%). The percentage of responders (standardised to the NHANES III sample) who reported that they had much difficulty walking or were unable to walk was similar in the two studies (23% and 20%).

2.2 Probit models

The observed relationship between measured gait speed and self-reported mobility is shown in figure 2. For participants with faster gait speeds the distribution of self-report seems similar between the studies. For those with slower speeds or with missing gait speed test data, there appears to be some difference in self-report.

Figure 2 (n=12,825)



2.2.1 Only including responders to self-report and with valid gait speed or unable

Initially the data were analysed ignoring any missing values. Numbers of participants in the analysis were 6,523 from ELSA and 5,087 from NHANES III, a total of 11,610 participants. Figure 3 shows the relationship between gait speed and self-reported walking standardised over age and sex. Table 5 gives the results of the probit model, this shows that given the same level of recorded walking ability, US participants were less likely to state they had a difficulty than UK in self-report. A second model fitting the interaction between study and gait speed was fitted, see table 6, this shows that the disparity between studies occurred in the 'unable or ≤0.4m/s' group. From the standardised graphs (figure 3) the difference in percentage of those reporting 'much difficulty or unable' between the ELSA and the NHANES III study was 10% (71% compared to 61% for ELSA and NHANES III study respectively).

Figure 3 (n=11,610)

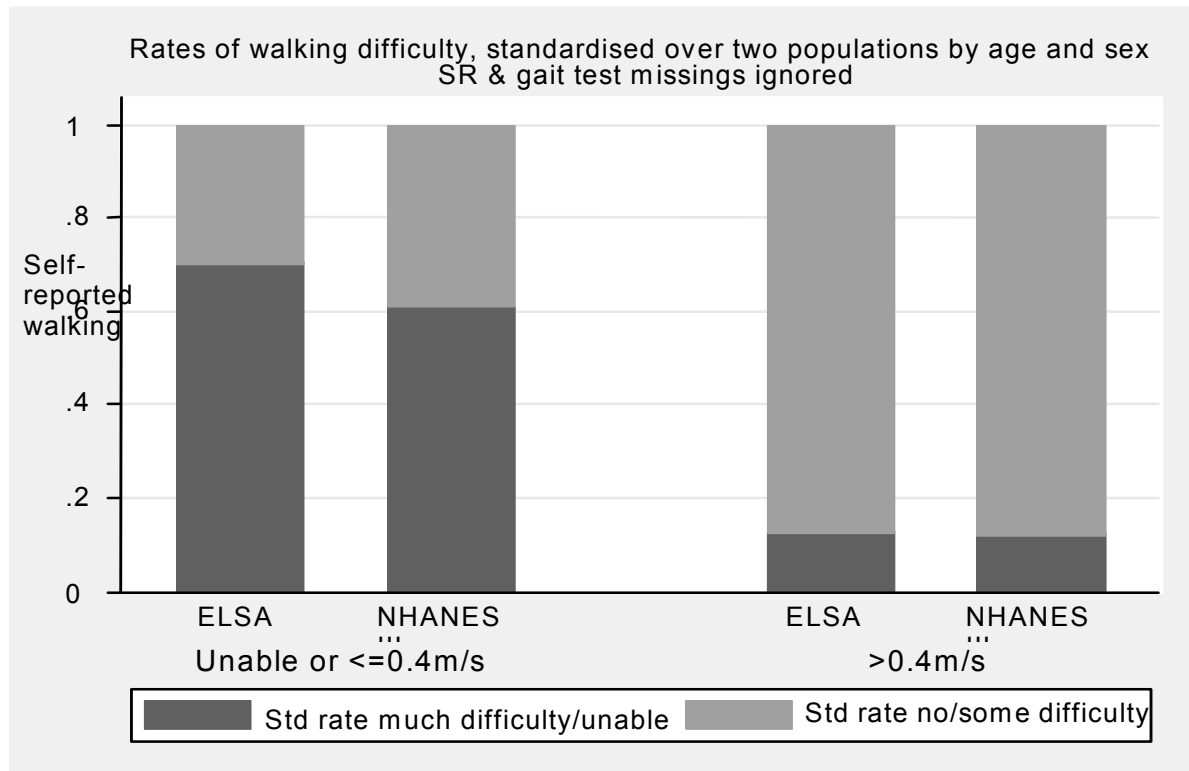


Table 5 – Results from probit model
Missing values ignored (n=11,610)

Effect	Co-efficient	95% ci	P-value
'Unable ≤0.4m/s'	1.56	(1.49 to 1.65)	0.000
NHANES III	-0.09	(-0.15 to -0.03)	0.002
Age	0.03	(0.02 to 0.03)	0.000
Sex	0.06	(0.00 to 0.12)	0.047
Constant	-3.31	(-3.59 to -3.03)	0.000

Table 6 – Results from probit model with study*speed group interaction
Missing values ignored (n=11,610)

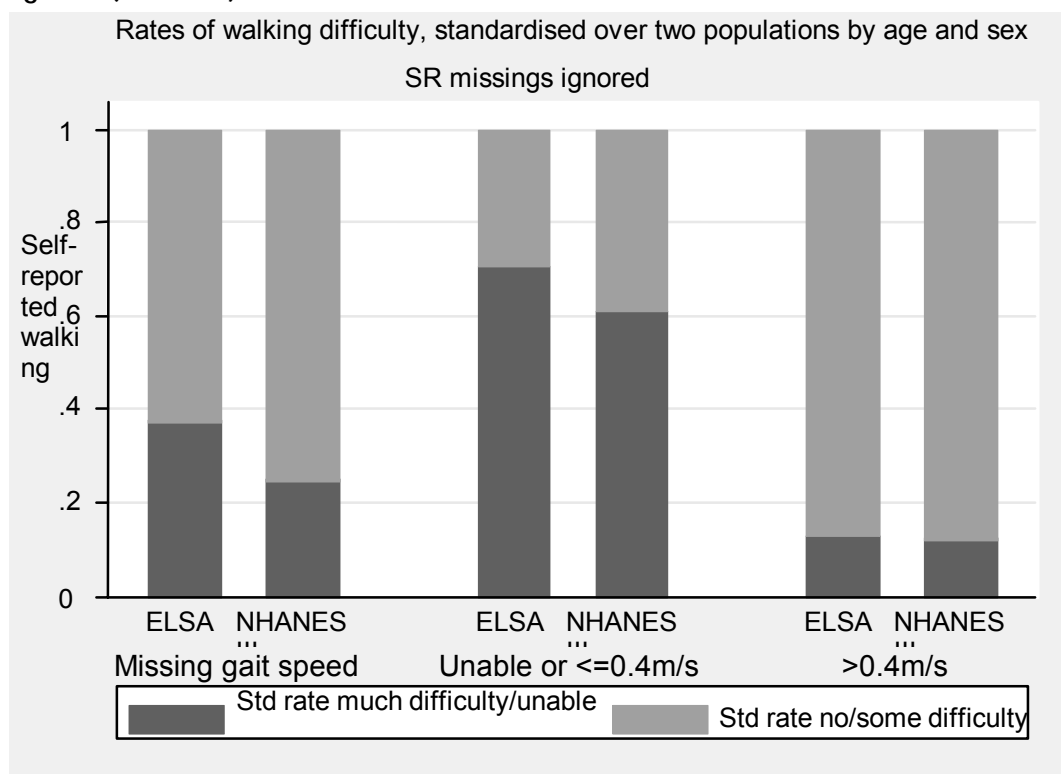
Effect	Co-efficient	95% ci	P-value
'Unable ≤0.4m/s'	1.71	(1.61 to 1.82)	0.000
NHANES III	-0.04	(-0.10 to 0.03)	0.268
'Unable ≤0.4m/s'*NIII	-0.31	(-0.47 to -0.16)	0.000
Age	0.03	(0.03 to 0.03)	0.000
Sex	0.06	(0.00 to 0.12)	0.036
Constant	-3.36	(-3.64 to -3.08)	0.000

2.3 Sensitivity analyses

Including participants with missing gait speeds as a third category in speed

The relationship between gait speed group and self-reported walking, standardised over age and sex is given in figure 4. A corresponding probit model was fitted (results not given). Results for the 'Unable or $\leq 0.4\text{m/s}$ ' and ' $>0.4\text{m/s}$ ' speed groups were the same as those discussed in section 2.2.1. Participants with missing gait speed behaved in a similar way to the 'Unable or $\leq 0.4\text{m/s}$ ' group, with a significant difference between ELSA and NHANES III being found ($p < 0.001$).

Figure 4 (n=12,619)



Grouping missing self-report with 'much difficulty or unable'

The relationship between gait speed group and self-reported walking, standardised over age and sex is shown in figure 5. A corresponding probit model was fitted (results not given). If participants with missing self-report were assumed to have 'much difficulty or unable', no overall significant difference between ELSA and NHANES III was found ($p = 0.732$). For those in the 'unable or $\leq 0.4\text{m/s}$ ' gait speed group, the difference in percentage of those reporting 'much difficulty or unable' between ELSA and NHANES III was 7% (71% compared to 64% respectively).

Grouping missing self-report with 'no or some difficulty'

The relationship between speed group and self-reported walking, standardised over age and sex, is given in figure 6. A corresponding probit model was fitted (results not given). If participants with missing self-report were assumed to have 'no or some difficulty', the results followed a similar pattern to those discussed in section 2.2.1, though the differences in the 'unable or $\leq 0.4\text{m/s}$ ' group were more exaggerated. For those in the 'unable or $\leq 0.4\text{m/s}$ ' gait

speed group, the difference in percentage of those reporting 'much difficulty or unable' between ELSA and NHANES III was 15% (71% compared to 56% respectively).

Figure 5 (n=12,825)

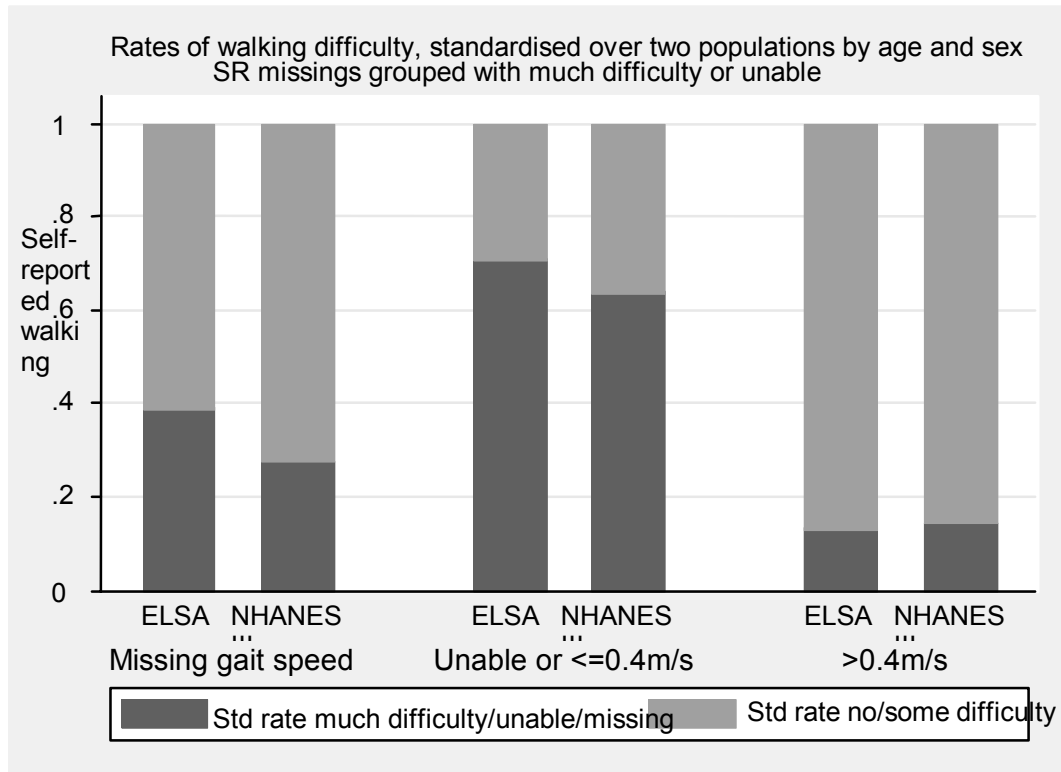
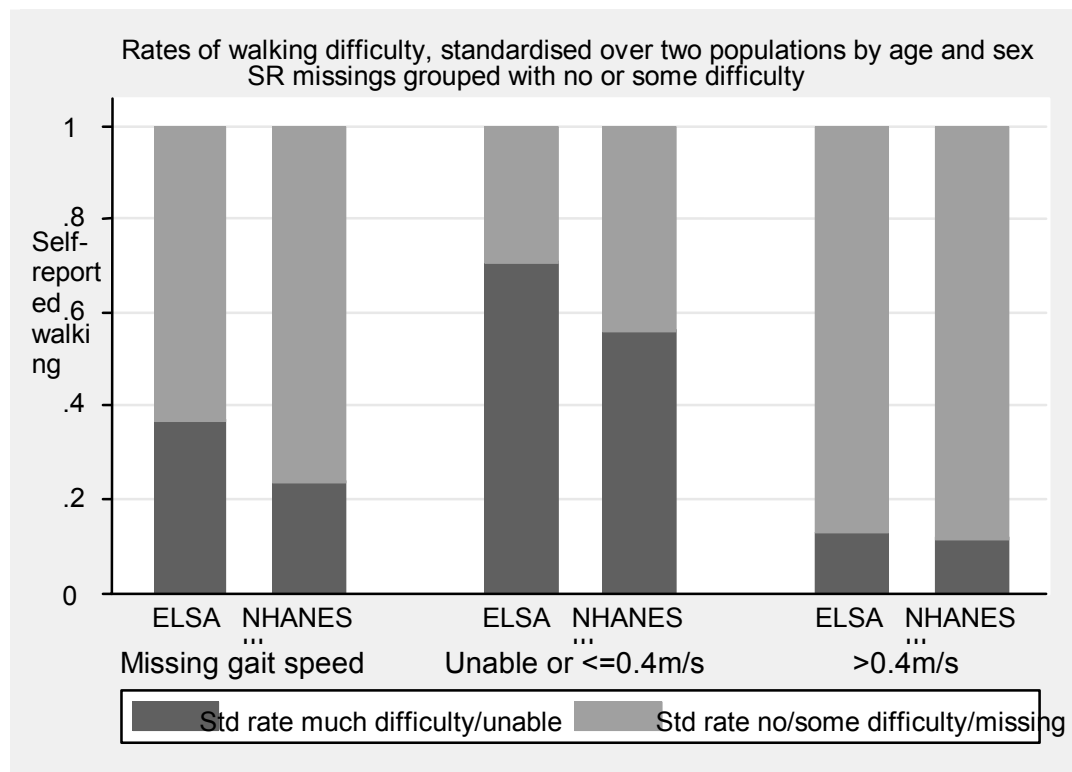


Figure 6 (n=12,825)



Conclusions

Although crude rates of self-reported mobility disability were similar in ELSA and NHANES III, there was evidence that self-reported mobility disability was not entirely the same for different gait speed test performance levels. Participants in English studies were more likely to report 'much difficulty or unable' if they were unable to do the gait speed test due to physical limitation or safety or they had a speed of $\leq 0.4\text{m/s}$ than in a comparable US study (NHANES III), (71% compared to 61%). This difference is unlikely to be due solely to differences between the studies in classification of 'unables', as similar percentages of participants analysed classed as unable were found in the two studies (6% in ELSA compared to 4% in NHANES III), and when 'unables' were removed from the analysis, similar results were found. There were small differences in self-report for participants with gait speeds greater than 0.4m/s (13% compared to 12% for English and US study respectively).

Although the difference in self-reporting of mobility disability between ELSA and NHANES III was statistically significant, its effect size is modest. The actual differences found are not large enough to warrant discontinuing further comparisons of self-report between English and US studies.

References

- [1] Lan T-Y, Melzer D, Tom BDM, Guralnik J. Performance tests and disability: developing an objective index of mobility-related limitation in older populations. *J Gerontol A Biol Sci Med Sci* 2002;57:M294-M301.
- [2] Tandon A, Murray CJL, Salomon JA, King G. Statistical models for enhancing cross-population comparability. GPE discussion paper no. 42. Geneva: World Health Organisation, 2002.
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- [4] Iburg KM, Salomon JA, Tandon A, Murray CJL. Cross-population comparability of physician-assessed and self-reported measures of health. Chapter 8.4 in Murray CJL, Salomon JA, Mathers CD, Lopez AD (eds): *Summary measures of population health - concepts, ethics, measurement and application*. Geneva: World Health Organisation, 2002.

Appendix A

Results for NHANES 99

A2 Results

A2.1 Samples and descriptive statistics

ELSA

Of the 11,234 people who were in the ELSA sample, 7,101 were aged 60 or above and therefore eligible to do the gait speed test.

NHANES III

Of the 18,162 people who were interviewed in NHANES III, 5,724 were aged 60 or above and therefore eligible to do the gait speed test.

NHANES 99

Of the 2,156 people who were interviewed in NHANES 99, 550 were below age 60. In order to make the study comparable with the other two studies only the 1,606 participants who were aged 60 or over were considered.

A2.1.1 Demographics

Demographics for the eligible participants are given in table A1. The age distributions in the three studies are similar, but the NHANES III sample was slightly older and had a wider age distribution. The ELSA sample contained more females than the US studies (55% compared to 52% and 50% for NHANES III and NHANES 99 respectively).

Table A1 – Demographics for the three studies

	ELSA n=7101	NHANES III n=5724	NHANES 99 n=1606
Age – mean (sd)	71 (7)	72 (8)	71 (7)
Females – n(%)	3,885 (55%)	2,968 (52%)	805 (50%)

A2.1.2 Gait speed test

The outcome of the gait speed test is given in table A2. The proportion of the sample that had a usable gait speed was similar across the three studies, but was slightly less in the ELSA study (86% compared to 88% and 89% for NHANES III and NHANES 99 respectively). The reasons for gait speed being unavailable differed slightly between studies, with the missing gait speeds from NHANES III appearing to be due mainly to participants being unwilling; however this may be due to differences in the reporting of missing values in the original data.

Table A2 – Outcome of gait speed test for the three studies

	ELSA n=7101	NHANES III n=5724	NHANES 99 n=1606
Gait speed unavailable due to circumstances	294 (4%)	29 (1%)	68 (4%)
Participant unwilling to do test or answer screening question	236 (3%)	432 (8%)	15 (1%)
Unknown reason	45 (1%)	0(0%)	19 (1%)
Unable to do test due to physical limitation or safety	385 (5%)	201 (4%)	71 (4%)
At least one gait speed test completed	6141 (86%)	5062 (88%)	1433 (89%)

The distribution of speed observed in the sample and the distribution of speed for the three studies standardised according to the age and sex distribution in the NHANES III sample are shown in figure A1. Speeds in the NHANES 99 test, which had the longer walk, were higher than the other two studies with NHANES III having slower speeds than ELSA. There appears to be a cut off for speeds in NHANES III study which corresponds to there being no observations for tests which took longer than 2 seconds for the 8ft walk. In the derivation of gait speed, extreme speeds were discounted in ELSA; any 8ft walk which took less than 0.54 seconds or more than 30 seconds was excluded.

Distribution of speed may not indicate whether populations have comparable walking capability. Although slow speeds indicate problems with mobility, increasing speed on the test may not necessarily indicate increasing levels of mobility. A cut-off point of 0.4m/s was chosen to classify speeds. Participants who said they were unable to do the test or where the interviewer thought it was not safe for the participant to continue were grouped with participants with speed $\leq 0.4\text{m/s}$. The observed proportions and the proportions standardised for age and sex based on the NHANES III study, are given in table A3.

Table A3 – Results of gait speed test for the three studies: observed and standardised percentage (based on age and sex distribution in NHANES III)

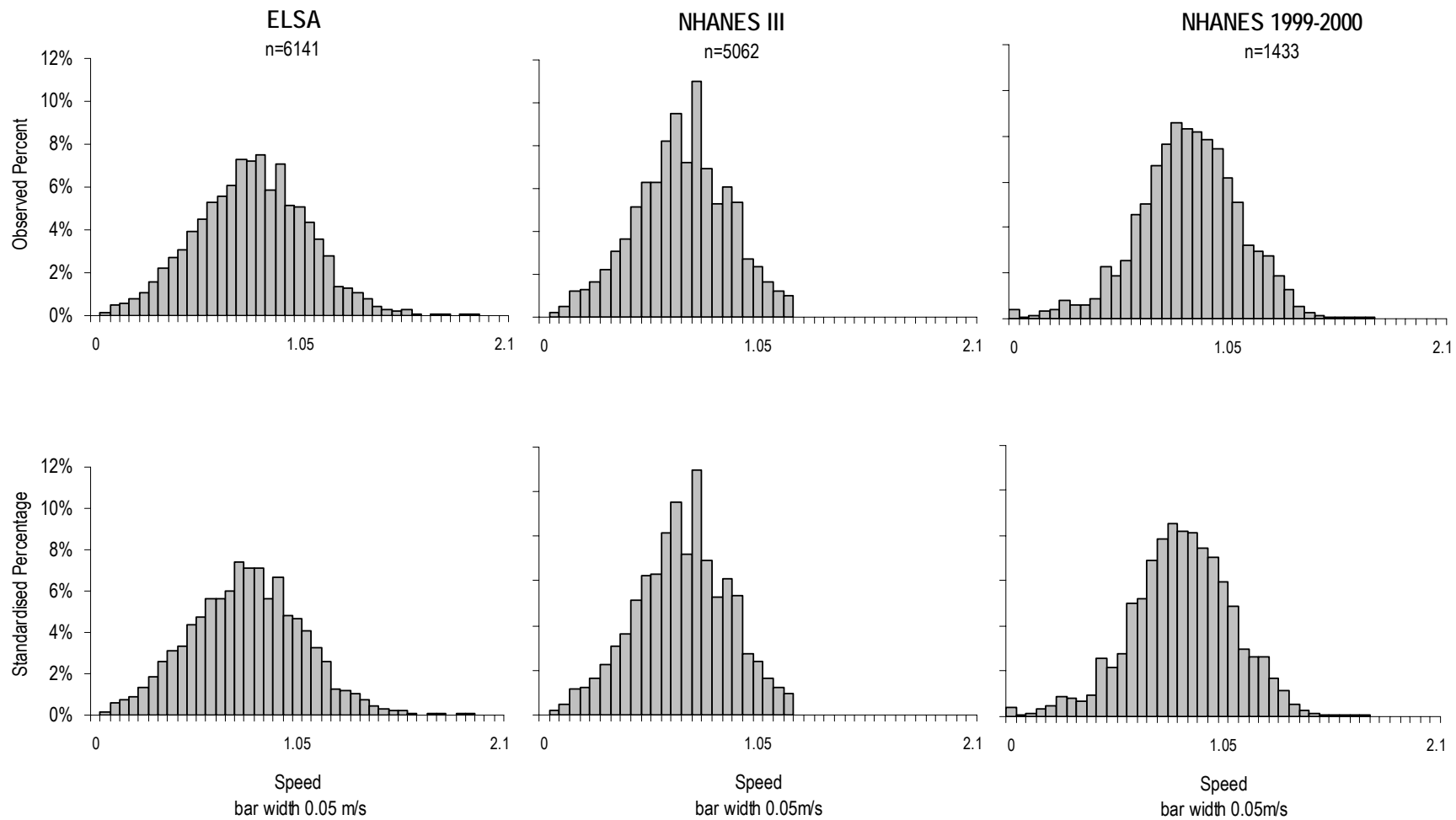
Study	Total Sample	Responders	$\leq 0.4\text{m/s}$ or unable*	Observed % (95%ci)	Standardised % (95%ci)
Percentages out of responders only					
ELSA#	7101	6526 (92%)	808	12% (12% to 13%)	14% (13% to 15%)
NHANES III	5724	5263 (92%)	715	14% (13% to 14%)	14% (13% to 14%)
NHANES 99	1606	1504 (94%)	115	8% (6% to 9%)	7% (6% to 9%)

#: When 198 ELSA participants who did not complete gait test due to health condition were classed as unable rather than missing observed percentage for ' $\leq 0.4\text{m/s}$ or unable' group is 15%

*: Unable due to physical limitation or safety

In the NHANES 99 study, which had a single, 20ft walk, the proportion of participants (standardised to the NHANES III sample) who were unable to do the test or had a speed of 0.4m/s or less was smaller (7% compared to 14% in ELSA and NHANES III).

Figure A1 – Distribution of Speed, observed and standardised by age and sex based on NHANES III



A2.1.3 Self-reported difficulty walking a quarter of a mile

The four outcome levels of the self-report measure were re-grouped into two levels: 'no or some difficulty' and 'much difficulty or unable'. The observed proportions in the two levels and the proportions standardised for age and sex based on the NHANES III study, are given in table A4.

Table A4 – Results of self-reported walking for the three studies: observed and standardised percentage (based on age and sex distribution in NHANES III)

Study	Total Sample	Responders	Much difficulty or unable	Observed % (95%ci)	Standardised % (95%ci)
Percentages out of responders only					
ELSA	7101	7088 (100%)	1504	21% (20% to 22%)	23% (22% to 24%)
NHANES III	5724	5531 (97%)	1083	20% (19% to 21%)	20% (19% to 21%)
NHANES 99	1606	1477 (92%)	205	14% (12% to 16%)	13% (11% to 15%)

The percentage of responders was similar in the ELSA and NHANES III study (100% compared to 97%). In the NHANES 99 study the percentage of responders was less, 92%, and these are considered below. The percentage of responders (standardised to the NHANES III sample) who reported that they had much difficulty walking or were unable to walk was similar in the ELSA and NHANES III studies (23% and 20%). The NHANES 99 study had a much lower percentage, 13%.

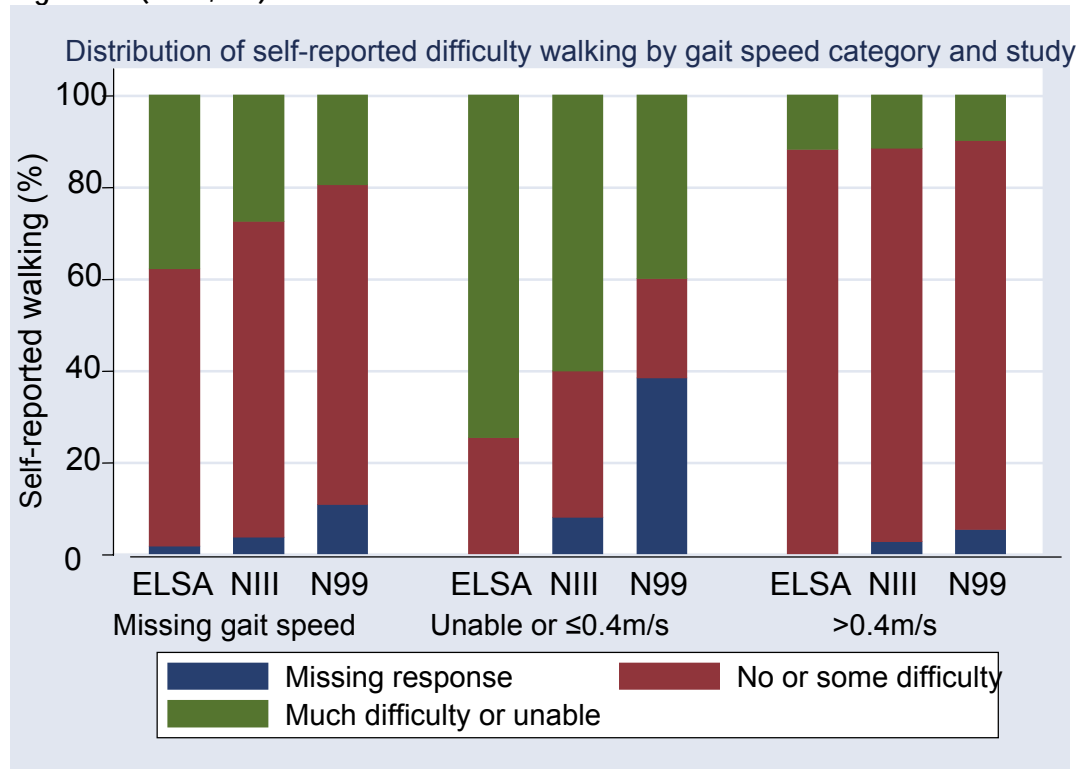
Missing self-report in NHANES 99

The missing self-reports in the NHANES 99 study consisted of 125 entries of "." rather than as a specific missing value code of 7 (Refused) or 9 (Don't know). These same 125 respondents had "." entries for "Difficulty walking up 10 steps" (pfq060c) and "Physical, mental or emotional limitation" (pfq059). One hundred and twenty-four of them were the only ones with "Yes" for "Special equipment to walk" (pfq055) and "Limitation for working" (pfq048), the other had "." in both.

A2.2 Probit models

The observed relationship between measured gait speed and self-reported mobility is shown in figure A2. For participants with faster gait speeds the distribution of self-report seems similar between the studies. For those with slower speeds or with missing gait speed test data, there appears to be some difference in self-report, though the number of missing values for the participants in the NHANES 99 study is large compared to the responders, which hinders interpretation.

Figure A2 (n=14,431)



A2.2.1 Only including responders to self-report and with valid gait speed or unable

Initially the data were analysed ignoring any missing values. Numbers of participants in the analysis were 6,523 from ELSA, 5,087 from NHANES III and 1,386 from NHANES 99, a total of 12,996 participants. Figure A3 shows the relationship between gait speed and self-reported walking standardised over age and sex. Table A5 gives the results of the probit model, this shows that given the same level of recorded walking ability, US participants were less likely to state they had a difficulty than UK in self-report. A second model fitting the interaction between study and gait speed was fitted, see table A6, this shows that the disparity between studies occurred in the 'unable or $\leq 0.4\text{m/s}$ ' group. From the standardised graphs (figure A3) the difference in percentage of those reporting 'much difficulty or unable' between the ELSA and the NHANES III study was 10% (71% compared to 61% for ELSA and NHANES III study respectively). The difference between self-report in the two US studies for participants in the 'unable or $\leq 0.4\text{m/s}$ ' group was also 10% (61% vs 51% for NHANES III and NHANES 99 respectively).

Figure A3 (n=12,996)

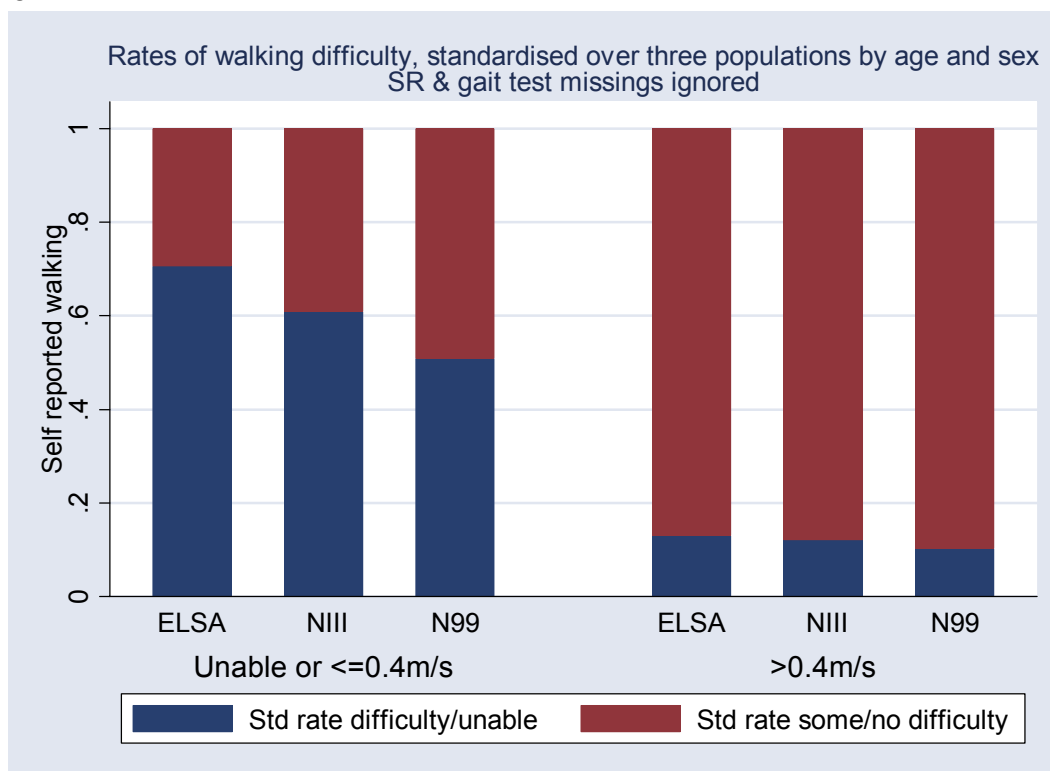


Table A5 – Results from probit model
Missing values ignored (n=12,996)

Effect	Co-efficient	95% ci	P-value
NHANES III	-0.09	(-0.15 to -0.03)	0.002
NHANES 99	-0.12	(-0.21 to -0.02)	0.018
Age	0.03	(0.02 to 0.03)	0.000
Sex	0.09	(0.03 to 0.14)	0.002
Constant	-3.30	(-3.57 to -3.03)	0.000

Table A6 – Results from probit model with study*speed group interaction
Missing values ignored (n=12,996)

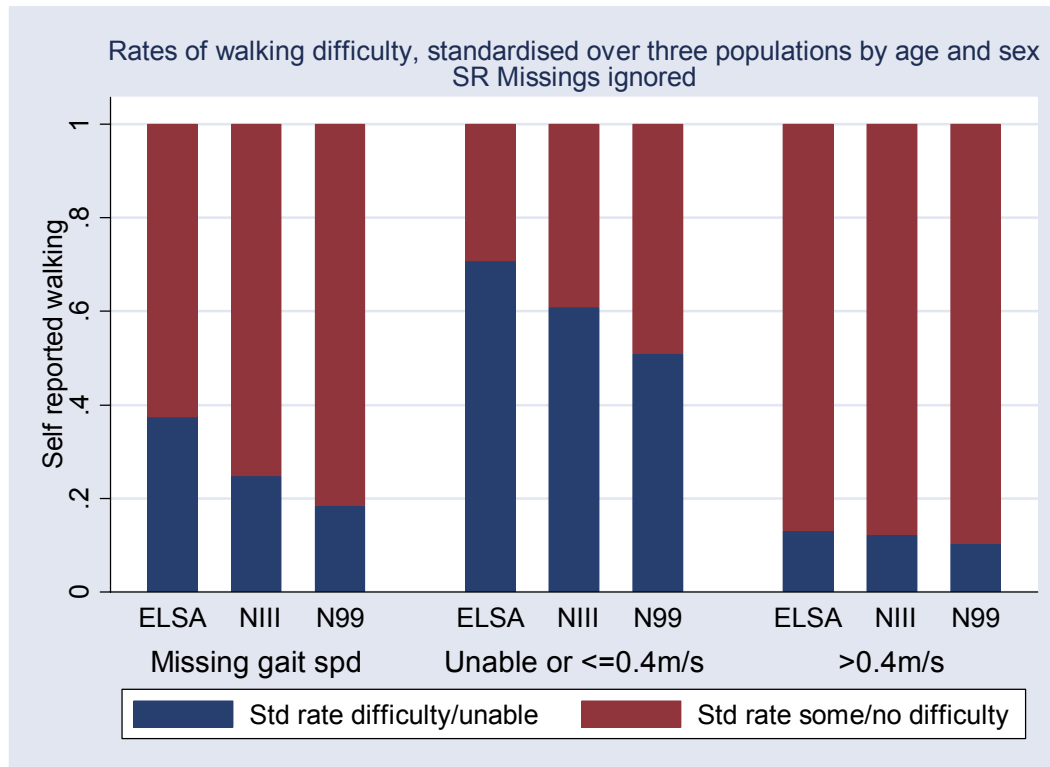
Effect	Co-efficient	95% ci	P-value
'Unable≤0.4m/s'	1.71	(1.61 to 1.82)	0.000
NHANES III	-0.04	(-0.1 to 0.03)	0.289
NHANES 99	-0.08	(-0.19 to 0.02)	0.108
'Unable≤0.4m/s'*NHIII	-0.31	(-0.47 to -0.16)	0.000
'Unable≤0.4m/s'*N99	-0.25	(-0.58 to 0.08)	0.145
Age	0.03	(0.02 to 0.03)	0.000
Sex	0.09	(0.03 to 0.14)	0.002
Constant	-3.35	(-3.61 to -3.08)	0.000

A2.3 Sensitivity analyses

Including participants with missing gait speeds as a third category in speed

The relationship between gait speed group and self-reported walking, standardised over age and sex is given in figure A4. A corresponding probit model was fitted (results not given). Results for the 'Unable or $\leq 0.4\text{m/s}$ ' and ' $>0.4\text{m/s}$ ' speed groups were the same as those discussed in section A2.2.1. Participants with missing gait speed behaved in a similar way to the 'Unable or $\leq 0.4\text{m/s}$ ' group, with a significant difference between ELSA and NHANES III being found ($p < 0.001$).

Figure A4 (n=14,096)



Grouping missing self-report with 'much difficulty or unable'

The relationship between gait speed group and self-reported walking, standardised over age and sex is shown in figure A5. A corresponding probit model was fitted (results not given). If participants with missing self-report were assumed to have 'much difficulty or unable', no overall significant difference between ELSA and NHANES III was found ($p = 0.632$), but a significant difference between ELSA and NHANES 99 was found ($p = 0.001$). For those in the 'unable or $\leq 0.4\text{m/s}$ ' gait speed group, the difference in percentage of those reporting 'much difficulty or unable' between ELSA and NHANES III was 7% (71% compared to 64% respectively). The corresponding percentage for NHANES 99 was 79%.

Grouping missing self-report with 'no or some difficulty'

The relationship between speed group and self-reported walking, standardised over age and sex, is given in figure A6. A corresponding probit model was fitted (results not given). If participants with missing self-report were assumed to have 'no or some difficulty', the results followed a similar pattern to those discussed in section A2.2.1, though the differences in the 'unable or $\leq 0.4\text{m/s}$ ' group were more exaggerated. For those in the 'unable or $\leq 0.4\text{m/s}$ ' gait speed group, the difference in percentage of those reporting 'much difficulty or unable' between

ELSA and NHANES III was 15% (71% compared to 56% respectively). The corresponding percentage for NHANES 99 was 32%.

Figure A5 (n=14,431)

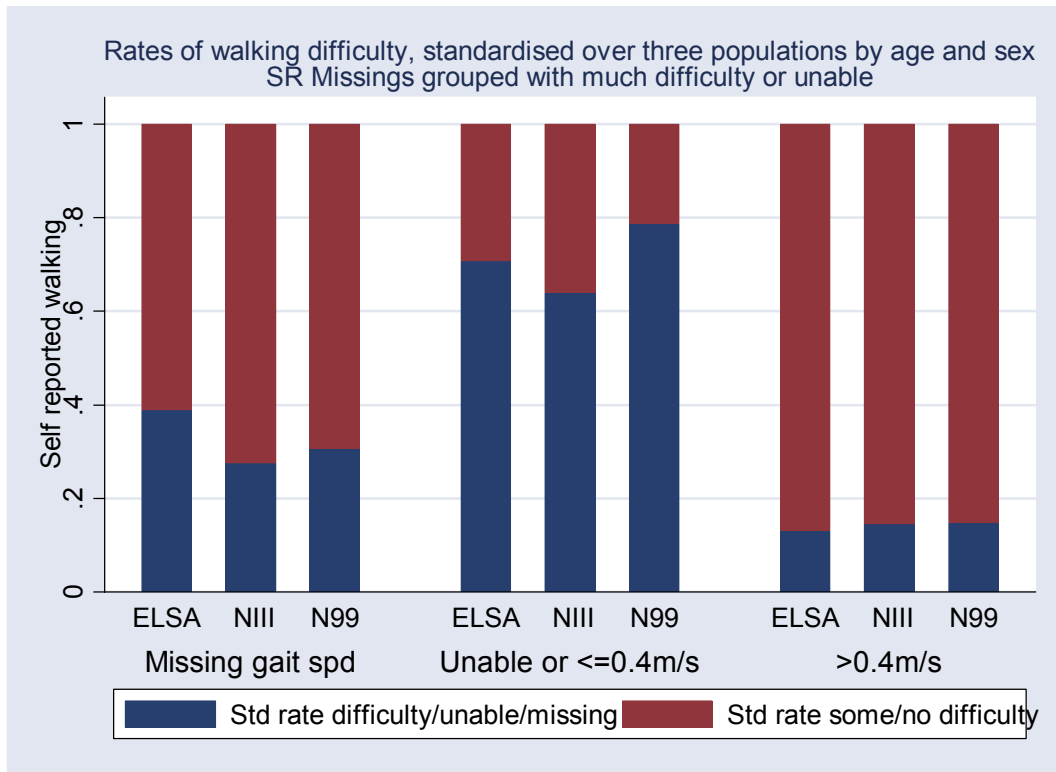


Figure A6 (n=14,431)

