3.1 Physical Health
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Introduction
‘Ageing’ is usually defined as the progressive loss of function with advancing age, and increasing rates of health problems including mortality are one of its main manifestations (Kirkwood and Austad 2000). Due to improvements in living standards, public health interventions and innovations in medical care, average life expectancy at birth has spectacularly increased during the twentieth century, to reach levels of around 75 years for men and 80 years for women throughout Western Europe (White 2002). Although most people develop some health problems long before the age of dying, there is large variability within and between populations in ‘healthy ageing’, as shown by comparisons of ‘health expectancies’ (years of life lived in good health) between European countries (Perenboom, van Oyen and Mutafova 2002) and between socio-economic groups within countries (Sihtonen, Kunst, Lahelma et al. 1998).

SHARE offers excellent opportunities for studying the prevalence of age-related health problems in Western Europe, for looking at variations in this prevalence between populations and population subgroups, and for analysing the consequences of health problems for other domains such as employment and health care utilisation. This contribution introduces the main indicators of physical health that have been studied in SHARE, and presents some basic data on the prevalence of health problems among its respondents.

Data and Methods
SHARE has measured a wide range of indicators of physical health, which we have grouped in four categories: summary measures; diseases and symptoms; limitations in functioning; and limitations in activities of daily living.

The summary measures include a single-item question on self-perceived health, in both a ‘European’ version with answer categories ranging between ‘very good’ and ‘very poor’, and a ‘North American’ version with answer categories ranging between ‘excellent’ and ‘poor’. The first has been recommended by the World Health Organisation (European Office), the second has been used by the Health and Retirement Survey (HRS) and by ELSA. Also, two general questions on long-term health problems and on activity limitations (the so-called Global Activity Limitation Index (GALI) (Robine and Jagger 2003) were included.

SHARE has also asked respondents whether they had a chronic disease diagnosed in their life-time, and whether they were suffering from symptoms lasting at least six months. To answer these questions, respondents could choose from lists with 14 named diseases and 11 named symptoms.

Limitations in functioning were measured by self-reports on mobility sensory functioning, and other aspects of physical functioning (Nicholas, Huppert, McWilliams, et al. 2003), but also by measurements of grip strength and walking speed (the latter was measured only among those aged 76 and older). Grip strength was measured using a handheld dynamometer (Smedley, S dynamometer, TTM, Tokyo, 100 kg) twice in both hands. The gender specific analysis used the maximum of the four grip strength measurements. Grip strength is a strong predictor of functional limitations and disability (Rantanen et al. 1999).

The test involved recording the time taken by respondents to walk a distance of 250 meters at their usual walking pace. The ‘time walked’ was recorded at two examinations.
Only those who successfully completed both walks were entered into the analysis. Walking speed was calculated adding the two times and lengths and calculating the speed. As a measure of functional limitations, a walking speed of 0.4 m/s or slower was used as the cut-off point (Nicholas, Huppert, McWilliams and Melzer 2003).

Finally, limitations in activities of daily living were measured by self-reports. Both ‘activities of daily living’ (ADL; dressing, getting in/out bed, eating, etc.) and ‘instrumental activities of daily living’ (IADL; preparing a meal, shopping, making telephone calls, etc.) were included (Nicholas, Huppert, McWilliams, et al. 2003).

Prevalence of Physical Health Problems

It will come as no surprise that the prevalence of physical health problems among the elderly is high (Table 1). Around 40% have some degree of activity limitation due to health problems, and almost 50% report that they have some long-term health problems. Around 40% of respondents rate their health as less than ‘good’, and 10% even rate their health as ‘poor’ or ‘very poor’.

Both self-reported chronic diseases and symptoms were very common: more than two-thirds have had at least one chronic disease diagnosed during their life-time, and around 40% report to have had two or more chronic diseases diagnosed. Similar numbers of individuals report at least one current symptom, or two or more current symptoms. Equally important, of course, is the fact that a sizeable fraction of the SHARE respondents (around a third) report no chronic disease at all, or no symptom at all. The most commonly reported chronic diseases were arthritis, diabetes and heart disease; many respondents also reported hypertension and high cholesterol, which are important risk factors for heart disease and other problems of the cardiovascular system. The most commonly reported symptoms were pain (nearly half of the respondents!), sleeping problems, and swollen legs (see Tables 3A.1-3A.3 in the Appendix to this chapter).

While around 50% report no mobility or other functioning limitations at all, many respondents do report one or more limitations. Mobility limitations (e.g. climbing stairs, stooping and kneeling) are common and found in up to a third of the population, but eyesight, hearing and chewing problems also have a rather high prevalence. Grip strength measurements were successfully done in almost all respondents. The average value of the maximum grip strengths measured for the left and right hands respectively, is presented in Table 1. Around 20% of those aged 76 years and older had a walking speed of equal to or less than 0.4 m/sec, which is regarded as an indication of severe limitations in mobility (ELSA report).

Although SHARE only includes the non-institutionalised population, many respondents do report some limitations in (instrumental) activities of daily living. Around 10% report one or more limitations in activities of daily living, while around 17% report one or more limitations in instrumental activities of daily living. Many respondents also indicate that they do not receive adequate help with these activities.

Analysing the consequences of these health problems for other domains such as employment and health care utilisation will be the topic of subsequent reports, but it is already clear from these first results that the consequences must be substantial.
Table 1  General Physical Health Measures Among Men and Women Aged 50 Years and Older in 10 European Countries

<table>
<thead>
<tr>
<th>Health measure</th>
<th>Levels</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary measures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-perceived health (European version)</td>
<td>Less than ‘good’</td>
<td>39.5 (37.6-41.4)</td>
<td>47.5 (45.6-49.3)</td>
</tr>
<tr>
<td>Long-term health problems</td>
<td>Yes</td>
<td>50.4 (48.4-52.3)</td>
<td>55.2 (53.3-57.0)</td>
</tr>
<tr>
<td>Activity Limitations (GALL)</td>
<td>Severely limited</td>
<td>13.0 (11.8-14.3)</td>
<td>15.3 (14.0-16.7)</td>
</tr>
<tr>
<td>Diseases and symptoms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic diseases</td>
<td>2 or more diseases</td>
<td>38.6 (36.7-40.5)</td>
<td>48.8 (44.0-47.7)</td>
</tr>
<tr>
<td>Symptoms</td>
<td>2 or more symptoms</td>
<td>30.4 (28.6-32.1)</td>
<td>46.8 (44.9-48.6)</td>
</tr>
<tr>
<td>Limitations in functioning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility and functioning</td>
<td>1 or more limitations</td>
<td>42.7 (40.9-44.6)</td>
<td>59.5 (57.7-61.3)</td>
</tr>
<tr>
<td>Grip strength</td>
<td>Mean max grip strength</td>
<td>43.0 (42.7-43.2)</td>
<td>25.9 (25.7-26.0)</td>
</tr>
<tr>
<td>Walking speed (76+ years)</td>
<td>Equal or lower than 0.4 m/sec</td>
<td>17.2 (13.0-22.5)</td>
<td>26.6 (21.1-32.9)</td>
</tr>
<tr>
<td>Limitations in activities of daily living</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADL limitations</td>
<td>1 or more limitations</td>
<td>9.2 (8.1-10.4)</td>
<td>12.5 (11.3-13.7)</td>
</tr>
<tr>
<td>IADL limitations</td>
<td>1 or more limitations</td>
<td>11.8 (10.6-13.1)</td>
<td>21.1 (19.6-22.6)</td>
</tr>
</tbody>
</table>

**Variations by Age and Gender**

Almost all physical health problems are strongly age-related: their prevalence usually rises steeply with age, in a linear, sometimes even exponential fashion. It is important to mention a few caveats, however. First, because of the exclusion of the institutionalised population, which forms a larger fraction of the population in the oldest age-groups, the steepness of the age-gradient is likely to be even greater than we observe in SHARE. Second, because of the cross-sectional character of these base-line observations, this so-called age-gradient actually mixes age and cohort effects. The oldest group is not only older, but is also part of another generation and has therefore gone through a different life-course, which may have affected the prevalence of its health problems. Because we expect age effects on health to be generally stronger than cohort effects, we will keep using the term ‘age-gradient’, but with this caveat in mind.

Age-gradients of specific chronic diseases are shown in Figure 1. Particularly steep age-gradients (prevalence in the 80+ group more than 5 times higher than in the 50-59 year age-group) are seen for several specific chronic conditions and symptoms: stroke, cataract,
Figure 1a The prevalence of self-reported chronic diseases according to age among men aged 50 years and older in 10 European countries.

Figure 1b The prevalence of self-reported chronic diseases according to age among women aged 50 years and older in 10 European countries.
(fear of) falling down, incontinence. Shallow gradients (prevalence in the 80+ group less than 2 times higher than in the 50-59 year age-group) are seen for high cholesterol, asthma, coughing, sleeping problems, stomach problems. While some of these patterns may be determined by cohort effects, it is likely that most reflect variations between conditions in the age-relatedness of incidence, recovery or survival. It is well-known that the incidence of cataract rises steeply with age, while that of asthma does not, and that blood pressure and serum cholesterol often spontaneously decline at advanced ages (Oliver 1999). In the latter case, the age-related decline may also be partly due to less cholesterol testing at advanced ages.

In general, limitations in mobility and other aspects of physical functioning, and in (I)ADL limitations also show very steep age-gradients. Among the oldest old, the prevalence of many separate limitations is higher than 30%, sometimes even higher than 50%. This is likely to be the result of several factors. Among the oldest old, not only have specific health problems a higher incidence and lower recovery rate, as we have noted above. Also, the oldest old are more likely to have accumulated several specific health problems in the same person, which may reduce their ability to retain functionality despite the presence of disease. Finally, because of a non-specific, age-related decline in functional reserve capacity of the body, the same specific health problem will more easily produce functional limitations in the oldest old (Fried, Tangen, Walston et al. 2001).

Health differences between men and women have often been characterised as ‘men die quicker but women are sicker’ (La helma, Martikainen, Rahkonen et al. 1999). The higher mortality rates among men cannot yet be observed in SHARE, but the higher morbidity rates among women are clear enough (Table 1 and Figure 1). Almost without exception, prevalence rates of health problems are between 25 and 50% higher among women than among men. There are just a few exceptions, particularly for specific diseases. Here we find that several potentially fatal conditions (heart disease, diabetes, lung disease, …) are more frequent among men, while the other conditions are more frequent among women. Men are more prone to develop fatal disease, partly because of their risk-taking behaviours, while women are more prone to develop non-fatal and often incapacitating diseases. As a result, women generally have higher needs for health and social care services.

Variations Between Countries

SHARE offers interesting opportunities for looking at differences between countries in the prevalence of health problems. There are huge differences between countries on the general indicators of physical health: self-perceived health, long-standing health problems, and activity limitations. For self-perceived health, such differences have been noted before: for example, Germans tend to rate their health more negatively than Dutch or Danes, and the same applies to Italians and Spaniards as compared to French and Greeks. It is likely that these differences at least partly reflect differences between national cultures in thresholds for reporting less than ‘good’ health. Section 3.3 describes an attempt to adjust for these differences in threshold.

Some between-country differences are also found for the specific indicators of physical health. As an example, we present the results for walking speed and grip strength, which are less likely to be affected by cultural differences in reporting. For both measures there is a clear indication in the data for a North-South gradient within Europe, with a higher prevalence of low walking speed and grip strength in the South than in the North. Figure 2 illustrates this on the basis of walking speed. In Spain, Italy and Greece average walking speed is clearly lower than in Denmark and Sweden, with the 5 continental countries in-between.
The prevalence of walking speed less than or equal to 0.4 meters per second among men and women aged 75 years and older in Northern (DK, SE), Continental (NL, DE, AT, CH, FR) and Southern (IT, ES, GR) Europe.

The grip strength measurements in SHARE show an age-dependent decline over the entire age-range (see Figure 3). These data also show indications for a North-South gradient, with the highest scores in northern and continental countries, and the lowest scores in southern countries. It is interesting to note that the high life expectancies observed in the three Mediterranean populations represented in SHARE are not mirrored by their walking speeds and grip strengths—perhaps the low mortality rates have permitted relatively frail people to survive in these countries. Further analyses of determinants of walking speed and grip strength, and of associations between these measures and health outcomes, particularly in a future follow-up study of SHARE participants, will provide good opportunities for gaining a better understanding of the nature of between-country differences in health.
Conclusions

- SHARE is a unique data source that provides quantitative estimates of the prevalence of a wide variety of physical health problems among the elderly in Western Europe.

- Among the elderly, the prevalence of physical health problems is high, but there is substantial variation within and between populations that suggests a potential for health gains in the future.

- Further study, using longitudinal approaches, is necessary to identify the determinants of physical health problems among the elderly, and to contribute to the development of interventions that will alleviate their substantial disease burden.

References


