Seventeen-year trend in poor self-rated health in older adults: changing contributions of chronic diseases and disability

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Background: Studies on trends in self-rated health (SRH) of older people have shown conflicting results, which might partly be explained by changing associations between SRH and indicators of other health dimensions over time. Therefore, this study investigates 17-year time trends in older adults’ poor SRH, in the context of trends in chronic diseases and disability, between 1992 and 2009. Methods: Data originate from six measurement waves of the Longitudinal Aging Study Amsterdam (N = 4009, ages 60–85 years). SRH was assessed with the question ‘How is your health in general’? The presence of lung disease, cardiac disease, peripheral arterial disease, diabetes mellitus, stroke, arthritis and cancer was assessed by self-report. Two severity levels of disability were assessed with six questions on physical functioning. Generalized Estimating Equations (GEE) analysis was applied to assess statistical significance in each time trend. Results: There was a stable trend in the prevalence of poor SRH and severe disability, while the mean number of chronic diseases (1.3–1.8) and the prevalence of mild disability (20.5–32.1%) increased between 1992 and 2009. The association between poor SRH and chronic diseases became weaker, whereas the association between poor SRH and severe disability became stronger over time. Most unfavourable trends were observed in the older old and the lower educated. Conclusion: Our results suggest that the seeming stability of poor SRH hides underlying increases in chronic diseases and disability: over time, people may attach importance to different aspects of health when rating their overall health.

Introduction

Life expectancy in The Netherlands is increasing.1 It still remains uncertain whether these added years are accompanied by ill health or by relatively good health and independency.2–5 Therefore, it seems important to consider health trends in the older population. Self-rated health (SRH), a global measure of how individuals perceive their own health, is often used to study these trends. Previous studies showed that SRH is a robust predictor of future morbidity and mortality.6–10

However, studies on trends in SRH have shown conflicting results.11–15 Partly, cross-national differences in health trends or variations in methodology or time periods between studies may account for different findings. But also within countries, SRH does not always reflect concurrent trends in other indicators of health, such as chronic diseases and disability.16–18 For example, in the USA no declining trend in SRH between 1993 and 2001 was found,14,17 although the number of chronic diseases did increase during that period.14 Similarly in Sweden and Korea, SRH did not always follow concurrent trends in diseases or disability.4,12 Thus, it might be that associations between SRH and these indicators of other health dimensions are changing over time.

Several explanations have been proposed for changing associations between SRH, chronic diseases and disability. On the one hand, disability and poor SRH may have decreased in people with chronic diseases over time, due to the improved detection and treatment of diseases.18,19 On the other hand, as a result of improved treatment, increases in life expectancy are higher in people living with chronic diseases,5 which may have led to an increase in overall disability prevalence. Finally, it has been hypothesized19,20 that the reported prevalence and impact of disability on SRH may change over time, for example as a result of disability being experienced as more detrimental in societies where autonomy has become more the norm. To our knowledge, associations between trends in SRH and trends in chronic diseases and disability have never been investigated.

In order to draw conclusions regarding the health and future need for care resources of the older population, recent and contemporary trends in SRH deserve close monitoring. This study aims to report on these time trends in a representative Dutch sample of older people, between 1992 and 2009. However, because there may be complex undercurrents of other health indicators such as chronic diseases and disability and their relations with SRH, trends in SRH will be investigated in the context of time trends in chronic diseases and mild and severe disability.

Methods

Sample

Analyses were conducted using data from the Longitudinal Aging Study Amsterdam (LASA). Details on the sampling and data collection procedures of LASA have been described elsewhere.22 In short, a random sample of older adults (aged 55–85 years) was drawn from the population registries of 11 municipalities in three
geographical regions in The Netherlands in 1992. A total number of 3107 men and women, community dwelling as well as institutionalized, were enrolled at the baseline examination in 1992–93 (co-operation rate 62%). Examinations are repeated approximately every 3 years and consist of a face-to-face general interview and a medical interview in the respondent’s home and a self-administered questionnaire. In addition, telephone interviews with either the respondent or a proxy were conducted when respondents refused or were not able to complete a face-to-face interview. In 2002–03, 1002 new respondents (aged 55–64 years, co-operation rate 62%) were added to the original sample. The Medical Ethics Committee of the VU University Medical Center approved the study; informed consent was obtained from all respondents.

For the present study, data from all six measurement waves conducted so far were used (T1: 1992–93; T2: 1995–96; T3: 1998–99; T4: 2001–03; T5: 2005–06; T6: 2008–09). The number of respondents varied between the measurement waves due to mortality, drop-out and the inclusion of the new cohort in 2002–03, but all respondents were included at each wave as far as their age was between 60 and 85 years, because this was the age range available in all waves. The proportion that was institutionalized decreased from 4.7% in 1992 to 1.5% in 2009. Respondents who provided information on chronic diseases, disability or SRH at one or more waves were included. We decided to exclude all proxy interviews because our focus is on how older individuals rate their own health.

Measures

‘Gender’ and ‘age in years’ were retrieved from the municipality registries. ‘Level of education’ was asked during the baseline interview and expressed in number of years of education. ‘SRH’ was measured with the question: how is your health in general? ‘very good’, ‘good’, ‘fair’, ‘sometimes good, sometimes poor’, or ‘poor’? In this study, responses were dichotomized into either good SRH (‘very good’ or ‘good’) or poor SRH (‘fair’, ‘sometimes good, sometimes poor or ‘poor’). This dichotomization has been applied previously in studies on health trends, and proved the most sensitive for underlying health problems in this sample.

The most frequently occurring somatic chronic diseases in the Netherlands at the onset of the study (each ~5% or higher in the population aged >55 years) were assessed by self-report: chronic non-specific lung disease, cardiac disease, peripheral arterial disease, stroke, diabetes mellitus, arthritis and cancer. Additionally, respondents were asked whether they had any other (with a maximum of two) chronic conditions that had been present for at least 3 months.

Self-reported ‘disability’ was assessed with six questions on performing the following activities (Can you): walk outside for 5 min, (un)dress yourself, walk 15 stairs without stopping, sit and rise from a chair, cut your own toenails and use own or public transportation. Response options were (0) ‘yes, without help’, (1) ‘yes, with difficulty’, (2) ‘only with help’ or (3) ‘no, I cannot’. Respondents who reported difficulty with one or more activities (i.e. response option 1), but who were able to perform all activities independently (i.e. never responded with option 2 or 3), were categorized as mildly disabled; individuals who reported that at least one activity could not be performed independently (i.e. response option 2 or 3) were categorized as severely disabled.

Statistical analysis

Descriptive statistics were age- and gender-weighted, so that changes in the prevalence of health problems reflect time trends, and not general ageing of the population. Probability weights were computed by dividing 5-year age and gender strata proportions in T1–T3 and T5–T6 by proportions of the same strata in T4. This was done because the sample composition in T4, with respect to age and gender strata, closely resembled that of the general Dutch older population in 2002. In T1–T3 older age groups were over-represented because of initial oversampling of older age groups at baseline to account for attrition. As opposed to separately weighting all measurements to the Dutch population, this weighting strategy ensures mutual comparability between measurement waves.

For further analysis of time trends, Generalized Estimating Equations (GEE) analysis was used. This regression method corrects for within-subject correlations by including a pre-specified correlation structure in the analysis. This correlation structure should fit the correlation within each outcome measure at 0, 3, 6, 9, 13 and 16 years. For all outcome measures, a 5-dependent correlation structure in the analysis. This correlation structure assumes that correlations t measurements apart are equal, correlations t + 1 measurements apart are equal, and so on for t = 1 to t = 5. For the chronic diseases count variable, the identity link function was applied; for the dichotomous variables indicating poor SRH, mild or severe disability, the logit link function was selected.

First, the predictive value of time in years was examined in different models for the outcome measures of poor SRH, chronic diseases and mild and severe disability. To that end, an independent ‘time’ variable was made to represent the increase in study years (0, 3, 6, 9, 13 and 16 years). Two dichotomous variables were used to assess the prevalence of the disability levels: mild vs. no mild disability and severe vs. no severe disability. If time had a predictive value we concluded that a significant change in the health indicator occurred over time. Second, product terms of time in years with the independent variables were tested for statistically significant contributions to the prediction of the dependent variables. In case a product term was significant we concluded that there was a significant trend in the association. For this analysis, the two disability levels were contrasted with the ‘no disability’ category. Finally, to investigate trends in the impact of diseases and disability on poor SRH in terms of public health, we combined prevalence and impact measures by calculating the population attributable risks (PARs) (Supplementary Appendix 1).

In the GEE analyses no weights were applied, since these were adjusted for gender, age in years, and level of education in years. Trends were analysed separately for men vs. women, 60- to 74-year old vs. 75- to 85-year old and for people with no or elementary education (low education) vs. people with intermediate or higher education (higher education). Analyses were conducted using SPSS for Windows 15.0 (SPSS, INC., Chicago, USA). The level of statistical significance was P<0.05 for main effects, and P<0.10 for interaction effects, since the power of statistical tests for higher order terms is generally lower than for first-order terms.

Results

A total of 11 735 self-reports were included in the analyses, provided by 4009 respondents. Self-reports that were not included in (parts of) the analyses, because answers were given by a proxy (n=280) or because of missing data (n=416), came from respondents who were older and were more often female (P<0.01). In addition, these respondents had worse health status with respect to chronic diseases and severe disability (P<0.01).

There was a stable trend observed in the response categories for SRH (table 1). However, the mean number of chronic diseases increased between T1 and T6 (1.3–1.8). The prevalence of at least mild disability increased (20.5–32.1%), whereas the prevalence of severe disability decreased (23.5–19.7%). In both age groups and in men and women, the prevalence of poor SRH did not show an increasing trend, while both the mean number of diseases and the prevalence of mild disability increased (figure 1).
The results of the regression analyses shown in table 2 confirmed that there was no independent effect of time in years on poor SRH in the total sample [odds ratio (OR) = 1.006; 95% confidence interval (CI) 0.999–1.014], after adjusting for age, gender and education. The average increase in number of diseases was 0.036/year, reflecting an average increase of 0.6 diseases between 1992 and 2009. The percentage of older adults who were mildly disabled increased (OR = 1.040; 95% CI 1.032–1.049), but the prevalence of severe disability remained stable (OR = 0.997; 95% CI 0.989–1.006). Older and lower educated people showed larger increases in number of chronic diseases compared with younger and higher educated people, and showed an increase in poor SRH as well. In addition, men showed larger increases in chronic diseases than women and older olds showed larger increases in mild disability than younger olds.

Finally, changes in associations over time, between chronic diseases, disability and SRH were analysed (table 3). In the total sample, chronic diseases have a slightly weaker impact on poor SRH.

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<tbody>
<tr>
<td>Unweighted N</td>
<td>2648</td>
<td>2156</td>
<td>1789</td>
<td>1885</td>
<td>1689</td>
<td>1568</td>
</tr>
<tr>
<td>Age, mean (SD)</td>
<td>73.0 (7.4)</td>
<td>72.5 (7.5)</td>
<td>72.7 (7.0)</td>
<td>70.8 (7.3)</td>
<td>71.1 (7.1)</td>
<td>71.7 (6.9)</td>
</tr>
<tr>
<td>Years of education, mean (SD)</td>
<td>8.6 (3.3)</td>
<td>8.9 (3.3)</td>
<td>9.0 (3.2)</td>
<td>9.5 (3.3)</td>
<td>9.8 (3.3)</td>
<td>10.1 (3.4)</td>
</tr>
<tr>
<td>Gender (% female)</td>
<td>51.4</td>
<td>53.8</td>
<td>55.1</td>
<td>55.6</td>
<td>55.6</td>
<td>55.2</td>
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<tr>
<td>Weighted N</td>
<td>2648</td>
<td>2155</td>
<td>1789</td>
<td>1885</td>
<td>1689</td>
<td>1569</td>
</tr>
<tr>
<td>Chronic diseases, mean (SD)</td>
<td>1.3 (1.2)</td>
<td>1.5 (1.3)</td>
<td>1.6 (1.3)</td>
<td>1.7 (1.3)</td>
<td>1.7 (1.3)</td>
<td>1.8 (1.4)</td>
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<td>Not disabled (%)</td>
<td>55.9</td>
<td>51.8</td>
<td>49.3</td>
<td>47.1</td>
<td>46.3</td>
<td>48.2</td>
</tr>
<tr>
<td>Mildly disabled (%)</td>
<td>20.5</td>
<td>23.3</td>
<td>28.5</td>
<td>30.9</td>
<td>31.9</td>
<td>32.1</td>
</tr>
<tr>
<td>Severely disabled (%)</td>
<td>23.5</td>
<td>24.9</td>
<td>22.2</td>
<td>22.0</td>
<td>21.8</td>
<td>19.7</td>
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</table>

Figure 1 Weighted means or prevalences of poor SRH, chronic diseases, mild and severe disability, by age and gender, 1992–2009

The results of the regression analyses shown in table 2 confirmed that there was no independent effect of time in years on poor SRH in the total sample [odds ratio (OR) = 1.006; 95% confidence interval (CI) 0.999–1.014], after adjusting for age, gender and education. The average increase in number of diseases was 0.036/year, reflecting an average increase of 0.6 diseases between 1992 and 2009. The percentage of older adults who were mildly disabled increased (OR = 1.040; 95% CI 1.032–1.049), but the prevalence of severe disability remained stable (OR = 0.997; 95% CI 0.989–1.006). Older and lower educated people showed larger increases in number of chronic diseases compared with younger and higher educated people, and showed an increase in poor SRH as well. In addition, men showed larger increases in chronic diseases than women and older olds showed larger increases in mild disability than younger olds.

Finally, changes in associations over time, between chronic diseases, disability and SRH were analysed (table 3). In the total sample, chronic diseases have a slightly weaker impact on poor SRH.
SRH over time, indicated by a significant interaction effect between chronic diseases and time in the model with poor SRH as the outcome variable (OR = 0.993; 95% CI 0.987–0.999). Stratified analyses showed that this is the case in the younger old and in the lower educated, although in all subgroups the effect was in the same direction (OR < 1). In contrast, severe disability was more strongly associated with poor SRH over time (OR = 1.044; 95% CI 1.025–1.062). Severe disability had an increased impact on poor SRH over time in all subgroups; for mild disability this was observed only in the older old. Chronic diseases were less strongly associated with disability only in the older old (mild disability) and in the lower educated (severe disability) (table 3, columns 2 and 3).

### Table 3: Time trends in associations between poor SRH, chronic diseases, mild and severe disability, a 1992–2009

<table>
<thead>
<tr>
<th></th>
<th>Poor SRH, OR (95% CI)</th>
<th>Mild disability, OR (95% CI)</th>
<th>Severe disability, OR (95% CI)</th>
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<tbody>
<tr>
<td><strong>Totalb</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Chronic diseases</td>
<td>0.993 (0.981–0.995)*</td>
<td>0.994 (0.986–1.001)</td>
<td>0.996 (0.988–1.003)</td>
</tr>
<tr>
<td>Mild disability</td>
<td>1.013 (0.997–1.030)</td>
<td></td>
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<tr>
<td>Severe disability</td>
<td>1.044 (1.026–1.062)**</td>
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<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
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<tr>
<td>Chronic diseases</td>
<td>0.994 (0.985–1.003)</td>
<td>0.995 (0.984–1.006)</td>
<td>1.000 (0.989–1.012)</td>
</tr>
<tr>
<td>Mild disability</td>
<td>1.009 (0.986–1.033)</td>
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<tr>
<td>Severe disability</td>
<td>1.059 (1.029–1.090)**</td>
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<tr>
<td><strong>Women</strong></td>
<td></td>
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<tr>
<td>Chronic diseases</td>
<td>0.993 (0.985–1.001)</td>
<td>0.993 (0.981–1.004)</td>
<td>0.992 (0.983–1.002)</td>
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<tr>
<td>Mild disability</td>
<td>1.018 (0.995–1.041)</td>
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<tr>
<td>Severe disability</td>
<td>1.037 (1.014–1.061)**</td>
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<tr>
<td><strong>60–74 yearsb</strong></td>
<td></td>
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<tr>
<td>Chronic diseases</td>
<td>0.991 (0.983–1.000)*</td>
<td>0.999 (0.990–1.009)</td>
<td>1.003 (0.993–1.013)</td>
</tr>
<tr>
<td>Mild disability</td>
<td>1.006 (0.986–1.026)†</td>
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<tr>
<td>Severe disability</td>
<td>1.028 (1.004–1.053)†</td>
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<tr>
<td><strong>75–85 yearsb</strong></td>
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<tr>
<td>Chronic diseases</td>
<td>0.994 (0.984–1.004)</td>
<td>0.980 (0.965–0.995)**</td>
<td>0.990 (0.978–1.003)</td>
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<tr>
<td>Mild disability</td>
<td>1.033 (1.001–1.067)†</td>
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<tr>
<td>Severe disability</td>
<td>1.064 (1.030–1.099)**†</td>
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<td><strong>Low educatedb</strong></td>
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<tr>
<td>Chronic diseases</td>
<td>0.989 (0.979–0.999)*</td>
<td>0.995 (0.980–1.010)</td>
<td>0.986 (0.974–0.998)*</td>
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<tr>
<td>Mild disability</td>
<td>1.019 (0.990–1.049)</td>
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<tr>
<td>Severe disability</td>
<td>1.037 (1.008–1.066)*</td>
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<td><strong>Higher educatedb</strong></td>
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<tr>
<td>Chronic diseases</td>
<td>0.994 (0.986–1.001)</td>
<td>0.993 (0.983–1.002)</td>
<td>1.001 (0.992–1.010)</td>
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<td>Mild disability</td>
<td>1.010 (0.990–1.030)</td>
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<tr>
<td>Severe disability</td>
<td>1.048 (1.024–1.073)**</td>
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a: Reference group is the no disability category.  
b: Adjusted for age in years, gender and education in years.  
c: Adjusted for age in years and education in years.  
*P<0.05; **P<0.01; ***P<0.001.  
†Significant interaction effect of age (P<0.10).

### Discussion

The aim of this study was to report on time trends in older adults’ poor SRH, in the context of time trends in chronic diseases and disability, between 1992 and 2009. While both the health indicators of chronic diseases and mild disability showed increased prevalences, there has been no shift in the prevalence of poor SRH in the total sample. Associations between health indicators showed significant changes over time: poor SRH is decreasingly determined by chronic diseases, and increasingly determined by severe disability.

We found that the prevalence of poor SRH remained unchanged. A similar stable trend was found when all categories of SRH were...
analysed with linear regression. This stable trend is in line with a report on recent trends in SRH in the Dutch population aged ≥65 years, that used the same definition of poor SRH. Thus, the declining trend in SRH found between 1956 and 1992 did not persist. Improving trends in good SRH were reported in Austria and the USA in the period from 1978 to 2000. We conducted further analysis for the period 1992–99, but observed no improving trend in SRH in that period either. Since our measure of SRH is comparable with that of other studies, between-country differences in trends probably are due to differential trends in underlying health or in the reporting of health problems. In addition, some studies reported only on the non-institutionalized population, which may have accounted partly for different results.

In contrast with the stable trend in poor SRH, the number of chronic conditions increased with 0.6 diseases per person on average, confirming results by other studies. This may indicate an increased prevalence of diseases, but also increased reporting or a greater likelihood of being diagnosed. There may be a complex interplay of the on the one hand earlier diagnosis, probably resulting in less disability associated with chronic diseases, and on the other hand increased survival, resulting in more disability associated with chronic diseases. This might explain our finding as well as part of the findings from a recent study that chronic diseases do not show a decreased disabling impact over time. Another likely explanation is that improved disease control and the increased use of assistive technology has led to increased mild disability but prevented increases in severe disability, despite the increased prevalence of chronic diseases.

Different studies vary in their approaches to measure disability trends. We defined severe disability as dependency in one of the measured activities, which might be argued as a low threshold, for example for cutting one’s own toenails. However, we expect that loss of independence, rather than the inability to perform the activities per se, may mean a considerable blow to people’s experienced health. In addition, our disability scale showed high internal consistency: the item of cutting toenails behaved similarly as compared with the other items. The fact that the observed stable prevalence of severe disability and the increased prevalence of mild disability (from 20.5 to 32.1%) mostly corroborate previously conducted studies in The Netherlands further supports our definition of mild and severe disability. An increase in the number of years lived with mild disability, but not in years lived with moderate or severe disability was found. Two other studies showed either stable or decreasing trends in ADL and mobility limitations between 1987 and 2001. As these studies defined disability as major difficulty or inability to perform certain activities, their results are in line with the stable trend in severe disability in our results. Finally, a stable trend in severe disability is in line with a study combining five population-based surveys in the period 1990–2007. Additional analyses with a sum score for disability showed an increase in overall disability, but no changing associations were found with either poor SRH or chronic diseases. These results emphasize that meaningful trends in disability and its association with SRH may be masked if different severity levels of disability are not taken into account.

Considering the increase in chronic diseases and mild disability, it is remarkable that no increasing trend in poor SRH was found. Chronic diseases showed a decreasing impact on poor SRH over time. This might be explained by improved prognosis for people with some chronic diseases, due to improved care. In addition, when rating their health, people often implicitly apply social comparison, either with someone they know, or with a stereotype of a frail older person. Therefore, a declining health trend on the population level may not be visible from measures such as SRH, which indicate perceived health relative to that of others. We also found that a larger part of the association between chronic diseases and poor SRH could be explained by disability (results not shown), and that severe disability was more strongly associated with SRH. One might suggest that this stronger impact is due to the severely disabled having become more disabled over time. However, additional analysis, with a correction for the number of activities that people reported with difficulty or inability, showed no different results.

Most findings discussed so far bear on the total sample. However, some results were notably different across age and educational groups. As opposed to the younger old, people aged ≥75 years did show a decline in SRH. Older men (≥75-years) also showed larger increases in chronic diseases than women of the same age and younger people, which is in line with previous research. With respect to educational groups, it was found earlier that SRH differs across social classes and that these inequalities were persistent over time. Our study confirms these findings in that an increased mean educational level of older people was accompanied by a widening of the health gap between higher and lower educated people: the group with a low educational level, which decreased from 44.8% in 1992 to 24.4% in 2009, showed worse trends as compared with the higher educated, indicating that they may have become more vulnerable. This effect was not explained by the lower educated group becoming even lower educated than before and thus may reflect true worse health.

Strengths and limitations

The design of the current study, with each health indicator being measured at all waves using the same operational definition, facilitated the investigation of health trends and trends in associations between health indicators in a representative sample of Dutch older adults. Whether the results may be generalized to other age groups needs to be studied further, since they pertain to the population aged 60–85 years only.

We expect that excluding proxy interviews (3% of the sample) and attrition of a small proportion of the sample due to frailty may have caused an underestimation of health problems. However, sensitivity analyses including all information from proxy reports (for predominantly severely (cognitively) disabled people) showed similar results with respect to trends in chronic diseases and disability. Additional analysis showed that our results may not be biased to a large extent by selective survival. First, a comparison with 1-year mortality figures in the Dutch population during the study period showed variations in deviations of our sample as compared with the Dutch population, but the overall difference did not exceed 1%. Secondly, diseases, disability and SRH were associated with mortality, however, no upward or downward trend in these associations was observed.

Conclusion

This study shows that trends in different health dimensions between 1992 and 2009 have been diverging: stable health trends were observed when health was measured by poor SRH or severe disability, while clear worsening health trends were found when health was measured by chronic diseases or mild disability. The results also indicate that in the past decades a shift has taken place in which factors are deemed important for SRH: older people may focus more on poor functioning, but less on their diseases. At the same time, the increased prevalence of diseases without an increased prevalence of severe disability might indicate that interventions targeting at reducing disability among people with chronic diseases have been effective. Trends in health were most unfavourable for the most vulnerable groups: the older old and the lower educated. Further studies are needed to specify targets for primary and secondary prevention of poor health in these groups. Finally, with respect to SRH, trends in SRH should be studied in the context of other health indicators, because the seeming stability in poor SRH may hide the undercurrents of other health indicators.
Supplementary data

Supplementary data are available at EURPUB online.

Funding

This study is based on data from the Longitudinal Aging Study Amsterdam, which is funded largely by the Dutch Ministry of Health, Welfare and Sport. The results have been presented orally at the Netherlands Public Health Conference 2011 (NCVZG), 6 April 2011, Amsterdam, The Netherlands; The IAGG-ER 2011 Congress, 17 April, Bologna, Italy, the 21st REVES conference, 26 May 2011, Paris, France, and the 64th Annual Scientific Meeting of The Gerontological Society of America, 20 November 2011, Boston, USA.

Conflict of interest: None declared.

Key points

- SRH is often used to study trends in the health of older people, but trends in SRH do not always follow concurrent trends in other health indicators, such as disability and chronic diseases.
- Associations between SRH and other measures of health may vary across time, making SRH an incomplete indicator of trends in health over time.
- This study shows a stable trend in poor SRH among older Dutch people between 1992 and 2009, which could be explained by a shift in which factors are deemed important for SRH: older people may focus more on poor functioning, but less on their diseases.
- Because the seeming stability in poor SRH may hide the undercurrents of other health dimensions, trends in SRH should be studied in the context of other health indicators.

References

Front-of-pack nutrition labelling: are multiple formats a problem for consumers?

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Background: Nutrition labels are a potentially valuable tool to assist consumers in making healthy food choices. Front-of-pack labels are a relatively new format and are now widely used across many European countries, but it is unclear which of the many formats in use are best understood by consumers. It is also unclear whether the existence of multiple formats impedes understanding and use. This article addresses this question with findings from a study commissioned by the UK Food Standards Agency to provide evidence to inform policy decisions in this area. Methods: In-depth qualitative interviews were used to explore consumers’ decision-making processes when using two different front-of-pack label formats to judge the relative healthiness of a pair of products. Participants were presented with product pairs differently labelled and a series of structured prompts were used to access their internal dialogues and to identify any difficulties encountered. Results: The interviews revealed that making product comparisons using different label formats was challenging for participants and particularly for those product pairs where there was not an obvious answer. When the label formats on the product pairs lacked a common element, such as text, this also caused difficulties and misinterpretation. The comparisons also took time and effort that would be a deterrent in real-life situations. Conclusions: These findings indicate that the existence of multiple front-of-pack label formats in the marketplace may impede consumer comprehension and discourage use. They suggest that a single format may encourage consumers to use front-of-pack labels in making healthy food choices.

Introduction

The prevention of diet-related diseases, such as coronary heart disease and obesity, is a key public health priority within Europe and internationally.1,2 Their reduction requires a broad multi-pronged strategy. Nutrition labels are a potentially valuable tool in assisting consumers to make informed decisions about their food choice. Voluntary use of front-of-pack (FOP) labelling is relatively new and seeks to provide consumers with simplified ‘at-a-glance’ information to supplement that provided on back of pack (BOP) to help them make healthier choices. There are many types of FOP labels currently used in the EU and internationally that vary both in format and the type of information that they convey. These range from logos, such as the Dutch Choices logo, which provide summary information on the overall healthiness of a food, through to more detailed information on the amounts of individual nutrients contained in a specified portion size, which are supplemented with information such as percentage of guideline daily amount (GDA) and/or traffic light (TL) colour coding (red, amber and green). Many food manufacturers and retailers within Europe have taken up these various schemes and multiple schemes now co-exist within many countries and also within individual food retail chains. An audit assessing the penetration of nutrition information on food labels in five product categories in the EU-27 plus Turkey3 found on average, 85% of the products contained BOP nutrition information and 48% contained FOP nutrition information, with the lowest penetration in Turkey (24%) and the highest in the UK (82%). Discussions on a proposal for a new EU Food Information to Consumers Regulation are drawing to a close and while the nutrition declaration will become mandatory (BOP), provisions for FOP nutrition remain voluntary. Member states will also have the ability to recommend additional forms of expression for FOP labels subject to meeting certain criteria. There are a range of views and little consensus on the form that FOP labels should take.