Educational inequalities in mortality in the Netherlands

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Abstract

Social inequalities in health are substantial in most European countries and reducing these inequalities is clearly a major challenge for public health. Because of the substantial efforts that have been made to map the magnitude and variation of social inequalities in health in all corners of Europe, researchers today are mainly concerned with monitoring health inequalities by means of updated analyses. It may therefore come as surprise that one large European country is still a black spot on the map. In the Netherlands, the scarcity of data sources has led to a neglect of research on social inequalities in health. It is only now that we for the first time are able to obtain "baseline" estimates for the Netherlands. We linked the registries of death (1998–2007) with the Dutch Labour Force Surveys (1998–2002). We focused on adult population aged 30 years and more at the baseline and used educational attainment as a measure of socioeconomic position. The final dataset contained 345 267 individuals, including 14 697 deaths. The magnitude of educational differences in mortality was estimated by means of the Cox proportional hazard model. Furthermore, we calculated age-standardized mortality rates by education and cause of death, and life expectancy at age of 30 years. We applied the technique of life expectancy decomposition in order to obtain cause-specific contributions to the difference between the least and the most educated people. This opened new opportunities to research social variations in mortality in recently unexamined country.

Introduction

Although there are substantial social inequalities in health in most European countries, they do not remain the same over time (Kunst, Mackenbach, 1994; Huisman et al., 2004; Huisman et al., 2005; Mackenbach et al., 2008; Menvielle et al., 2010). Some evidence even indicates a widening gap between individuals at the lower and the higher ends of the social hierarchy. Due to the principle of equity in health care, reducing social inequalities in health is a major challenge for public health policy-makers.

The interest in examining social inequalities in health is substantial and increasing. However, we do not know the magnitude of these inequalities in the Netherlands because of the scarcity of data.

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Social inequalities in health probably exists in the Netherlands as well, given the fact that they are observed everywhere in Europe, but it is only now that we were able to obtain "baseline" estimates for this country.

The evidence on social inequalities in health in the Netherlands goes back to the 1960s, 1970s, 1980s and 1990s (Kunst, Looman, Mackenbach, 1990; Spruit, 1990; Mackenbach, 1992; Mackenbach, 1993). Recently, much work has been done on exploring the impact of risk factors such as smoking, alcohol consumption, obesity or physical activity on health and mortality. To explain social inequalities in health, most studies focused on the role of health care utilization, ethnicity and morbidity indicators such as self-reported health. Nevertheless, there are only a few estimates of all-cause and cause-specific mortality differences according to socioeconomic position.

We were able to link deaths by cause in the register of deaths with socioeconomic information collected in the Dutch Labour Force Survey. This linkage between the register of deaths and the Dutch Labour Force Survey between 1998 and 2007 has opened new opportunities to examine social variations in mortality in the Netherlands.

The aim of this study was to estimate the magnitude of educational inequalities in all-cause and cause-specific mortality in the Netherlands. We aimed to focus mainly on broader groups of causes of death and on specific causes of death with high prevalence in the population. We believe that the combination of survival analysis techniques and demographic methods will fill the gap in the literature for the Netherlands.

Methods

Data

Data on the population and the number of deaths by sex, age, educational level and underlying cause of death were obtained from the Statistics Netherlands. We linked the death records (1998–2007) with the Dutch Labour Force Survey (1998–2002) by personal identification number. The Dutch Labour Force Survey (LFS) is a rotating panel survey and includes persons older than 15 years living in the Netherlands excluding persons in homes and institutions. Five years of baseline of the Dutch LFS (1998-2002) were available for the linkage with register of death. We selected people at the age of 30 years and above at baseline and followed them six years from each baseline year (i.e. we followed the people in the register of deaths for 1998–2003, 1999–2004, 2000–2005, 2001–2006 and 2002–2007 for the baseline years 1998, 1999, 2000, 2001 respectively 2002). The individuals who died beyond the follow-up time for each baseline were treated as alive. Individuals in the register of deaths who we could not link to any of the Dutch LFS years were deleted from the final dataset. Our final dataset contained 345 267 individuals, including 14 697 deaths and 1 881 763 person years.

The highest educational level achieved was selected as a measure of socioeconomic status. For the sake of international comparability, the Dutch educational system was recoded into four categories according to the International Standard Classification of Education (ISCED) – primary (ISCED 0-1), lower secondary (ISCED 2), upper secondary (ISCED 3-4) and tertiary education (ISCED 5-6). Table 2 gives an overview about the educational structure in the Netherlands in the investigated years 1998–2007.

Due to limited number of deaths, the analysis was restricted to broader causes of death (infectious diseases, respiratory diseases, cardiovascular diseases, cancer, external causes of death and other

causes of death) and specific causes of death with high prevalence in the population (ischemic heart disease, cerebrovascular diseases, other cardiovascular diseases, stomach cancer, colorectal cancer, lung cancer, breast cancer for women, prostate cancer for men, other neoplasms, diabetes, traffic accidents, violent causes of death and other external causes of death). The causes of death were classified according to the 10th Revision of the International Statistical Classification of Diseases and Related Health Problems. The complete coding of causes of death is provided in the table 1.

Methods

We analyzed mortality for the Dutch population aged 30+ separately for women and men using STATA software version 11.0. Men and women with unknown educational level were not included in the analysis. The magnitude of educational inequalities in mortality was estimated by both relative and absolute measures of inequality. With respect to absolute measures, we calculated standardized mortality rates according to the educational level using European standard population as a standard. The relative inequalities in all-cause and cause-specific mortality were measured as hazard ratios by the means of Cox proportional hazard model. The tertiary educated Dutch men and women were treated as a reference category.

As a summary measure for mortality, we calculated period life expectancies at the age of 30 years. These life expectancies were computed according to the standard life table technique (Chiang, 1984) using the 5-year age groups and education-specific death rates. In addition, we applied the decomposition method, which was developed independently by Andreev (1983), Arriaga (1984) and Pressat (1985). We were therefore able to obtain age-specific and cause-specific contributions to the difference in life expectancy at age 30 between the least and the most educated men and women.

Results

The results of the Cox proportional hazard models for selected causes of death can be found in tables 3 and 4. With respect to all-cause mortality, men had higher risk of dying across all educational categories than women and this risk increased with increasing level of education. The mortality risk of primary educated men was 1.8 times higher than tertiary educated men and the mortality risk of primary educated women was 1.7 times higher than tertiary educated women.

Regarding the cause-specific mortality, we found large educational inequalities in mortality from respiratory diseases and cardiovascular diseases for both men and women, and from external causes of death for men. The risk of dying from respiratory diseases was almost four times higher among primary educated men (HR=3.7) and more than doubled among primary educated women (HR=2.6). The mortality risks of cardiovascular diseases and external causes of death were for primary educated men twice as high as for tertiary educated men. The magnitude of cancer mortality is in relative terms smaller (HR=1.5 for both men and women) compared to the above mentioned cause-of-death categories.

On the level of specific causes of death, large mortality inequalities between the least and the most educated people (HR>2) were observed in ischemic heart diseases, stomach cancer, lung cancer, diabetes, traffic accidents and other external causes of death for men, and in ischemic heart disease, lung cancer and diabetes for women. The risk of dying from lung cancer was about three times higher among primary educated men and women than among tertiary educated individuals.

We did not find statistically significant differences in mortality between less and more educated people for colorectal cancer, prostate cancer, infectious causes of death, violent causes of death among men, and for stomach cancer, colorectal cancer, breast cancer and external causes of death among women. This is most likely due to low number of deaths for these causes.

The differences in mortality according to the educational attainment can also be measured by absolute measures of inequality such as age-standardized mortality rates. The all-cause and cause-specific mortality rates are shown in table 5. It is evident that the mortality rates for women are consistently lower than the mortality rates for men across all educational categories and for all causes of death under observation. Regarding the broader cause-of-death categories, the lowest mortality was observed from infectious diseases for both men and women and across all educational categories. Among men, the highest mortality rates were found in mortality from cardiovascular diseases for primary and lower secondary education, and in mortality from cancer for upper secondary and tertiary education. Among women, the highest mortality rates were found in mortality from cardiovascular diseases for primary education, and in mortality from cancer for lower secondary, upper secondary and tertiary education.

We also observed a reversed social gradient for colorectal cancer among men, and for breast cancer and external causes of death among women. This means that the excess mortality is observed among higher educated. According to the results, higher educated men had higher risk of dying from colorectal cancer than less educated men. Lower secondary, upper secondary and tertiary educated women had higher mortality from breast cancer and external causes of death than primary educated women.

Apart from the relative and absolute measure of inequality, we computed summary measures of mortality according to the educational attainment. The life expectancies at age of 30 years according to the educational level are presented in figure 1. The life expectancy increased with increasing level of education. However, the differences between upper secondary and tertiary educated women were very small (0.2 years). The difference in life expectancy at age 30 between the least and the most educated individuals was approximately 6.0 years among men and 5.1 years among women. The major contributor to these differences were cardiovascular diseases for both men (2.1 years) and women (1.8 years) and cancer (1.5 years for men and 1.3 years for women). The share of cardiovascular diseases and cancer on the total difference was about 35% respectively 25% for both men and women. The main reason for the educational differences in mortality from cardiovascular diseases was the excess mortality from ischemic heart disease among primary educated men and women. The driven force of the educational differences in mortality from cancer was excess mortality from lung cancer among primary educated men and women and excess mortality from other neoplasm among primary educated women. Other important causes of death which contributed more than 10% to the difference in life expectancy at age 30 among the least and the most educated people were respiratory diseases for both sexes, and other causes of death among women.

Looking at the age-specific decomposition, higher educational inequality in mortality was observed among older adults (65 years and more). The major contributors to the difference in mortality were the age groups 70–74 and 75-79 among men and age groups 70–74 and 80-84 among women. Whereas among older men lung cancer, ischemic heart disease and respiratory causes of death played the most important role regarding the educational inequality in life expectancy at age 30, among women was

the excess of mortality from cardiovascular diseases, other neoplasm and other causes of death responsible for the discrepancies between primary and tertiary education. Among women older than 70 years, we even observed a reversed gradient for lung cancer. In breast cancer mortality, the negative contributions to life expectancy differences were observed already from the age of 50 years.

Discussion

There are some limitations of the study. First, people living in institutions were not included in the Labour Force Survey. As these people are of high age we therefore assume that the overall mortality might be slightly underestimated. The percentage of people 65 years and older living in the institutions decreased since 1980s and was about 6% in the year 2003 according to the Statistics Netherlands. If the probability of dying in the institutions does not depend on education, then we have not overestimated or underestimated educational mortality differentials in the Netherlands.

Furthermore, we used education as a measure of socioeconomic position. Although education usually remains constant during adult life and old age (Lahelma et al., 2004), and reverse causation is less likely (Cutler, Lleras-Muney, 2008), education may not reflect changes in social position caused by educational expansion after the second world war. As a consequence of the educational expansion, primary educated individuals might have a lower status nowadays than in earlier times.

The reliability of cause-specific mortality might be violated due to mistakes in coding, filling death certificates or by diagnose identification. The selection of the underlying cause of death is to a certain extent subjective and depends on the coding practice, the local coding instructions and progress in medical knowledge. These could lead to either overestimation or underestimation of mortality from specific causes of death. However, Harteloh, de Bruin and Kardaun (2010) studied the reliability of cause-of-death statistics in the Netherlands and found out that for major causes of death such as cancer and heart diseases the reliability was higher than 90%.

References

Andreev, E. M. (1983): Metod komponent v analize prodolzjitelnosti zhizni. [The component method in analysis of life expectancy]. *Vestnik Statistiki* 3: 42–47.

Arriaga, E. E. (1984): Measuring and Explaining the Change in Life Expectancies. *Demography* 21 (1): 83–96.

Chiang, C. L. (1984): *The life table and its applications.* Malabar, Florida: Robert E. Krieger Publishing Company.

Cutler, D. M., Lleras-Muney, A. (2008): Education and health: evaluating theories and evidence. In: Schoeni, R. F., House, J. S., Kaplan, G. A., Pollack, H. (ed.): *Making Americans healthier: social and economic policy as health policy.* Russell Sage Foundation: 29–60.

Harteloh, P., de Bruin, K., Kardaun, J. (2010): The reliability of cause-of-death coding in The Netherlands. *European Journal of Epidemiology* 25 (8): 531–538.

Huisman, M., Kunst, A. E., Andersen, O., Bopp, M., Borgan J-K., Borrell, C., Costa, G., Deboosere, P., Desplanques, G., Donkin, A., Gadeyne, S., Minder, C., Regidor, E., Spadea, T., Valkonen, T, Mackenbach, J. P. (2004): Socioeconomic inequalities in mortality among elderly people in 11 European populations. *Journal of Epidemiology and Community Health* 58: 468–475.

Huisman, M., Kunst, A. E., Bopp, M., Borgan J. K., Borrell, C., Costa, G., Deboosere, P., Gadeyne, S., Glickman, M., Marinacci, C., Minder, C., Regidor, E., Valkonen, T., Mackenbach, J. P. (2005): Educational inequalities in cause-specific mortality in middle-aged and older men and women in eight western European populations. *Lancet* 365: 493–500.

Kunst, A. E., Looman, C. W. N., Mackenbach, J. P. (1990): Socio-economic mortality differences in the Netherlands in 1950–1984: A regional study of cause-specific mortality. *Social Science & Medicine* 31 (2): 141–152.

Kunst, A. E., Mackenbach, J. P. (1994): The size of mortalit differences associated with educational level in nine industrialized countries. *American Journal of Public Health* 84 (6): 932–937.

Lahelma, E., Martikainen, P., Laaksonen, M., Aittomäki, A. (2004): Pathways between socioeconomic determinants of health. Journal of Epidemiology and Community Health 58: 327–332.

Mackenbach, J. P. (1992): Socio-economic health differences in the Netherlands: A review of recent empirical findings. *Social Science & Medicine* 34 (3): 213–226.

Mackenbach, J. P. (1993): Inequalities in health in the Netherlands according to age, gender, marital status, level of education, degree of urbanization, and region. *European Journal of Public Health* 3 (2): 112–118.

Mackenbach, J. P., Stirbu, I., Roskam, A. J. R., Schaap, M. M., Menvielle, G., Leinsalu, M., Kunst, A. E. (2008): Socioeconomic inequalities in health in 22 European countries. *The New England Journal of Medicine* 358: 2468–2481.

Menvielle, G., Leclerc, A., Chastang, J. F., Luce, D. (2010): Socioeconomic inequalities in cause specific mortality among older people in France. *BMC Public Health* 10: 260

Pressat, R. (1985): Contribution des écarts de mortalité par âge à la différence des vies moyennes. *Population*, 40: 766–770.

Spruit, I. P. (1990): Health and social inequities in the Netherlands. *Social Science & Medicine* 31 (3): 319–329.

Table 1: List of causes of death according to the 10th Revision of International Standard Classification of Diseases and Related Health Problems

Causes of death	**ICD-10**
All-cause mortality	A00–Y98
Cardiovascular diseases	I00–I99
- Ischemic heart disease	I20–I25
- Cerebrovascular disease	I60–69
- Other cardiovacular diseases	Rest (I00–I99)
Cancer	C00–D48
- Stomach cancer	C16
- Colorectal cancer	C18–C21
- Lung cancer	C33–C34
- Breast cancer	C50
- Prostate cancer	C61
- Other neoplasms	Rest (C00–D48)
Infectious causes of death	A00–B99
Respiratory causes of death	J00–J06, J10–J18, J20–J22, J40–J47
Diabetes	E10–E14
External causes of death	V01–Y98
- Traffic accidents	V01–V99, Y85
- Violent causes of death	X60–X84, Y87.0, X85–Y09, Y87.1
- Other external causes of death	Rest (V01–Y98)
Other causes of death	Rest (A00–Y98)

Source: World Health Organization

Table 2: Educational structure (in %), Dutch population, 30+ years, 1998–2007

	Primary	**Lower secondary**	**Upper secondary**	**Tertiary**
Men	11.0	22.9	41.0	25.2
Women	15.0	30.9	36.9	17.3
Total	13.0	26.9	38.9	21.2

Source: Statistics Netherlands, authors' calculations

Table 3: Cox proportional hazard models (reference category = tertiary education), Dutch men, 30+ years, selected causes of death, 1998–2007

Causes of death	Primary education		Lower secondary education		Upper secondary education	
	HR	**95%-CI**	**HR**	**95%-CI**	**HR**	**95%-CI**
All-cause mortality	**1.79**	**(1.66–1.92)**	**1.56**	**(1.46–1.67)**	**1.25**	**(1.17–1.34)**
Cardiovascular diseases	**1.97**	**(1.73–2.25)**	**1.73**	**(1.54–1.96)**	**1.31**	**(1.16–1.48)**
- Ischemic heart disease	2.12	(1.73–2.60)	1.81	(1.50–2.18)	1.40	(1.16–1.68)
- Cerebrovascular disease	1.93	(1.42–2.62)	1.68	(1.27–2.23)	1.43	(1.08–1.90)
- Other cardiovacular diseases	1.85	(1.50–2.27)	1.68	(1.39–2.04)	1.17	(0.96–1.42)
Cancer	**1.52**	**(1.34–1.72)**	**1.46**	**(1.31–1.63)**	**1.28**	**(1.15–1.43)**
- Stomach cancer	2.24	(1.19–4.23)	1.83	(1.01–3.31)	1.58	(0.89–2.79)
- Colorectal cancer	0.76	(0.52–1.13)	0.81	(0.59–1.11)	0.88	(0.66–1.18)
- Lung cancer	2.84	(2.25–3.60)	2.47	(1.98–3.08)	1.86	(1.49–2.31)
- Prostate cancer	1.10	(0.73–1.64)	1.34	(0.95–1.88)	0.98	(0.69–1.40)
- Other neoplasms	1.25	(1.04–1.50)	1.23	(1.05–1.45)	1.22	(1.04–1.41)
Infectious causes of death	**1.40**	**(0.77–2.53)**	**0.73**	**(0.40–1.32)**	**0.78**	**(0.46–1.32)**
Respiratory causes of death	**3.70**	**(2.72–5.03)**	**2.85**	**(2.12–3.84)**	**1.68**	**(1.23–2.29)**
Diabetes	2.20	(1.46–3.31)	1.13	(0.75–1.71)	0.87	(0.58–1.31)
External causes of death	**1.92**	**(1.35–2.73)**	**1.55**	**(1.13–2.12)**	**1.02**	**(0.75–1.38)**
- Traffic accidents	2.35	(1.11–4.98)	1.54	(0.76–3.11)	1.08	(0.54–2.12)
- Violent causes of death	1.56	(0.90–2.71)	1.25	(0.78–2.00)	0.79	(0.50–1.25)
- Other external causes of death	2.30	(1.26–4.19)	2.07	(1.19–3.59)	1.38	(0.79–2.40)
Other causes of death	**1.58**	**(1.33–1.88)**	**1.28**	**(1.09–1.51)**	**1.12**	**(0.96–1.30)**

Source: Statistics Netherlands, authors' calculations

Table 4: Cox proportional hazard models (reference category = tertiary education), Dutch women, 30+ years, selected causes of death, 1998–2007

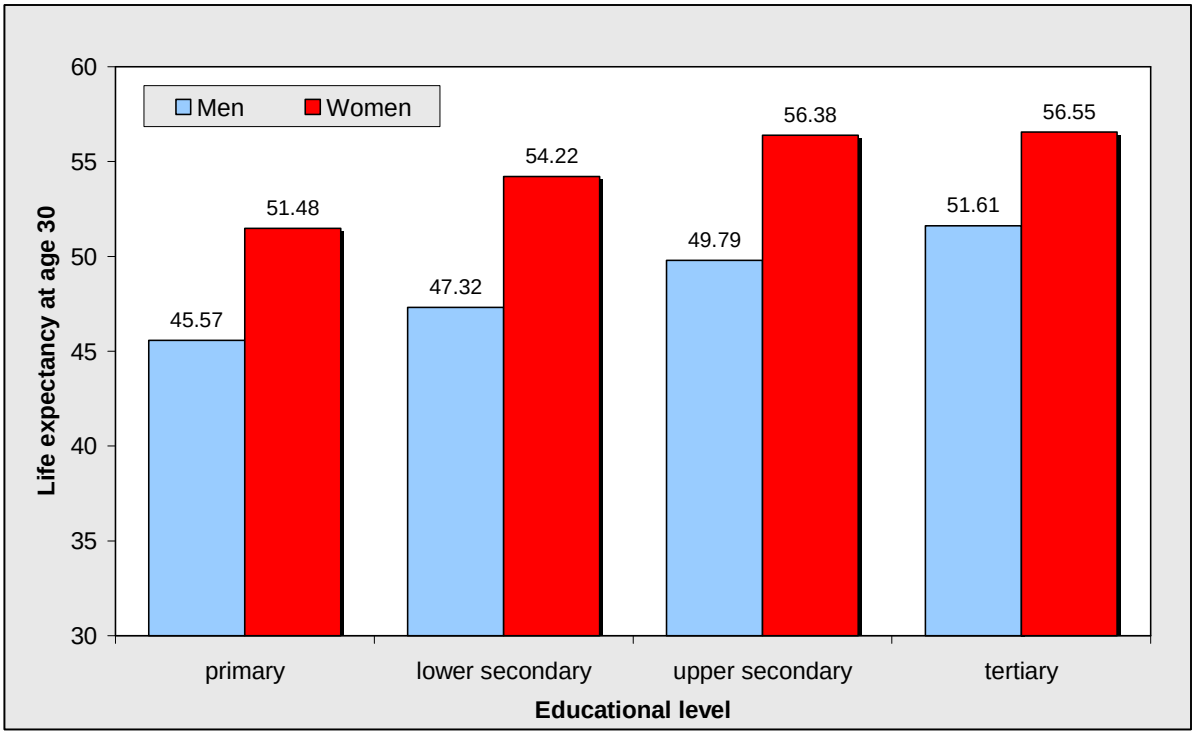
Causes of death	Primary education		Lower secondary education		Upper secondary education	
	HR	**95%-CI**	**HR**	**95%-CI**	**HR**	**95%-CI**
All-cause mortality	**1.68**	**(1.52–1.86)**	**1.37**	**(1.24–1.51)**	**1.13**	**(1.02–1.26)**
Cardiovascular diseases	**1.93**	**(1.58–2.35)**	**1.51**	**(1.24–1.84)**	**1.20**	**(0.97–1.48)**
- Ischemic heart disease	2.37	(1.64–3.43)	1.84	(1.28–2.65)	1.31	(0.89–1.93)
- Cerebrovascular disease	1.54	(1.06–2.22)	1.21	(0.84–1.75)	1.14	(0.78–1.68)
- Other cardiovacular diseases	1.92	(1.41–2.61)	1.50	(1.11–2.04)	1.17	(0.85–1.63)
Cancer	**1.47**	**(1.25–1.72)**	**1.26**	**(1.08–1.47)**	**1.15**	**(0.98–1.34)**
- Stomach cancer	1.57	(0.58–4.27)	2.04	(0.80–5.23)	1.17	(0.42–3.24)
- Colorectal cancer	1.31	(0.78–2.21)	1.29	(0.79–2.13)	0.92	(0.54–1.58)
- Lung cancer	3.09	(1.98–4.82)	2.01	(1.30–3.11)	1.96	(1.26–3.06)
- Breast cancer	1.03	(0.75–1.40)	0.87	(0.66–1.16)	0.83	(0.62–1.11)
- Other neoplasms	1.43	(1.13–1.81)	1.29	(1.03–1.62)	1.22	(0.97–1.54)
Infectious causes of death	**1.15**	**(0.53–2.48)**	**0.72**	**(0.34–1.56)**	**0.62**	**(0.27–1.44)**
Respiratory causes of death	**2.59**	**(1.57–4.29)**	**2.05**	**(1.24–3.39)**	**1.19**	**(0.68–2.06)**
Diabetes	2.84	(1.37–5.91)	1.92	(0.92–3.99)	1.36	(0.62–2.98)
External causes of death	**0.78**	**(0.48–1.27)**	**0.86**	**(0.56–1.34)**	**0.94**	**(0.61–1.46)**
- Traffic accidents	3.01	(0.60–15.08)	2.04	(0.43–9.66)	1.80	(0.38–8.50)
- Violent causes of death	1.18	(0.53–2.62)	0.92	(0.45–1.86)	1.18	(0.62–2.26)
- Other external causes of death	0.44	(0.23–0.84)	0.62	(0.34–1.14)	0.63	(0.33–1.21)
Other causes of death	**1.88**	**(1.49–2.37)**	**1.50**	**(1.19–1.89)**	**1.12**	**(0.88–1.44)**

Table 5: Standardized mortality rates by sex and educational level, Dutch population, 30+ years, selected causes of death, 1998–2007

Causes of death	MEN				WOMEN			
	Primary education	Lower secondary education	Upper secondary education	Tertiary education	Primary education	Lower secondary education	Upper secondary education	Tertiary education
All-cause mortality	**1594.9**	**1402.4**	**1108.3**	**936.4**	**950.5**	**734.9**	**617.0**	**587.0**
Cardiovascular diseases	**551.9**	**496.0**	**359.0**	**319.3**	**325.0**	**239.5**	**198.3**	**184.8**
- Ischemic heart disease	226.9	196.0	144.9	116.1	112.4	79.8	56.9	50.8
- Cerebrovascular disease	108.0	97.1	76.8	65.4	78.3	59.4	59.6	54.3
- Other cardiovacular diseases	217.0	202.9	137.4	137.7	134.3	100.4	81.9	79.7
Cancer	**488.3**	**473.8**	**418.0**	**323.7**	**309.3**	**256.6**	**237.1**	**212.9**
- Stomach cancer	21.8	17.3	16.5	11.2	9.0	11.1	6.4	6.7
- Colorectal cancer	36.6	41.0	42.0	50.2	30.0	28.8	21.0	23.0
- Lung cancer	189.4	165.7	128.1	62.4	67.2	41.7	43.1	26.2
- Breast cancer	-	-	-	-	60.2	49.1	48.7	54.7
- Prostate cancer	45.4	54.4	41.5	42.2	-	-	-	-
- Other neoplasms	195.2	194.8	189.8	156.5	142.9	126.0	117.8	102.2
Infectious causes of death	**19.8**	**10.7**	**12.8**	**12.8**	**12.6**	**7.1**	**6.3**	**11.4**
Respiratory causes of death	**183.1**	**144.3**	**84.5**	**56.1**	**68.0**	**49.2**	**29.5**	**26.7**
Diabetes	56.9	29.3	22.6	27.1	33.1	22.9	14.7	12.3
External causes of death	**70.5**	**53.8**	**36.2**	**33.7**	**21.9**	**22.6**	**24.1**	**32.3**
- Traffic accidents	14.6	9.7	7.2	5.1	3.8	3.3	52.7	0.8
- Violent causes of death	27.3	17.4	11.2	13.0	8.3	6.4	8.8	6.8
- Other external causes of death	28.6	26.7	17.8	15.5	9.8	12.9	12.6	24.7
Other causes of death	**281.3**	**223.8**	**197.7**	**190.8**	**213.7**	**159.8**	**121.7**	**119.0**

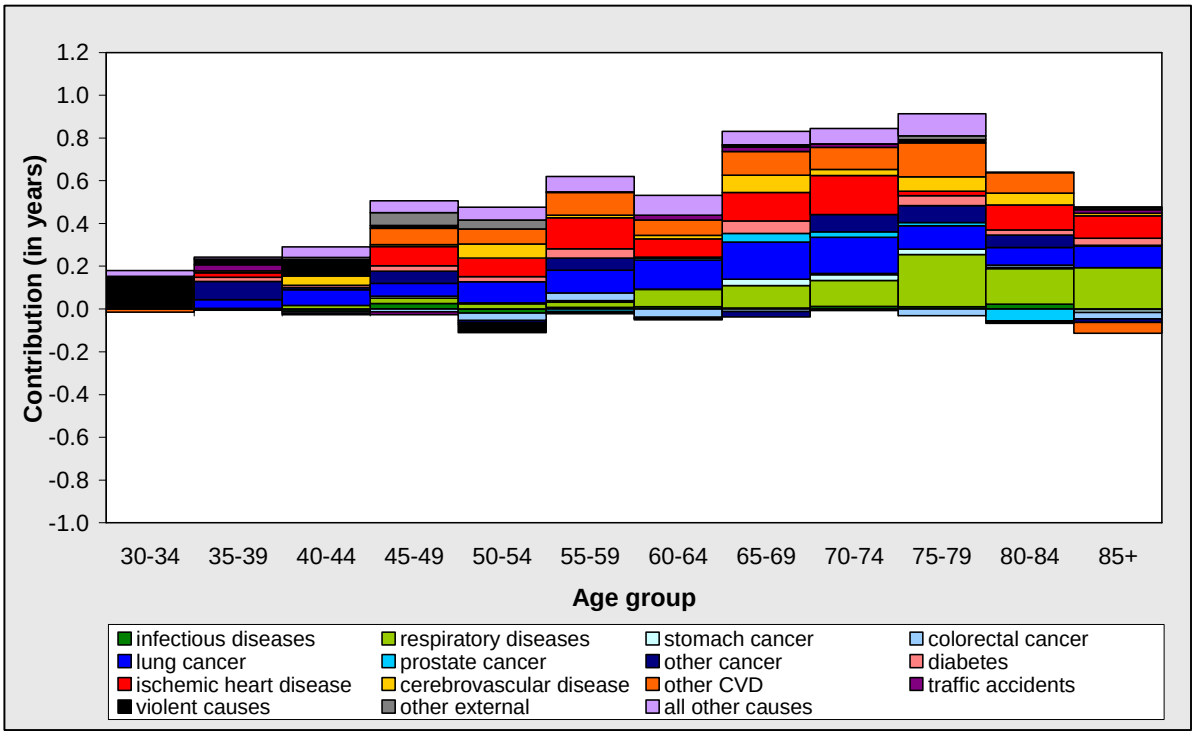
Source: Statistics Netherlands, authors' calculations

Figure 1: Life expectancy at age 30 by sex and educational level, Dutch population, 1998–2007



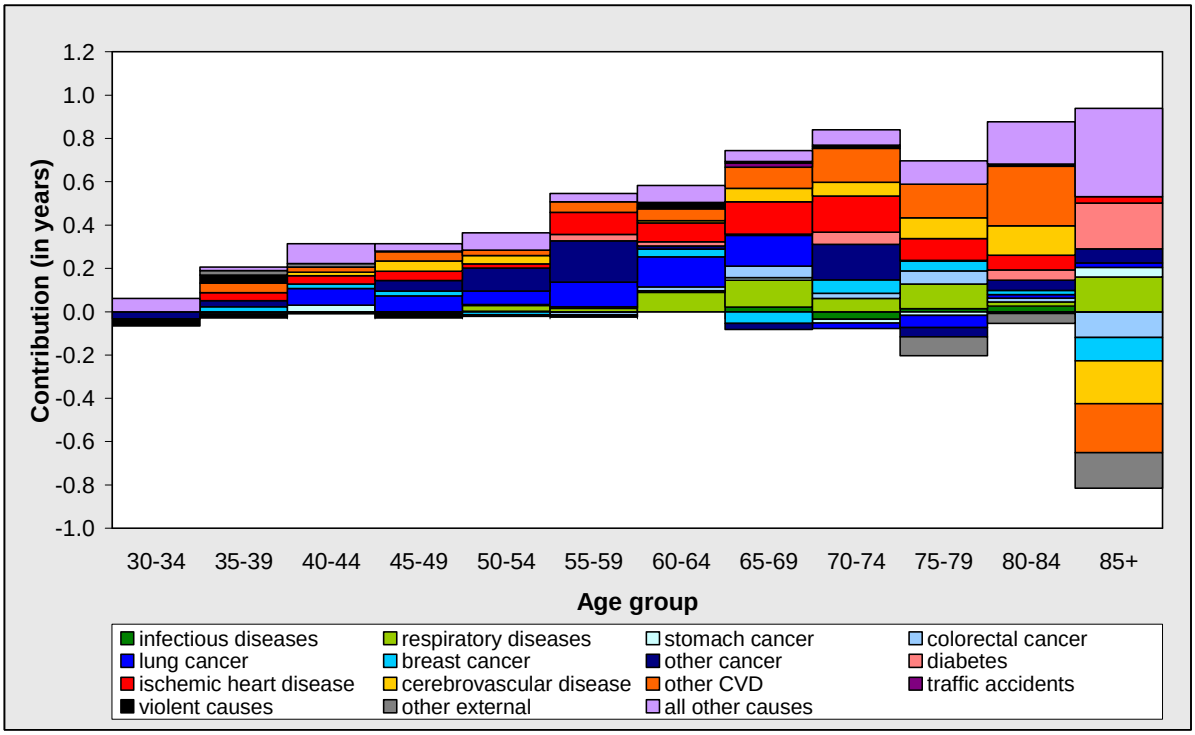
Source: Statistics Netherlands, authors' calculations

Figure 2: Contributions (in years) of age groups and causes of death to the difference in life expectancy at age 30 between the least and the most educated, Dutch men, 1998–2007



Source: Statistics Netherlands, authors' calculations

Figure 3: Contributions (in years) of age groups and causes of death to the difference in life expectancy at age 30 between the least and the most educated, Dutch women, 1998–2007



Source: Statistics Netherlands, authors' calculations