

Health Inequalities Among Elderly People

Diseguaglianze di Salute tra gli Anziani

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Riassunto

L'articolo esamina le disuguaglianze sociali nella salute tra gli anziani, richiamando i risultati dei principali studi comparativi europei, e discutendo con i pochi dati italiani disponibili i principali aspetti critici della descrizione e delle spiegazioni di queste disuguaglianze. I risultati mostrano che le disuguaglianze sociali nella mortalità, morbosità e disabilità sono rilevanti in entrambi i sessi e di dimensione comparabile tra i paesi europei; rispetto alle disuguaglianze osservate tra gli adulti esse sono di minore intensità relativa ma di maggiore impatto assoluto. La loro stima non risulta sostanzialmente influenzata da distorsioni di misura e di selezione. Una parte significativa di queste disuguaglianze è attribuibile a disuguaglianze di esposizione a fattori di rischio intervenute nelle fasi precedenti della storia di vita, e, quindi, contrastabili con interventi di prevenzione prima dell'invecchiamento. Tuttavia è verosimile che interventi mirati alla riduzione delle disuguaglianze nella prevenzione e nell'assistenza socio-sanitaria nelle età anziane siano in grado di ritardare l'inizio e di rallentare l'evoluzione di molti problemi di salute dell'anziano, in particolare della non autosufficienza.

Keywords: mortality, morbidity, elderly, inequalities

1. Introduction

In all European countries people with lower level of education, lower occupational class, or lower income tend to die at younger age, and to have a higher prevalence of morbidity and disability. According to many authors, such differences in health are avoidable and, then, unacceptable, representing one of the Europe's greatest challenges for public health (Mackenbach 2005, Judge 2005). However, most studies that have described, and provided explanations for, socioeconomic inequalities in health in developed countries have done so for middle age populations.

This paper focuses on elderly people and on the distinctive characteristics of socioeconomic health inequalities in this age group. For the purpose of this paper, socioeconomic inequalities in health will be defined as systematic differences in rates of several health indicators (mortality, morbidity, lifestyles, healthcare utilization) between people of higher and lower socio-economic status, as indicated by e.g. level of education, occupational class or income level.

The paper will start from the description of the European profile; then it will summarize the main issues relating to the study of socio-economic health inequalities among older populations, using the poor available evidence coming from Italian research; and it will conclude with a discussion of the main implications for research and interventions.

2. Europe in profile

This paragraph synthesizes a review of a series of international comparative studies of health inequalities in Europe (Mackenbach 2005).

Data on inequalities in mortality are available for at least 21 European countries, even if with potential problems of comparability. The overall picture is clear and shows mortality rates consistently larger in lower than in higher socio-economic groups. Inequalities in mortality persist into the highest age-groups. Relative inequalities (rate ratios comparing a lower and a higher socio-economic group) decrease gradually with age. On the other hand, absolute inequalities (rate differences) increase consistently with advancing age, and reach their highest values among the oldest old (e.g. 90+). Inequalities in mortality are smaller among women, but only in the youngest adults; the rate ratios decline rapidly with age among men and not among women. The gender difference in the size of inequalities is due to the different mix of causes of death and the related risk factors that characterizes the mortality in the two genders. Cardiovascular diseases contribute most for the excess mortality in lower socio-economic groups (40% in men and 60% in women); then cancer (24% and 11%), injuries (5% and 0%) and “other diseases” (32% and 30%). But there are important differences between countries: ischaemic heart disease gives a major contribution to inequalities in mortality in the North European countries, and much less important in the South, which remains at an earlier stage of many epidemiological developments (such as smoking related causes of death).

As far as self-reported morbidity is concerned, rates are usually higher among those in a lower socio-economic group in at least 19 European countries with available and comparable data. Substantial inequalities are found in the prevalence of less than good self-reported health, long standing limiting diseases, most specific diseases (including mental health) and most specific forms of disability. Over the past decades, inequalities in morbidity have been rather stable. These inequalities in self-assessed health, limitations in daily activities, and long-term disabilities persist into old-age, until at least the seventh decade of life. Where more objective data have been available for comparison (e.g. grip strength and walking speed) (Avendano 2005), similar pictures of higher impairment in lower socio-economic groups have been obtained, demonstrating that inequalities in self-reported disability are real and not a matter of reporting bias.

European data on determinants of health inequalities are limited to a few behavioural risk factors, such as smoking, overweight and nutrition. Reducing the prevalence of smoking in lower socio-economic groups is a key ingredient of any strategy to tackle health inequalities. A comparison of 23 European countries (Mackenbach 2005, Huisman 2005) has demonstrated a North-South gradient, with larger inequalities in current smoking in the North of Europe and smaller (sometimes even “reverse”) gradients in the South, particularly in the case of women.

3. The socio-economic inequalities among older populations: a missing issue for research

Probably one of the most important gaps in the research on socioeconomic inequalities in health has been the neglect of older populations up to some years ago. According to the theory of social stratification of aging and health (House 1990), level of health becomes increasingly differentiated by socioeconomic status over the adult life course, until later old age when some combination of social and biological factors reduce socioeconomic inequalities in health again. Studies covering this topic were heterogeneous in several respects and showed health inequalities of different size depending on age group, gender, health outcome, social measure and country considered; a European study has provided the afore-mentioned comparative results (Huisman 2004).

Only recently a new longitudinal Survey on Health, Aging and Retirement in Europe (SHARE) has been initiated, providing comparable measurement, across 10 European countries, of heterogeneity in well-being, physiologic and cognitive characteristics among a sample of thousands of over-fifty individuals, and looking at the influences of important life events such as retirement, poverty, functional decline, disease, relocation into institutional living, bereavement, and of the quality of social support (Avendano 2005). Some preliminary analyses from SHARE are encouraging (Borsch-Supan 2005), but data on socio-economic inequalities in health among the oldest group are still lacking.

4. How large are socio-economic inequalities in health among elderly populations

For descriptive purposes, the most important issue remains: how large are socio-economic inequalities in health among elderly populations? Indeed, measuring socioeconomic status of elderly is sometimes difficult and we need to integrate several measures. The concept of health is broad and elusive: mortality is a powerful measure, but death is often preceded by years of life with reduced physical functioning and disability. Mortality is an objective measure, to be broken down into specific causes that facilitates discussion on explanations. Self-reported measures of health, morbidity and functioning can be influenced by differential reporting between social and cultural groups. A recent study has compared self-reported and performance-based measures with respect to socioeconomic inequalities in disability in two longitudinal studies, one from the Netherland (LASA) and one from Italy (ILSA) (Huisman 2005). In LASA the higher self-reported disability among the lower educated people does reflect a higher prevalence of bad physical functioning in these groups and is not due to differences in reporting behaviour. In ILSA, the educational inequalities in self-reported disability were found to be larger than the ones in performance-based disability, suggesting that other factors in addition to physical functioning played a role in generating inequalities in disability.

4.1. Mortality inequalities in Italy

As for the social distribution of mortality, Italian data date back to the 1980s. Results from the six-month mortality follow-up after the 1981 census highlighted very regular inequalities by education indicating that one-quarter of the deaths of individuals aged 18-74 years could be ascribed to low educational degree (Istat 1990, Faggiano 1993). The second survey following the 1991 census, showed increasing inequalities among men, but these results were considered less reliable and had little impact due to high level of incomplete follow-up (Istat 2001). In both surveys the magnitude of educational inequalities in mortality rates decreases with age.

More recently, on an aggregate basis, 1991-97 mortality appeared directly correlated with the score of a composite deprivation index computed at the municipality level: the gradient was present for both genders, and was steeper among adults than among the elderly (Cadum 1999).

More reliable data on mortality by socioeconomic characteristics are available only from local longitudinal studies and, in particular, from the Turin Longitudinal Study (TLS) (Costa 1998), which has been included, as the only representative sample for Italy, in quite a few European comparative studies sponsored by the European Union (Mackenbach 2005). A comparison of mortality by educational level, age class and calendar time is shown in table 1. Among the elderly groups low education was associated to about a 20% excess of mortality, resulting in a deficit of less than one year of life expectancy at 65 years, compared to more educated. Same inequalities are observed according to other social indicators: the old people living in poor housing show the highest risk of dying in both genders. According to these results, the relative social inequalities in mortality seem to be widening across the past thirty years among adults and stable among elderly.

Table 1. Mortality and life expectancy by educational level, gender, age class and calendar time

gender	age	TIME	RR* low/high education	life expectancy low-high education
males	20-59	70's	1.4	-1.0 ^(a)
		80's	1.5	-1.2 ^(a)
		90's	2.0	-2.1 ^(a)
	60 +	70's	1.1	-0.5 ^(b)
		80's	1.2	-1.0 ^(b)
		90's	1.2	-0.8 ^(b)
	20-59	70's	1.2	-0.3 ^(a)
		80's	1.1	-0.4 ^(a)
		90's	1.4	-0.6 ^(a)
females	60 +	70's	1.2	-0.5 ^(b)
		80's	1.3	-0.7 ^(b)
		90's	1.2	-0.5 ^(b)

* Rate ratio adjusted for age and area of birth

(a) at 20 years

(b) at 65 years

4.2. Morbidity inequalities in Italy

In the Italian Health Interview Survey 1999-2000 four conditions of health need (bad or very bad self-reported health, at least two chronic diseases, mild and severe disability) were increasing with decreasing education, satisfaction of income and with social class (before retirement) among both youngest old and oldest old. Figure 1a-b presents results for males and females, respectively (Vannoni 2004).

The size of inequalities was smaller among the oldest old, probably due to the selection of unhealthy oldest people towards institutions, which are usually excluded from sampling in health interview survey.

Indeed institutionalisation may still play a role in the exclusion of poor unhealthy people. In the Turin Longitudinal Study among 63,457 people 65 years or more living in private houses at 1981 census and still alive and resident at 1991 census 3.3 % became institutionalised at 1991 census; the less educated individuals had 4.5 times higher chances to enter an elderly house compared to their more educated counterparts. Institutionalised people with low education status demonstrate the worst mortality profile (SMR= 140) compared to the ones with high education (SMR= 122) (Costa, 1998).

Figure 1a: Health conditions in the elderly of the lowest socio-economic position respect to the highest one (males ≥ 75 years old)

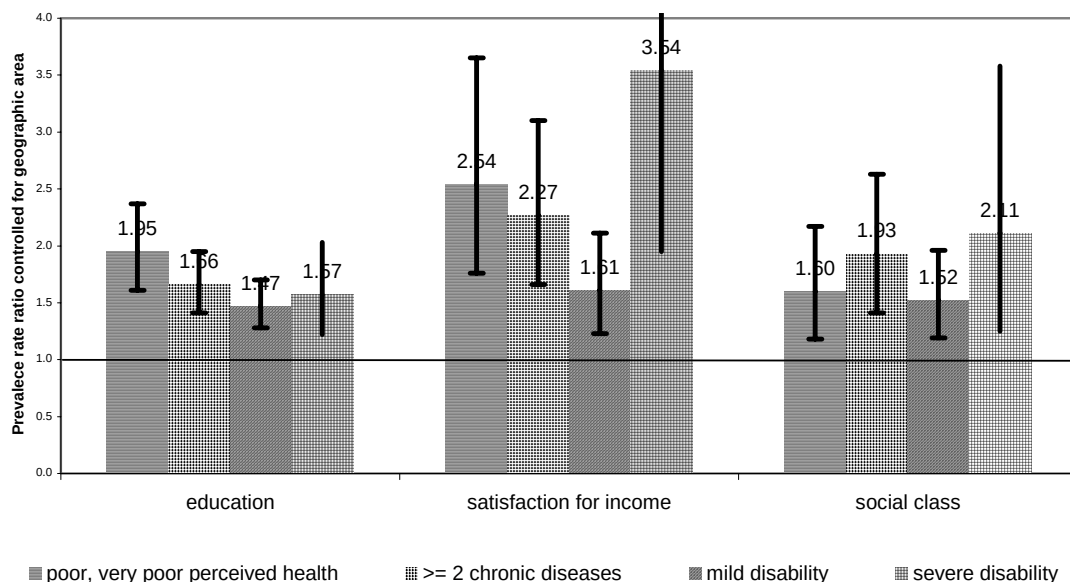
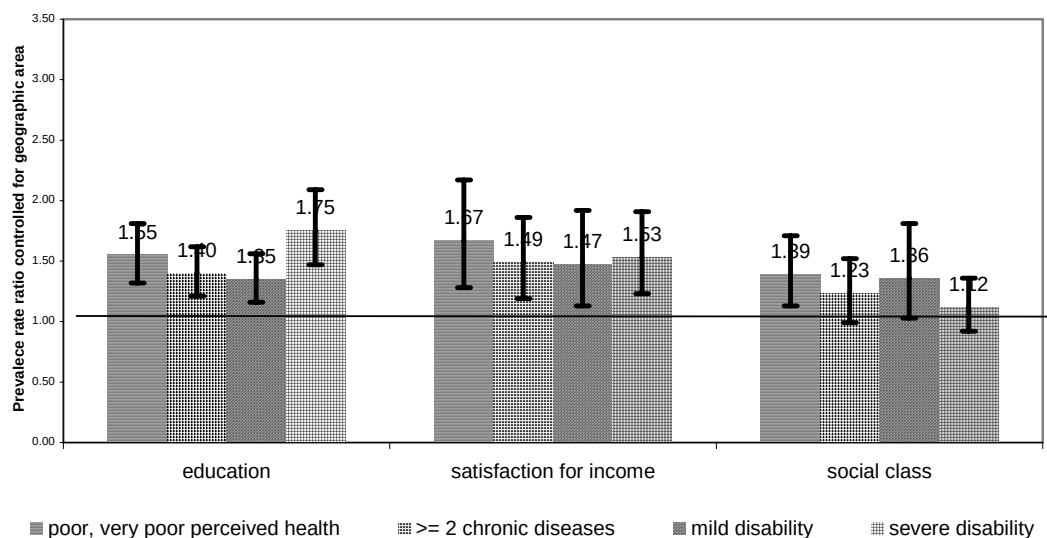


Figure 1b: Health conditions in the elderly of the lowest socio-economic position respect to the highest one (females ≥ 75 years old)



Piedmont data of the two 1994 and 1995 General Household Surveys, pulled together, were analysed according to a summary index of dissatisfaction for both income conditions and family relationships and adjusted for education, in order to disentangle the present disadvantages in economic and social support of elderly people, independently from their unfavourable life courses expressed by education. According to this index, the prevalence variations of health related conditions, adjusted by education, give an estimate of the size of inequalities in health for poor elderly, irrespectively of cultural differences. Chronic diseases, limitation of autonomy, a less than good evaluation of health status, and exposure to risk factors like smoking, alcohol and incorrect diet habits are more frequent among disadvantaged elderly of both genders (except smoking among women) (Table 2) (Costa 2000).

Table 2: Inequalities¹ in health related conditions among elderly in the 1994-95 General Household Survey in Piedmont

health conditions	prevalence ratio (IC95%)	
	males	females
less than good health status evaluation	1.66 (1.24-2.22)	1.39 (1.03-1.87)
at least two chronic disease	1.18 (0.94-1.48)	1.26 (1.04-1.52)
limitation of autonomy	1.48 (0.88-2.49)	1.26 (0.74-2.15)
current smoking	1.17 (0.55-2.47)	0.53 (0.08-3.40)
alcohol over consumption	1.53 (0.59-4.01)	
at least two incorrect diet habits	2.71 (1.48-4.95)	2.52 (1.51-4.21)

¹ Ratio of prevalence among individuals who declare to be unsatisfied of their income and familiar relationships to individuals referring to be satisfied of at least income or familiar relationship. Adjusted by education.

5. Selection bias in mortality

It is important to understand mortality and morbidity as interconnected phenomena that may influence the occurrence of each other: e.g. the mechanism of “mortality selection” may sometimes explain the finding that inequalities in health decrease with increasing age, because the frail people of lower social groups may die earlier than those of higher ones. However, a recent simulation on data from the Longitudinal Aging Study in Amsterdam (LASA) demonstrated that the mechanism of mortality selection hardly influenced social inequalities in disability in the oldest ages (Huisman 2004).

On the contrary, in the Turin Longitudinal Study, life expectancy and healthy life expectancies at 35 and at 55 years clearly show the impact of such social selection in survival: the disadvantages of working classes in life and healthy expectancy decrease with age, because of the premature mortality of more vulnerable people in this class (Table 3); the only exception being the case of disability free life expectancy, that usually does not show inequalities in the working force due to another selection bias, the so-called “healthy worker effect”.

Table 3 – Health expectancy for social class - Men

SOCIAL CLASS	Total		With good perceived health		Without chronic diseases		Without disability	
	age		age		age		age	
	35	55	35	55	35	55	35	55
Upper middle class	37.5	18.3	35.9	17.7	18.9	7.6	33.9	17.7
White collars	36.8	17.9	34.9	17.3	18.1	6.9	33.5	16.9
Middle class	36.4	17.6	34.7	17.2	17.5	6.6	33.6	16.9
Blue collars	35.9	17.5	33.2	16.9	16.7	6.2	33.3	16.4

6. Cause specific mortality

Determining which causes of death do show large inequalities and which do not, may provide valuable clues about explanations and in this way highlight critical points to be addressed by policies and interventions.

The causes of death that explain most of this disadvantage are the ones related to long histories of poverty and unwholesome living conditions (like stomach cancer and respiratory diseases), to alcohol consumption (like liver cirrhosis), to smoking (like lung cancer among males), to psychological uneasiness (like suicide), and to diet and metabolic disorders (like diabetes and ischaemic heart diseases among females) and to hypertension (like cerebrovascular disease) (Table 4) (Costa, 1998).

Table 4: Cause-specific mortality inequalities¹ in Turin 1991-96 among elderly people (65+) living in poor housing (with no domestic bathroom) by age and sex

selected causes of death	males		females	
	60 - 74 SMR	75 + SMR	60 -74 SMR	75 + SMR
all causes	125*	112*	129*	105*
stomach cancer	116	154*	147*	136*
lung cancer	142*	146*	130	109
breast cancer	-	-	104	106
Diabetes	98	75	132*	99
psychonervous diseases	110	134	128	90
ischaemic heart diseases	101	92	142*	94
cerebrovascular diseases	121*	107	126*	100
respiratory diseases ¹⁵⁰⁺	150*	121	135*	109
liver cirrhosis	172*	121	142*	145
transportation accidents	171*	79	105	181
Falls	130	116	130	107
Suicide	206*	94	48	59
other causes	125*	118	130*	111*

¹ Standardized mortality ratios (SMR) using Turin general mortality as reference

* p<0,05

7. Inequalities in the prevalence of disability: incidence recovery or mortality?

Another contribution to the explanation of health inequalities may come from the study of inequalities in disability in a longitudinal perspective, determining the dynamics of incidence, recovery and mortality and how these dynamics affect inequalities in the prevalence of disability. A recent study comparing two European longitudinal studies (LASA from the Netherlands and ILSA from Italy) (Huisman 2005) established that education was more strongly related to incidence of disability than to recovery, a result that has also been reported by previous studies using different methods and measures of disability on data from different countries. These findings suggest that a higher social

position helps to avoid disability, but that it may lose part of its protective effect once disability is present.

However in the 1999-2000 Italian Health Interview Survey the direction of association between education and prevalence of mild disability was in favour of the more educated among the youngest old males and in favour of the less educated among the oldest old. On the contrary, the prevalence of severe disabilities was regularly higher among the less educated (Figure 2). The same results were observed for females and using other social indicators (Vannoni 2004). This changing pattern of inequalities from mild to severe disability could suggest a role of the present socio-economic conditions in the progression of disability from mild to severe. However, the same findings could be interpreted as a result of both a cohort effect and of a selection effect, and should be confirmed by a longitudinal extension of the survey.

8. Inequalities in the proximate determinants of health

Investigating how more proximate determinants of health are distributed over the socioeconomic groups may provide further contribution to the explanation of health inequalities among older populations. Several causal factors may contribute to the relationship of socio-economic position with morbidity, disability and mortality. These include long-term influences of childhood circumstances on adult health, the direct influence of social position on the unhealthy behaviours of individuals, the physical exposures related to manual labour in earlier life and the access to appropriate health and social care. All these circumstances may play a role in determining the occurrence of chronic diseases, and in avoiding or postponing the onset of disability and mortality. Research should try to estimate the relative contributions of these and other possible causal factors to the observed association of education with incidence of disability.

In the Italian Health Interview Survey, 1999-2000, most of the health damaging lifestyles showed significant excesses in prevalence among the more disadvantaged, only in the youngest group of the elderly old of both genders (Figure 3a-b). Only smoking is either unrelated to socio-economic position (males) or directly related to social position (females), confirming the delay in social transition of the smoking epidemic in most of the Mediterranean countries. In the oldest old, social indicators were unrelated to unhealthy lifestyles (results not presented).

Figure 3a: Health conditions in the elderly of low socio-economic position compared to the most advantaged group (males 65-74 years old)

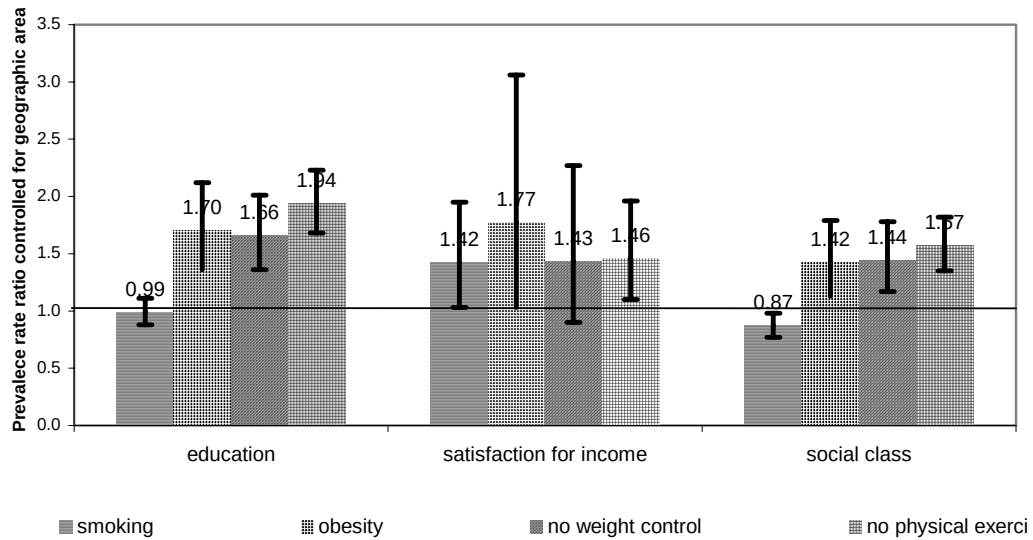
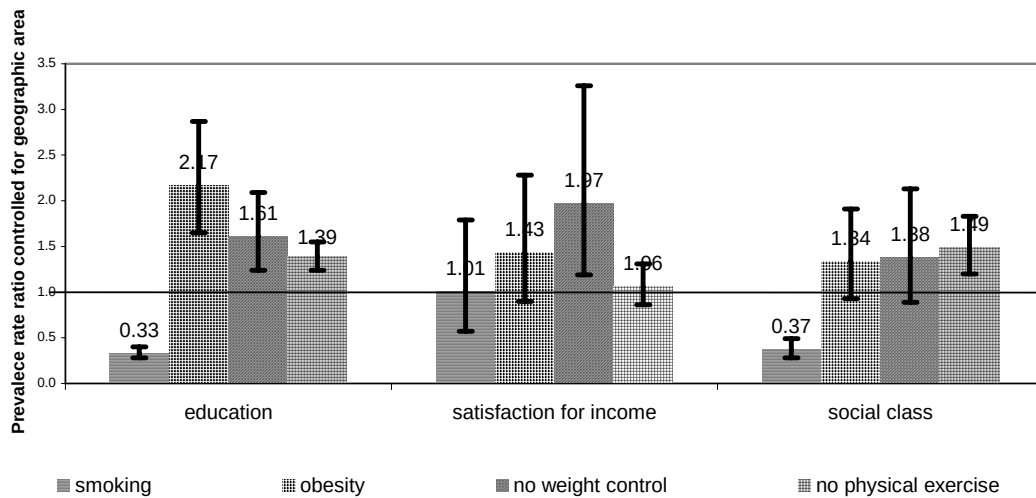


Figure 3b: Health conditions in the elderly of low socio-economic position compared to the most advantaged group (females 65-74 years old)



From the health care point of view, the 1994 General Household Survey showed a prevalence of services utilisation that was not influenced by income adequacy, except for GP's ambulatory care and emergency care; given that poor elderly suffer more often from chronic diseases and disability, an evenly homogeneous utilization of health care may be an indicator of social barriers to the access to health care by individuals in disadvantaged socio-economic position (Vannoni 1999). In a recent examination of inequalities in the prescription of statins (an effective treatment for preventing a re-infarction) to patients with previous myocardial infarction, significant social inequalities emerged, disadvantaging the less educated, particularly in the elderly groups (Gnavi

2006). There should be more epidemiological investigation on inequalities in access to effective and appropriate interventions in health care, at least for the categories of disease that have the highest impact on the burden of disability and mortality among elderly population.

9. Conclusions

The results presented indicate that there are substantial socioeconomic inequalities in mortality, morbidity and disability among older men and women, which are of comparable magnitude across Europe. It is important to adopt a life course approach in explaining socioeconomic inequalities in health in old age, because a considerable part will be determined by factors occurring earlier in the life course, such as working in physically demanding jobs, or being continuously exposed to adverse housing and environmental conditions, to unhealthy lifestyles and to other material and psychosocial stressors. It is likely that interventions that are successful in reducing inequalities in health earlier in the life course are capable to carry their effects through to inequalities in health among the elderly. However, interventions specifically aimed at older people may still be warranted, for instance to reduce inequalities in the onset and in the rate of progression of disability, both on the side of prevention and on the side of health and social care.

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