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The Mortality and Health Status of Women

Katalin Kovács

Introduction

In developed countries the life expectancy of women is higher than that of men. Several studies examining the relationship between female mortality or morbidity and social stratification in the 1970s and 1980s came to the conclusion that the social determination of life chances and health was less robust among women than it was among men. These results—whose validity and general applicability are now questionable—provided solid grounds for placing men at the centre of research addressing differentials in mortality and morbidity. As a consequence, studies concerned with women's health often neglected issues related to social structure and had a tendency to single out specific—albeit far from insignificant—problems in the area of women's health, such as death due to breast cancer, as the focus of their attention.

The popularity of overgeneral theorizing on the health issues of women was grounded in early comparative morbidity studies, which concentrated first and foremost on complaints of a psychiatric nature and compared the frequencies of complaints by housewives on the one hand, and women working outside the home on the other (e.g. Gove and Tudor, 1973; Gove and Geerkin, 1977). These studies attempted to interpret their results in terms of a role framework, which soon became the standard among researchers investigating female mortality and morbidity. The spread of this, admittedly modern, framework had the paradoxical result that studies concerned specifically with the relationship between social stratification and female mortality/morbidity were rather overlooked. This is hardly surprising, considering the fact that numerous problems had been encountered in trying to specify the social position of women, especially in societies that subscribed to traditional forms of social division of labour. The first studies into this subject indicated unambiguously that the mortality and health of women were influenced to a far greater extent by their families, than by their social position. The next step had to wait till databanks allowing the concurrent and multidimensional description of the social position of women and their families were developed in the 1990s.

The picture emerging from the results of research using the new databases differs from our earlier conception of female mortality and morbidity

in several respects. Before turning to a discussion of issues related to female mortality and—the central topic of this paper—female morbidity, it is important to note that the image of society gained from studies of morbidity and that derived from looking at state of health refer to two distinct time slices: as death typically occurs in old age, mortality conveys a health-related impression of social conditions that predominantly reflects the life experiences of elderly cohorts. The investigation of issues of health status, by contrast, pays more attention to what are potentially substantially different levels of health (which are reliably good predictors of mortality at the level of the individual) among various cohorts.

The first aim of our paper is to find out whether the views discussed above regarding female mortality and morbidity can be upheld in light of the latest research results in a European context. The second part of the paper focuses on Hungary and attempts to answer the question of whether health-related variation connected with social differences is greater among men than among women, and whether it is the nature of women's own social status or the characteristics of their families' status that has a greater impact on women's physical condition.

Differences in mortality between men and women in Europe and Hungary

The indicator of life expectancy capturing overall conditions of mortality reveals a substantial advantage for women in the countries of Europe.[1] This advantage, however, has been steadily eroding recently .in the old member states of the European Union, the difference in the life expectancy of men and women varied between 5.1 and 8.1 years (depending on the country) around 1997, compared to 4.7 to 6.7 years in 2002. This trend is almost universal: of the 15 countries considered, only three showed a (slight) increase in the difference between men's and women's life expectancy over the same period. In the 12 remaining countries, men's life expectancy moved closer to women's, and in three or four of these the narrowing was substantial (around one year).

The gap between the life expectancy of men and women is considerably larger (7.6 to 11.3 around 1997) in the countries that joined the EU in 2004, but the trends are similar. Only four of these states have experienced a wid-

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[1] There are usually four patterns that are distinguished regarding the gender gap in life expectancy: one has been observed in Western and some other developed countries (characterized by 5–7 years difference), the second one in typical 'transitional' societies of Africa and Asia (2–4 years difference), a third one in other developing countries with especially very low status of women (no difference), and finally one in the European areas of the former Soviet Union and other Eastern European states (over 8 years) (Arber and Thomas, 2001).

ening of the gap between the life expectancy of men and women over the five years from 1997 to 2002. In the remaining six countries the gap narrowed, although, with the exception of Hungary, generally only slightly. Hungarian men's life expectancy at birth was 66.1 years in 1998, compared to 75.2 years for women in the same year—a difference of 9.1 years. In 2002 men's life expectancy at birth was 68.3 years, only 8.3 years shorter than women's life expectancy of 76.6 years.

Female-male life expectancy gap is large and increasing in the European areas of the former Soviet Union which have not joined the Union: 11.3 years in Ukraine, 13.2 years in the Russian Federation and 12 years in Belarus.

The relationship between the mortality of men and women, therefore, in European context at least, appears to be changing. The question is whether changes can be observed in male and female mortality with respect to its dependence on social stratification. Previously, as was mentioned above, the mortality of women was far less dependent on the major indicators of the position an individual occupies in the social structure, such as educational attainment or occupational group. According to the results of the most recent and most comprehensive study comparing the mortality patterns of several Western countries (Huisman *et al,* 2005), it is only within the middle-aged population (45 to 59 years) that social inequalities based on education are greater in male than in female mortality. In older age groups, inequalities in mortality show similar patterns. It is also interesting to note that, when it looked at all people aged 45 or over, the study found no significant differences between men and women in two regions of Southern Europe (Madrid and Barcelona, and Turin). These regions, representing the mortality patterns of the Southern countries, on occasion even showed higher levels of mortality for women than men (although differences were not statistically significant). The most likely interpretation of the results is that, in modern societies, the biggest social inequalities in male and female mortality have to do with the fact that, in the underprivileged social classes, death from cardiovascular disease is substantially more likely to occur among men than among women.

A recent comprehensive study (Kunst *et al.*, 2004) reports even smaller differences between the self-assessed state of health of men and women in the 10 European countries included in the survey. Among people aged 25 to 69, the—standardized—proportions of those who considered their state of health to be poor or especially poor were lower among women than among men in some countries (Finland). There were also a few countries (Italy and Spain) where women complained of poor health considerably more frequently than men; but in the majority of countries women were only slightly more likely than men to complain of health problems (Sweden, Norway, Denmark, West Germany, Austria and The Netherlands). As regards differences by level of education, variation was greater among women than among

men in several of the countries (Finland, Sweden, Norway, Denmark, West Germany, Spain) while the reverse was found in Great Britain, The Netherlands and Italy.

Several researchers—especially in Great Britain—believed in the past that indicators of social stratification were biased toward men, i.e. that women failed to display significant variation by, for instance, the British categories of social class customarily defined in terms of occupational group, because these factors could not capture differences that mattered from the perspective of female mortality (Sacker *et al.*, 2000). These researchers hold that differences between occupational groups in mortality should prove to be equally large among women and men, so long as the right model of social stratification is used. And indeed, measured on the Cambridge Scale,[2] the mortality of women in occupations belonging to the bottom seventh of the prestige scale were found to be 70% higher than the mortality of women within the most privileged seventh, a similar finding to that among men. The interpretation of these results is, however, far from straightforward: since the prestige scores of occupations on the Cambridge Scale are in part determined by the frequency of co-occurrence of occupations in marriages, it may be the case that the above study simply replicated earlier results, which showed that the patterns of female mortality and morbidity were primarily related to the position of respondents' families rather than to their own occupations.

Differentials in female mortality by level of education have also been measured in a Hungarian context by Klinger (2004). This comparative study covers mortality patterns in the period from 2000 to 2001. Looking at population groups with less than eight years of schooling, with eight grades of primary education, with certificate of secondary education ('érettségi', hereafter CSE), and with higher education we find that the mortality of men is far higher than that of women in each of the groups (the standardized mortality scores calculated for people aged over 20 are approximately twice as high for men as they are for women). Comparing people in the lowest educational group with secondary school graduates, we find that the mortality rates of the former are 90% higher among both men and women. Men's death rates mirror the educational hierarchy precisely; that is, the lower the level of education, the higher the mortality rate. In the case of women, a surprising phenomenon can be observed: university or college graduates have a higher mortality rate than secondary school graduates. As a consequence, the magnitude of mortality inequality between the group with the lowest levels of education and the group with the highest level of education is somewhat

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[2] The Cambridge Scale is a method of occupation classification based on the principle of social distance. Occupations are categorized with reference to the frequency of occurrence of similar occupations among friends and spouses. Individual occupational groups are isolated on the basis of multidimensional scaling techniques.

smaller among women than among men: while the likelihood of death is 170% higher among men, it is only 60% higher among women.

The data on occupational groups is less accurate, but some results are available in this context as well (Klinger, 2004). In a comparison of white-collar workers and blue-collar workers, the mortality rate of the latter is 105% above that of the former among men. The corresponding inequality measure is 95% among women.

Looking at middle-aged people only, the unusual relationship between female mortality and educational attainment disappears. Replacing the standardized mortality score with a score of 'partial life expectancy' in an analysis of mortality between 1999 and 2004, Daróczi (2004) finds that, for these years, the mean life expectancy between 30 and 60 years of age was 25.4 years among men with less than eight years of primary education, compared to 29.2 years among male with university or college degree. Women aged 30 to 60 had a life expectancy of 27.8 years in the lowest educational group, while those who had completed higher education had a life expectancy of 29.5 years. That is, the difference among men due to level of education was close to four years, compared to less than two years among women. Daróczi similarly observes a smaller 'variance' in female mortality in an analysis of the partial life expectancy of various educational groups by geographical region within Hungary: for the group with the lowest level of education, for instance, there was a 4.5-year gap in men's life expectancy between the highest and the lowest regional score, compared to a 2.1-year gap in the life expectancy of women.

Social inequalities and state of health in Hungary

What are the differentials reflected in women's state of health in Hungary? Are differences related to social position greater among men than among women? Is the social position of the family or the spouse more strongly related to women's health than their own social status? And finally, does family status have a greater impact on women's health than on men's health?

These are the questions we attempt to answer here on the basis of data from the first wave (2001) of the socio-demographic panel survey "*Turning Points of the Life Course*". This was a representative survey of population aged 18 to 75 living in non-institutional households in Hungary in 2001. The population sample contained over 16 thousand people.[3]

State of health was measured by disability. People were classed as disabled if they gave a positive answer to the standard question *"Are you hampered in any way in your everyday activities by some health problem, disease or disability?"*

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[3] See Kapitány (2003) for a detailed discussion of the survey.

The analysis was carried out using logistic regression models. Age, the factor intrinsically related to state of health, was included in every model, in the form of a categorial variable for expository reasons. To test the validity of the method, the models were also examined with a continuous age variable included, and this did not result in major changes in the outcome. Level of education was the only variable of social status introduced in the models.

Using our experience of previous, unrelated analyses of the sample, the studied population was divided into two groups, as we found that the relationship between state of health—measured as the likelihood of disability—and level of education differs in essential ways between younger and older populations. This is clearly explained partly by changes in the social prestige of various educational levels over time, and partly by differences in the size of population groups of various levels of education. With these considerations in mind, we created separate models for investigating the possible relationship between social status and health among people aged 25 to 54 (the middle-aged group) and people aged 55 to 75 (the elderly group).

The widely held opinions on state of health do not appear to stand up among middle-aged women according to our most simple Model A (see *Table 1*). In this model, which only includes age as a control variable, the odds ratio of sex (1.09) is not significantly different from 1—that is, in the middle-aged Hungarian population women are not significantly more likely to complain of poor health (or handicap) than men.

The phenomenon becomes clearer if we consider the results of our Model B (*Table 1*). This model is expanded from Model A by the addition of a new factor, the variable of level of education. That is, if it is taken into account that the distribution of men and women across different educational groups is not equal and that the odds of poor health vary greatly across educational groups, we come to the conclusion that women do, in general, complain somewhat more frequently than men. The value of the resulting odds ratio, however, is only 1.12, which is significantly higher than 1 but is still far from the values of the odds ratios relating to various levels of education.

Are women generally more likely to complain of disability than men, or does this tendency vary across groups of different educational levels? This question is answered by Model C, where interaction terms are introduced (see *Table 1*). The introduction of interaction terms has the consequence that the odds ratios of educational level only reference men from now on, and the coefficients for the non-referenced group, i.e. women, can be calculated by multiplying the odds ratios for men by the appropriate interaction term. No interaction term appears for the highest level of education, since it is referenced by the odds ratio of sex in this configuration. The results reveal that women with higher education are not simply significantly, but substantially less likely to complain of poor health than are men with higher education. The interaction term is 1.76 for women with CSE, which is significantly greater than 1. Among people with vocational training school and people

with at most eight grades of primary education, the odds ratios of interactions are unequivocally and considerably higher than 1: that is, women belonging to these social groups are considerably more likely to complain of poor health than are men.

Table 1

The odds of disability among middle-aged men and women by level of education—odds ratios

	Model A	Model B	Model C
Sex (ref.: male)	1.09	1.12*	0.69*
Age (ref.: 25–34 years)			
35–44 years	2.00***	1.96***	1.96***
45–54 years	5.25***	5.06***	5.02***
Level of education (ref.: university or college degree)			
At most 8 grades of primary school		4.10***	2.96***
Vocational training school		2.45***	1.90***
Secondary education with CSE		1.56***	1.15***
Interaction terms (ref.: higher educ. male)			
At most 8 grades of primary school and female			1.82**
Vocational training and female			1.60*
Secondary with CSE and female			1.76**
N	9173	9173	9173
Nagelkerke R^2	0.076	0.105	0.106

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

The results of Model C can also be used to compare the magnitude of the inequality gap in the odds of poor health between men and women. With reference to the odds of handicap for men with university or college degree, the odds ratio for men with CSE is around 1.15 compared to 1.9 for men with vocational training qualifications and 2.96 for men with at most primary education. If, using Model C, we calculate the odds ratios that we would get if we took the odds of the handicap of women with higher education to be 1, the odds ratio would turn out to be 2.02 for women with CSE, 3.04 for women with vocational training school and 5.38 for women with at most primary education. Inequalities in the odds of poor health expressed as disability among groups of various educational levels are, therefore, considerably higher among middle-aged women than among middle-aged men.

Table 2

The odds of disability among men and women aged over 54 by level of
education—odds ratios

	Model D	Model E	Model F
Sex (ref.: male)	1.21***	1.06	1.13
Age (ref.: 55–64 years)			
65–75 years	1.71***	1.45***	1.45***
Level of education (ref.: university or college degree)			
At most 8 grades of primary school		3.48***	3.23***
Vocational training school		2.09***	2.25***
Secondary education with CSE		1.60***	1.90***
Interaction terms (ref: higher educ. male)			
At most 8 grades of primary school and female			1.09
Vocational training and female			0.83
Secondary with CSE and female			0.75
N	5254	5253	5253
Nagelkerke R^2	0.020	0.063	0.061

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Models D, E and F show the outcome of the analysis of the sample of the
population aged over 54 and were built progressively, based on the princi-
ples used for Models A, B and C (see *Table 2*). The results are reversed in
many respects, relative to the findings of the previous set of models. Look-
ing at Model D only, elderly women do appear to complain of poor health
more frequently than men, but this difference disappears when the variable
of educational level is introduced in Model E. Differences by level of educa-
tion appear somewhat less robust among the elderly than among middle-
aged people, although the results of the two model series cannot be com-
pared. It is certainly a fact, however, that the variation in the odds of poor
state of health across levels of education is substantial among the elderly as
well. Once educational level is included, the odds ratio of the sex of the re-
spondent does not differ significantly from 1—this suggests that the propen-
sity of elderly women to complain is due to the fact that a considerably lar-
ger proportion of them have low levels of qualifications than among men of
the same age group, and the odds of poor health climb steeply as level of
education decreases.

Model F reveals that no differentiating effects need to be considered
other than those discussed above. Looking at the corresponding categories of
educational level among the elderly, men and women display similar degrees
of propensity to complain (statistically speaking, the interaction terms are
not significantly different from 1).

In the next paragraphs we shall look at the question of whether it is women's own status (measured by level of education) or the status of their spouses that has the greater impact on the likelihood of poor state of health. This analysis was only carried out among the middle-aged population, and all available data on spouses were taken into consideration. The majority of respondents provided information on the qualifications of their (former) spouses even if they were divorced at the time of the survey. The variable of 'spouse' was also included in the case of cohabiting partners. The population under analysis is therefore not equivalent to the total population of middle-aged people, since the former mainly includes married people but, as was explained above, not exclusively so. The analysis was also carried out among men for purposes of comparison. This time, however, it was more practical to build separate models for men and women in order to avoid overcrowding our models with interaction terms.

Table 3a

The odds of disability among middle-aged *men* by level of education and spouse's level of education—odds ratios and changes in odds ratios

	Model G	Model H	Changes in odds ratios (%)
Age (ref: 25–34 years)			
35–44 years	1.80***	1.82***	
45–54 years	4.46***	4.40***	
Level of education (ref: at least secondary with CSE)			
Vocational training school	1.83***	1.55***	33.8
At most 8 grades of primary	2.65***	2.05***	36.4
Spouse's level of education (ref: at least secondary with CSE)			
Vocational training school		1.40**	
At most 8 grades of primary		1.49**	
N	3023	3023	
Nagelkerke R^2	0.072	0.076	

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Model G (*Table 3a*) characterizes the male population under analysis and only includes a single conflated variable of level of education. In this series we attempted to find out to what extent the odds ratios of disability are affected by the inclusion of the variables indicating the educational level of spouses. Model H shows that the odds ratios relating to respondents' own qualifications change by a substantial amount when spouses' educational

level is introduced: the odds ratios fall by approximately one third of their values for both categories of education.

Looking at the outcome of the corresponding analysis for women (Models I and J in *Table 3b*), we find that the differentials among women by level of education are also reduced by the introduction of the educational level of their spouses, but the extent of reduction is substantially *smaller* here than it was in the case of men. Among women, the odds ratios of poor health only lose around one quarter of their values with the introduction of spouses' level of education.

Table 3b

The odds of disability among middle-aged *women* by level of education and spouse's level of education—odds ratios and changes in odds ratios

	Model I	Model J	Changes in odds ratios (%)
Age (ref: 25–34 years)			
35–44 years	2.02***	2.02***	
45–54 years	5.55***	5.61***	
Level of education (ref: at least secondary with CSE)			
Vocational training school	1.63***	1.48**	25.2
At most 8 grades of primary	3.06***	2.60***	22.1
Spouse's level of education (ref: at least secondary with CSE)			
Vocational training school		1.25*	
At most 8 grades of primary		1.39*	
N	3544	3544	
Nagelkerke R^2	0.127	0.117	

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

We get similar results by comparing the values of the odds ratios within Model H and Model J. In both Model H and Model J, the odds ratios relating to the respondents' own qualifications are greater than those relating to the level of education of spouses. A further notable feature of the model is the finding that the value of the odds ratio relating to female respondents' own educational level is substantially greater for women with at most primary education than any of the odds ratios relating to the qualifications of the spouses.

Summary

The pattern of the state of health of women is significantly affected by their level of education. The—moderately—greater odds of women living with disability is primarily explained by their lower levels of education on average. Their chances are mostly determined by their own educational level rather than by their spouses', and women's chances are somewhat less affected by their spouses' qualifications than are men's chances.

The results of studies investigating other dimensions of the social position of families reveal similar patterns in the health odds of women. Their results, however, may need additional analyses in other respects. The investigation of health from a different perspective—using different subjective indicators of state of health—may reveal patterns unlike those found here. The primary objective of our study, however, was not to find a comprehensive characterization of patterns in women's state of health, but to draw attention to important problems that have not received sufficient attention before. We believe that one of the important achievements of our study, from the afore-mentioned perspective as well, is the finding that women with especially low levels of education have an exceptionally high chance of living with a health problem that impedes them in their everyday lives, despite their having a relatively favourable life expectancy.

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