The Impact of the Life Course on Health Transitions in Germany and the Netherlands

It is a well known fact that women live longer but have worse health than men. A large body of literature exists examining the determinants of health and mortality at old age to explain this paradox. In most cases studies have concentrated on specific health conditions and illnesses. What this study contributes is examining next to known determinants the impact of life course events of men and women on health and mortality to explain existing gender differences. It does not focus on special illnesses but on old age disability. The outcomes are four health transitions that exist between the states healthy, disabled, and dead (including recovery from disability).

The life course is modelled with the help of contextual information on fertility and marital status, different job experiences as well as experience of unemployment and the relationship between these factors. The focus is on early life events in young adulthood as well as on later life events prior to health transitions. Alongside life course events demographic, social, and socio-economic factors are analyzed. Data are used from the German Socio-Economic Panel for the period 1984-2007 in order to examine health in the West German population aged 60 years and older. Repeated health transitions, like becoming disabled again after recovering from disability, are not taken into consideration for this analysis. It would be necessary to regard health trajectories. This, however, is not aim of this study. People are considered disabled when they report at least one item from a set of ADL and IADL items. Thus, also mild deteriorations in health are considered. In a first step this is to keep the sample large. In a second step it will be checked how far the structure of the determinants of mild and severe disability are different.

With logistic regression models the effect of the determining factors and their interplay that lead to all recognized health transitions over the period 1984-2007 are analyzed.

Analyses are performed for all four health transitions. However, results for the transitions from disabled to healthy and from disabled to dead are non significant due to small sample sizes. Therefore, in the following some first results are given for the transitions from healthy to disabled and from healthy to dead.

First results confirm the known gender-health paradox whereby women have worse health but live longer than men. Due to differences in the life course of men and women life course events show clear differences for both sexes and different effects on the health transitions. For example considerable differences between men and women were found for the occupational history. While the significantly elevated risk of disability for men who have never worked (RR=20,85, p<=0.000) or only worked in part-time (RR=5,89, p=0.016) compared to those who only worked in full-time can be explained by their bad health which prevents from working, the pattern for women is different: The significantly lower risk of disability for women who worked in part- and full-time jobs (RR=0.8, p=0.056) compared to those who always worked full-time might reflect the capability to combine occupation and family formation. For the transition to death results on the job history do not show significant patterns. The same is for the experience of unemployment.

Further, results show that the age of family formation and spacing between children, which is an indicator for stress, has an effect on the transition to disability and death for women. The estimation shows that for women, the risk of disability declines with increasing age of mothers at birth of their children: While early mothers with one child have a Relative Risk of 5.66 (p=0.006) late mothers risk is 50% higher, however non significant, than the risk of childless women. For the transition from healthy to dead a similar age gradient exists: early mother's risk of disability is 33% lower but late mother's risk is 66% lower compared to childless women (see table 1 for the transition from healthy to disabled and table 2 for the transition from healthy to dead). An explanation can be given from a biological point of view. The female body can cope better with pregnancy at ages above 20 or even 35 than below, since pregnancy means a burden for the body of the mother. A further indicator of burden is the space between the births of the first and second child. The smaller the space the higher is the burden and stress for the body that has to recover from a former

pregnancy and has to bring energy for a new one and consequently the higher is the risk of disability and mortality. For males, results on the relationship of health at old age with the history of family formation and marital history, however, do not show significant patterns.

When combining the information of age of children and the change of the marital status over the life course the obtained results show that single or divorced women without children have a significantly higher risk of disability than married women with children. Paradoxically, single, divorced, and widowed women without own children have a significantly low risk of dying compared to the group of married women with children. This paradox that also appears for the heath transition from healthy to disabled for the variable combining information on family formation and space between the children, is explained by the limitation of the used data: only the non-institutionalized population is included. It can be assumed that the institutionalized population is more often childless and non-married and more often disabled than the non-institutionalized population. Thus, the remaining childless and non-married people in this data set can be assumed to be much fitter than the women with children.

Still more analyses have to be done to understand the impact of the life course on health and disability transitions and the differences between men and women. Therefore, analyzes will be done with data of the German and Dutch Gender and Generation Survey (GGS). Although not incidences but prevalence can be examined, these data sets give the opportunity to compare the health situation of old age populations of three European countries. These populations are characterized not only by different concepts of life, but also by their experience of different social and political systems.

Table 1: Relative Risks of becoming disabled of German women in the Socio-economic Panel measured with information on number of children, age of mothers at birth of their children and the spacing between them.

	RR*	95% CI	RR**	95% CI	RR***	95% CI
missing	**2.44**	0.89 - 6.72	1.94	0.70 - 5.40	**2.83**	0.88 - 9.06
childless	1		1		1	
1 child before age 20	**3.54**	1.28 - 9.80	**3.05**	1.08 - 8.61	**5.66**	1.63 - 19.69
1 child at age 20-35	**1.59**	1.16 - 2.18	**1.50**	1.08 - 2.06	**2.91**	1.37 - 6.20
1 child at age 35+	0.94	0.49 - 1.78	0.78	0.41 - 1.48	1.50	0.57 - 3.94
1st child before age 20, 2nd child 0-2 years later	1.36	0.49 - 3.73	1.49	0.54 - 4.12	2.68	0.77 - 9.27
1st child before age 20, 2nd child 2+ years later	1.61	0.86 - 2.99	1.46	0.78 - 2.74	**2.66**	1.01 - 7.02
1st child at age 20-35, 2nd child 0-2 years later	**1.41**	1.03 - 1.94	1.25	0.90 - 1.73	**2.54**	1.17 - 5.51
1st child at age 20-35, 2nd child 2+ years later	**1.65**	1.22 - 2.22	**1.48**	1.09 - 2.01	**3.02**	1.41 - 6.47
1st child at age 35+, 2nd child 0-2 years later	1.33	0.33 - 5.45	1.01	0.25 - 4.18	2.06	0.42 - 10.08
1st child at age 35+, 2nd child 2+ years later	0.49	0.07 - 3.57	0.44	0.06 - 3.15	0.90	0.11 - 7.38

*   controlled for age

**   contrlled for age, cohort, education, income, number of persons in the household, experience of unemployment

*** contrlled for age, cohort, education, income, number of persons in the household, experience of unemployment, experience of part- or fulltime job, marital history in combination with age of child

Table 2: Relative Risks of dying of German women in the Socio-economic Panel measured with information on number of children, age of mothers at birth of their children and the spacing between them.

	RR*	95% CI	RR**	95% CI	RR***	95% CI
missing	0.89	0.28 - 2.80	0.91	0.29 - 2.92	**0.62**	0.19 - 2.04
childless	1		1		1	
1 child before age 20	1.41	0.52 - 3.84	**1.25**	0.45 - 3.42	**0.67**	0.20 - 2.26
1 child at age 20-35	**0.61**	0.45 - 0.82	**0.59**	0.44 - 0.80	**0.36**	0.17 - 0.73
1 child at age 35+	**0.57**	0.32 - 1.04	0.55	0.30 - 1.00	0.34	0.14 - 0.84
1st child before age 20, 2nd child 0-2 years later	1.16	0.54 - 2.49	1.02	0.47 - 2.21	0.61	0.22 - 1.70
1st child before age 20, 2nd child 2+ years later	0.91	0.51 - 1.63	0.91	0.51 - 1.64	**0.48**	0.19 - 1.21
1st child at age 20-35, 2nd child 0-2 years later	**0.71**	0.54 - 0.94	0.67	0.50 - 0.89	**0.40**	0.19 - 0.84
1st child at age 20-35, 2nd child 2+ years later	**0.63**	0.48 - 0.82	**0.61**	0.46 - 0.81	**0.37**	0.18 - 0.76
1st child at age 35+, 2nd child 0-2 years later	0.63	0.16 - 2.57	0.53	0.13 - 2.16	0.33	0.07 - 1.58
1st child at age 35+, 2nd child 2+ years later	0.56	0.14 - 2.26	0.48	0.12 - 1.95	0.30	0.06 - 1.44

*   controlled for age

**   contrlled for age, cohort, education, income, number of persons in the household, experience of unemployment

*** contrlled for age, cohort, education, income, number of persons in the household, experience of unemployment, experience of part- or fulltime job, marital history in combination with age of child