



# DISABILITY, LIFE AND DEATH IN A PAST POPULATION

## Life course analyses of disabled and non-disabled individuals in 19th-century Sweden

Lotta Vikström, Erling Haggström Lundevaller, Helena Haage, Sören Edvinsson & Glenn Sandström

Department of Historical, Philosophical and Religious Studies | Centre for Demographic and Ageing Research (CEDAR) | Umeå University, Sweden

### INTRODUCTION

Present-day studies show that impairments jeopardize individuals' health status. There are also indications that disability makes people more weakly positioned in the labor market than the 'able' majority and more likely to live without a partner. The aim of this study is to detect how disability shaped individuals' life and death in past society, represented by the 19th-century Sundsvall region, Sweden. First, we conduct event history analysis of some 36,000 individuals to investigate their mortality risks. Comparisons are made across different disabilities, the genders and with a reference group of non-disabled cases. Second, sequence analysis investigates the development of life trajectories during young adulthood with regard to the transition to work and family formation.

### STUDY DESIGN

**DATA:** Digitized parish registers stored at the Demographic Data Base (DDB) at Umeå University, Sweden, comprising original records of birth and baptism, marriage, migration, death and burial, and annual catechetical examination records. They provide linked individual-level data showing demographic and socio-economic information on parishioners across their lives and also document impairments.

**SAMPLE:** The population selected consists of 36,118 individuals aged 15-35 living in the region under study (Figure 1) during the 1845-1892 period. All are observed for maximum 18 years, out of whom 508 (1.4%) were classified as disabled having an impairment reported by the minister. We follow them and all the other individuals until death, out-migration or the end of the observation (max 18 years) to examine whether and how disability influenced people's life course.

**VARIABLE OF THEORETICAL INTEREST:** Ministers' marks of parishioners' impairments differentiating between: *blind/deaf* (sensory impairments N=151), *crippled* (physical impairments N=167), *idiot/insane* (mental impairments N=190) versus *non-disabled* (N=35,610).

**OUTCOMES AND METHODS:** *All-cause mortality* between the age 15-54 (using Cox proportional hazards regression) and *family and occupational life trajectories* (using sequence analysis) of disabled vs. non-disabled men and women in young adulthood (followed from 15 to 33 years of age).

### MORTALITY RESULTS (Figure 2 and Table 1)

- Disabled people experienced significantly higher mortality than non-disabled and the death hazard was three times higher among physically and mentally impaired compared to individuals with no disability.
- Substantially lower negative impact of having a disability on the survival of women.
- Mentally impaired people had by far the highest mortality among both men and women while the effect of sensory impairments (blind/deaf) was smaller and not significant for either gender.
- The causes of death are under-reported (in about 50% of the cases) but suggest that non-disabled persons died more from infectious diseases than did their disabled counterparts (26% vs. 17%).

### RESULTS FOR FAMILY AND OCCUPATIONAL LIFE TRAJECTORIES (Figures 3-4)

- About 30% of disabled men and 40% of disabled women did not experience any of the three events of occupation, marriage, having a child before age 33 compared to only 10% among the non-disabled.
- Even though 40% of the disabled people found an occupation, married a spouse and became parents, a substantially smaller proportion did compared to non-disabled (58%).
- Women with disabilities had a lower share of having a child born within wedlock (35%), while 70% of women without disabilities experienced legitimate birth.

### SELECTION OF REFERENCES

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FIGURE 1: Map of Sweden and the Sundsvall region showing the parishes under study.

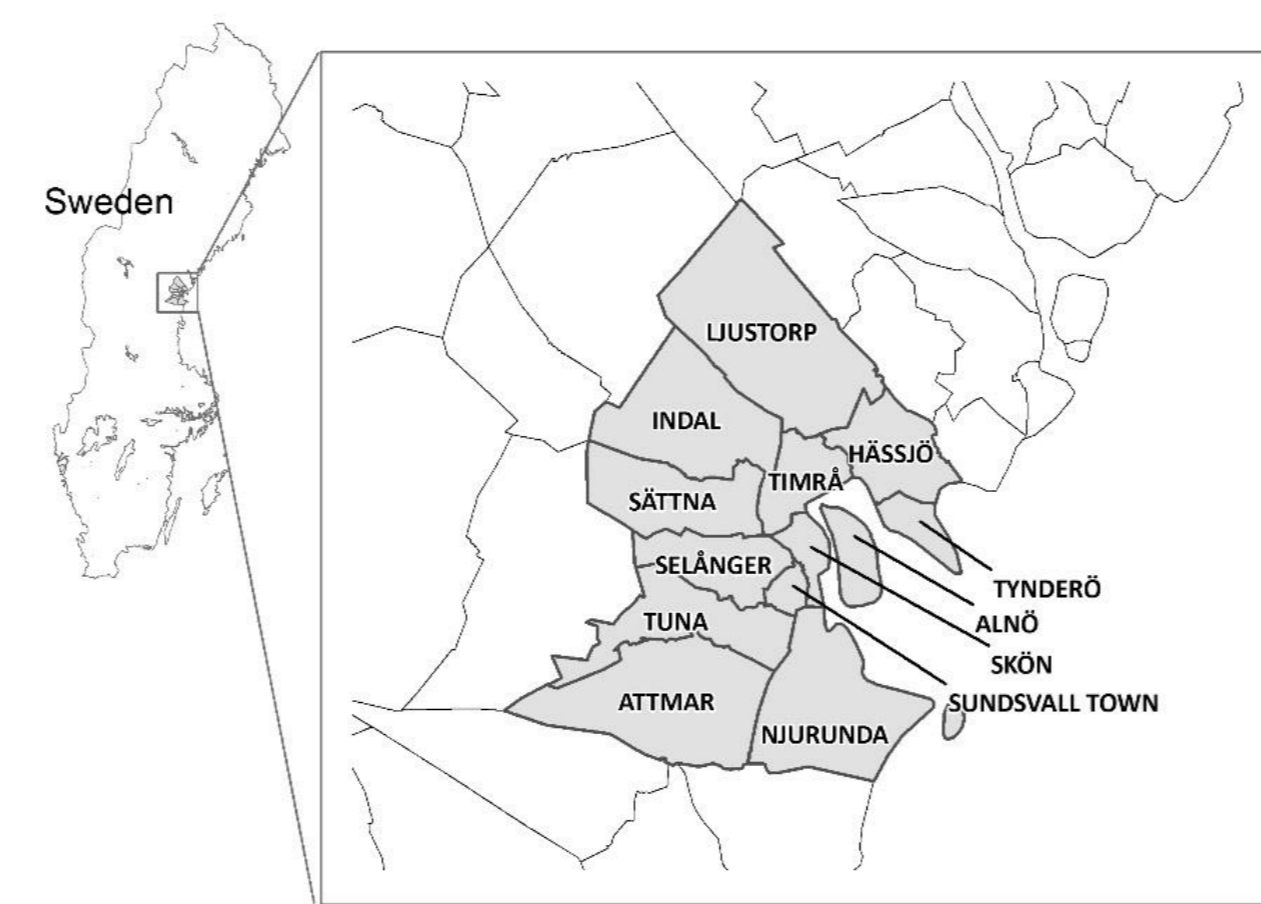


FIGURE 2: Plotted cumulative curves of the mortality hazards by gender and disability in the Sundsvall region 1835-1892 (N=36,118).

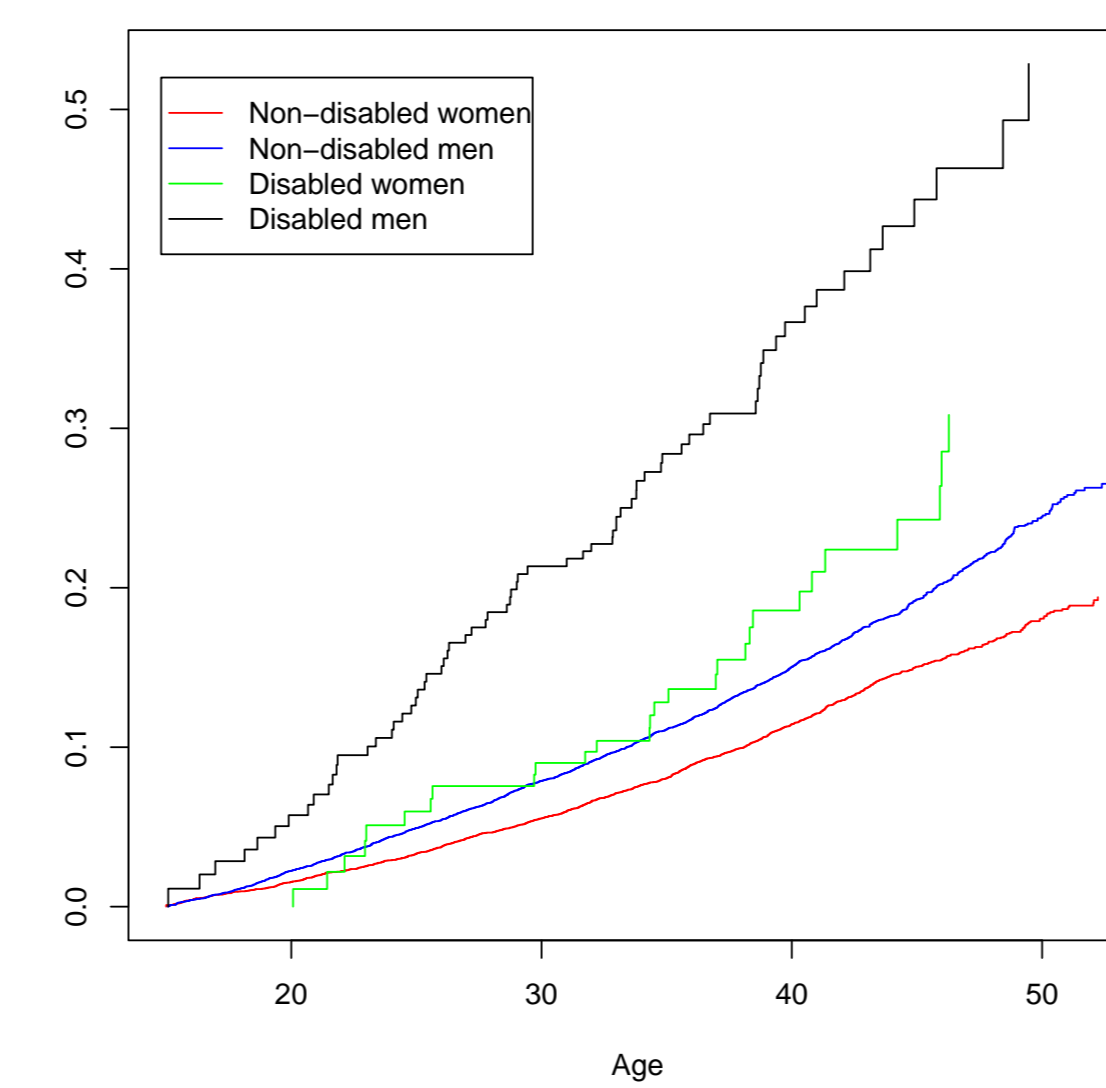


FIGURE 3: Relative distribution of states by time points per gender and disability during observation, from 15 to 33 years of age (N=8,874).

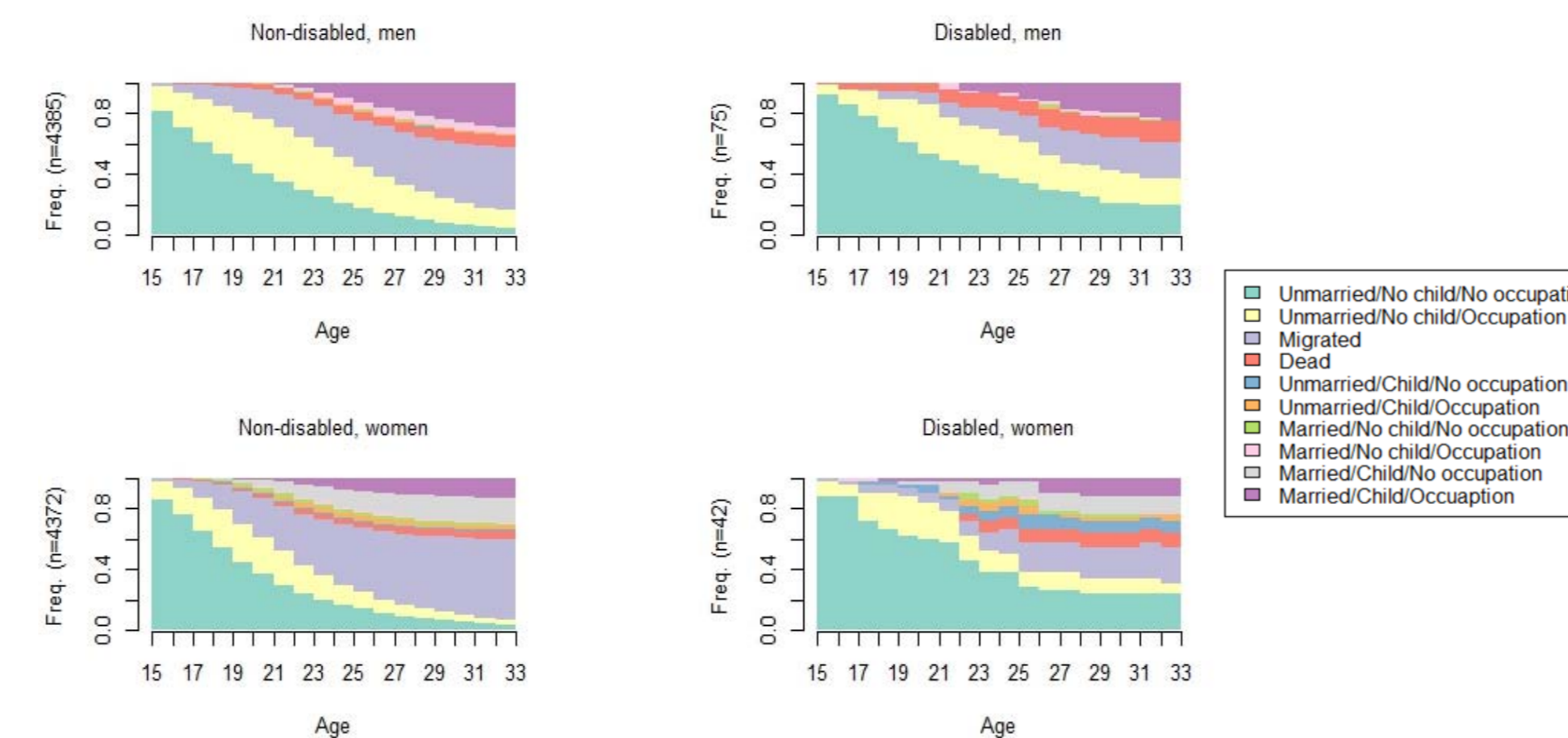
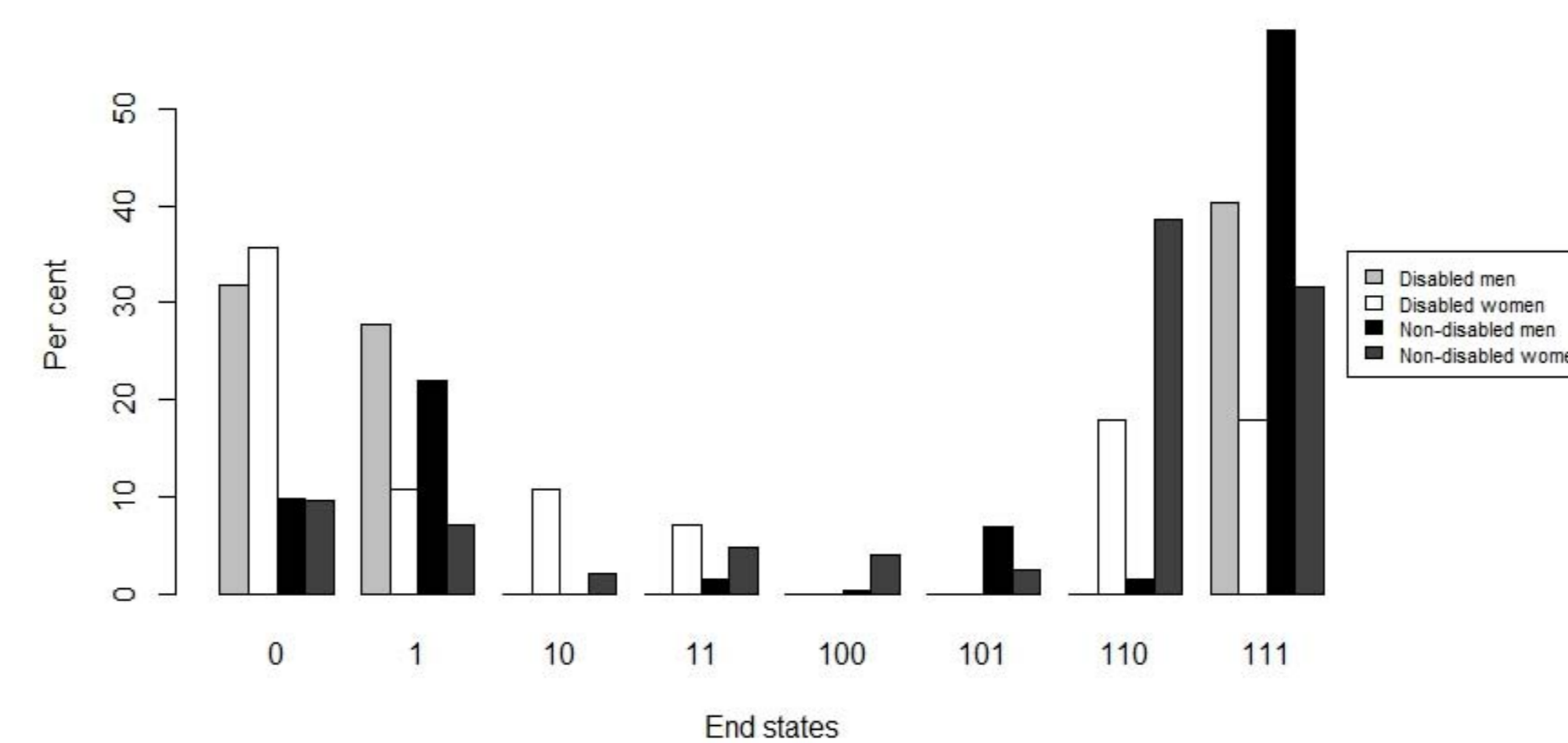


FIGURE 4: Relative distribution of states at end of observation by gender and disability after 18 years of observation (N=8,874).



0 = No occupation/No marriage/No child  
 1 = Occupation/No marriage/No child  
 10 = No occupation/No marriage/Child  
 11 = Occupation/No marriage/Child

100 = No occupation/Marriage/No child  
 101 = Occupation/Marriage /No child  
 110 = No occupation/Marriage/Child  
 111 = Occupation/Marriage/Child

TABLE 1: Cox regression of the propensity to die among the disabled and non-disabled cases under observation in the region of Sundsvall 1835-1892: three Cox regression models.

Covariates showing disability and demographic characteristics of the individuals	Cox Regression Model 1 Both genders N=36,118		Cox Regression Model 2 Men N=17,909		Cox Regression Model 3 Women N=18,209	
	Hazard ratio	P-value	Hazard ratio	P-value	Hazard ratio	P-value
<b>Disability</b>						
- Non-disabled (ref.)	1	-	1	-	1	-
- Blind/deaf mute	1.696	0.097	1.950	0.079	1.232	0.719
- Crippled	2.864	0.000	3.232	0.000	1.953	0.183
- Idiot/insane	3.200	0.000	3.724	0.000	2.447	0.019
<b>Gender</b>						
- Women (ref.)	1	-	-	-	-	-
- Men	1.343	0.000	-	-	-	-
<b>Socio-economic status</b>						
- Lower strata (ref.)	1	-	1	-	1	-
- Upper/middle strata	0.973	0.596	1.032	0.644	0.886	0.140
- Unknown/undefined	0.909	0.079	0.858	0.036	0.961	0.632
<b>Cohort</b>						
- Industrial (ref.)	1	-	1	-	1	-
- Pre-industrial	0.997	0.943	1.131	0.023	0.833	0.005
<b>Residence</b>						
- Rural parish (ref.)	1	-	1	-	1	-
- Urban parish (Sundsvall)	1.978	0.000	2.276	0.000	1.663	0.000
- Rural/industrial parish	1.274	0.000	1.334	0.000	1.209	0.009
<b>Disability*Residence</b>						
- Blind/deaf mute: Urban	0.239	0.173	0.289	0.246	0.000	0.960
- Crippled: Urban	1.608	0.314	1.486	0.486	1.705	0.504
- Idiot/insane: Urban	1.245	0.636	1.151	0.804	1.595	0.562
- Blind/deaf mute: Rural/industrial	0.836	0.706	0.838	0.752	0.829	0.838
- Crippled: Rural/industrial	0.718	0.351	0.654	0.291	0.876	0.864
- Idiot/insane: Rural/industrial	0.386	0.007	0.292	0.005	0.649	0.464
<b>Overall</b>	-	0.000	-	0.000	-	0.000
<b>Global proportionality test</b>	-	0.087	-	0.250	-	0.090

Source: Digitized parish registers, the Sundsvall region, Demographic Data Base (DDB), Umeå University.  
 Comments: Socio-economic status is based on the father's occupation.

### SUMMARY

- In 19th-century Sweden, disability had a big negative impact on people's survival.
- But there were large differences by type of disability: mental disabilities elevated people's mortality most significantly, while sensory disabilities did to a lesser extent.
- Gender was a decisive factor as the negative impact of disability on survival was substantially larger for men than for women.
- Disability resulted in a substantial disadvantage in the labor and marriage markets, as a lower ratio of young adult people found a job and a spouse to marry if disabled.
- That a lower share of disabled people died from infectious diseases may be due to less exposure because they led lives in more isolation than did non-disabled.
- Vulnerability of disabled women was visible: one in five bore illegitimate offspring, i.e. three times the share among non-disabled women.
- Beside the impairment itself, a stigma associated with being labeled disabled adds to explain the findings.



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