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DISABLED AND UNMARRIED? MARITAL CHANCES AMONG DISABLED PEOPLE IN NINETEENTH-CENTURY NORTHERN SWEDEN

Helena Haage[1]
Department of Historical, Philosophical and Religious Studies
Centre for Demographic and Ageing Research (CEDAR)
Umeå University
helena.haage@umu.se

Lotta Vikström
Department of Historical, Philosophical and Religious Studies
Centre for Demographic and Ageing Research (CEDAR)
Umeå University
lotta.vikstrom@umu.se

Erling Häggström Lundevaller
Umeå School of Business and Economics, Department of Statistics
Centre for Demographic and Ageing Research (CEDAR)
Umeå University
erling.lundevaller@umu.se

To marry and form a household of one's own was the expected life course of most people in the nineteenth century, but little is known about whether individuals with disabilities shared the same demographic experience of marriage as non-disabled did. This study examines this issue by analyzing the marital chances of a group of disabled people—i.e. blind, deaf mute, crippled and with mental disabilities—compared with a non-disabled

[1] This manuscript is also published in Helena Haage's thesis, *Disability in Individual Life and Past Society. Life-Course Perspectives of People with Disabilities in the Sundsvall Region of Sweden in the Nineteenth Century*, dissertation at Umeå University 2017.

reference group. Our results show that about a quarter of the disabled individuals did marry, even though their marital propensities were significantly lower than those of non-disabled people. These propensities also differed by gender and type of disability. We suggest that the lower marital chances and the variation we found within the group of disabled people indicate the level of social exclusion they faced in society.

Introduction

Limited opportunities to find disabled individuals in sources have narrowed historians' studies of disabled people's opportunities or obstacles across extended periods of life. Disabled people were sometimes documented in records of poor relief or in registers from various institutions that they were admitted to, but these records hardly ever report their life courses outside of institutions (Staffan Förhammar 1991; Catherine J. Kudlick 2003; Staffan Förhammar, and Marie C. Nelson 2004; Anne Borsay 2005). The nineteenth-century parish registers in Sweden, digitized and stored at the Demographic Data Base (DDB) at Umeå University, document impairments among the parishioners, which allows us to study more than 400 disabled people and over 20,000 observations from non-disabled reference individuals living in the same time and space context.

In this study the event of marriage is viewed as indicative of adapting to "normal" behavior and social inclusion in society. We expect that disabilities would limit an individual's chances in the marriage market due to the consequences of their impairments. By uncovering disabled individuals' prospects to find a spouse and marry we can verify if this holds true. Moreover, disabled people's opportunities in the marriage market were most likely influenced by attitudes and norms prevailing in contemporary society, which may have combined to reduce marital chances beyond the impairment itself (Mark Priestley 2003; Peter Siminski 2003; Joan Susman 1994). In her recent thesis, Sofie De Veirman (2015) shows that deaf people faced communication issues with hearing people and thus had difficulties in building networks and meeting a future

spouse. Problems with networking could also be an issue for people with other disabilities, such as the blind and those suffering from mental disabilities.

Prerequisites for Marriage with Regard to Disabled People

Christer Lundh (1997) among other scholars argues that in the nineteenth century Swedish marriage patterns largely reflected those that predominated in the Western European world, characterized by relatively high marriage ages and a large proportion who never married (Christer Lundh, and Satomi Kurosu 2014; John Hajnal 1953; 1965). Since the formation of a separate household as a nuclear family, which was common in Western Europe, cost more than joining the married couple's family household (joint household family system, prevailing in Eastern Europe), the future husband and wife had to accumulate enough resources before they married and this resulted in later marriages (e.g. Lundh, 1997). The servant system was an integrated part of rural society, where young men and women worked as farmhands and maidservants to save enough money and material resources to establish self-sufficient households (e.g. Lundh 1997; 2013; Hans Nilsson and Lars-Göran Tedebrand 2005).

One major prerequisite for anyone in the nineteenth century to marry was thus to obtain the necessary material resources. This could be a particular hurdle for disabled individuals if their impairments jeopardized their ability to take up work and become self-sufficient (Ingrid Olsson 1999; Colin Barnes, Geof Mercer, and Tom Shakespeare 1999; De Veirman 2015). According to research, industrial development impaired the situation for disabled individuals, as manufacturing production gave them fewer opportunities to get a job and cope with the economic system compared to handicrafts or agricultural production. Being exposed to a higher risk of unemployment and in need of welfare and/or help from philanthropic institutions, disabled people became perceived as an increasing problem for society (Barnes et al. 1999; Deborah Stone 1984). Iain Hutchison (2007) has examined the living conditions of disabled people in nineteenth-century Scotland and his results support the conclusion that getting a job or being entitled to economic support was

crucial for disabled people to make a living and possibly marry. Authorities and politicians in nineteenth-century society, including that of Sweden, assumed that establishing a proper education for individuals with disabilities—especially if they were blind or deaf mute—would provide them with opportunities to become decent and productive citizens, and to find subsistence through employment and/or marriage (Förhammar 1991; Claes G. Olsson 2010; Staffan Bengtsson 2012). Olsson (1999), who has studied nineteenth-century disabled individuals in Linköping, argues that disabled people were only permitted to marry if they could provide for themselves. Furthermore, Olsson (1999) finds that authorities worried about disabled people's reproduction, in that children might inherit their parent's impairment, which would undermine the Government's intentions to establish a healthy population. A contemporary fear in society was that disabled spouses and their offspring would constitute an economic burden to their relatives and/or the parish if they could not make a livelihood (Olsson 1999).

Another limitation on marriage opportunities took the form of institutional impediments, such as formal legislation, which indicate how disabilities were viewed in society of their time. In Sweden, this originated from the church law of 1686, which was the first law to stipulate any impediments at all, although it was vague about which impairments it applied to. The church law of 1757 stated more precisely that if an individual suffered from epilepsy or idiocy, there was an impediment to marriage. Until the beginning of the twentieth century, the common interpretation was that it was primarily persons with mental deficiencies (*sinnessjuk* and *sinnesslö*) who were not allowed to marry (Gerhard Hafström 1975).

All normative systems in a society that influence who could or should marry or not, are not regulated by formal laws but shaped by socio-cultural perceptions about what constitute "suitable" spouses or marriages (e.g. Kevin McQuillan 1989). If individuals were regarded as deviant on the basis of their impairment, this may have worked to impede their prospects in the marriage market, as we will discuss further below. Another socio-cultural aspect to consider when studying

marriages from a normative perspective is found in the gendered regime that was prevalent in the western world in the nineteenth century and idealized the independent man as a breadwinner. He should provide for himself before marrying, and then for his wife and family, whereas women were expected to work with household tasks or care for the children (Angélique Janssens 1997). If the presence or type of disability interfered markedly with the abilities of men and women to meet the expectations associated with their particular gender, this would probably be evident in their marital chances.

Linking Life Course Perspectives with Labeling Theories

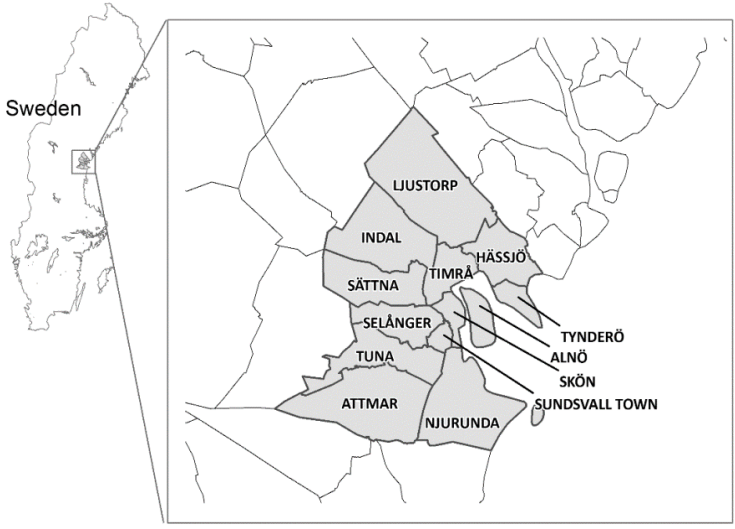
In our study we employ life course perspectives to people with disabilities to explore how they move through the transitional phases in life, here with regard to the event of marriage (e.g. Priestley 2003; Karl Ulrich Mayer and Nancy Brandon Tuma 1990; Janet Z. Giele, and Glen H. Elder Jr. 1998; Glen H. Elder Jr., Monica Kirkpatrick Johnson, and Robert Crosnoe 2004). Analyzing this event, we obtain information that reflects their social inclusion in past society. Presumably, disabilities would have negative effects on people's life course and prospects in the marriage market.

Labeling theories have in common that they refer to a stigmatization of individuals if their behaviors or attributes are considered as deviant by the surrounding society (Howard S. Becker 1963; Barnes et al. 1999). Edwin M. Lemert (1967) divides the stigmatization outcome into a primary and a secondary type of deviance, where the former evokes a social reaction from society that carries minimal consequences for the labeled individual. Secondary deviance occurs when the label results in a new social role, status and/or self-identity. Erving Goffman (1972) studied how social interactions interplayed with society's categorization of people and he concludes that behaviors diverging from normality in society could be regarded as a ground for deviance, or a "stigma", as Goffman called it. The labeling theories and life course approach benefit our analysis because we expect that a stigma may follow as a consequence of impairments that led to limitations in the social life of

disabled people and contributed to their poor prospects in the marriage market, which may not be only be determined by the impairment itself. Another assumption that is worth testing is whether different types of disabilities impact on men and women's marital chances differently.

Area, Data, Definitions and Method

In the 1860s and 1870s the Sundsvall region became a rapidly growing industrial area, due to a combination of technological advancements and economic modernization. In combination with the mortality decline, the prosperous labor market, which attracted many migrants, caused the population to grow from 13,272 inhabitants in the beginning of the nineteenth century to 18,793 in 1840, and to 46,418 inhabitants in 1880 (Gun Alm Stenflo 1994).



Source: Demographic Data Base (DDB), Umeå University

Figure 1
Map of Sweden and the Sundsvall region and
the parishes included in the study.

The majority of the Sundsvall region's pre-industrial population resided in rural areas. During the latter part of the nineteenth century the establishment of sawmill industries occurred mainly in four coastal parishes, which led to a shift in the economic structure from rural to more industrial (Sören Edvinsson 2004). The regional inland parishes were relatively untouched by the sawmill industry and depended primarily on agricultural production throughout the century. We include 13 parishes from the region: eight rural parishes, Attmar, Hässjö, Indal, Ljustorp, Selånger, Sättna, Tuna and Tynderö, one urban parish, the town of Sundsvall and the four coastal parishes, Alnö, Njurunda, Skön and Timrå. The industrial development and different economic structures that this region represents make it a very dynamic environment in which to base our study, as does the access to digitized data suitable for longitudinal analyses.

The data consist of parish registers from the nineteenth century stored at the Demographic Data Base (DDB) at Umeå University, Sweden.[2] As these registers are linked at the individual level, they give extensive demographic information about each parishioner (Pär Vikström, Sören Edvinsson, and Anders Brändström 2006). The catechetical examination registers are key to following individuals over a lifetime, since the examinations were performed on a yearly basis due to the obligation of ministers to keep records of their parishioners' knowledge of the catechism and their reading ability (Ulla Nilsdotter Jeub 2009). The ministers also made other notes in these records, such as marks of impairments (*lytesmarkeringar*). We use these marks to identify the

[2] Demographic Data Base (DDB), Umeå University, Sweden. Digitized parish registers and catechetical examination records from the following parishes: Alnö 1803-1894; Attmar 1814-1896 (deficient records 1860-1868); Hässjö 1814-1901; Indal 1814-1900; Ljustorp 1803-1901, Njurunda 1816-1891; Selånger 1813-1894; Skön 1803-1893 (Skönsmon included until 1883); Sundsvall 1803-1892; Sättna 1806-1899; Timrå 1803-1895 (supplemented with 'mantalsregister' 1852-1865); Tuna 1804-1896; Tynderö 1811-1900.

disabled individuals and to separate them from the non-disabled (Helena Haage 2012). The types of disabilities we look for are gathered into six groups categorized according to Table 1.

Table 1

The categorization of disability based on the marks of impairment in the parish registers from the Sundsvall region, 1835-1844 and 1865-1874.

1. Blind	Visual defects from weak-sighted, short-sighted to blind
2. Deaf mute	Hearing or communication dysfunctions, ranging from poor hearing to deaf and from difficulties to speak, stammer to mute
3. Crippled	Physical dysfunctions e.g. lame, limping, walking on crutches, missing body parts, hare-lipped, small in size or just crippled
4. Idiot	Mental dysfunctions since childhood and lack of full intellectual development as an adult, e.g. foolish, silly or less cognizant (*Mindre vetande*)
5. Insane	Mental dysfunctions identified in adulthood and fully developed intellect as a child, e.g. insane, feeble-minded or crazy
6. Multiple disabilities	Combination of two or more of the above disabilities

Source: Digitized parish registers, the Sundsvall region, Demographic Data Base (DDB), Umeå University, Sweden

Note: For categorization of idiot and insane see *BiSOS. A. Befolknings-statistik. Statistiska Central-Byråns underdåniga berättelse för år 1900. Tredje afdelningen*. 1907. Stockholm: Statistics Sweden.

The observations from the non-disabled reference group did not show any of the selected impairments reported in the parish registers, which means that these were individuals who were not blind, not deaf mute and so forth. Precisely defining disability in the past is an issue, as definitions and categories are often ambiguous and socio-culturally constructed depending on time and space or type of source (Lars Grönvik,

and Mårten Söder 2008; Daniel Mont 2007). Although the ministers' marks of impairments cannot be completely interpreted today, they indicate that the disabled were distinguished from able parishioners. These marks probably mirror prevailing norms and attitudes in past society, when some people were regarded normal, healthy and able while others were obviously not. As a consequence, we can gather information about disabled people from these registers. We utilize the concepts the ministers reported as impairments even if these words are derogatory today (e.g. Eva Eggeby 1993; John Rogers, and Marie C. Nelson 2003).

From the DDB database we have extracted a dataset containing 28,567 observations from 25,367 unique unmarried individuals residing in the Sundsvall region. Due to migration within the Sundsvall region, a unique individual could give rise to several observations, one from each parish he/she resided in during the observation period. In the dataset, 468 unmarried individuals had marks of impairments indicating one of the mentioned disabilities in Table 1, when we start to observe them. Table 2 shows the distribution of these individuals by type of disability and gender.

Table 2

Type of disability by gender among the unmarried disabled individuals 15-35 years of age at the start of observation in the Sundsvall region 1835-1844 and 1865-1874.

Disability category	**Men**	**Women**	**Total**
	***N* (%)**	***N* (%)**	***N* (%)**
Blind	19 (6.8)	22 (11.8)	41 (8.8)
Deaf mute	66 (23.5)	36 (19.3)	102 (21.8)
Crippled	98 (34.9)	52 (27.8)	150 (32.1)
Idiots	64 (22.8)	47 (25.1)	111 (23.7)
Insane	23 (8.2)	20 (10.7)	43 (9.2)
Multiple disabilities	11 (3.9)	10 (5.3)	21 (4.5)
Total *N* (%)	281 (100)	187 (100)	468 (100)

Source: Digitized parish registers, the Sundsvall region, Demographic Data Base (DDB), Umeå University

The non-disabled observations supplement the dataset and serve as a comparative reference group to the group of disabled people. The former group includes individuals who were unmarried and who shared the same age at the start of the observation period and lived in the same space-time context as the disabled individuals. According to the life course perspective we observe all individuals over time in the parish registers to find whether and when they married for the first time.[3] The observation period starts when each individual was between 15 and 35 years old and ends when the individual married, died or migrated from the region or when 18 years of observation have elapsed, until 1892 at the latest, as this year constitutes the end of the DDB registration. The reason for selecting relatively young individuals for analysis is that the majority of them were in the phase of life when they were beginning to secure their own livelihood and find a marriage partner. Due to the vital industrialization processes this region witnessed in the 1860s and onward we constructed two cohorts, the first of which covers the pre-industrial period and consists of individuals born in 1800-1829 and who were between 15 and 35 years old when observation starts during the interval 1835-1844. The second cohort covers the industrial period and comprises individuals born in 1830-1859 who were 15-35 years old when observation starts in 1865-1874.

According to the life course approach and our intention to longitudinally analyze marital propensity we use event history methods and in particular Cox regression models run in the statistical computing environment of R (Göran Broström 2012). These models incorporate explanatory variables (covariates), which assist in evaluating the effect of disability on marital chances with regard to the influence of other individual features such as gender, socio-economic origin, and characteristics associated with the space-time context such as period,

[3] For each individual we have only selected marriages that the ministers recognized as first marriage. The ministers noted the marriage number (first time, second time and so forth) at the occasion of marriage, usually also for those who had immigrated to the region before their marriages.

cohort and parish of residence. Cox regression further allows us to handle time-to-event data and to study the combinational effects of several variables. Estimations of marital chances are shown as hazard ratios that indicate the covariates' effects on the propensity to marry. As we start to observe the individuals at different ages between 15 and 35 (left truncation) and observe them for quite a long time, it is not appropriate to use time-to-event as the time scale (Anne Thiébaut, and Jacques Bénichou 2004; Edward Korn, Barry I. Graubard, and Douglas Midthune 1997). To control for both the effect of age on the propensity to marry and to take into account the consequence of left truncation we use age as the time scale in the Cox regression models. Hence, the individual's age at the start of observation is taken as the entry value, while the exit value is when the observation stops as a result of marriage or right censoring.

Gender and type of disability are the key covariates. Some processing was carried out on the dataset concerning the disability characteristics prior to the regression analyses (Tables 1 and 2). We collapsed the two groups labeled as idiots and insane into one group, whereas blind individuals were grouped together with deaf mute persons. Individuals having more than one recorded note of disability were included in the group representing mental disabilities, as the majority of them had at least one disability of that kind. We also check for whether socio-economic origin influenced the marriage chances. This is based on the occupations of the individuals' fathers, because the dataset covers young people, many of whom had not yet taken up employment or established themselves in the labor market. The occupations of the fathers were categorized according to occupational codes that researchers at the DDB have worked out from the parish records (Sören Edvinsson 1992).

Table 3 shows the structure of these codes when ordered into three different social strata: upper, middle and lower.[4]

[4] The DDB classification does not completely correspond to the two commonly used classification schemes in historical studies, SOCPO and HISCLASS, but there are many similarities between them (Marco H.D.

It is essential to account for the period effect, as previous research suggests that industrialization limited the possibilities for disabled people to get a job and support themselves, which may affect their marital chances as well. We do this by comparing the pre-industrial cohort (Cohort 1) with the industrial cohort (Cohort 2). The impact of residence is further controlled for through the covariate showing three categories, of urban, rural and rural/industrial settings, where the last consists of the four coastal parishes, Skön, Alnö, Timrå and Njurunda.

Table 3

The social classification scheme we use based on the DDB's occupational codes.

Upper strata	1. Large-scale business entrepreneurs
	2. Higher civil officials
Middle strata	3. Small-scale entrepreneurs in trade and industry, master artisans and craftsmen, farmers, tenant farmers
	4. Lower civil officials
Lower strata	5. Skilled laborers, craftsmen and artisans below the rank of master
	6. Unskilled laborers in trade and industry, farmhands, crofters, maidservants

Source: Digitized parish registers, the Sundsvall region, Demographic Data Base (DDB), Umeå University, Sweden

van Leeuwen, and Ineke Maas 2011; Bart van de Putte, and Andrew Miles 2005). For a comparison between the schemes, see Appendix in Sören Edvinsson, and Göran Broström (2012).

Results:

Marriages among Disabled People Compared to Non-Disabled

This section provides the results from our analyses and will be more thoroughly discussed in the concluding discussion. We begin by showing descriptive statistics of the marriage frequencies and age at first marriage among the disabled and non-disabled individuals. Then we conduct Cox regression analyses to uncover their marital propensities.

Marriage Frequencies and Age at First Marriage

Table 4 shows the marriage frequencies among disabled and non-disabled people who are 15-19 years old at the start of the observation period, distributed by gender and disability.[5] About 25 percent of those labeled as having any kind of disability did marry during observation, while no less than about 38 percent of the non-disabled did so. It appears that disability limited individuals' marital prospects. The marriage frequencies further demonstrate some interesting variations. Blind and deaf mute women show almost the same marriage frequency as the non-disabled women. Blind and deaf mute men did not marry to the same extent among the men, where cripples instead show the highest marriage frequency among the disabled men, even though this figure was lower than for non-disabled counterparts. Both men and women who were labeled as idiots or insane show the lowest marriage frequencies.

[5] We measure the marriage frequencies on a fraction of the dataset that only includes those who were below 20 years of age as we start to observe them. This is because the age of the individuals at the start of observation and the limit of its extension in time would otherwise affect the marriage frequencies. The fraction consists of a total of 16,358 observations for 14,775 unique individuals.

Table 4

Marriage status at end of observation among disabled and non-disabled people under 20 years of age and unmarried at the start of observation in the Sundsvall region 1835-1892: comparisons by gender and disability categories.

Gender	Disability category	Unmarried at start of observation *N*	Married at end of observation *N* (% within each disability category)	
Men	Blind/deaf mute	56	11	(19.6)
	Crippled	46	15	(32.6)
	Idiot/insane	37	8	(21.6)
	Non-disabled	7,944	2,856	(36.0)
	Total *N*	8,083	2,890	
Women	Blind/deaf mute	30	12	(40.0)
	Crippled	21	6	(28.6)
	Idiot/insane	35	6	(17.1)
	Non-disabled	8,189	3,338	(40.8)
	Total *N*	8,275	3,365	
Men and women	Disabled	225	58	(25.8)
	Non-disabled	16,133	6,194	(38.4)
	Total *N*	16,358	6,252	

Sources: Digitized parish registers, the Sundsvall region, Demographic Data Base (DDB), Umeå University

Note: As the chances to marry are largely dependent on the age of the individuals, we have analyzed the marriage frequencies on a fraction of the dataset, which cover those who were under 20 years old at the start of observation. This fraction consists of a total of 16,358 observations, based on 14,775 unique individuals.

Table 5 shows the mean and median ages of first marriage among disabled and non-disabled individuals, based upon the same extracted dataset as Figure 4. The mean ages at first marriage observed for disabled men and women are gathered into one group. Compared with the non-disabled counterparts, their marriage age did not differ to a substantial degree (25.7 and 25.3). However, we found differences within the group of disabled persons and by gender. The mean ages among disabled men ranged between 24.3 and 26.7, whereas among disabled women it varied between 23.2 and 28.2 years of age. Men who were labeled as idiots and insane had the lowest mean age at first marriage, while among disabled women it was those who were blind or deaf mute. Both these mean ages were even lower than for the non-disabled group. The disabled men having the highest mean age at first marriage were those labeled blind or deaf mute, while among disabled women it was those labeled as idiots or insane.

Table 5

Mean and median ages at first marriage among disabled and non-disabled individuals who were under 20 years of age at the start of observation in the Sundsvall region 1835-1892.

Disability category	**All**			**Men**			**Women**		
	N	**Mean**	**Median**	***N***	**Mean**	**Median**	***N***	**Mean**	**Median**
Blind/deaf mute	23	24.9	25.7	11	26.7	26.5	12	23.2	23.7
Crippled	21	26.3	26.3	15	25.9	25.3	6	27.3	27.0
Idiots/insane	14	26.0	25.9	8	24.3	23.7	6	28.2	29.1
All disabled	58	25.7	25.9	34	25.8	25.5	24	25.5	26.1
Non-disabled	6,194	25.3	25.0	2,856	26.3	26.0	3,338	24.4	24.0

Source: Digitized parish registers, the Sundsvall region, Demographic Data Base (DDB), Umeå University

Note: see Table 4.

Differences in Marital Propensities

The descriptive statistics outlined in Table 4 and 5 show that one out of four of the disabled individuals did in fact marry. The next issue is to estimate their marriage propensities, by running Cox regression models controlling for the impact of several covariates. Tables 6-7 shows the outcomes from six models, where Model 1 includes all disabled individuals and Models 2 and 3 represent them by gender. In these models all covariates are included in the regressions. Models 4-6, in table 7, display the outcome from Cox regressions for the disabled individuals and their non-disabled references. In the last three models only the covariates of disability and gender are considered, since the complete dataset shows some disproportionality if all covariates are included.[6]

Among disabled people of both genders (Model 1 in Table 6), the type of disability influenced their marriage chances. Those labeled as idiots or insane show about half the hazard ratio of their blind and deaf mute counterparts. For the whole group of disabled men (Model 2 in Table 6), the impact of the overall disability covariate on marital propensity is statistically significant, but not when the type of disability is considered. There is an indication that crippled men have a 1.6 higher hazard ratio for marriage compared to blind and deaf mute men.[7] For the whole group of disabled women (Model 3 in Table 6), there are insignificant effects of disability, except for women labeled as idiots or insane, who were half as likely (hazard ratio of 0.49) to marry as their blind and deaf mute sisters. Again there is evidence that among disabled men the cripples were most fortunate in the marriage market, whereas among the disabled women it was those who were blind or deaf mute.

What covariates beside the type of disability determined disabled individuals' marital chances to a significant degree statistically speaking? Model 1 shows that disabled people residing in the four parishes that underwent rapid industrialization during the latter part of the century had

[6] The result of the Cox regressions including individuals and all covariates (Model 7-9) are presented in Appendix 1.

[7] Statistical significant on 10 percent level

almost 1.4 times higher hazard ratio for marriage compared to those living in the rural parishes. According to Models 2 and 3 in Table 6, this regional difference in marital chances particularly held true for disabled women living in the above-mentioned four parishes (1.8 times higher). A closer look at how cohort and gender influence marital chances (Models 2 and 3 in Table 6) reveals that disabled women's marriage propensity were 1.7 times higher during industrial times compared to pre-industrial times, while the disabled men show an opposite pattern, with higher marriage propensity during pre-industrial time compare to the industrial period. The socio-economic origin did not have any notable effect on the disabled individuals' marital chances in any of the models.

Disability researchers from England emphasize that industrialization affected the working opportunities of disabled people negatively. Our regression results show a similar tendency for disabled men in the Sundsvall region too, as they had less chance of marrying in industrial times compared to the pre-industrial period. Disabled women, however, had a higher chance of marrying in industrial times than in the pre-industrial period. One possible explanation is found in the expansion of the sawmill industry and the gender division this fostered in the labor market during the latter part of the nineteenth century. This encouraged more men than women to migrate and/or live in industrialized areas, and as a result a male surplus was created. For disabled women, but not for disabled men, their marriage propensity was significantly higher if they resided in parishes that were industrialized in the Sundsvall region. Previous studies of this area indicate that industrialization benefitted women's marital chances (Maria Bergman 2010; Anders Norberg, and Sune Åkerman 1973). Apparently, women with disabilities also enjoyed some of these chances.

Table 6

Cox regression showing the propensity to marry among disabled individuals 1835-1892 in the Sundsvall region

	Model 1: All disabled N = 468		**Model 2: Disabled men** N = 281		**Model 3: Disabled women** N = 187	
Covariates	*Hazard ratio*	*p-value*	*Hazard ratio*	*p-value*	*Hazard ratio*	*p-value*
Disability	—	0.001	—	0.006	—	0.122
Non-disabled	—	—	—	—	—	—
Blind/deaf mute	1 (ref.)	—	1 (ref.)	—	1 (ref.)	—
Crippled	1.285	0.257	1.575	0.074	0.807	0.540
Idiot/insane	0.562	0.019	0.594	0.190	0.490	0.047
Gender	—	0.742	—	—	—	—
Women	1 (ref.)	—	—	—	—	—
Men	0.939	0.741	—	—	—	—
Socio-economic origin	—	0.857	—	0.428	—	0.461
Lower strata	1 (ref.)	—	1 (ref.)	—	1 (ref.)	—
Upper/middle strata	0.894	0.580	0.862	0.752	1.188	0.582
Unknown/undefined	0.953	0.881	1.411	0.310	0.605	0.388
Residence	—	0.229	—	0.180	—	0.102
Rural	1 (ref.)	—	1 (ref.)	—	1 (ref.)	—
Urban	0.920	0.833	0.422	0.201	2.145	0.157
Rural/industrial	1.366	0.112	1.168	0.445	1.814	0.055
Cohort	—	0.966	—	0.244	—	0.084
Pre-industrial time	1 (ref.)	—	1 (ref.)	—	1 (ref.)	—
Industrial time	1.008	0.966	0.739	0.248	1.726	0.093
Overall *p*-value	—	**0.036**	—	**0.014**	—	**0.070**
Overall Proportionality test:	—	**0.365**	—	**0.726**	—	**0.226**

Source: Digitized parish registers, the Sundsvall region, Demographic Data Base (DDB), Umeå University.

Note: Socio-economic origin is determined by fathers' occupations. All individuals are first observed at 15-35 years of age and are observed for a maximum of 18 years. The *p*-values per primary covariates are calculated by drop1-test.

Table 7

Cox regression showing the propensity to marry among disabled and non-disabled individuals 1835-1892 in the Sundsvall region

Covariates	Model 4: All *N* = 28,567		Model 5: Men *N* = 14,503		Model 6: Women *N* = 14,064	
	Hazard ratio	*p-value*	*Hazard ratio*	*p-value*	*Hazard ratio*	*p-value*
Disability	—	<0.001	—	—	—	—
Non-disabled	1 (ref.)	—	1 (ref.)	—	1 (ref.)	—
Blind/deaf mute	0.370	0.000	0.330	0.000	0.437	0.000
Crippled	0.466	0.000	0.564	0.001	0.352	0.000
Idiot/insane	0.209	0.000	0.205	0.000	0.211	0.000
Gender	—	<0.001	—	—	—	—
Women	1 (ref.)	—	—	—	—	—
Men	0.770	0.000	—	—	—	—
Overall *p*-value	—	**0.000**	—	**0.000**	—	**0.000**
Overall Proportionality test:	—	**0.000**	—	**0.748**	—	**0.152**

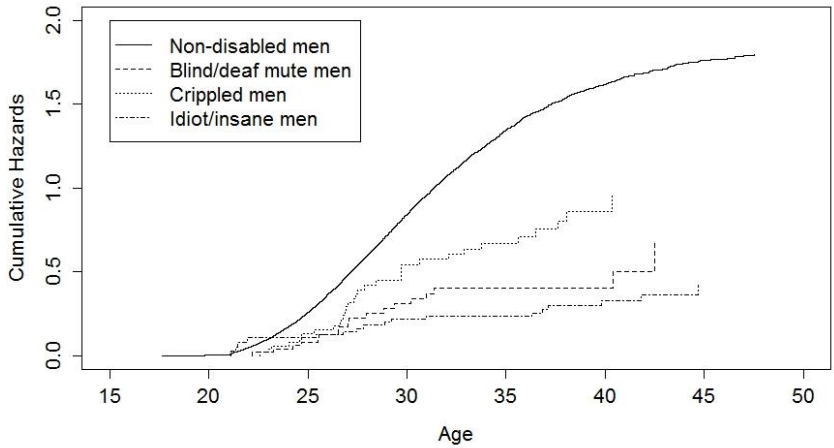
Source: Digitized parish registers, the Sundsvall region, Demographic Data Base (DDB), Umeå University.

Note: All individuals are first observed at 15-35 years of age and are observed for a maximum of 18 years. The *p*-values per primary covariates are calculated by drop1-test. In Models 4-6 only the covariates of gender and disability are used due to proportionality problem in the result when running all covariates (see Appendix 1).

From a labeling theory perspective and to understand the above regression results for disabled individuals, it is interesting to compare them with the group of non-disabled people, as Models 4-6 in Table 7 do. Disabled individuals show significantly lower marriage propensity for all types of impairments relative to the non-disabled references. Hence, the regression results based solely on the disabled people from Models 1-3 persist when the non-disabled are included. Within the group of disabled persons, men and women labeled as mentally disabled had the lowest hazard ratio for marriage: 0.2 compared to 1 for the reference group.

Even though cripples again show the highest hazard ratio for marriage among disabled men, this was only about half the chance of non-disabled men. Among women with disabilities those labeled as blind or deaf mute show the highest marital propensity, but this figure was still low (0.4) in comparison with non-disabled women.

To illustrate the above variations in marital propensities of Models 4-6 in Table 7, Figures 2 and 3 present them graphically.



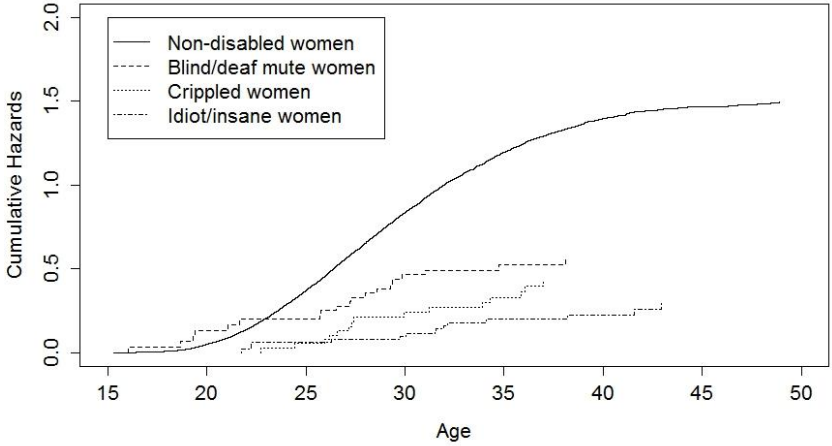
Source: Digitized parish registers, the Sundsvall region, Demographic Data Base (DDB), Umeå University

Note: The Cox regression according to model 8 in Appendix 1 stratified by disability forms the basis of this figure.

Figure 2

Plotted cumulative hazard curves for non-disabled and disabled men in the Sundsvall region, 1835-1892.

The propensity to marry stratified by type of disability.



Source: Digitized parish registers, the Sundsvall region, Demographic Data Base (DDB), Umeå University

Note: The Cox regression according to model 9 in Appendix 1 stratified by disability forms the basis of this figure.

Figure 3

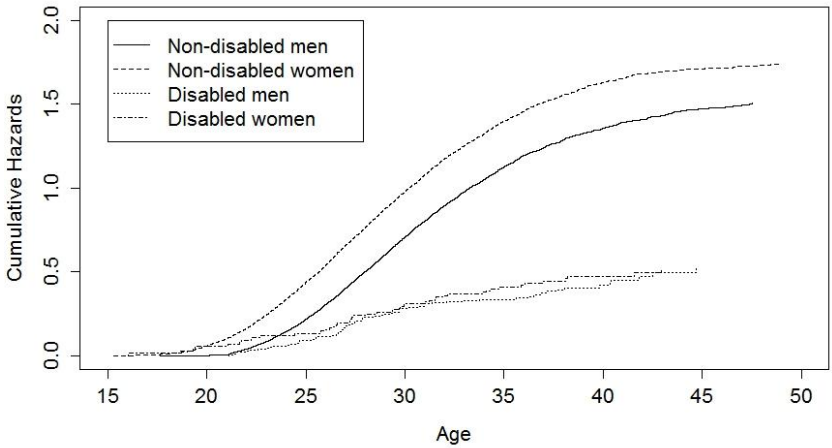
Plotted cumulative hazard curves for non-disabled and disabled women in the Sundsvall region, 1835-1892.
The propensity to marry stratified by type of disability.

The graphs plot the cumulative hazards for marrying among both disabled and non-disabled individuals, one figure for each gender, and are based on the Cox regressions accounting for the same covariates as in Models 1-3 in Table 6, stratified by the type of disability.[8] The more rapidly the curve increases, the greater the hazard for experiencing marriage within each group of individuals under observation. The graphs

[8] Appendix 1 shows the results from Cox regression models (7-9) accounting for all covariates for both disabled and non-disabled individuals, not stratified by type of disability.

of Figures 2 and 3 help to illustrate the fact that disabled people had profoundly lower marital chances compared to the non-disabled, and that male cripples and blind or deaf mute women were the ones most likely to marry within the group of disabled persons, as shown in Table 6.[9]

Figure 4 compares disabled with non-disabled people stratified by both gender and disability; the former are gathered into one group no matter the type of disability.



Source: Digitized parish registers, the Sundsvall region, Demographic Data Base (DDB), Umeå University

Figure 4

Plotted cumulative hazard curves for non-disabled and disabled people in the Sundsvall region, 1835-1892.

The propensity to marry stratified by gender and disability.

A gender difference is clearly visible among non-disabled people, as the women had higher marriage propensities than men. Among the

[9] In Figure 2 a few men labeled as having mental disabilities married very early, as did a few of the blind and deaf mute women in Figure 3. In both cases those who married very early are few in number and therefore not representative for the whole group of mentally disabled men and blind and deaf mute women respectively.

disabled group we do not find the same gender difference. It seems that the presence of disability works to limit or even diminish the "normal" distribution of marital chances found among non-disabled men and women. Yet it must be borne in mind that disability rendered people lower marriage chances in general.

Concluding Discussion: Disability and Limited Marital Chances

By analyzing the event of marriage among disabled individuals, this study contributes quantitative and statistical findings that help to fill in a gap in the knowledge of historians about how disabled people experienced life in past societies. We have used the digitized parish registers at the Demographic Data Base (DDB), Umeå University, to explore first marriages among disabled and non-disabled people in the region of Sundsvall, Sweden, during the nineteenth century. The aim was to find out how disability affected men and women's marital chances, as knowing this would provide information about their level of inclusion in social life in a past society. We sum up the central findings below and then attempt to explain them.

The descriptive results made clear that disabled people were not entirely excluded from the marriage market, as 25 percent of them did marry during the observation period. However, this percentage must be regarded as low, since almost 40 percent of non-disabled people living in the same regional environment married. The mean ages at first marriage did not differ substantially between all disabled and non-disabled men and women who married, although some small variations were found according to type of disability. Our regression results are more robust in demonstrating that considerably lower marital propensities were associated with disabled men and women compared to their non-disabled counterparts. Some significant differences were found within the group of disabled people and by gender. Crippled men and women labeled as blind or deaf mute show the highest marital propensity among people with disabilities, while those labeled as idiots or insane show the lowest hazard ratio regardless of gender.

Our findings suggest that when it came to marrying, this was far more difficult for people with disabilities than those without. To understand this

and the variations in marital chances, we discuss three explanatory factors. Firstly, the impairment itself could cause obstacles in life. Deaf people probably had difficulties communicating with the surrounding hearing world, or with a potential employer or spouse, for instance. Mentally disabled people may have shared some of these communication difficulties as well, and while cripples may have been unable to carry out all the physical work they would otherwise have been able to do. The fact that marital chances differed to a substantial and significant degree within the group of disabled people emphasizes the need to distinguish between different types of impairments, as disabled people were not a homogenous selection of men and women, as we will discuss further below. Secondly, there is reason to consider not only the impairment itself but also the possible effects of labeling on individuals. Disability researchers contend that if impairments made people look or behave differently from the average population they would deviate from prevailing norms and attitudes in society, which in turn would promote a stigma or even their social exclusion. We argue that such a stigma added to the marital difficulties that disabled people experienced in the region under study. The fact that some impairments were associated with higher levels of stigma helps to explain some variations in our findings. For instance, idiots or the insane show the lowest marital propensity among both the men and women we study, and research suggests that in particular people with mental disabilities were negatively viewed by surrounding society. According to our statistical findings there is no doubt that they were subject to such views if living in the nineteenth-century Sundsvall region.

Thirdly, the above notions lead us to discuss gendered expectations, such as the male breadwinner ideal, and further explain the differences in marital chances as partly arising from labeling perspectives. The relatively high marital propensity for male cripples is interesting and may be due to the fact that they represent a rather large proportion of the disabled men who probably constituted a heterogeneous group covering a wide range of physical impairments, from hare lips to lameness. It appears that being crippled did not stop

men from marrying as much as did other disabilities. This indicates that male cripples had opportunities to find work and obtain the material resources to marry and support a wife and family in accordance with the breadwinner norm. They may thus have escaped some of the labeling effects possibly associated with their disability. Female cripples, however, did not share the relatively fortunate prospects of their crippled brothers, instead blind or deaf mute women were those most likely to marry among disabled women. The fact that crippled women were less fortunate in the marriage market than blind and deaf mute women suggests that the latter were more able to meet the normative expectation associated with their female gender than were crippled women. It appears that being crippled was more limiting for women than men, whereas being blind or deaf mute jeopardized men's marital chances more than for women. Even though the combinational effects of one gender and type of disability must be further investigated, our results indicate that one type of disability could be more troublesome for women than men, or vice versa. It could have different effects on men and women's capacity to do the type of work or to live a life that gender implied at a time when men were supposed to be independent providers by taking up employment in the labor market and women were expected to do household tasks. Presumably, the difficulties we see evidence of in the marriage market signify problems in the labor market.

Our analyses are unique in providing statistical evidence of whether and when disabled people in nineteenth-century society married, while the findings identify a differentiation in the life and labeling of disabled people in historical populations. The marital chances uncovered by this study reflect how disabled people fared in society and were viewed by people around them. The data we base our findings on have both strengths and limitations. One of the latter is that the parish registers do not differentiate between the types of impairments particularly well. Among the strengths are that these registers enable us to analyze a comprehensive number of disabled individuals and to extract a reference group of non-disabled people that benefit the assessment of findings. To obtain a more complete picture of

disabled people's lives there is further need to analyze more than one event at a time by conducting sequence analysis, for instance. By using this method we are about to trace the life trajectories of young disabled people in their transition to adulthood, exploring not only the event of first marriage, as in the present study, but also of first occupation and the birth of the first child. Finally, there is of course a need to find out who the disabled individuals married.

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APPENDIX 1

Cox regression of the propensity to marry among the reference group covering disabled and non-disabled individuals 1835-1892 in the Sundsvall region

Covariates	**Model 7: All** *N* = 28,567		**Model 8: Men** *N* = 14,503		**Model 9: Women** *N* = 14,064	
	Hazard ratio	*p-value*	*Hazard ratio*	*p-value*	*Hazard ratio*	*p-value*
Disability	—	<0.001	—	<0.001	—	<0.001
Non-disabled	1 (ref.)	—	1 (ref.)	—	1 (ref.)	—
Blind/deaf mute	0.350	0.000	0.332	0.000	0.393	0.000
Crippled	0.445	0.000	0.550	0.001	0.317	0.000
Idiot/insane	0.191	0.000	0.195	0.000	0.188	0.000
Gender	—	<0.001	—	—	—	—
Women (ref.)	1 (ref.)	—	—	—	—	—
Men	0.741	0.000	—	—	—	—
Socio-economic origin	—	<0.001	—	<0.001	—	0.001
Lower strata	1 (ref.)	—	1 (ref.)	—	1 (ref.)	—
Upper/middle strata	1.041	0.092	0.923	0.018	1.133	0.000
Unknown/undefined	1.172	0.000	1.253	0.000	1.077	0.047
Residence	—	<0.001	—	<0.001	—	<0.001
Rural	1 (ref.)	—	1 (ref.)	—	1 (ref.)	—
Urban	0.542	0.000	0.503	0.000	0.585	0.000
Rural/industrial	1.062	0.005	0.977	0.450	1.128	0.000
Cohort	—	<0.001	—	0.268	—	<0.001
Pre-industrial time	1 (ref.)	—	1 (ref.)	—	1 (ref.)	—
Industrial time	1.243	0.000	1.032	0.269	1.455	0.000
Overall *p*-value	—	**0.000**	—	**0.000**	—	**0.000**
Overall Proportionality test:	—	**0.000**	—	**<0.001**	—	**0.000**

Source: Digitized parish registers, the Sundsvall region, Demographic Data Base (DDB), Umeå University.

Note: Socio-economic origin is manifested by fathers' occupations. All individuals start their observation at 15-35 years of age and are observed for a maximum of 18 years.

WORKS CITED

Alm Stenflo, Gun. 1994. *Demographic Description of the Skellefteå and Sundsvall Regions during the 19th Century.* Umeå: Demographic Data Base.

Barnes, Colin, Geof Mercer, and Tom Shakespeare. 1999. *Exploring Disability. A Sociological Introduction.* Cambridge: Polity Press.

Becker, Howard S. 1963. *Outsiders. Studies in the Sociology of Deviance.* New York: The Free Press.

Bengtsson, Staffan. 2012. "Arbete för individen och samhället." In *Utanförskapets historia – om funktionsnedsättning och funktionshinder*, edited by Kristina Engwall and Stig Larsson, 45-58. Lund: Studentlitteratur.

Bergman, Maria. 2010. *Constructing Communities. The Establishment and Demographic Development of Sawmill Communities in the Sundsvall District, 1850-1890.* PhD dissertation. Umeå University.

Befolknings-statistik. Statistiska Centralbyråns underdåniga berättelse för år 1900. Tredje afdelningen. 1907. *Bidrag till Sveriges officiella statistik (BiSOS)*, Stockholm: Statistics Sweden. Accessed March 18, 2016, http://www.scb.se/H/BISOS%201851-1917/BISOS%20A%20Befolkning%201851-1910/Befolkning-A-1900-tredje.pdf

Borsay, Anne. 2005. *Disability and Social Policy in Britain since 1750.* Hampshire: Palgrave Macmillan.

Broström, Göran. 2012. *Event History Analysis with R.* Boca Raton, FL: CRC Press.

De Veirman, Sofie. (2015) *Breaking the Silence: the Experiences of Deaf People in East Flanders, 1750-1950. A Life Course Approach.* PhD dissertation. Ghent University.

Edvinsson, Sören. 1992. *Den osunda staden: Sociala skillnader i dödlighet i 1800-talets Sundsvall*. PhD dissertation. Umeå University.

Edvinsson, Sören. 2004. "Social Differences in Infant and Child Mortality in Nineteenth Century Sweden." In *The Determinants of Infant and Child Mortality in Past European Populations*, edited by Marco Breschi, and Lucia Pozzi, 67-87. Udine: Forum.

Edvinsson, Sören, and Göran Broström. 2012. "Old Age, Health, and Social Inequality: Exploring the Social Patterns of Mortality in 19th Century Northern Sweden." *Demographic Research* 26 (Article 23): 633-660.

Eggeby, Eva. 1993. "Avita, galen, sinnessvag – något om synen på mentalsjukdomar och de mentalsjuka under 1700- och 1800-talet." *Historisk Tidskrift* 4, 538-581.

Elder Jr., Glen H., Monica Kirkpatrick Johnson, and Robert Crosnoe. 2004. "The Emergence and Development of Life Course Theory." In *Handbook of the Life Course*, edited by Jeylan T. Mortimer, and Michael J. Shanahan, 3-19. New York: Springer Science+Business Media.

Förhammar, Staffan. 1991. *Från tärande till närande, handikapputbildningens bakgrund och socialpolitiska funktion i 1800-talets Sverige.* Stockholm: Almqvist & Wiksell.

Förhammar, Staffan, and Marie C. Nelson (eds.). 2004. *Funktionshinder i ett historiskt perspektiv*. Lund: Studentlitteratur.

Giele, Janet Z., and Glen H. Elder Jr. 1998. "Life Course Research. Development of a Field." In *Methods of Life Course Research. Qualitative and Quantitative Approaches*, edited by Janet Z. Giele, and Glen H. Elder Jr., 5-27. Thousand Oaks California: SAGE Publications Inc.

Goffman, Erving. 1972. *Stigma. Den avvikandes roll och identitet.* Stockholm: Prisma.

Grönvik, Lars, and Mårten Söder. (eds.). 2008. *Bara funktionshindrad? Funktionshinder och intersektionalitet.* Malmö: Gleerups utbildning AB.

Haage, Helena. 2012. "Identifying Disability using Nineteenth-Century Parish Registers." Unpublished paper presented at the *Workshop on Categories and Concepts in Health, Medicine and Society*, 14-16 March, Umeå Sweden.

Haage, Helena. 2017. *Disability in Individual Life and Past Society. Life-Course Perspectives of People with Disabilities in the Sundsvall Region of Sweden in the Nineteenth Century*. PhD dissertation, Umeå University.

Hafström, Gerhard. 1975. *Den svenska familjerättens historia.* Lund: Juridiska föreningen.

Hajnal, John. 1953. "Age at Marriage and Proportions Marrying." *Population Studies*, 7 (2): 111-136.

Hajnal, John. 1965. "European Marriage Patterns in Perspective." In *Population in History: Essays in Historical Demography*, edited by D. V. Glass, and D. E. C. Eversley. 101-143. London: Edward Arnold Publishers Ltd.

Hutchison, Iain. 2007. *A History of Disability in Nineteenth-Century Scotland.* New York: The Edwin Mellen Press.

Janssens, Angélique. 1997. "The Rise and Decline of the Male Breadwinner Family? An Overview of the Debate." In *International Review of Social History.* Supplement S5: 1-23.

Kom, Edward L., Barry I. Graubard, and Douglas Midthune. 1997. "Time-to-Event Analysis of Longitudinal Follow-up Survey: Choice of the Time-scale." *American Journal of Epidemiology* 145 (1): 72-80.

Kudlick, Catherine J. 2003. "Disability History: Why we Need Another 'Other'." *The American Historical Review* 108 (3): 763-793.

Lemert, Edwin M. 1967. *Human Deviance, Social Problems & Social Control.* Englewood Cliffs, N.J.: Prentice-Hall Inc.

Lundh, Christer. 1997. *The World of Hajnal Revisited. Marriage Patterns in Sweden 1650-1990.* Lund: Lunds Papers in Economic History, No 60.

Lundh, Christer. 2013. **"**The Geography of Marriage. Regional Variations in Age at First Marriage in Sweden, 1870-1900." *Scandinavian Journal of History*, 38 (3): 318-343.

Lundh, Christer, and Satomi Kurosu. 2014. "Similarities and Differences in Pre-modern Eurasian Marriage." In *Similarity in Difference: Marriage in Europe and Asia, 1700-1900*, by Christer Lundh, and Satomi Kurosu, et al., 439-460. Cambridge, Massachusetts: The MIT Press.

Mayer, Karl, Ulrich, and Nancy Brandon Tuma. 1990. "Life Course Research and Event History Analysis: An Overview." In *Event History Analysis in Life Course Research*, edited by Karl Ulrich Mayer, and Nancy Brandon Tuma, 3-20. Madison Wisconsin: The University of Wisconsin Press.

McQuillan, Kevin. 1989. "Economic Structure, Religion, and Age at Marriage: Some Evidence from Alsace." *Journal of Family History* 14 (4): 331-346.

Mont, Daniel. 2007. "Measuring Health and Disability." *The Lancet* 369 (9573): 1658-1663.

Nilsdotter Jeub, Ulla. 2009. *Parish Records. Digitalised Material from the Demographic Data Base*. Umeå: Umeå University. Accessed March 18, 2016. http://www.cedar.umu.se/digitalAssets/81/81164_parishrecords.pdf

Nilsson, Hans, and Lars-Göran Tedebrand. 2005. *Familjer i växande städer. Strukturer och strategier vid familjebildning i Sverige 1840-1940.* Umeå: Report no. 27 from the Demographic Data Base, Umeå University.

Norberg, Anders, and Sune, Åkerman. 1973. "Migration and the Building of Families. Studies on the Rise of the Lumber Industry in Sweden. In *Aristocrats, Farmers, Proletarians. Essays in Swedish Demographic History,* edited by Kurt Ågren, David Gaunt, Ingrid Eriksson, John Rogers, Anders Norberg, and Sune Åkerman, 88-119. Stockholm: Almqvist Wicksell.

Olsson, Claes, G. 2010. *Omsorg & Kontroll. En handikapphistorisk studie 1750-1930.* PhD dissertation, Umeå University.

Olsson, Ingrid. 1999. *Att leva som lytt: Handikappades levnadsvillkor i 1800-talets Linköping.* PhD dissertation, Linköping University.

Priestley, Mark. 2003. *Disability. A Life Course Approach.* Cambridge: Polity Press.

Rogers, John, and Marie C. Nelson. 2003. "'Lapps, Finns, Gypsies, Jews, and Idiots' Modernity and the Use of Statistical Categories in Sweden." *Annales de Démographie Historique* 105: 61-79.

Siminski, Peter. 2003. "Patterns of Disability and Norms of Participation through the Life Course: Empirical Support for a Social Model of Disability." *Disability and Society* 18 (6): 707-718.

Stone, Deborah, A. 1984. *The Disabled State.* Philadelphia: Temple University Press.

Susman, Joan. 1994. "Disability, Stigma and Deviance." *Social Science & Medicine* 38 (1): 15-22.

Thiébaut, Anne, C. M., and Jacques Bénichou. 2004. "Choice of Time-Scale in Cox's Model Analysis of Epidemiologic Cohort Data: a Simulation Study." *Statistics in Medicine* 23 (24): 3803-3820.

van Leeuwen Marco, H. D., and Ineke Maas. 2011. *HISCLASS: A Historical International Social Class Scheme.* Leuven: Leuven University Press.

van de Putte, Bart, and Andrew Miles. 2005. "A Social Classification Scheme for Historical Occupational Data." *Historical Methods* 38 (2): 61-94.

Vikström, Pär, Sören Edvinsson, and Anders Brändström. 2006. "Longitudinal Databases – Sources for Analyzing the Life-Course: Characteristics, Difficulties and Possibilities." *History and Computing* 14 (1+2): 109-128.