



<http://www.diva-portal.org>

This is the published version of a paper published in *The History of the Family*.

Citation for the original published paper (version of record):

Namatovu, F., Häggström Lundevaller, E., Vikström, L. (2020)

The impact of disability on partnership formation in Sweden during 1990-2009

*The History of the Family*, 25(2): 230-245

<https://doi.org/10.1080/1081602X.2019.1692054>

Access to the published version may require subscription.

N.B. When citing this work, cite the original published paper.

Permanent link to this version:

<http://urn.kb.se/resolve?urn=urn:nbn:se:umu:diva-165907>



## The impact of disability on partnership formation in Sweden during 1990-2009

Fredinah Namatovu , Erling Häggström Lundevaller & Lotta Vikström

To cite this article: Fredinah Namatovu , Erling Häggström Lundevaller & Lotta Vikström (2020) The impact of disability on partnership formation in Sweden during 1990-2009, The History of the Family, 25:2, 230-245, DOI: [10.1080/1081602X.2019.1692054](https://doi.org/10.1080/1081602X.2019.1692054)

To link to this article: <https://doi.org/10.1080/1081602X.2019.1692054>



© 2019 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 04 Dec 2019.



Submit your article to this journal [↗](#)



Article views: 270



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 1 View citing articles [↗](#)

ARTICLE



OPEN ACCESS



Check for updates

# The impact of disability on partnership formation in Sweden during 1990–2009

Fredinah Namatovu <sup>a</sup>, Erling Häggström Lundevaller <sup>b</sup> and Lotta Vikström <sup>a</sup>

<sup>a</sup>Department of Philosophical, Historical and Religious Studies, and Centre for Demographic and Ageing Research (CEDAR), Umeå University, Umeå, Sweden; <sup>b</sup>Umeå School of Business Economics and Statistics, Umeå University, Umeå, Sweden

## ABSTRACT

Evidence suggests that disability negatively affects people's propensity to find a partner. Persons with disabilities that eventually find a partner do so later in life compared to the average population. There is a lack of studies on the differences in partnership opportunities for persons with disabilities compared to those without disabilities in Sweden. The aim of this study is to assess the impact of disability on partnership formation and to assess whether partnership formation varies as a function of individual demographic and socio-economic factors. We use nationwide data available in the Swedish Initiative for Research on Microdata in Social and Medical Sciences (Umeå SIMSAM Lab). We follow persons born from 1973 to 1977 when they were from 16 to 37 years of age and analyze their data using logistic regression. Our findings indicate that regardless of whether a person started to receive a disability pension at an early age or later, it was associated with lower odds for partnership formation. For persons who started receiving disability pension from 16 to 20 years of age, chances for partnership formation reduced with increase in age of partnership. Individuals that started to receive disability pension later were more likely to form partnership prior to receiving disability pension. Partnership formation was less likely among persons born outside Sweden, in persons with mothers born outside Sweden, in individuals born by unmarried mothers and in persons, whose mothers had a high level of education. Partnership was high among women and among persons who had many maternal siblings. In conclusion, receiving disability pension was associated with reduced chances for partnership formation. Receiving disability pension might imply financial constraints that negatively influence partnership formation supporting Oppenheimer's theory on the economic cost of marriage and the uncertainty hypothesis.

## KEYWORDS

Cohabit; cohabitation; disability; early retirement pension; family union; marriage; marry; union formation

## 1. Introduction

According to the Eurostat 2010 report, disability affects approximately 10–12% of the population (OECD, 2010). However, limited research has been conducted on the cohabitation and marital patterns of this population. In this study of the impact of disability on partnership formation in Sweden, we define the state of disability as having received disability pension

during the study period. Disability pension is an allowance given to individuals below retirement age who have an impairment that prevents them from working (Jönsson et al., 2012). Disability pension is a legal or administrative definition based on the distribution of welfare benefits to persons with disabilities (Grönvik, 2009; Stattin, 2005). Sweden established the first disability pension scheme in the 1950s. Since this time, it has been subject to several reforms. The disability pension reforms of the 1990s restricted eligibility to persons from 16 to 64 years of age who could provide medical evidence of their inability to work. In 2003, the term 'disability pension' was replaced by 'activity compensation' and 'sickness compensation', with eligibility based on medical evidence that showed a chronically reduced working capacity (Försäkringskassan, 2004). Having a chronically disabling condition might create social barriers that affect partnership formation (Rapegno & Ravaud, 2017).

Historically and in present day society, partnership is one of the major milestones in life. In many societies, partnership forms part of the so-called 'normal' transition into adulthood (Lundh, 2003). During the early twenty-first century, Europe experienced a general decline in the number of people getting married, the crude marriage rate was 7.8 per 1000 persons in 1965 and 4.2 in 2011 (Eurostat, 2015, 2017). However, in recent years, Sweden has experienced an increase in the marriage rate, the crude marriage rate was 4.5 per 1000 persons in 2000 and 5.5 in 2013 (Eurostat, 2017). The number of people who report living together as cohabiters without being married is also increasing (Eurostat, 2015). In most Northern and Western societies, it is evident that cohabitation is a preliminary first step to marriage (Coleman, 2013). In some cases, cohabitation remains the only preferred state of partnership with both parties having no further intention of getting married (Coleman, 2013).

Having a disability can negatively affect a person's chances of cohabiting and/or getting married, thereby altering the 'normal' transition into adulthood (Osgood, Foster, Flanagan, & Ruth, 2008; Queirós, Wehby, & Halpern, 2015). Existing research outside Sweden suggests that people with long-term disabilities are more likely to live with their parents, even during adulthood (Reynolds, Morton, Garralda, Postlethwaite, & Goh, 1993). Persons with disabilities are less likely to cohabit or marry compared to their counterparts without disabilities (Clarke & McKay, 2014; Franklin, 1977; Janus, 2009; Liu & Zhang, 2013; MacInnes, 2011; Osgood et al., 2008; Queirós et al., 2015; Savage & McConnell, 2016; Singleton, 2012; Tumin, 2016). Some studies also show that disabled people tend to marry much later in life compared to their peers without disabilities (Franklin, 1977; Osgood et al., 2008). In addition, the divorce rate is higher among persons with disabilities compared to the general population (Osgood et al., 2008). However, there is still limited research on factors that act as facilitators or barriers to partnership among persons with disabilities globally (Clarke & McKay, 2014) and in Sweden.

There are several reasons to suggest that cohabitation and marriage might differ between persons with disabilities and persons without disabilities. The mechanisms that explain these differences are diverse. A Swedish historical study reports that individuals with disfigured faces resulting from smallpox were less likely to marry and that those who eventually married tended to do so later compared to their peers whose faces were not pockmarked (Sköld, 2003). Historical evidence indicates that persons with disabilities have a limited chance of entering into marriage compared to persons without disabilities (Haage, Vikström, & Häggström Lundevaller, 2017). Recent studies show that disability affects partnership formation by creating limitations for social interaction,

restrict access to potential partners (Rapegno & Ravaud, 2017; Sundar, Brucker, Pollack, & Chang, 2016). Moreover, persons with disabilities report a high prevalence of neighborhood socio-economic disadvantage (Danielewicz, Dos Anjos, Bastos, Boing, & Boing, 2017) and poor socio-economic status on an individual level (Beckman, Hakansson, Rastam, Lithman, & Merlo, 2006). These factors can limit the likelihood of partnership formation in this population. More in-depth studies on marriage and cohabitation among persons with disabilities are lacking in Sweden. This study attempts to address this research gap by investigating differences in the cohabitation and marriage patterns of those persons who received a disability pension compared to those who did not receive a disability pension during the observation period.

## 2. Study hypothesis

The general hypothesis of this study is that persons who receive disability pension are less likely to form partnership compared to individuals who do not receive disability pension. Our second hypothesis is that the period prior to starting to receive disability pension is characterized by poor health, which subsequently leads to a long-term departure from the labour market and the eventual receipt of disability pension. This pattern suggests that recipients of disability pension are different from non-recipients even before they start receiving disability pension payments, which may reduce their partnership opportunities, even prior to receiving a disability pension. We test this hypothesis by examining whether the age at which one starts to receive disability pension relates to the age at partnership formation.

## 3. Study aim

The overall aim of this study is to investigate the impact of disability on the chances of partnership formation while examining the extent to which this partnership formation differs based on individual characteristics and family background. We address this aim by exploring the following research questions:

- 1a) Do persons with disabilities and persons without disabilities display different chances of cohabitating/getting married?
- 1b) Is disability pension a lagging indicator, that is, disabling conditions exist prior to the start of receiving a disability pension?
- 2) Does cohabitation/marriage differ with respect to individual and maternal demographic and socio-economic characteristics?

## 4. Theoretical framework and study rationale

Our theoretical framework draws on previous discussions of partnerships by international scholars. European demographers have used the individualization hypothesis to discuss the decline in the choice to marry or cohabit (van de Kaa, 1987, 2001). This hypothesis linked the decline in marriage observed in Western society to an increased need for individual autonomy. This theory was advanced by further adding that individualization

combined with secularization led to the postponement of marriage, resulting in increased cohabitation, divorce and a decline in fertility, which are behavioural characteristics associated with the second demographic transition (Bumpass, 1990; Lesthaeghe, 2014).

Oppenheimer (1994) disagreed with the individualization hypothesis, basing her views on statistical results that nevertheless reflected a continuation of normative attitudes. Oppenheimer showed that even though more people were remaining single, when interviewed about their future prospects, both unmarried men and women still wanted to get married. Oppenheimer (1997) presented an alternative hypothesis that leaned heavily on the men's economic prospects. She argued that the weakened economic position of men reduced their chances of marriage, resurrecting the Malthusian notion of the economic costs of marriage (Easterlin, 1980; Hajnal, 1965). She showed that household costs were a key determinant of marriage decisions and that men who cannot cover household costs adequately are less attractive on the marriage market (Oppenheimer, 1994). Oppenheimer recognizes that the economic basis of marriage might have weakened as gender roles became more symmetrical, but that men's economic resources still influence their marriage prospects.

Oppenheimer (1997) also developed the uncertainty hypothesis arguing that work provides a structure to a person's lifestyle. Unstable career pathways characterized by low-status jobs, unemployment and temporary employment signals broader economic uncertainty. Economic uncertainty among men indicates difficulties in financial provision and a poor future lifestyle. Oppenheimer views the rise in cohabitation as a rational response to uncertainty because of its flexibility and suitability to changes in the labour market (Kalmijn, 2011; Mills, Blossfeld, & Klijzing, 2005).

Oppenheimer's theory is applicable when discussing partnership among persons with disabilities. As previously mentioned, disability in this study implies reduced work due to a disabling health condition. Drawing on Oppenheimer's theory of the economic cost of marriage and the uncertainty hypothesis (Oppenheimer, 1988, 2003), we speculate that the income level of persons with disabilities in this population could be lower than that of their counterparts without disabilities which negatively affects their opportunities for partnership formation.

Investigating the impact of disability on partnership formation is crucial as disability can create barriers to partnerships not encountered by persons without disability. Notably, there is consistent evidence that living in a marital union is positively correlated with several life course outcomes (van Hedel, Martikainen, Moustgaard, & Myrskylä, 2016; Waite, 1995). If persons with disabilities remain single, this could mean that they will not enjoy some of the benefits associated with marriage or cohabitation (Ross, Mirowsky, & Goldsteen, 1990; Waite, 1995). From a health perspective, research links marriage to improved physical and mental health, lower levels of risky sexual behaviour, lower levels of substance abuse and reduced morbidity and mortality (Ross et al., 1990; Waite, 1995). Single people in comparison to married people report more health problems, poor overall health, higher psychological distress and a shorter life span (Kalmijn, 2017; Robles, 2014).

Furthermore, several studies indicate that cohabitation and marriage offer economic advantages such as the ability to accumulate wealth quickly (Ross et al., 1990; Waite, 1995). Some studies report that being single is associated with delays in establishing independent living, a successful career and having children (Savage & McConnell, 2016; Scott-Marshall, Tompa, Liao, & Fang, 2013). Since partnership is associated with social,

psychological, health and economic advantages, it is important to understand the opportunities for partnership formation as this would enhance broad social access to the benefits associated to partnership.

## 5. Materials and methods

The study population comprises men and women born in Sweden between 1973 and 1977. They were observed from 16 to 37 years of age between 1990 and 2010. The study used anonymized data from Statistics Sweden and the original file comprised 693,247 persons. We restricted our population to individuals residing in Sweden at 16 years of age. Due to this criterion, we excluded 142,644 individuals who had died ( $n = 6\,441$ ), out-migrated ( $n = 18\,680$ ) or immigrated ( $n = 117,523$ ) before reaching 16 years of age. After exclusion, the total population included in the analysis comprised 550,603 individuals. The Longitudinal Integration Database for Health Insurance and Labor Market Studies (LISA database) provided data on total population, disability pension, as well as demographic and socio-economic characteristics. We accessed these linked and anonymized data via the Swedish Initiative for Research on Microdata in Social and Medical Sciences (Umeå SIMSAM Lab) at Umeå University, Sweden. Statistics Sweden performed data linkage by using the personal identity number (PIN) of children and their mothers. Everyone living in Sweden has a PIN. The Regional Ethical Vetting Board approved all research based on data from the Umeå SIMSAM Lab, including the present paper: Dnr 2010-157-31 Ö).

### 5.1. Measurement of study variables

The outcome of interest was whether a person married/cohabited for the first time during the follow-up period from 16 to 37 years of age. Those persons who married/began cohabiting were coded yes (coded as 1) while those who did not were coded no (coded as 0). In a secondary analysis, we stratified this dependent variable based on age at cohabitation and marriage. Cohabitation only covers cohabiting couples with a common child or children living at the same address as the two parents. This means that cohabiting couples without children have not been included in this study because these data are currently not available in the registers we used.

The explanatory variable of main interest was disability. We classified individuals as having a disability if they received disability pension during the observation period using data obtained from the LISA database. In Sweden, disability pensions are one of the crucial income security programs that serve a major purpose of replacing the foregone earnings of people below retirement age who have a chronic health condition/impairment that prevents them from working (Jönsson et al., 2012). Information on disability pensions was available for all individuals. In our first analysis, disability pensions were coded as 1 for those who received a disability pension and 0 for those who never received a disability pension during the observation period. In our second analysis, we measure disability by age when disability pension was first received in order to measure if this was associated with age at marriage/cohabitation.

Covariates of interest included the index person's sex and country of birth. For sex, we used men as the reference category. We classified country of birth into two categories:

born in Sweden or born abroad, with the former serving as the reference group. Data were missing for 27 individuals (0.001%). We chose to operationalize independent variables based on maternal information instead of information on both parents because the characteristics of the mother demonstrated a strong correlation with children's characteristics. We included mothers' country of birth, education level, number of children and marital status. The mother's number of children at the time when the index child reached 16 years of age was categorized as 1 if the index person was the only child (reference category), 2 if the mother had two children and 3+ if the mother had three or more children. The mother's data were missing in 10,506 cases (2%). The mother's marital status at the time the index child was born was categorized as married (the reference group) or unmarried, as this latter category included widows, divorced, separated and never married. Data were missing in 42,903 cases (8%). The model automatically excluded individuals with missing mother's information on the above variables. The mother's education level was categorized based on the highest level of education attainment. We divided this variable into three groups: compulsory education (reference), upper secondary education and higher education. Data were missing in 117,835 cases (21%), the majority of whom were born outside Sweden. We created a separate category for mothers whose educational status was unknown because there were many mothers in this category.

## 5.2. Statistical analysis

We used logistic regression analysis to compare the chances of partnership formation between persons with disabilities and those without disabilities. Our first logistic regression analysis included the entire study population aged 16 to 37 years. This analysis assessed the odds of first marriage/cohabitation by disability pension controlling for demographic and socio-economic conditions (Table 2). In our second analysis, we compared age when disability pension was first received with age at first entry into partnership to assess the order in which these two events occurred (Table 3). We categorized age when disability pension first received as 16–20 years, 21–24 years, 25–28 years and 29–33 years. Those who did not receive disability pension were the reference group. We created similar age categories for age at first partnership similar to the categories of age when disability pension was first received. Creating one model for each category of age at partnership formation, we constructed four models. These four models incorporated all our study covariates, i.e. age when disability pension was first received categorized in four age groups (reference group was no disability pension), we also included demographic and socio-economic factors in each model. The study population for each model consisted of persons that had not entered partnership at the specified age, excluding those that entered partnership earlier. Model 1 assessed the chances of partnership formation at 16–20 years of age, for the entire study population since none was in partnership at the start of the follow-up duration. Model 2 assessed the probability of partnership from 21 to 24 years of age, excluding persons that entered partnership earlier (at 16–20 years). Model 3 looked at the odds of partnership from 25 to 28 years of age and it includes those that are not in partnership from age 25, (excluding those that enter partnership at 16–20 and 21–24). Model 4 measured the chances of partnership at age 29–33 years of age, it includes those that are not in partnership from age 29 (excluding those that partner at before this age). The cut-off points for these groups were pre-determined. The start age



was 16 years as this was the age of entry in the study and the end age was 33 years, which was the highest age for which we could determine equal follow-up time for all participants. We reported findings as Odds Ratios (ORs) with their 95% Confidence Intervals (CI) and *p*-values in which the statistical significance was set at *p*-value <0.05.

## 6. Results

**Table 1** summarizes the characteristics of the Swedish population under study born from 1973 to 1977 according to their marital/cohabitation status from 1990 to 2001. Women were more inclined to enter a partnership compared to men (70% vs. 59%). Those who were born in Sweden as well as those whose mother was born in Sweden entered a partnership to a substantially higher degree than those born abroad and those with mothers born abroad (66% and 47%) and (66% versus 53%), respectively). The proportion of entry into marriage and cohabitation appeared to increase with a higher number of siblings. Marriage/cohabitation was 57% for those recorded as an only child, 64% for those with mothers who had two children, and 66% for those with mothers who had three or more children. The proportion of those marrying or cohabiting was slightly lower among those with a highly educated mother compared to other levels of education.

The bivariable regression results in **Table 2** showed that all the study variables were independently and significantly associated with first partnership formation. The strongest effect of reduced chances of forming a first partnership was independently associated with receiving a disability pension, followed by being born abroad, having a mother who was born abroad and a higher level of maternal education. An increase in the chances of partnership was significantly associated with being a woman, having maternal siblings and having a married mother at the time when the index person was born.

The multivariable regression results displayed in **Table 2** confirm significant associations as those observed in the bivariate analysis, aside from some slight fluctuation in the size effect. A reduced chance of partnership was associated with receiving disability pension

**Table 1.** Characteristics of the study population of 550603 individuals born between 1973 and 1977.

Descriptive		Not married or cohabiting (n = 181 830) N (%)	Married/cohabiting (n = 354 041) N (%)
Disability pension	No	184 268 (34)	350 635 (66)
	Yes	12 636 (80)	3 064 (20)
Sex	Male	115 498 (41)	166 543 (59)
	Female	81 406 (30)	187 385 (70)
Country of birth	Sweden	173 532 (34)	333 234 (66)
	Abroad	23 346 (53)	20 464 (47)
Country of birth	Sweden	156 484 (34)	308 020 (66)
	Abroad	35 278 (47)	40 318 (53)
Mother's no. of children	1	20 129 (43)	26 465 (57)
	2	87 050 (36)	155 209 (64)
	3 & more	84 582 (34)	166 620 (66)
Mother's marital status	Unmarried	54 182 (35)	99 691 (65)
	Married	120 045 (34)	233 782 (66)
Mother's education	≤ 9 years	68 519 (33)	138 821 (67)
	Upper Secondary	64 360 (35)	121 693 (65)
	University	14 879 (38)	24 496 (62)

**Table 2.** The influence of disability, demographic and socioeconomic conditions on marriage/cohabitation in the 1973–1977 birth cohort for (N = 550603).

Demographic and socioeconomic factors		Bivariate results	Multivariate results
		OR (CI) and p-values	OR (CI) and p-values
Disability Pension	No	1.00	1.00
	Yes	0.13 (0.12–0.13)***	0.12 (0.11–0.12)***
Sex	Male	1.00	1.00
	Female	1.59 (1.58–1.61)***	1.66 (1.64–1.68)***
Country of birth	Sweden	1.00	1.00
	Abroad	0.46 (0.45–0.47)***	0.32 (0.29–0.36)***
Mother's country of birth	Sweden	1.00	1.00
	Abroad	0.58 (0.57–0.59)***	0.71 (0.69–0.72)***
Mother's no. of children	1	1.00	1.00
	2	1.36 (1.29–1.34)***	1.27 (1.24–1.29)***
	3 & more	1.49 (1.47–1.53)***	1.39 (1.36–1.42)***
Mother's marital status	Unmarried	1.00	1.00
	Married	1.06 (1.05–1.07)***	1.06 (1.05–1.08)***
Mother's education	≤ 9 years	1.00	1.00
	Upper Secondary	0.93 (0.92–0.95)***	0.91 (0.89–0.92)***
	University	0.81 (0.79–0.83)***	0.77 (0.76–0.79)***
	Unknown	0.69 (0.68–0.70)***	0.98 (0.97–1.00)

For each model was adjust for all study covariates. OR = Odds Ratio; CI = Confidence Interval; DP = Disability Pension; \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$

(OR = 0.12,  $p < 0.001$ ) and this appear to be the strongest explanatory variable followed by being born abroad (OR = 0.32,  $p < 0.001$ ), having a mother who was born abroad (OR = 0.71,  $p < 0.001$ ) and a higher level of maternal education. An increased chance of partnership was associated with being a woman (OR = 1.66,  $p < 0.001$ ), having a higher number of maternal siblings compared to being the only maternal child and having a married mother at the time when the index person was born versus a single mother (Table 2).

The results in Table 3 show that receiving a disability pension was associated with a lower chance of partnership, regardless of age at partnership formation. Compared to not receiving disability pension, starting to receive a disability pension from 16 to 20 years of age was associated with a persistent reduction in the chance of partnership formation as age at marriage/cohabitation increased. Starting to receive disability pension at 21–24 years of age was associated with a reduced probability of forming a partnership from this age and onwards but not in the youngest age group (16–24 years of age). Those who started receiving disability pension at 25–28 years of age appeared to be more likely to form partnership prior to starting on disability pension (from 16–24 years of age). However, no association was observed in the period immediately prior to receiving disability pension (from 21–24 years of age), a significant decline in the chance of partnership occurred from 25 to 28 years of age (when disability pension started) and continued to decline. Those who started to receive disability pension at 29–33 years of age were more likely to have formed partnership at 16–24 years of age, prior to starting on disability pension. However, they were less likely to form partnership in the period immediately prior to receiving disability pension (at 25–29 years of age) and this continued to age 29–33 years.

Results presented in the four models in Table 3 indicated that women were more likely to form partnership than men were. Individuals born abroad were less likely to form partnership than those born in Sweden regardless of the age at which partnership was formed. Notably, the association between sex and country of birth with partnership weakened as we examined the chance of partnership in older age groups. Compared to those individuals

**Table 3.** The effect of disability, demographic and socioeconomic conditions on partnership, results stratified by age of partnership (N = 550603).

Covariates showing demographic and socioeconomic factors	Age at partnership					
	Model 1: 16–20 years		Model 2: 21–24 years		Model 3: 25–28 years	
	OR (CI) and p-values		OR (CI) and p-values		OR (CI) and p-values	
Age at first Disability Pension						
No disability pension						
16–20 years	0.28 (0.18–0.39)***	1.00	0.26 (0.22–0.32)***	1.00	0.16 (0.14–0.18)***	1.00
21–24 years	1.07 (0.78–1.43)		0.57 (0.47–0.68)***		0.32 (0.27–0.37)***	0.08 (0.07–0.08)***
25–28 years	2.01 (1.70–2.36)***		1.10 (0.99–1.22)		0.41 (0.36–0.46)***	0.15 (0.13–0.17)***
29–33 years	2.69 (2.44–2.97)***		1.65 (1.55–1.76)***		0.67 (0.63–0.72)***	0.23 (0.21–0.25)***
Sex						
Male	1.00		1.00		1.00	0.27 (0.26–0.29)***
Female	4.69 (4.45–4.96)***		2.55 (2.49–2.60)***		1.84 (1.81–1.87)***	1.00
Country of birth						
Sweden	1.00		1.00		1.00	1.61 (1.58–1.63)***
Abroad	0.52 (0.34–0.75)**		0.47 (0.37–0.57)***		0.31 (0.25–0.37)***	1.00
Mother's country of birth						
Sweden	1.00		1.00		1.00	0.24 (0.20–0.28)***
Abroad	1.46 (1.37–1.56)***		1.03 (0.99–1.07)		0.86 (0.84–0.89)***	1.00
Mother's no. of children						
1	1.00		1.00		1.00	0.76 (0.74–0.79)***
2	1.01 (0.91–1.11)		1.09 (1.06–1.14)***		1.16 (1.13–1.19)***	1.00
3 & more	2.13 (1.95–2.34)***		1.73 (1.66–1.80)***		1.41 (1.37–1.45)***	1.23 (1.19–1.26)***
Mother's marital status						
Married	1.00		1.00		1.00	1.25 (1.21–1.28)***
Unmarried	0.70 (0.67–0.74)***		0.84 (0.82–0.86)***		0.99 (0.98–1.01)	1.00
Mother's education						
≤ 9 years	1.00		1.00		1.00	1.14 (1.12–1.16)***
Upper Secondary	0.52 (0.49–0.55)***		0.84 (0.82–0.86)***		0.80 (0.79–0.82)***	1.00
University	0.21 (0.17–0.25)***		0.65 (0.63–0.66)***		0.56 (0.54–0.58)***	1.03 (1.01–1.05)***
Unknown	1.34 (1.27–1.42)***		1.23 (1.19–1.28)***		1.14 (1.11–1.17)***	1.01 (0.98–1.03)
						1.05 (1.02–1.07)***

Each model was adjust for all the study covariates. OR = Odds Ratio; CI = Confidence Interval; DP = Disability Pension; \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ . (Example of how to read the odds ratios for Age at first disability pension. Starting on disability pension at age 16–20 was associated with a significant reduction in the chances of marriage/cohabitation regardless of age at partnership. Compared to not receiving disability pension, those that received disability pension had lower chances of partnership at 16–20, 21–24, and 25–28 with the odds ratios 0.28, 0.26 and 0.16, respectively.

who had Swedish mothers, individuals whose mothers were born abroad were more likely to marry and cohabit at an early age (16–20 and 21–24 years of age, respectively), although this association was not significant in the latter category. However, from 25 years of age and above, those individuals whose mothers were born abroad were less likely to form partnership compared to their counterparts whose mothers were born in Sweden. Individuals with a high number of siblings were more likely to form partnership. The children of unmarried mothers were less likely to form partnership at 16–28 years but more likely to form partnership at 29–33 years of age. Using nine or less years of schooling as a reference, individuals with a higher level of maternal education were less likely to form partnership at age below 29 years. However, in the category of partnership formation from 29–33 years of age, a high maternal level of education was associated with increased partnership formation.

## 7. Discussion

### 7.1. *Main findings*

This study used a large-scale longitudinal dataset consisting of the total Swedish population born from 1973 to 1977 and showed that receiving a disability pension was associated with lower odds of partnership formation via marriage/cohabitation and that age when disability pension was first received was associated with age at partnership formation. Marriage or cohabitation was significantly lower among those born abroad, those whose mothers were born abroad, those with unmarried mothers and those with a high level of maternal education. Being a woman and having a higher number of siblings was associated with higher odds of partnership formation. Below, we discuss these outcomes with regards to how disability, as well as the other studied demographic and socioeconomic factors is associated with partnership formation.

### 7.2. *Disability pension*

Even though all the study variables were strongly associated with partnership formation, receiving a disability pension was by far the strongest explanatory variable for reduced chances of partnership formation. Our finding that receiving a disability pension was associated with lower chances of partnership formation resonates with findings from previous studies that report higher rates of singlehood among persons with disabilities compared to people without disabilities (Clarke & McKay, 2014; Franklin, 1977; Janus, 2009; Liu & Zhang, 2013; MacInnes, 2011; Osgood et al., 2008; Queirós et al., 2015; Savage & McConnell, 2016; Singleton, 2012; Tumin, 2016). Starting to receive a disability pension was associated with a reduction in chances of a subsequent partnership regardless of age at the start on disability pension. This finding reflects our hypothesis that the age of starting to receive disability pension shapes partnership formation. Additionally, the lower the age a person started to receive disability pension, the lower the chances of subsequent partnership as age at potential partnership formation increased. This finding suggests that the conditions that lead to receiving a disability pension early in life may not only negatively affect a person's subsequent transition into partnership at the time when the person starts receiving disability pension but also over their life course. We also show that those who received a disability pension at 25–28 years of age were more likely to have formed partnership during the period prior to

receiving a disability pension. However, once a person began receiving a disability pension, a decline in partnership started. Interestingly, individuals who received a disability pension from 29 to 33 years of age were less likely to have formed partnership during the period immediately prior to receiving a disability pension (from 25–28 years of age). This association suggests that disability pension is a lagging indicator, implying that the point at which a person starts to receive a disability pension is likely to have been preceded by a period of poor health, sickness absence, fewer working hours and reduced finances that jeopardize partnership chances. This finding reflects Oppenheimer's uncertainty hypothesis (Oppenheimer, 1997), which suggests that financial uncertainties tend to lower the opportunities of partnership. However, we think that the relationship between disability pension and partnership formation is much more complex and is not solely explained by the financial uncertainty hypothesis.

### **7.3. Sex**

We found that women were more likely to enter a partnership than men. This result was not surprising taking into account the fact that the proportion of men in our study population was higher than that of women. Oppenheimer's theory highlighting the link between labour market conditions and marriage timing could be one possible explanation. As discussed above, Oppenheimer argues that if young men are unemployed, have unstable or low-status jobs, these characteristics make them less attractive to the partnership market. The observed lower chances of partnership formation among men could suggest that marriage requires a strong financial underpinning and more occupational stability among men compared to women (Kravdal, 1999). However, such factors do not affect women in the same way (Oppenheimer, 1988, 2003). Other studies have attributed the higher levels of partnership formation among women to concerns about their biological clock, which might force them to form partnership earlier than men (Nilsson, Lund, & Avlund, 2008). Limited partnership among men with disabilities could indicate the double disadvantage of being male and having a disability. Failure to form partnership among men could have negative health outcomes such as excessive alcohol use and increased mortality, factors that are prevalent in single men (Koskinen, Joutsenniemi, Martelin, & Martikainen, 2007).

### **7.4. Mother's education level**

The children of mothers with an educational attainment level of more than nine years of schooling were less likely to form partnership before they were 29 years of age. This finding could suggest that persons raised by highly educated mothers prioritize getting an education first and then cohabit or marry later. It could also imply that persons with a financially secure environment, such as that provided by mothers with good education might have less financial incentive to form partnership, and thus postpone formation of partnership until they are above 29 years of age (Vespa, 2012).

### **7.5. Mother's marital status**

We reported a lower likelihood of cohabiting or marrying among individuals with unmarried mothers compared to those with married mothers at the time of the index person's

birth. One possible explanation for this association comes from studies that link childhood family structure to young adult life courses (Aquilino, 1996; Rhoades, Stanley, Markman, & Ragan, 2012). People tend to want to re-create the type of family structure that is similar to their own upbringing. Thus, children growing up with unmarried mothers may replicate similar family structures for themselves during their early adulthood (Aquilino, 1996; Rhoades et al., 2012). Cultural stereotypes and stigma towards unmarried parents is yet another suggested explanation for the differences in partnership formation by mother's marital status (Ganong, Coleman, & Mapes, 1990). However, our findings also show that the unmarried status of the mother was only associated with reduced chances of partnership at a younger age. This suggests that with increasing age, other factors become more important for partnership formation than the mother's marital status.

### **7.6. Number of siblings**

We reported a positive association between the number of maternal siblings and the chances of marrying or cohabiting. This finding suggests better relationship skills among individuals who have siblings. Research have indicated that siblings learn how to create and preserve relationships during childhood as they strive to understand each other's emotions and nurture each other (Gene, 2004). In turn, this provides rich opportunities to test prosocial behaviours and develop peer-like relationship skills. These skills are essential during adulthood for negotiating partnerships and relationships (Shalash, Wood, & Parker, 2013).

### **7.7. Country of birth of index person and mother**

Our study showed that individuals born outside Sweden were less likely to enter into cohabitation and marriage compared to their counterparts born in Sweden. These findings are in line with a study by Andersson, Obućina, and Scott (2015), which shows that immigrant women have a lower partnership formation rate compared to those born in Sweden. This could rise because of migration that removes people from their familiar social environment and could limit partnership formation (Goode, 1963; Therborn, 2004). Also, differences in socialization regarding family behaviours between the migrants and natives could create differences in the formation of partnership (Goode, 1963; Therborn, 2004). Moreover, partnership formation outside a person's social group deters social acceptance and thus discourages many from marrying the 'other' (Kalmijn, 1998).

### **7.8. Strengths and limitations of the study**

Strength of our study includes having a large data set consisting of the total population that was born in Sweden from 1973 to 1977. Data on disability pension and partnership formation were available for all our cohort members who had not migrated or died before receiving disability pension and forming a partnership, which minimized the loss to follow-up. Even though we excluded a number of persons due to missing data, there is no reason to suspect that missing data differed by disability status.

Defining disability using a disability pension may have excluded disabled individuals who do not receive disability pension because they continue to work full time and do not receive disability pension. However, the number of such individuals is probably rather limited. We

consider a disability pension to be a good measure because eligibility for a disability pension is based on a medical assessment confirming a long-term reduction in working capacity. According to an OECD report (2009a), the outflow rate from disability pension is around three percent, suggesting that the majority of individuals who start receiving a disability pension continue to receive it on a long-term basis. It is important to note that the definition of cohabitation excludes cohabiters with no shared child, which could suggest that the cohabiters have been underestimated. However, we still believe we had sufficient statistical power since we covered the entire population. In addition, we conducted a separate regression, which tested the chances of partnerships for married persons only, excluding cohabiting persons, and the regression results pointed in the same direction.

## 8. Concluding remarks

Our findings, based on longitudinal data from a recent Swedish population, clearly show that persons with disabilities are less likely to marry/cohabit compared to persons without disabilities. Of all the variables we studied, receiving a disability pension appeared to reduce the chances of partnership the most, compared to other study variables. We have also shown that receiving a disability pension early in life continues to lower a person's chances of forming a partnership over the observed life course. Individuals who received disability pension later were more likely to form partnership prior to starting to receive a disability pension. However, once they started receiving a disability pension, their chances of partnership formation weakened. Being a woman, having a high number of siblings and low level of maternal education were significantly associated with high chances of partnership, while being born abroad, having a mother who was born abroad and a mother with a high level of education were associated with reduced chances of partnership. These findings have health implications when taking into account the plethora of evidence that suggests a link between marriage and health. Although Sweden has worked extensively to reduce social inequalities and has made progress from a global perspective, some inequalities still exist. Our findings raise research and policy debates regarding factors that reduce partnership formation among persons with disabilities and regarding potential ways of making improvements in this area. Future research should strive to clarify the direct and indirect pathways through which disability and socio-demographic characteristics affect partnership formation and to identify possible ways of improving partnership formation among people with disability.

## Disclosure statement

No potential conflict of interest was reported by the authors.

## Funding

This study is part of a project headed by Lotta Vikström that has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme, Grant Agreement No. 647125, 'DISLIFE Liveable Disabilities: Life courses and opportunity structures across time', 2016–2021.



## ORCID

Fredinah Namatovu  <http://orcid.org/0000-0001-5471-9043>

Erling Häggström Lundevaller  <http://orcid.org/0000-0002-1561-4094>

Lotta Vikström  <http://orcid.org/0000-0001-9042-9166>

## References

- Andersson, G., Obućina, O., & Scott, K. (2015). Marriage and divorce of immigrants and descendants of immigrants in Sweden. *Demographic Research*, 518(2), 31–64.
- Aquilino, W. S. (1996). The Life course of children born to unmarried mothers: Childhood living arrangements and young adult outcomes. *Journal of Marriage and Family*, 58(2), 293–310.
- Beckman, A., Hakansson, A., Rastam, L., Lithman, T., & Merlo, J. (2006). The role country of birth plays in receiving disability pensions in relation to patterns of health care utilisation and socioeconomic differences: A multilevel analysis of Malmo, Sweden. *BMC Public Health*, 6, 71.
- Bumpass, L. L. (1990). What's happening to the family? Interactions between demographic and institutional change. *Demography*, 27(4), 483–498.
- Clarke, H., & McKay, S. (2014). Disability, partnership and parenting. *Disability & Society*, 29(4), 543–555.
- Coleman, D. (2013). Partnership in Europe; its variety, trends and dissolution. Finnish Yearbook of Population Research, 48, 5–49. Retrieved from <https://journal.fi/fypr/article/view/40927>
- Danielewicz, A. L., Dos Anjos, J. C., Bastos, J. L., Boing, A. C., & Boing, A. F. (2017). Association between socioeconomic and physical/built neighborhoods and disability: A systematic review. *Preventive Medicine*, 99, 118–127.
- Easterlin, R. A. (1980). *Birth and fortune*. New York, NY: Basic Books.
- Eurostat. (2015). Marriage and births now more common in Sweden. *Marriage and Birth Statistics*. Retrieved from <http://ec.europa.eu/eurostat/statistics-explained/index.php>
- Eurostat. (2017). *Key figures on Europe* (2016 ed., pp. 1–202). Retrieved from <https://ec.europa.eu/eurostat/documents/3217494/7827738/KS-EI-16-001-EN-N.pdf/bbb5af7e-2b21-45d6-8358-9e130c8668ab>
- Försäkringskassan. (2004). *Women, men and sickness absence. Social insurance in Sweden*. Stockholm: Author.
- Franklin, P. A. (1977). Impact of disability on the family structure. *Social Security Bulletin*, 40(5), 3–18.
- Ganong, L. H., Coleman, M., & Mapes, D. (1990). A meta-analytic review of family structure stereotypes. *Journal of Marriage and Family*, 52(2), 287–297.
- Gene, H. B. (2004). Siblings' direct and indirect contributions to child development. *Current Directions in Psychological Science*, 13(3), 124–126.
- Goode, W. (1963). *World revolution and family patterns*. New York, NY: Free Press.
- Grönvik, L. (2009). Defining disability: Effects of disability concepts on research outcomes. *International Journal of Social Research Methodology*, 12(1), 1–18.
- Haage, H., Vikström, L., & Häggström Lundevaller, E. (2017). Disabled and unmarried? Marital chances among disabled people in nineteenth-century Northern Sweden. *Essays in Economic & Business History*, 35(1), 207–238.
- Hajnal, J. (1965). *European marriage patterns in perspective*. London, UK: Edward Arnold.
- Janus, A. L. (2009). Disability and the transition to adulthood. *Social Forces*, 88(1), 99–120.
- Jönsson, L., Palme, M., & Svensson, I. (2012). Disability insurance, population health and employment in Sweden. In D. A. Wise (Ed.), *Social security programs and retirement around the world: Historical trends in mortality and health, employment, and disability insurance participation and reforms* (pp. 79–126). Chicago, London: University of Chicago Press, University of Chicago.
- Kalmijn, M. (1998). Inter marriage and homogamy: Causes, patterns, trends. *Annual Review of Sociology*, 24(1), 395–421.
- Kalmijn, M. (2011). The influence of men's income and employment on marriage and cohabitation: Testing Oppenheimer's theory in Europe. *European Journal of Population*, 27(3), 269–293.



- Kalmijn, M. (2017). The ambiguous link between marriage and health: A dynamic reanalysis of loss and gain effects. *Social Forces*, 95(4), 1607–1636.
- Koskinen, S., Joutsenniemi, K., Martelin, T., & Martikainen, P. (2007). Mortality differences according to living arrangements. *International Journal of Epidemiology*, 36(6), 1255–1264.
- Kravdal, Ø. (1999). Does marriage require a stronger economic underpinning than informal cohabitation? *Population Studies*, 53(1), 63–80.
- Lesthaeghe, R. (2014). The second demographic transition: A concise overview of its development. *Proceedings of the National Academy of Sciences*, 111(51), 18112.
- Liu, H., & Zhang, Z. M. (2013). Disability trends by marital status among older Americans, 1997–2010: An examination by gender and race. *Population Research and Policy Review*, 32(1), 103–127.
- Lundh, C. (2003). Swedish marriages. *Customs, Legislation and Demography in the Eighteenth and Nineteenth Centuries*. Retrieved from Lund Papers in Economic History.
- MacInnes, M. D. (2011). Altar-Bound? The effect of disability on the hazard of entry into a first marriage. *International Journal of Sociology*, 41(1), 87–103.
- Mills, M. C., Blossfeld, H. P., & Klijzing, E. (2005). Becoming an adult in uncertain times: A 14-country comparison of the losers of globalization. In H. P. Blossfeld, E. Klijzing, M. Mills, & K. Kurz (Eds.), *Globalization, uncertainty and youth in society* (pp. 393–411). London, New York: Routledge.
- Nilsson, C. J., Lund, R., & Avlund, K. (2008). Cohabitation status and onset of disability among older Danes – Is social participation a possible mediator? *Journal of Aging and Health*, 20(2), 235–253.
- OECD. (2009a). *Sickness, disability and work: Breaking the barriers. Will the recent reforms make it?* Author, Sweden. Retrieved from <http://www.oecd.org/sweden/sicknessdisability-andworkbreakingthebarriersswedenwilltherecentreformsmakeit.htm>
- OECD. (2010). *Sickness, disability and work: Breaking the barriers*. doi:10.1787/9789264088856-en
- Oppenheimer, V. K. (1988). A Theory of marriage timing. *American Journal of Sociology*, 94(3), 563–591.
- Oppenheimer, V. K. (1994). Women's rising employment and the future of the family in industrial societies. *Population and Development Review*, 20(2), 293–342.
- Oppenheimer, V. K. (1997). Women's employment and the gain to marriage: The specialization and trading model. *Annual Review of Sociology*, 23, 431–453.
- Oppenheimer, V. K. (2003). Cohabiting and marriage during young men's career-development process. *Demography*, 40(1), 127–149.
- Osgood, D. W., Foster, E. M., Flanagan, C., & Ruth, G. R. (2008). *On your own without a net*. Chicago, IL: University of Chicago Press.
- Queirós, F. C., Wehby, G. L., & Halpern, C. T. (2015). Developmental disabilities and socioeconomic outcomes in young adulthood. *Public Health Reports*, 130(3), 213–221.
- Rapegno, N., & Ravaud, J. F. (2017). Disability, residential environment and social participation: Factors influencing daily mobility of persons living in residential care facilities in two regions of France. *BMC Health Services Research*, 17. doi:10.1186/s12913-017-2602-8
- Reynolds, J. M., Morton, M. J. S., Garralda, M. E., Postlethwaite, R. J., & Goh, D. (1993). Psychosocial adjustment of adult survivors of a pediatric dialysis and transplant program. *Archives of Disease in Childhood*, 68(1), 104–110.
- Rhoades, G. K., Stanley, S. M., Markman, H. J., & Ragan, E. P. (2012). Parents' marital status, conflict, and role modelling: Links with adult romantic relationship quality. *Journal of Divorce and Remarriage*, 53(5), 348–367.
- Robles, T. F. (2014). Marital quality and health: Implications for marriage in the 21st Century. *Current Directions in Psychological Science*, 23(6), 427–432.
- Ross, C. E., Mirowsky, J., & Goldsteen, K. (1990). The impact of the family on health – The decade in review. *Journal of Marriage and the Family*, 52(4), 1059–1078.
- Savage, A., & McConnell, D. (2016). The marital status of disabled women in Canada: A population-based analysis. *Scandinavian Journal of Disability Research*, 18(4), 295–303.
- Scott-Marshall, H., Tompa, E., Liao, Q., & Fang, M. (2013). Marital formation in individuals with work-related permanent impairment. *Disability and Health Journal*, 6(1), 43–51.

- Shalash, F. M., Wood, N. D., & Parker, T. S. (2013). Our problems are your sibling's fault: Exploring the connections between conflict styles of siblings during adolescence and later adult committed relationships. *American Journal of Family Therapy*, 41(4), 288–298.
- Singleton, P. (2012). Insult to injury disability, earnings, and divorce. *Journal of Human Resources*, 47(4), 972–990.
- Sköld, P. (2003). The beauty and the beast – Smallpox and marriage in eighteenth- and nineteenth-century Sweden. *Historical Social Research*, 28(3), 141–161.
- Stattin, M. (2005). Retirement on grounds of ill health. *Occupational and Environmental Medicine*, 62(2), 135–140.
- Sundar, V., Brucker, D. L., Pollack, M. A., & Chang, H. (2016). Community and social participation among adults with mobility impairments: A mixed methods study. *Disability and Health Journal*, 9(4), 682–691.
- Therborn, G. (2004). *Between sex and power*. London, UK: Routledge.
- Tumin, D. (2016). Marriage trends among Americans with childhood-onset disabilities, 1997–2013. *Disability and Health Journal*, 9(4), 713–718.
- van de Kaa, D. J. (1987). Europe's second demographic transition. *Population Bulletin*, 42(1), 1–59.
- van de Kaa, D. J. (2001). Postmodern fertility preferences: From changing value orientation to new behaviour. *Population and Development Review*, 27, 290–331.
- van Hedel, K., Martikainen, P., Moustgaard, H., & Myrskylä, M. (2016). Cohabitation and mental health: Is cohabiting as good for your mental health as marriage is?. *European Journal of Public Health*, 26, 287–288.
- Vespa, J. (2012). Union formation in later life: Economic determinants of cohabitation and remarriage among older adults. *Demography*, 49(3), 1103–1125.
- Waite, L. J. (1995). Does marriage matter? *Demography*, 32(4), 483–507.