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Increasing social inequalities in life expectancy in Sweden

Aim and background

The main aim of this study is to analyze recent changes in social inequalities in life expectancy in Sweden and to find out whether such social inequalities differs between women and men. Social groups included to measure differences in life expectancy are educational attainment and household type.

In Sweden, as in most countries, clear differences in survival and mortality have been reported between educational and other social groups. Groups with higher education have better survival than those with lower education. A number of previous studies have reported that differences in mortality between groups with different educational attainment have increased in a number of countries in the last decades (Mackenbach et al., 2008; Hayward et al., 2015). This also holds for other social groups, such as between married an non-married groups (Valkonen et al., 2004; Statistics Sweden, 2016).

Life expectancy by sex and education was first reported for Sweden for the period 1986 through 2003 in a report from 2004 (Statistics Sweden, 2004). The estimates were calculated from age 30, and clear disparities by educational attainment were reported for both sexes. Statistics of life expectancy by educational attainment before the turn of the century was somewhat biased in Sweden due to missing educational information of the old. All educational groups had to be given the same mortality as the population in ages 75 and older in the 1980s. The present study focuses the development in the most recent period, 2012–2018, when there is not a significant bias due to missing educational data of those younger than 100 years.

Statistics Sweden has also previously reported life expectancy by marital status (Statistics Sweden, 2004, 2016). However, since partnering in Sweden and many other countries has for several decades developed towards forming non-marital unions, the relevance of marital status has changed. It has become more important also to include cohabitation without marriage. The possibility to measure such cohabitation in Swedish registries has only recently been made possible, thanks to a dwelling-register that was introduced in 2011.

From the year 2012 Statistics Sweden now combine measures of life expectancy by educational attainment and household type. Household type is single, cohabiting and other households. Other households is a small group of persons that cannot be defined as single or cohabiting, they are for instance same-sex friends, siblings, multi-generations in a family living together or those living in institutions.

A large number of factors is likely to contribute to differences in adult mortality by educational attainment. According to a conceptual model recently developed by Hayward and co-workers (2015), improved survival due to higher education is caused by adult mechanisms and early life factors. Early life factors could be childhood health, parental income and education or childhood intelligence. Adult mechanisms of higher as compared with lower education include increased human capital (e.g., cognitive skills, greater sense of control and human agency) and improved access to rewarding jobs with higher income, healthier work conditions and social networks. Selection factors may also contribute to certain unhealthy individuals are less likely to move upwards in terms of educational attainment. There could be somewhat similar factors contributing to survival

differences between single and cohabiting persons, such as differences in lifestyle and selection, but also differences in social and financial support from a partner that single persons lack.

The following questions are analyzed in the study:

- What are the recent trends in life expectancy by educational attainment and household type?
- Are there any sex differences in social inequalities in life expectancy?
- What is the contribution from specific age groups to changes in life expectancy by educational attainment and household type?

Data

Swedish administrative registry data from the population registry, household registry and the education registry is used in the study for the years 2012 to 2018. We use three main groups of highest educational attainment: compulsory, upper secondary and post-secondary level of education. Three household types are used, single, cohabiting and other households.

A relatively large proportion of the foreign born population residing in Sweden have missing data on educational attainment and is often registered as living in other household. Moreover, they often do not register their emigration which leads to an overestimation of population size and an underestimation of the number of deaths in a number of foreign born groups. This known bias has been recognized in earlier studies (Weitoft et al., 1999). Therefore the study was restricted to the Swedish-born population 30 years and older (Statistics Sweden, 2016).

Methods

Conventional life-table calculations were performed using one-year age categories. All analyses were separated by sex and computed. In order to calculate life expectancy educational attainment and household type, and combinations of these, old age mortality was adjusted in ages 95 and older. This was done by using observed mortality risks for each sex and social group in the age span 90 to 100 years with smoothing of mortality risks for ages 95 and older.

Changes in life expectancy by social groups was measured between 2012 and 2018. Age-specific contributions to life expectancy change were calculated as suggested by Arriaga (1984).

Findings

In 2012 the number of years remaining from age 30 was 52.0 years for women and 46.4 years for men who were single. It was about 3.5 years higher for women and 6.7 years higher for men who were cohabiting with a partner. There was also a clear gradient in life expectancy by educational attainment for both women and men. Among women, life expectancy was 51.2 years for those with compulsory education, 54.1 years for those with upper secondary and 56.4 years for those with post-secondary education. Among men, the corresponding figures were 48.3, 50.9 and 53.3 years. The gap in life expectancy between lowest and highest educational attainment was 5.2 years among women and 5.1 years among men.

In the period between 2012 and 2018 life expectancy increased most groups, an exception was women with compulsory education. The increase in life expectancy was greatest in groups that had high life expectancy 2012, men and women who were cohabiting and those with a post-secondary education. The increase was smaller for single and those with lower educational attainment.

The gap in life expectancy between educational groups increased between all levels in the period 2012–2018. Among women the difference between those with post-secondary and compulsory education increased from 5.2 to 6.2 years, and among men the increased was from 5.1 to 5.8 years. Thus, a move from a similar difference among women and men to a somewhat larger difference among women. For both women and men, mortality changes in the age group 50–64 years contributed most to the growth in the gap between highest and lowest educational attainment.

Table 1. Life expectancy at age 30, remaining years, by sex, social group, year and change between periods. Swedish-born population

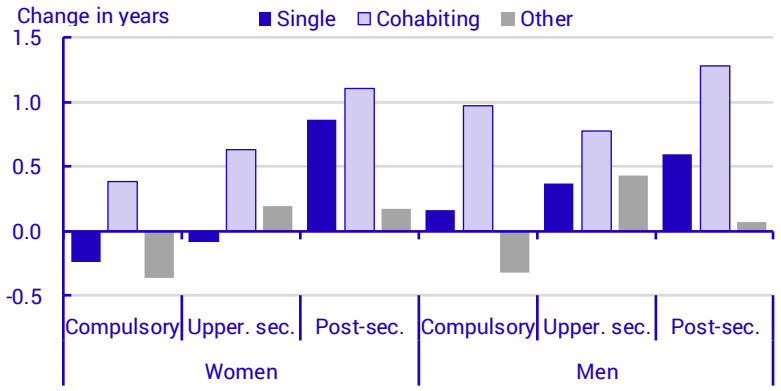
	Women			Men		
Social group	2012	2018	Change	2012	2018	Change
Educational attainment						
Compulsory	51.22	51.04	-0.18	48.25	48.51	0.26
Upper secondary	54.13	54.43	0.30	50.86	51.35	0.49
Post-secondary	56.42	57.21	0.79	53.34	54.27	0.93
Household type						
Single	52.02	52.53	0.51	46.36	46.92	0.56
Cohabiting	55.55	56.60	1.05	53.05	54.17	1.15
Other households	51.23	51.89	0.66	48.13	48.57	0.44
Total	53.96	54.70	0.74	50.75	51.53	0.78

All figures are rounded with two decimal points

There was also an increase in the difference in life expectancy between single and cohabiting persons, from 3.5 to 4.1 years among women and from 6.7 to 7.3 years among men. The difference is still clearly greater among men than among women. Mortality changes in the age group 65 to 79 years contributed most to increased inequalities in life expectancy between cohabiting and single persons.

The social group with the highest life expectancy in 2012 was women and men with post-secondary education who were also cohabiting with a partner. This group also had the largest increase in life expectancy between 2012 and 2018, from 57.3 to 58.5 years among women and from 54.6 to 55.9 years among men. Among groups with low life expectancy, there was a decline för single women with compulsory and upper secondary education and for women and men in other households with compulsory education, see Figure 1. In all educational groups there was a clear increase in life expectancy among those who were cohabiting.

Figure 1. Change in life expectancy at age 30 between 2012 and 2018 by sex, educational attainment and household type. Swedish-born population



In the period 2012 to 2018, the gap in life expectancy between social groups with highest and lowest life expectancy increased from 10.1 to 11.5 years among women and from 11.1 to 12.3 years among men.

Concluding remarks

Social inequalities in life expectancy is increasing in Sweden. This holds for educational attainment as well as for household type. The gap in life expectancy by educational attainment is almost the same for women and men whereas the gap by household type is clearly greater among men than among women.

It is interesting that social groups that already had high life expectancy in 2012 also had the greatest increase in life expectancy between 2012 and 2018. This means that cohabiting with a partner and having a high educational attainment seems to be a great advantage in terms of survival in Sweden. Other types of studies is needed to find out more about the specific mechanisms behind the development. In terms of cohabitation, this is most likely of increasing importance in older ages. In times of the aging Swedish population, old age care and facilities has not grown in proportion to population change. Thus, the importance of having a partner in older ages might be of an even greater importance in the future. Findings suggested that mortality changes in older ages contributed most to the gap in life expectancy between cohabiting and single persons.

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