

A healthy marriage? Emerging marital status differences in mortality, Scania 1815 – 2016

Introduction

Married individuals have a lower risk of mortality than unmarried, widowed and divorced individuals of the same ages. Such differences are likely to originate from mutual social and economic support in married couples, health-based selection into marriage, negative effects of bereavement on surviving spouses including mental health and suicide among bereaved individuals, as well as lifestyle differences between married individuals, singles, and widow(er)s. Differences in mortality by marital status exist in both modern-day as well as historical populations (Mineau, Smith & Bean, 2002; Grundy & Tomassini, 2010), and tend to be larger for men than for women (Stroebe, Stroebe & Abakoumkin, 1996). However, research on the social determinants of the relation between marital status and health and mortality is scarce (Sullivan & Fennelon, 2013) and as yet, it remains unclear how these differences in mortality and survival have developed over time, when the disadvantage for widowed men has emerged, and whether the effect of bereavement on health differences between the widowed and married has changed over time.

In the proposed work, we employ an established database on a population from the South of Sweden (Scania) to explore the development of marital status differences in mortality over time (1815-2015). The database contains individual life courses, with time-varying information on date of birth, occupation, migration, marriages, partner deaths, remarriage and other crucial characteristics on the life course of individuals. Using this data, we explore the role of socio-economic status in the effect of marital status on mortality, and address differences between age groups, as well as between men and women. Preliminary results for the period 1815-1967, shown in more detail below, indicate that although there have been differences in survival between married, single and widowed individuals over time, some of these differences have increased in magnitude. For young men, penalties of singlehood were considerably smaller in the early period (1815-1863), as was the negative effect of widowhood for older men. In addition, for women, it appears that the effect of widowhood is much less detrimental than for men. In fact, the relative risk of mortality does not differ significantly between married and widowed women. Preliminary results indicate that the magnitude of the survival penalty for women may have increased over time, albeit not significantly so.

Theoretical framework

Differences between married and single as well as widowed individuals have been confirmed in a wide range of studies. Meta-analyses have confirmed that in most populations such differences exist (Manzoli, Villari et al. 2007). A range of factors may be involved in the role of marital status in health and survival. Factors that are commonly addressed include lifestyle differences between married and single individuals (such as alcohol use and abuse, smoking, medication and medication abuse), the effect of bereavement on well-being and health, loss of income after spousal death, the cost of life for single individuals, access to social support systems, and other characteristics of one's life that are affected by partner loss and singlehood.

Interestingly, differences in health and mortality between singles, the married and the widowed are not equal between men and women, but tend to be larger for men than for women. Several explanations have been addressed in the literature. Married versus unmarried men have larger lifestyle advantages than married versus unmarried women. Furthermore, social stress theory holds that women have stronger social support networks, which may ameliorate the mental health effects of bereavement. Men often rely more on the women's social networks and are therefore stronger affected by the loss of their spouse than women, which results in stronger stress and mental

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health responses to bereavement. Furthermore, some researchers have put forward that the differential impact of marital status on men and women relates to existing inequalities in their health and mortality rates, which may result in stronger observed effects among bereaved men.

In the current work, we investigate the effect of marital status as well as bereavement on men and women in Scania, Southern Sweden, between 1815 and 2016. The purpose of the study is to throw renewed light on differences in mortality rates by marital status, for men and for women, and possible change in such effects over time.

Data and approach

For the analyses we use the SEDD: the Scanian Economic-Demographic Database hosted at the Centre for Economic Demography (Bengtsson et al. 2018) for the five parishes of Kågeröd, Halmstad, Sireköpinge, Kävlinge and Hög for the period 1815-2015 as well as the city of Landskrona for the period 1904-2015. The data collected for the parishes are based on catechetical registers, church books, and tax registers, and contain observations on demographic events (births, marriages, and deaths) occurring to individuals observed in the parishes in the research period until 1967; after this period, individuals are followed in the national registers of Sweden. These individuals were either born in the region, or migrated into the region. The data contains information on the place where individuals lived, their occupation and income, and vital events occurring to them. As the church books contain information on out-migration, unlike many other historical databases, the data allow for a thorough assessment of the population at risk. Furthermore, after 1967 individuals are followed nationwide in the national registers. Out-migrant's deaths are included by means of the nationwide death register.

The included parishes are rural and semi-urban in character, and are located about 10 kilometers from the coast in the southernmost province of Sweden. Historical Scania was characterized by a Western European marriage pattern with an average at marriage of 30 for men and 28 for women (Dribe, 2004). Scania was a predominantly agricultural region in the 19th century, which experienced industrialization processes from the late 19th century in the city of Landskrona, which quickly expanded in that time.

Cox proportional survival models are applied for survival between ages 25-59 and ages 60-85. Individuals who were still alive at age 85 or in 2015, or who out-migrated between age 25 and 85, were censored. In-migrants into the region and individuals alive in 1815 were included from their age at in-migration or the year 1815. We use time-varying variables for the following information: marital status (married or living together – which constitutes the reference category – single, together, widowed, and married but not living together), period of analysis (1815-1863, 1864-1904, 1905-1967, 1967-2015) and socio-economic status using HISCLASS.

Results and planned work

Preliminary results are shown in Figure 1 and Table 1 for the period 1815-1967. The preliminary results indicate that although there have been differences in survival between married, single and widowed individuals over time, some of these differences have increased in magnitude. In addition, for women it appears that the effect of widowhood is much less detrimental than for men. In fact, the relative risk of mortality does not differ significantly between married and widowed women. The magnitude of the survival penalty for women may have increased over time, albeit not significantly so. For young men, penalties of singlehood were considerably smaller in the early period (1815-1863), as was the negative effect of widowhood for older men.

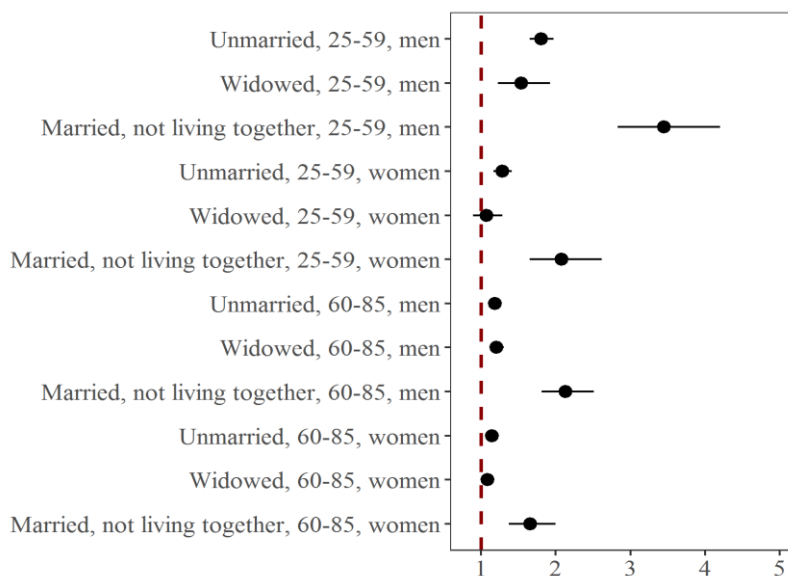
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The explanation that unmarried individuals live less healthy lives, reducing their survival in later life, is unlikely to hold for historical populations, as factors related to lifestyle play a relatively minor role in this period. This is, for instance, also indicated by a much more minor role for socioeconomic status in mortality differentials than in current day populations. At the same time, selection on health and resources into marriage as well as effects of bereavement and loss of socioeconomic resources can be expected for older cohorts as well as for younger cohorts. Finally, increasing differences between social strata as a consequence of the rise of lifestyle related mortality in the 20th century could play a role in explaining why single men are more vulnerable than married men. To further explore these explanations, we will take a closer look at the role of socioeconomic status in marital status differences in mortality in the final version of this paper. Furthermore, we will extend the follow-up period to 2015 to further investigate the emergence of marital status difference in life expectancy. Finally, we intend to take a closer look at how bereavement effects contribute to the difference between widowers and the married in survival by separating short-term effects of partner death on survival from long-term effects.

Literature cited

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Figure 1. The relation between marital status and mortality, Scania, 1815 – 2016



Notes Figure 1: Results are controlled for socioeconomic status, migrant status, and period of analysis.

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Table 1. Cox proportional hazard models, effects of period on the relation between marital status and survival, Scania (southern Sweden), 1815–1967

	Model 1: Men age 25-59		Model 2: Men age 60-85		Model 3: Women age 25-59		Model 4: Women age 60-85	
	RR	95% CI	RR	95% CI	HR	95% CI	HR	95% CI
Married	ref		ref		ref		ref	
Single	1.87***	1.69-2.07	1.17**	1.10-1.26	1.39***	1.24-1.56	1.14***	1.06-1.23
Widowed	1.48**	1.02-2.16	1.23***	1.11-1.36	1.19	0.86-1.65	1.05	0.95-1.16
Married but not living together	3.95***	3.04-5.15	2.11***	1.72-2.59	3.53***	2.64-4.70	1.76***	1.42-2.18
Period 1904-1967								
Single * period 1815-1863	0.74*	0.56-0.96	1.17	0.88-1.57	0.79~	0.61-1.02	0.9	0.71-1.15
Single * period 1863-1904	1.03	0.79-1.36	1.1	0.74-1.63	0.77~	0.58-1.03	1.14	0.86-1.52
Widowed * period 1815-1863	0.92	0.54-1.55	0.82*	0.66-1.03	0.85	0.56-1.30	1.05	0.83-1.32
Widowed * period 1863-1904	1.23	0.70-2.18	1.12	0.91-1.38	0.79	0.49-1.27	1.1	0.89-1.35
Married but not living together * period 1815-1863	0.8	0.51-1.26	1.07	0.68-1.66	0.29***	0.15-0.54	0.82	0.35-1.92
Married but not living together * period 1863-1904	0.64	0.36-1.13	1.02	0.66-1.57	0.37***	0.20-0.67	0.8	0.49-1.31
Events (N)	2,671 (40,952)		5,271 (10,181)		2,315 (38,971)		5,637 (11,712)	

Notes Table 1: Effects are controlled for migrant status and socioeconomic status.

**** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ~ $p < 0.1$*