Mortality risk after bereavement in Italy

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Short Abstract

A rich literature documents that bereavement, having lost a significant person through death, is associated with excess risk of mortality and decrements in physical and mental health. The impact of bereavement is strongest early after the loss but can lead to long-lasting disorders. The reach of the consequences of bereavement tend also to differ between socio-demographic and socio-economic groups. Despite their relevance, the role of these factors as mediators and moderators of the association between spousal death and own mortality risk remains under-researched. Using Italian register data from the National Institute of Social Security (INPS) and stepwise logistic regression, the study investigates the relationship between the experience of bereavement and mortality risk on Italian old-age pensioners. The study explores the role of gender, age, region of residence and socioeconomic heterogeneities in the mortality risk of widowed pensioners. Furthermore, we analyse how the mortality risk varies depending on time since bereavement.

Long abstract

Introduction and Background

According to the Italian Institute of Statistics (ISTAT) estimates, more than 4.2 million individuals in Italy were widowed in 2021 (7.1% of the Italian population). A rich literature documents that bereavement, having lost a significant person (e.g. spouse, child, parent, or relative) through death, is associated with excess risk of mortality and decrements in physical and mental health (see among others: Cox and Ford 1964, Parkes et al. 1969, Kaprio et al. 1987, Mendes de Leon et al. 1993, Mineau et al. 2002, Korenman et al. 1997, and Lillard andWaite 1995; Jagger and Sutton 1991, Schaefer et al. 1995, Martikainen and Valkonen 1996, Hart et al. 2007, Espinosa and Evans 2008 and for reviews and meta-analyses see Stroebe et al. 2007; for Moon et al. 2011 ; Shor et al. 2012). This association, often named "bereavement effect" or "widowhood effect", is substantial. Net of a variety of factors, Schaefer et al. (1995) and Kaprio et al. (1987) found that mortality rates double for the surviving spouse in the first year after the death of their spouse. Estimates also suggest that the effect is strongest early after the loss (Lichtenstein et al., 1998; Manor and Eisenbach, 2003) with mortality risk being highest in the first six months following spousal loss (Parkes et al 1969; Martikainen and Valkonen 1996, Moon et al. 2011, 2013; van den Berg et al. 2011; Shah et al. 2012)[1]. A meta-analysis showed an overall relative mortality risk of 1.41 during the first 6 months after bereavement in all age groups; this risk decreased later to 1.14 (Moon et al. 2011).

These results point to a short-term, grief-related mechanism linking spousal death to an increased risk of own death. However, the mechanisms leading to and the moderating factors of the increased mortality after bereavement remain poorly understood. Recent evidence suggests that the increased mortality risk for the surviving spouse is not due to incidents or worsening chronic health conditions following spousal loss (Shah et al. 2012). Some studies have found differential mortality risk by cause of spousal death (Martikainen and Valkonen 1996; Parkes et al. 1969; Shah et al. 2013) while others have found a generalized increase in mortality risk for the surviving spouse (Boyle et al, 2011; Elwert et al. 2008; Espinosa and Evans 2008).

Excess mortality among the recently widowed has been demonstrated to exist in a wide variety of age groups, socioeconomic levels, countries and cultures. Yet, the reach of the consequences of bereavement tend also to differ between socio-demographic groups and to depend on a range of risk factors influencing individuals' vulnerability such as circumstances of death, intra- and inter-personal factors, ways of coping, living conditions, social interactions, previous medical disorders, or age-related frailty. Some studies have found no gender differences (Schaefer et al., 1995, Kaprio

[1] Few studies have additionally examined changes that occur before spousal bereavement, although one previous study found higher levels of depression and anxiety, and worse self-reported health for spouses nearing bereavement (Williams et al. 2008).

et al., 1987, Manor and Eisenbach, 2003) but most prior research finds greater mortality risk for bereaved men than women[2] (Helsing and Szklo 1981, Mineau et al. 2002, Lillard and Waite 1995). Most studies have also found higher relative risk for younger individuals than older (Martikainen and Valkonen 1996; Moon et al. 2011; Shor et al. 2012). Finally, the evidence regarding the role of socioeconomic factors as confounders and mediators of the bereavement effect on surviving spouses' is more sparse. Shah et al. 2012 find that at higher socioeconomic status (and better health conditions before spouse's death) does not protect from the increased mortality risk after bereavement. Paradoxically, it may be the opposite: high social status may accentuate the bereavement effect.

Despite their relevance, the role of these factors and their intersection remains still under-researched, especially in the Italian context.

To the best of our knowledge this is the first study to investigate the heterogenous relationship of bereavement on surviving spouse's mortality risk in the Italian context across gender, region of residence, age and socioeconomic status.

Data and method

Using Italian register data[3] from the National Institute of Social Security (INPS) and logistic regression, the study investigates the relationship between the experience of bereavement and mortality risk on Italian old-age pensioners. The study explores in particular the role of heterogeneities by gender, age, region of residence and family income in the different mortality risk between married and widowed. Furthermore, we investigate the role of time since spouse's deaths in shaping mortality risks differentiating between less than one year since becoming widowed or more.

The analysis focuses on Italian pensioners who are either married or widowed between 1.1.2014 and 31.12.2022 (9.432.882 individuals)[4]. A substantial part of these are and remain married for the entire observed period (6.374.668 individuals). The remaining observed pensioners are either widowed since the start of the observation period (1.852.517) or become widowed during the observation period (1.205.697)[5].

[2] Some studies have argued that the relationship is causal for both genders (Boyle et al, 2011; Lichtenstein et al. 1998; Martikainen and Valkonen 1996) while others found a causal effect only among men (Elwert et al. 2008; Espinosa and Evans 2008).

[3] Casellario delle pensioni - d.p.r. 31 dicembre 1971, n. 1388.

[4] We know they are married or widowed either because we know their partner's id or we know that they get a survivor's pension.

[5] When we know the partner's id we know the date of death, while for those who get the survivor's pension we assign as year of death the year the individual starts perceiving the pension.

In a first set of logistic regression models the dependent variable is the estimated probability of death (*q(x)*) and the main explanatory variable is the civil status of married or widowed, later interacted with age, region of residence and family income. Control variables are the type of pension the individual receives (employees, self-employed or other type of funds, income quintiles (CLRF 1-5), age (categorical from 61 to 100), region of residence and year (categorical from 2014 to 2021). Region and year are interacted to control for the very different mortality intensity of the Covid-19 pandemic by region. Civil status (married or widowed), is later interacted with age, region of residence and family income to detect heterogenous effects of widowhood on mortality.
In a second set of logistic regression models the main explanatory variable is the time since becoming widowed (less than 1 year, more than 1 year). Control variables remain the same.

Preliminary results

Preliminary results show that, for men, the mortality risk is greater among widowed but that the difference decreases with age and it is smallest in the lowest income quintile (Fig. 1). Among women, the trend is similar but effects are smaller, women's mortality is less affected by their spousal death compared to men (Fig. 1). Women's mortality risk also declines with age but the difference across age is smaller compared to men.

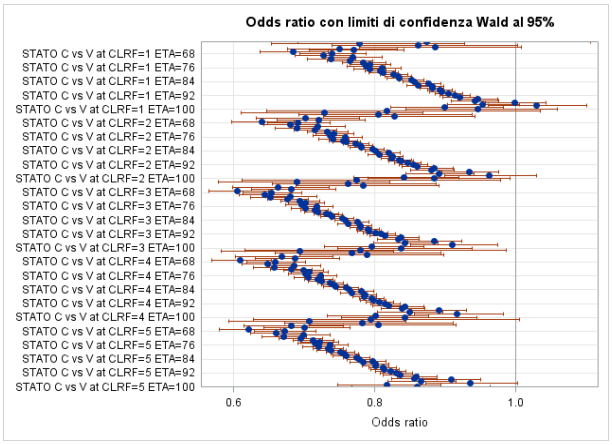
Furthermore, results show that recent widowhood comes with an elevated mortality risk compared to the experience of bereavement more than one year before in almost all income quintiles for both men and women (Fig 2). Among men there is no substantial difference in mortality risk across income quintiles but the highest income quintile registers the weakest difference between recent and past experience of bereavement. Among women the income variation is instead larger. The greater difference in mortality risk between women experiencing bereavement recently compared the more than one year before is registered in the third and fourth quintiles. In contrast, women in the lowest income group who recently experienced spousal loss even display a lower mortality risk compared to widows who experience spousal death more than one year earlier. This may be due to the fact that women in the lowest income quintile tend to be the primary figure taking care of their sick spouse. Once their husband dies they are relieved from their caring duties and their mortality risk immediately drops to return higher after one year.

Income differences in mortality risk are present even among married individuals (odds ratio of lowest to highest income quintile is 1.57 for men and 1.39 for women, not shown) but they are actually larger than the heterogeneities by socioeconomic status found among widows (odds ratio of lowest to highest income quintile is 1.37 for men and 1.23 for women, not shown). Socioeconomic resources

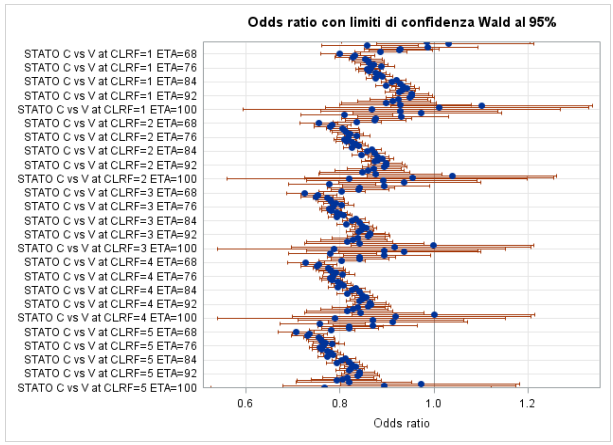
affect mortality more weakly among individuals who experienced spousal death compared to married individuals.

Figure 1: Mortality risk by civil status, income quintiles and age.

Men



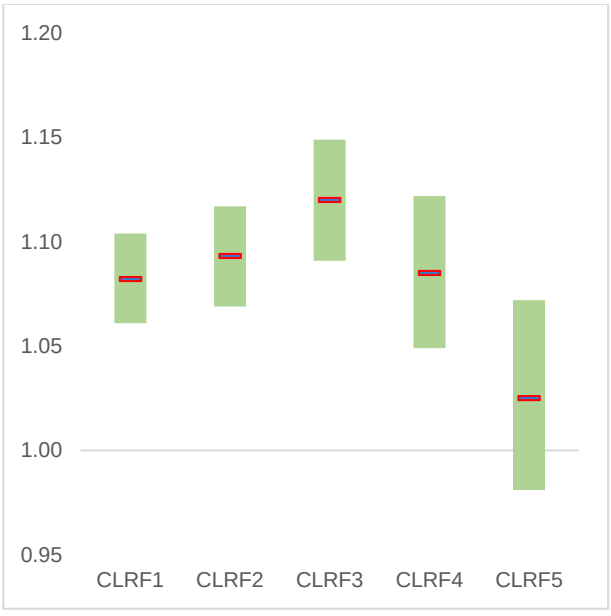
Women



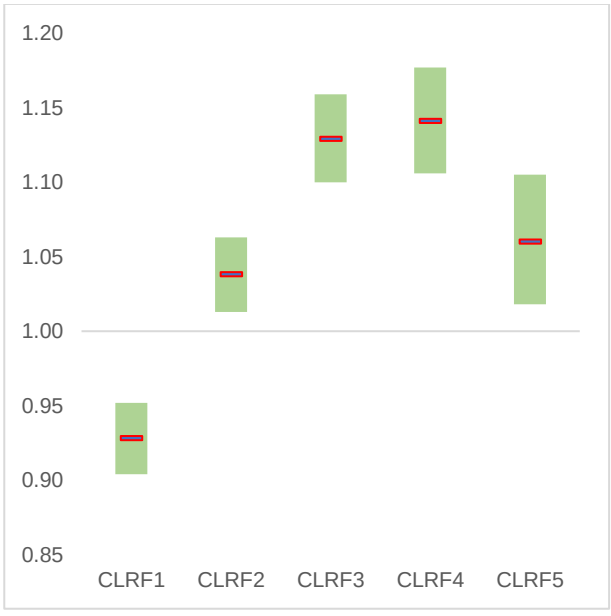
Source: elaboration of the authors based on INPS data.

Figure 2: Mortality risk by time since widowhood and income quintiles.

Men



Women



Source: elaboration of the authors based on INPS data.

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