Article

Partner resources and incidence and survival in two major causes of death

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A B S T R A C T

Because people tend to marry social equals – and possibly also because partners affect each other's health – the social position of one partner is associated with the other partner's health and mortality. Although this link is fairly well established, the underlying mechanisms are not fully identified. Analyzing disease incidence and survival separately may help us to assess when in the course of the disease a partner's resources are of most significance. This article addresses the importance of partner's education, income, employment status, and health for incidence and survival in two major causes of death: cancer and cardiovascular diseases (CVD). Based on a sample of Finnish middle-aged and older couples (around 200,000 individuals) we show that a partner's education is more often connected to incidence than to survival, in particular for CVD. Once ill, any direct effect of partner's education seems to decline: The survival chances after being hospitalized for cancer or CVD are rather associated with partner's employment status and/or income level when other individual and partner factors are adjusted for. In addition, a partner's history of poor health predicted higher CVD incidence and, for women, lower cancer survival. The findings suggest that various partner's characteristics may have different implications for disease and survival, respectively. A wider focus on social determinants of health at the household level, including partner's social resources, is needed.

Introduction

Research on social inequalities in health has mostly centered on the individual's position in the social structure, and own social standing has repeatedly proven to be a robust predictor of health and mortality. However, horizontal spillovers of socioeconomic resources to family members are understudied in health inequality research (De Neve & Kawachi 2017). The present paper tests the role of having a married or cohabiting partner with great socioeconomic resources, and in good health: Can the other partner take advantage of these resources to improve his/her own health and survival chances? While the association between the social position of one partner and the other partner's health and mortality has been demonstrated (e.g., Monden, van Lenthe, De Graaf & Kraaykamp, 2003; Skalická & Kunst 2008; Torssander & Erikson 2009a,2009b; Brown, Dustin, Robert & Mark, 2014) there is little knowledge about when in the course of disease this association occurs and which type of partner socioeconomic resources matter.

First, it is unclear whether partner resources are primarily related to disease onset and/or the chances of surviving a disease. Partners may influence each other's health behaviors (Monden et al. 2003), for

example because of social control and norms concerning lifestyle (Umberson 1987). Further, living with a partner is associated with increased survival chances in certain diseases (Kilpi, Konttinen, Silventoinen & Martikainen, 2015), which may imply that partners assist in various health-care related situations of particular significance for coping with disease. Whether it is beneficial from a treatment perspective to have a partner with rich social and/or material resources is yet uncertain, although some research may point towards such an interpretation (Syse & Lyngstad 2017). To separately analyze disease incidence and survival may help us to assess when in the course of the disease the partner's resources may be of significance, and which underlying processes are more likely.

Second, different socioeconomic resources of the partner (e.g., education and income) may have different links to disease incidence and subsequent survival chances. Many studies have shown that the individual's own education and income have independent associations with health and mortality (e.g., Geyer, Hemström, Peter & Vågerö, 2006; Torssander and Erikson 2010), and it has further been suggested that education is more predictive of the onset of ill health while income is closer linked to its progression (Herd, Goesling & House, 2007).

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However, for partner resources an analysis of different stages of disease comparing various resources has been lacking. Furthermore, one partner's health status may affect the possibility to support the other partner in various health-related situations, as well as being a proxy for the shared lifestyle and health behaviors within the family, which is why the inclusion of partner's health may increase our understanding of the significance of partner characteristics for individuals' health and survival.

In the present study we evaluate these issues by examining the role of a partner's education, employment status, income, and health for disease incidence and survival in CVD and cancer, the first and second leading causes of death (World Health Organization, 2012). Our overarching research questions are: Do some partner characteristics primarily delay the onset of disease? Are these the same partner characteristics that are important to coping with disease and thus predict survival chances?

Partner resources and health

People with more education and higher incomes on average have smaller risks of disease and mortality, which can reflect early life factors and health selection, as well as effects running from education/income to health (Kawachi, Adler & Dow 2010). Education is the starting point for labor market achievements, but given such achievements' own relevance to health, education may increase "the ability to act on health knowledge" (Pampel, Krueger & Denney, 2010). For example, higher educational attainment may increase the ability to adopt and maintain healthy behaviors, and avoid or give up the unhealthy ones. Income, on the other hand, may be important for health because of access to better material resources and living standards, either in absolute terms or relative to other individuals (Kawachi *et al.* 2010).

It is less clear whether having a partner who has a high education and/or income decreases morbidity and mortality risks. It may be that a partner with advantageous socioeconomic resources has greater possibilities to positively influence family lifestyle, navigate the health care system, and ensure the best possible treatment compared to partners with fewer resources. Still, the correlation between partners' socioeconomic resources and health-related outcomes may also be a consequence of partner choice (Monden 2007). Given the social gradient in health and that partners often have similar socioeconomic positions, particularly educational levels (Kalmijn 1998), it is expected that a partner's socioeconomic position is related to the other partner's health and longevity. In previous research, however, the association between a partner's socioeconomic position and individual mortality risk has not been fully accounted for by own socioeconomic resources (Torssander & Erikson 2009a,2009b), i.e., the association does not only exist because well-educated and wealthy people with good health tend to marry other highly educated, well-off individuals.

Why would a partners' education and income predict the disease and mortality risk on top of one's own socioeconomic resources? Although economic resources may not be equally distributed within a household, both partners' incomes contribute to the overall financial situation in the household, and partner's income could therefore matter for the other partner's health and longevity. Labor market attachment of both partners is further linked to the household's economic situation, but employment status in itself may also affect other family members' health and well-being. For example, unemployment may decrease the mental health of a spouse as much as of the individual (Marcus 2013).

At the individual level, health influences income significantly and more directly, while the health of a partner is likely to influence the income of the other partner to a much smaller extent. In line with this reasoning, a previous study reports that cancer in wives did not impact on men's earnings, and cancer in men mainly affected the wife's earnings in case they became widowed or divorced (Syse, Tretli & Kravdal, 2009). However, an alternative explanation is that a heavy care burden affects participation in paid work.

The sharing of material resources is more tangible than the distribution of non-material resources, but non-material returns to education may also be pooled within households for example via informational support or lifestyle influence between family members. Moreover, transfers of nonmaterial resources do not reduce the resources of the holder, which is the case when monetary assets are further distributed. Since education is associated with lifestyles (Cutler & Lleras-Muney 2010) and studies suggest that partners influence each other's lifestyles (Monden et al. 2003), it is possible that one partner's education has an impact on the other partner's health behaviors, and, subsequently health.

Although not a socioeconomic asset, health can be viewed as a resource in more general terms. Not only may health status influence own employment and income, which in turn may affect other household members' health and well-being, but ill health may further decrease the chances to support and may also be stressful for other family members. Conversely, the potential beneficial effect of a partner's educational attainment and income level on health may operate through partner health (i.e., as a causally intermediate factor between partner's resources and own health[1]). Considering the partner's health status further increases the possibility to adjust for concordance in health behaviors and health between partners: Such associations within couples are clear; the (less) healthy tend to live with the (less) healthy (Meyler, Stimpson, & Peek 2007). Also, both own and partner health may be influenced by unobserved factors and the correlation in health between spouses may stem from partners sharing many external circumstances. Regardless of socioeconomic assortative mating, it is possible that the choice of partner is associated with other health-related characteristics. To our knowledge, the inclusion of both partners' health is rare when studying the effect of one partner's education or income on the other partner's health outcomes (cf. Monden 2007).

Although we may tend to think of partner resources being important to health in the same ways as individual resources are – for example in terms of lifestyle and better material conditions – there are probably also circumstances where the individual resources are of less importance (and partner resources possibly of greater importance). For example, if a serious disease impedes the individual to make use of his/her own resources, the significance of other people's resources and support increases. On the other hand, there are also situations where a spill-over influence from one partner's resources to the other partner's health is less likely. One example of such a situation may be the indirect effect of education on health via occupational hazards and work stress, which primarily affect the individual. Thus, there are likely mechanisms that are more – or perhaps only – relevant for the health of the individual but do not influence the health status of a partner.

Socioeconomic resources and different stages of health problems

In the previous studies contrasting the relative importance of own income and education for onset versus progression of health problems, education seems to be closer related to the early course of health problems and income to its development (e.g., Zimmer & House 2003; Herd et al. 2007). Own education was also a stronger predictor of incidence of myocardial infarction than was income in a recent Finnish study, whereas income was more closely linked with survival (Kilpi, Silventoinen, Konttinen & Martikainen, 2016). Why these different patterns emerge for education and income at different stages of disease is not clear. It has been suggested that educational attainment, generally completed early in the life course, is important for the onset of health problems because of its link to better health behaviors and use of more preventive care. Income, or economic resources in general, may matter more for managing disease including access to health care and

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[1] We thank an anonymous reviewer for bringing this to our attention.