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Article

Impact of falling on social participation and social support trajectories in a middle-aged and elderly European sample

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ABSTRACT

Whereas falls are frequent and traumatic events for the elderly, their long-term consequences in terms of the social lives of older fallers are understudied. This study aimed to identify the impact of falling on the trajectories of social participation and social support of older people in Europe. Our sample consisted of 16,583 people aged 50–95 years from 10 European countries who responded to the waves 1, 2 and 4 of the Survey of Health Ageing and Retirement in Europe. The impact of falling on the trajectories of social participation and social support was examined using generalised estimating equation (GEE) models. The effect of the interactions between falling and frailty and between falling and social support on social participation was assessed. Falls were negatively associated with social participation (OR=0.73, $p < 0.001$) and positively associated with social support (OR=2.20, $p < 0.001$). For social participation, this effect was moderated by frailty; the interaction term between frailty and fall highlighted the finding that frailty better explained the global trajectory of social participation compared with falling. Social support did not buffer the negative impact of falling on social participation. Falls can be considered stressful events that have implications beyond the health context. Frail people who have fallen should be targeted in prevention and rehabilitation programmes; specific attention should also be paid to the relatives of fallers, who appeared to be more intensively solicited after a fall.

1. Introduction

It is estimated that approximately one-third of people aged 65 years and older fall each year in developed countries (Bauer & Steiner, 2009). Falls are independent risk factors for injuries, hospitalisation, disabilities, and institutionalizations. They are associated with dramatic costs related to morbidity and early mortality (Heinrich, Rapp, Rissmann, Becker, & Konig, 2010). The psychological consequences of falling have been well explored; even when a fall does not occur, the fear of falling can reduce self-efficacy and increase anxious or depressive symptoms (Biderman, Cwikel, Fried, & Galinsky, 2002; Delbaere et al., 2010). Falls and the fear of falling are also significantly associated with a restriction in daily activities, mainly in those related to mobility, which may increase the subsequent risk of falling and of losing autonomy (post-fall syndrome) (Alarcon, Gonzalez-Montalvo, Barcena & Gotor, 2006; Chung et al., 2009).

Despite the numerous consequences of falls, the literature examining falls primarily consists of epidemiological studies, without explicit models or references to specific theories. In this study, we assumed that the stress models and the life course paradigm (Pearlin, 2010; Spini, Hanappi, Bernardi, Oris, & Bickel, 2013) may be useful for studying fall events and their psychosocial consequences. More specifically, this study analysed the relationships between falls and social dimensions of life using the stress proliferation model, which postulates that one stressful life event occurring in a specific life sphere (health, in this case) may have consequences in other life spheres, e.g., the family or the social relations of the person. While there is abundant evidence for the global positive effect of social ties on volunteering or social participation and the buffering effect of social support after life events (Smith & Christakis, 2008; Thoits, 2011), the impact of chronic or acute health conditions such as frailty or injuries on social dimensions has not been well studied. To our knowledge, the social consequences of falling itself have never been examined. By focusing on the impact of falling on both social participation and social support, this paper will fill this gap in the literature.

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2. Theoretical background

2.1. A fall's consequences on social relations

In addition to its physical consequences (Bauer & Steiner, 2009; Heinrich et al., 2010), falling has been found to be an independent predictor of depression (Biderman et al., 2002; Bosma et al., 2004; de Jonge et al., 2006; Scaf-Klomp, Sanderman, Ormel, & Kempen, 2003) and is associated with decreases in the well-being or quality of life of older people (Chang, Chi, Yang, & Chou, 2010; Ruthig, Chipperfield, Newall, Perry, & Hall, 2007). Even if the effect of falling is stronger when this event is followed by traumatic outcomes, there is also evidence that a fall without physical consequences in addition to the fear of falling without a previous fall are significant predictors of lower self-confidence in daily activities or lower quality of life (Alarcon et al., 2006). Data on falling are mainly from cohort studies of older adults, aged 65 years or older. However, according to Verma et al. (2016) and based on American data, in the previous three months, 2.0% of older people and 1.1% of people aged 45–64 reported a fall-related injury. The circumstances of falling differ significantly among age groups and reveal different risk profiles: middle-aged and active older people are more likely to fall outdoors while engaging in social or physical activities, whereas indoor falls tend to occur more frequently among older people and frail individuals (Li et al., 2006).

Whereas the impact of falling on physical and mental health is well known, the possible consequences of such events within other life spheres are understudied. Some qualitative studies have indirectly examined the social consequences of falling (Borkan, Quirk, & Sullivan, 1991; Faes et al., 2010; Kong, Lee, Mackenzie, & Lee, 2002; Roe et al., 2009); for example, they have revealed that older people had chosen to reduce their outdoor activities, which thus reduced their social relationships with friends or family. Using prospective designs, researchers have also found that falls are significantly associated with a restriction in daily activities (e.g., Bertera & Bertera, 2008; Hill, Womer, Russell, Blackberry, & McGann, 2010; Kempen, van Haastregt, McKee, Delbaere, & Zijlstra, 2009) or with an increase in caregiver burden (Kuzuya et al., 2006). However, these researchers did not systematically examine the processes underlying falls, health status and social life; moreover they did not suggest any theoretical explanation for this impact of falling on functioning or social relationships. Finally, we did not find any study that compared the long-term impact of falling on social dimensions among middle-aged and older people, although activity-related falls are more prevalent among younger cohorts.

2.2. The relationships between health and social resources

The stress proliferation (Pearlin, 2010) or stress diffusion (Spini et al., 2013) theory offers a useful framework for understanding the social consequences of fall events. According to this theory, stressful life events very often have consequences in life spheres other than the spheres in which they occur. From this perspective, a health event, such as a fall, can be considered not only a stressor in the health trajectories of middle-aged and older people but also a stressor in other life spheres of individuals. In particular, falls significantly decrease the level of physical resources and thus increase the risk or level of frailty; in turn, this increasing frailty reduces one's ability to continue social activities, which is exacerbated by the higher likelihood of repeated falls and traumatic consequences (Fried et al., 2001; Nowak & Hubbard, 2009). Moreover, a fall can have an effect not only on the victim's life but also on the life on her or his relatives, for example by increasing the support provided by family members (Kuzuya et al., 2006). By analysing the interactions between fall events, frailty and the social sphere (i.e. social participation and social support), stress proliferation theory might thus yield new insight into the relationship between health and social resources.

Social ties have a globally positive and direct effect on health (Seeman, 1996; Seeman & Berkman, 1988; Sirven & Debrand, 2008; Sirven & Debrand, 2012), even if the processes linking both spheres are not well identified (Smith & Christakis, 2008; Thoits, 2011). In contrast, the inverse relationships, i.e., the effect of health on social ties, have attracted relatively little attention. Good health was certainly found to be a precondition of being socially active (Goll, Charlesworth, Scior, & Stott, 2015; Leone and Hessel, 2015; Sirven & Debrand, 2012). Previous research has underlined the determinants of late-life social participation or volunteering, which are defined as involvement in interpersonal interactions outside the home, including social, leisure, or community activities. Increased age, low socio-economic status, low educational level, and the presence of illness or disabilities were among the strongest risk factors for reduced social participation (Goll et al., 2015). Therefore, their analyses did not take into account the long-term effects of health status on social participation nor the complex interplay between acute health events, health state and social outcomes.

Another series of studies examined the effect of life events on social resources. When unexpected life events (e.g., the loss of a relative or the divorce) occur, there is a decrease in the size of an individual's social network and a strengthening of his/her emotional function (Wrzus, Hanel, Wagner, & Neyer, 2013). A major life event may also transform the nature of daily invisible social support provided by relatives (Thoits, 2011). When social relatives were informed about a major life event occurring in the life of an older person, the social support became intentional, visible, and focused on changing the individual's situation and/or feelings (Thoits, 2011). Social ties did indeed provide active coping assistance, which decreased the stress related to the specific situation by alleviating both the instrumental and emotional consequences of the event. This stress-buffer effect of social support after a life event is well documented (Smith & Christakis, 2008; Thoits, 2011), even if the literature is still quite scarce regarding the health events (Thoits, 2011; Wrzus et al., 2013).

2.3. Aims and hypotheses

Assuming that falls may have a significant and long-term effect not only on the physical or mental health but also on the social life of people, we examined whether the negative effects of falls were diffused across individuals' social resources, i.e., whether stress proliferation processes can be observed. More precisely, considering the association between falls and frailty, we first analysed the impact of falls on both social participation and social support. We postulated the following:

(1) The likelihood of social participation should be lower among people who experienced at least one fall during the six-year follow-up (fallers) than among non-fallers.
(2) The likelihood of receiving social support should be higher among fallers than among non-fallers.
(3) Frailty may reduce the relationships between falling and social participation and/or social support.

Then, we examined the effects of the subjects' initial health status, as measured by frailty, and social support on the relationship between falling and social participation, assuming the following:

(4) Among fallers, frail people or people with low social support are more likely to subsequently report decreased social participation than people with more initial resources.