

Coexistence and persistence of disadvantages in adulthood affect late midlife frailty

Francesca Zanasi, University of Bari
Gustavo De Santis, University of Florence
Elena Pirani, University of Florence

Theoretical background

Ageing induces physiological health decline (Walsh, Scharf, & Keating, 2017), but this process accelerates if adverse events occur in adulthood, in various domains such as family (Benson *et al.*, 2017; Hank & Wagner, 2013), employment (Lu *et al.*, 2017) and the socio-economic sphere (Stolz *et al.*, 2016). These events can undermine individual capacity to contrast health deterioration in later life (Kuh *et al.*, 2003).

While each occurrence of disadvantage exerts an independent effect on later life health, multiple exposures may prove particularly harmful (Ben-Shlomo & Kuh, 2002; Kuh *et al.*, 2003). Two aspects may be distinguished: *persistence* and *coexistence* of disadvantages. The former refers to the length of periods when individuals are “under pressure” (Corna, 2013). Not surprisingly, long periods are particularly harmful on late life outcomes (Dewilde, 2012). With regard to the latter, as the various components of individual biographies are interrelated (e.g., employment, education, and health), adverse events may occur at the same time and reinforce one another, a case of coexisting disadvantages (Almquist, 2016; Heap, Lennartsson, & Thorslund, 2013).

In the present study, based on SHARE data (2004–2017), we try to measure by how much coexisting *and* persistent disadvantages experienced in adulthood (in various life domains: bad health, severe stress, financial hardship, and unemployment) affect frailty in later life.

Data, variables, and method

Our data derive from SHARE, the Survey of Health, Ageing, and Retirement in Europe (2004–2017). The dependent variable is frailty in late midlife, at ages 60–64, 65–69, 70–74, and 75–79. Frailty is measured with a 40-item index validated on the SHARE dataset measuring the number of health, or health-related, deficits of respondents (Romero-Ortuno & Kenny, 2012). The index is normalized, ranging between 0 (perfect conditions) and 1 (presence of all the 40 possible deficits). In practice, however, its observed maximum is less than 0.5, and its average is relatively low, between 0.11 and 0.16 (Table 1).

The main independent variables refer to the disadvantages suffered in adulthood (25 to 59 years) in four domains (unemployment, financial hardship, stress, and bad health). For each disadvantage, we computed a variable describing its persistence in adulthood, i.e. the share of life (between 25 and 59 years) when a person experienced a certain disadvantage (*Never*, *Occasionally*, or *Frequently*, where *occasionally* means between 1 and 24%, and *frequently* mean 25% or more). Beyond that, we also measured the frequency of coexisting disadvantages, that is the share of adult life that an individual spent with two or more disadvantages, simultaneously.

The model we use is a set of simple linear regressions, which we ran both with and without covariates, to better grasp the role played by the persistence and coexistence of disadvantages, as explained below. This abstract, however, ignores covariates and focuses only on the main independent variables.

Table 1 Descriptive statistics, by age group

Variables	Categories		Age groups			
			60–64	65–69	70–74	75–79
Frailty Index		Mean	0.11	0.12	0.14	0.16
		SD	0.09	0.09	0.10	0.12
Life course disadvantages						
Unemployment	Never	%	85.87	89.07	91.76	93.82
	Occasionally (1–25%)	%	10.49	8.31	6.31	4.61
	Frequently (25%+)	%	3.64	2.62	1.93	1.57
Severe stress	Never	%	63.74	67.36	71.53	75.81
	Occasionally (1–25%)	%	23.21	20.48	17.23	14.26
	Frequently (25%+)	%	13.05	12.16	11.24	9.93
Sickness	Never	%	68.12	82.05	87.00	88.37
	Occasionally (1–25%)	%	23.74	10.43	6.10	5.14
	Frequently (25%+)	%	8.13	7.52	6.90	6.49
Financial hardship	Never	%	78.56	81.16	82.26	82.73
	Occasionally (1–25%)	%	13.61	12.00	11.04	9.87
	Frequently (25%+)	%	7.83	6.83	6.70	7.4
Coexisting disadvantages	Never	%	83.64	86.23	88.73	90.6
	Occasionally (1–25%)	%	11.78	9.80	7.99	6.48
	Frequently (25%+)	%	4.58	3.97	3.28	2.92
N			32,833	30,961	25,030	18,140

Source: own calculations on SHARE data (2004–2017)

Results

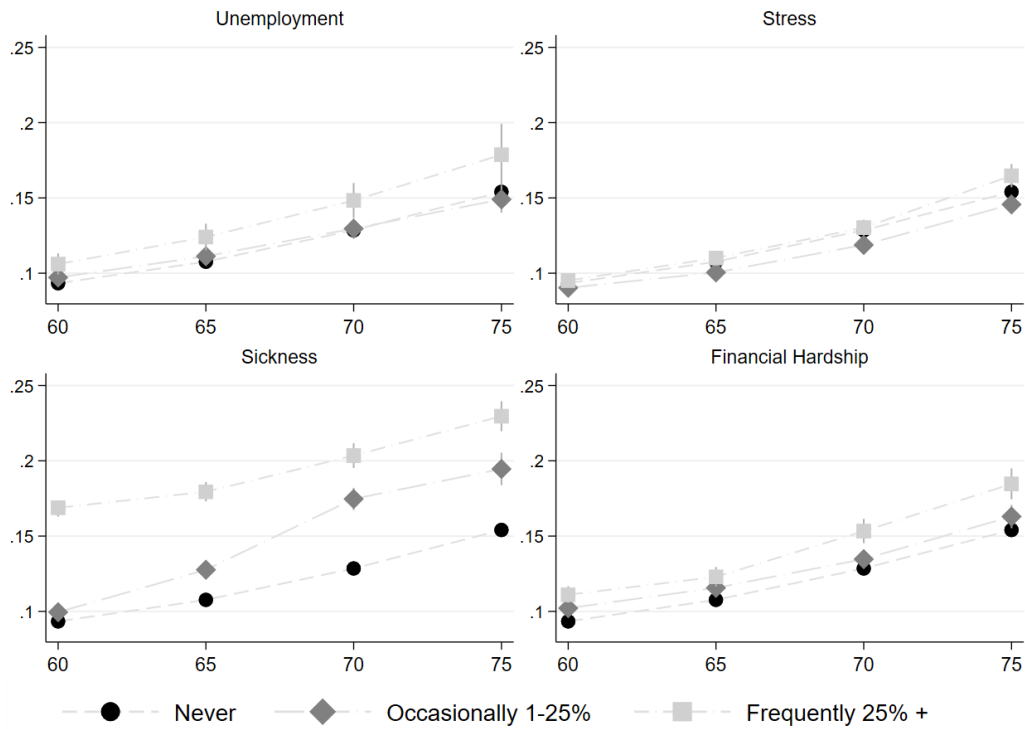
Figure 1 shows the predicted evolution of frailty by age for each type of disadvantage, under the assumption that no other disadvantage was experienced in adulthood (linear regression “simple” model, with no covariates). Frailty increases with age, and this holds also for individuals who never experienced any disadvantage in adulthood, but levels and slopes reflect past adverse events. The worst case emerges in relation to past health conditions (Sickness). For instance, those whose health was frequently poor in adulthood (more than 25% of the time) are frailer at 60–64 years (0.17) than those always in good health are at much older ages, 75–79 years (0.15).

Turning to coexisting disadvantages, the upper panels of Figure 2 show the most common disadvantage profiles for individuals who endured simultaneous disadvantages (financial hardship and stress) only occasionally (1–25%). The bottom panels, instead, show the most common profiles for those who experienced coexisting disadvantages frequently, that is more than 25% of their adult life: stress and financial hardship (bottom left), sickness and stress (bottom right). The latter situation appears to be particularly harmful. For example, while the “independent” experience of frequent stress is associated to a frailty score of roughly 0.16 (Figure 1) by the age of 75–79 years, the combination with financial hardship raises it to 0.20 (bottom right panel of Figure 2). The worst case concerns individuals who were both sick and under stress at the same time (frequently, during their adult years): their frailty index starts very high (0.20 at age 60–64) and reaches 0.25 by age 75–79.

Conclusions

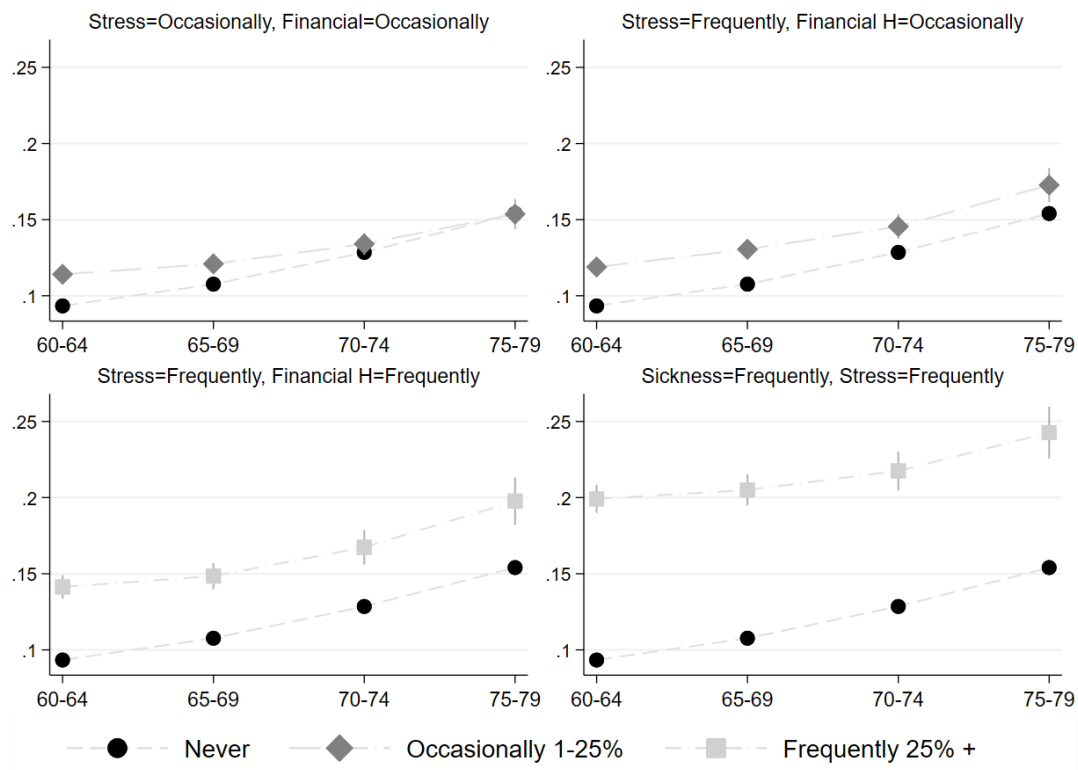
Frailty inequalities may be profound and, although this is frequently overlooked, they depend on individual life course, which means that poor conditions tend to persist, up to late in life. All the disadvantages suffered in the past, in all life domains (at least those the we could consider here) matter, but it is their cumulative effects that turns out to be particularly harmful. This calls for early action against disadvantages, if “active ageing” is to be pursued.

Figure 1 Predicted frailty scores by age group and life course disadvantages (unemployment, severe stress, sickness, financial hardship)



Notes. On the x-axis, “60” stands for “60-64”; “65” for “65-69”, etc. Results from linear regression models with cluster standard errors, 95% CI. Source: SHARE data (2004–2017)

Figure 2 Predicted frailty scores by age group and profiles of coexisting disadvantages



Notes. On the x-axis, “60” stands for “60-64”; “65” for “65-69”, etc. Results from linear regression models with cluster standard errors, 95% CI. Source: SHARE data (2004–2017)

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