Work-family biographies and cognitive health in later life: Which are the mechanisms explaining the relationship?

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Background and Research Questions

In most middle and high-income countries, cognitive impairment in later life has become a major epidemiological challenge (Wolters et al., 2020). Cognitive health inevitably declines with ageing, but not for everyone in the same way or at the same pace, with some facing lower levels of cognitive functioning to start with, faster decline, and hence a higher risk of cognitive pathologies such as dementia. However, later life heterogeneity in vulnerability and resilience concerning cognitive health is not random. Rather, it is rooted in the accumulation of "reserves" – such as cognitive, health, relational, and economic reserves. Reserves are seen as latent capacities or potential means that are needed for delaying or mitigating the inevitable process of cognitive decline (Cullati, Kliegel, & Widmer, 2018), operating in the long run. Importantly, different reserves may combine and accumulate, therefore influencing the level of cognitive performance in old age (Sauter et al., 2021).

These reserves are accumulated within and across different domains of life as well as within social roles occupied over the life course (Cullati et al., 2018). Being a worker, a partner, and a parent are among the most salient social roles throughout a major part of adult life, and contribute to shaping health in older age (Machů, Arends, Veldman, & Bültmann, 2022). Mid-adults who combine multiple social roles throughout their life course report better physical and mental health (Tosi & Grundy, 2021) and better cognitive performances in later life (Tattarini, Uccheddu, & Bertogg, forthcoming), whereby particular combinations of work- and family roles seem also to matter (Bertogg & Leist, 2023).

Moreover, there are gendered differences in the way that employment and family roles are combined (Moen, 2011), possibly resulting in gender-specific accumulation of reserves relevant to cognitive functioning. This is supported by studies on both physical and mental health (e.g., Tosi & Grundy, 2021), and, in a first study of the authors, also for cognitive performance (Tattarini et al., forthcoming).

Similarly, variations also exist across different countries. The institutional mechanisms incorporated in welfare states stratify the accumulation of reserves and the gendered patterns therein. Moreover, they interact with life-course events and processes to produce complex patterns of cumulative (dis)advantage in health (Dannefer, 2003). In our study, we rely on a selection of four country cases, of which two represent de-familizing welfare states (Sweden and France) and two represent varying degrees of familization (Italy and the Netherlands). Defamilizing welfare states structure both employment and family-related life course trajectories, especially for women (e.g., Van Winkle, 2020), whereas familizing welfare states provide little alternatives to family-based (child)care (implicit familism, as in Italy) or by promoting the caring function of the family (explicit familization, as in the Netherlands (Saraceno & Keck, 2010).

While previous studies have shown that gendered work-family trajectories relate to various dimensions of later life health and that the linkage between work-family life courses and health seems to depend on the welfare context, research elucidating the mechanisms of how different trajectories are associated with cognitive health is still sparse (Machů et al., 2022). This paper aims to bridge the existing knowledge gap with three key research contributions:

1. Unpacking the relationship between work-family life courses and late-life cognitive performance focusing on three different explanatory mechanisms: material well-being, physical and mental health, and social connectedness;

2. Investigating gendered patterns in the way the three mechanisms work;

3. Assessing the universality of these mechanisms by taking into account variation across different welfare systems.

Theoretical Mechanisms and Hypotheses

Material Well-Being: Being the primary source of income for individuals and families, continuous and gainful employment brings along financial security and stability; additionally, it fosters social contacts outside the family, generating the so-called "weak ties". The importance of employment has been shown, for example, by research on how unemployment negatively affect mental and physical health (Mousteri et al., 2018).

Social Resources: Supportive personal relationships – such as those among family members, normally bonded by affection and feelings of mutual obligation (Ross & Mirowsky, 2002) – provide emotional social support, but also material and tangible support (e.g., by generating economies of scale within the household) (Becker, 1993; DiPrete, 2002), or intergenerational solidarity (Albertini, Kohli, & Vogel, 2007). Additionally, individuals who are in a stable partner relationship and have children tend to show higher level of well-being, and mental and physical health, but causal linkages are unclear, and effects are gendered (Arpino, Gumà, & Julià, 2021).

Health Reserves: Both physical and mental health are protective for cognitive functioning (Livingston et al., 2020). Work and family roles – besides providing economic and social resources – are fundamental for well-being and quality of life, including physical functioning (Jahoda, Lazarsfeld, & Zeisel, 2017). Health reserves are thus a secondary mechanism, depending on the availability of material and social reserves. To address this complex interplay, we need to theorize its impact in terms of their interlinkage.

Interlinked Mechanisms: In line with the principle of "linked lives" (Elder, Johnson, & Crosnoe, 2003), working life and family life not only shape the availability of reserves available for the individuals in each domain but also affect each other, such as the spillover effect of unemployment on the well-being of other family members (Scheuring et al., 2021). Besides an overall (additive) beneficial effect of employment participation and family roles, it has been shown that domains might interact (Cohen & Wills, 1985), creating a compensatory mechanism which buffers potentially adverse and stressful events. For instance, by stabilizing the couple's situation, economic and emotional resources provided by one partner can compensate for the negative health consequences of stressful life events such as job loss (Tattarini, Grotti, & Scherer, 2018).

Hypothesis 1: We hypothesize that biographies characterised by continuous employment, stable marital relationships and expanded intergenerational ties (i.e., being parents) – as compared to biographies characterized by discontinued employment, lacking family roles, or both – provide for material, social and health reserves, which enable individuals to develop and retain cognitive functioning in later life.

Hypothesis 2: We assume that the availability of material, social, and health resources may compensate for cognitive risks associated with biographies characterized by discontinuous employment or lacking family roles.

Research Design, Previous and Expected Findings

The main aim of this study is thus to disentangle these findings by testing the three proposed mechanisms – material reserves (e.g., income and wealth), social reserves (e.g., social engagement in activities such as voluntary work, club participation, religious involvement, political or community engagement, etc.), and health reserves (such as physical functioning and mental health) – as mediating pathways between individuals' work-family trajectories and their levels and slopes of cognitive functioning.

Our study builds on our earlier research, where we investigated the associations between work-family life courses and levels of cognitive functioning across four welfare policy contexts (Sweden, the Netherlands, Germany, and Itay) (Tattarini et al., forthcoming). The analysis will be based on seven prospective waves of the Survey of Health, Ageing and Retirement in Europe (SHARE), including retrospective information on individuals' employment and family biographies between ages 16 and 50 – i.e., the SHARELIFE's Job Episodes Panel (Brugiavini et al., 2019).

From such spell data, we constructed work-family trajectories using Multichannel Sequence Analysis (Gauthier et al., 2010). Hierarchical cluster analysis (Ward, 1963) indicated nine different work-family life course clusters for women and six for men, concordant across the four country cases. To measure cognitive functioning, we used a memory test in which participants had to memorize a list of 10 words and recall it

after a standardized delay, whereby the test score consists of the number of words. We z-standardized the scores by gender, age categories, and country. Finally, we used the life course types to predict levels of cognitive functioning separately for men and women in the four countries, using random-effects panel regression models.

As regards their linkage to cognitive functioning (see Figure 1), we found that both trajectories characterised by less labour market attachment (e.g., long spells of being homemakers or unemployment) as well as trajectories characterised by fewer or more precarious family roles (e.g., early or single parenthood, divorce) are associated with lower cognitive functioning among older adults. However, we also found that while for men, (lack of) family roles play a larger role, for women, (lack of) cognitive stimulation via labour market participation is more strongly associated with cognitive functioning.

Figure 1: Work-Family Life Courses and Cognitive Functioning Across Four Welfare Contexts
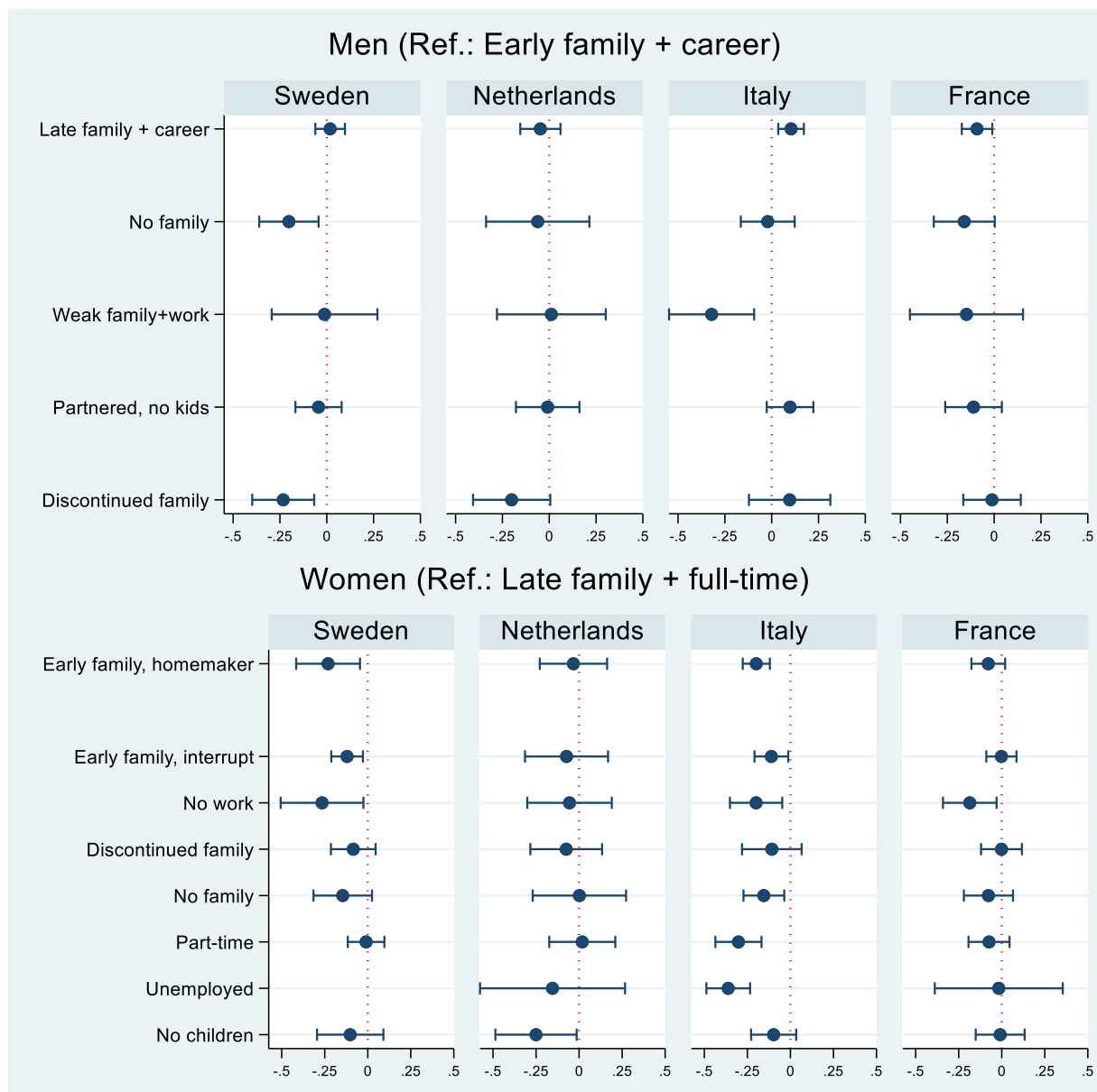
Note: Reference categories: "Early family + career" (Men), "Late family + full-time employment" (Women). Models include all the following confounding factors: birth cohort ("<=1945", "1946-1955", and "1956-1967"), education ("Low", "Medium", and "High"), health status at age 10, standard of living at age 10. To account for 'practice effects' (see: Vivot et al. 2016), we adjusted for number of times the cognitive assessment was administered.

Source: Own estimates from SHARE waves 1 (2004-2005), 2 (2007), 4 (2011), 5 (2013), 6 (2015), 7 (2017), and 8 (2019) (Börsch-Supan et al. 2013) and SHARELIFE's Job Episodes Panel, release 8.0.0 (Brugiavini et al. 2019).

The comparison of the four different welfare regimes reveals substantive differences. Family-based (dis)advantages for men's cognitive functioning are more pronounced in de-familized welfare states (Sweden and France) and Italy (where income support is subsidiary). The Netherlands, long promoting a one-and-half breadwinner model and promoting family members to engage in care using part-time work, does not show any clear associations between work-care life courses and cognitive functioning.

In further developing this study, we aim at disentangling these longitudinal associations by testing our three theoretically proposed mechanisms as mediating pathways. First, we will assess separately the explanatory power of each type of reserve (using decomposition approaches such as the KHB method). Then, we will assess them jointly (non-interacted and interacted) to evaluate the hypothesised buffering or compensatory mechanisms. We expect that health and financial resources are correlated, thus, partially confounding each other. However, we also expect that social reserves may buffer the lack of employment or family resources in the respective trajectories

Regarding gender differences, our theoretical expectation is that relational resources may play a larger role for women than for men, while health and financial mechanisms may be important for both genders. Finally, regarding country differences, we expect financial resources to play a smaller role in more universal a welfare states, as a consequence of de-commodification and de-stratification mechanisms. Additionally, we expect family roles to play a lesser role in Italy, where family solidarity is stronger and kinship networks are closely connected and supportive as a consequence of welfare subsidiarity.

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