

Gendered Profiles of Precarious Employment and Health Among Older Workers: A Latent Class Approach

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Abstract

This study identifies multidimensional configurations of precarious employment among older workers in Europe and examines how these profiles differ with respect to gender and physical and mental health in the context of extended working lives. Using SHARE Wave 9 data from 27 countries, precarious employment is conceptualised as a multidimensional construct encompassing employment stability, working conditions, financial security, social protection, and employability among workers aged 50+. A higher-order latent class analysis identifies four employment profiles: Privileged, Standard, Strained, and Peripheral. The findings show that precariousness in later life reflects broader labour market inequalities rather than solely contractual instability. Strained workers are characterised by high-strain and low-reward employment conditions alongside limited career and pension prospects, whereas Peripheral workers are more often associated with reduced working hours, lower income, and fragmented social protection. Strained and Peripheral profiles report poorer physical and mental health, with depressive symptoms particularly pronounced among Strained workers. The analysis further reveals the gendered nature of precarious employment. Women are disproportionately concentrated in disadvantaged profiles and experience greater mental health disadvantages than men. While the cross-sectional design does not allow causal conclusions, the findings demonstrate that multidimensional configurations of precarious employment capture meaningful differences in health and gender inequalities among older workers.

Introduction

Extending working lives has become a central feature of labour market and pension reforms across advanced economies. In response to population ageing and fiscal pressures, policies increasingly promote prolonged labour market participation as a pathway to active and healthy ageing. However, a growing body of research questions this “working longer consensus,” arguing that it overlooks structural inequalities in the capacity to remain employed at older ages (Ghilarducci, 2024; Phillipson, 2019; Taylor, 2019). Many older workers, such as those in low-paid, physically demanding, or insecure jobs, lack the resources and opportunities to extend their working lives, raising concerns about the unequal consequences of such policies. From this perspective, job quality and employment security emerge as critical conditions for sustainable and equitable longer working lives (Grenier et al., 2020; Phillipson, 2019) and successful ageing at work (Kooij et al., 2020).

One important dimension of these inequalities is precarious employment (PE), typically characterised by low wages, limited social protection, weak bargaining power, and poor working conditions (Kalleberg, 2009, 2011). PE is embedded in broader structural transformations in labour markets, including flexibilization, the individualisation of risk, and the de-standardisation of late careers amid blurring boundaries between employment and retirement (Chowdhury et al., 2025; Olsthoorn, 2014). Yet research on PE has largely focused on younger workers, despite the possibility that the experience and drivers of precarity differ across the life course. Whereas precarity among younger workers is often associated with job insecurity, forced flexibility, and low incomes (Orfao et al., 2021; Standing, 2011), late-career

precarity may additionally involve high work demands, declining pension security, weak bargaining power, poor health, and narrowing re-employment prospects (Ghilarducci, 2021; Lain et al., 2020; Rönblad et al., 2019). Consequently, precarious working lives are often associated with precarious retirement trajectories and poorer health in later life (Taylor, 2019), although such associations may partly reflect selection into PE, as individuals with fewer resources, poorer health, or more disadvantaged employment histories may be more likely to enter and remain in precarious jobs.

Health provides an important lens through which the consequences of multidimensional PE can be understood. Longitudinal research has shown that exposure to unfavourable working conditions is associated with deteriorating health across the life course, with consequences that appear particularly severe and far-reaching in later life (Henseke, 2018; Tompa et al., 2007). Adverse employment conditions can accumulate over time, contributing to both psychological and physical health risks that not only limit the capacity to remain economically active but also amplify existing inequalities. Those already in precarious positions face greater exposure to health risks and have fewer resources to cope with their consequences (Grenier & Phillipson, 2018). Health thus becomes a key axis of vulnerability in later life, shaping divergent trajectories into retirement, poverty, and social exclusion.

Late-career precarity is also strongly structured by gender. As labour market flexibilization intersects with workforce ageing and rising female labour force participation, older women are more likely to experience de-standardised and unequal employment trajectories over the life course (Settersten, 2020; Turek et al., 2024; Widmer & Ritschard, 2009). Due to career interruptions, occupational segregation, and caregiving responsibilities, women face persistent exposure to lower-quality employment and financial insecurity in later life (Madero-Cabib & Fasang, 2016; Moen et al., 2016; Ní Léime & Street, 2017). This reflects what de Beauvoir (1970) described as a “double standard”, whereby older women face the combined disadvantages of age and gender in the labour market.

This study addresses an important gap by examining PE among workers aged 50 and older, who have received comparatively little attention in the literature despite increasing policy emphasis on extending working lives. Although PE is widely theorised as multidimensional, this assumption is rarely tested (Kreshpaj et al., 2020): empirical work typically substitutes a single indicator for the construct as a whole, leaving open whether its dimensions actually co-occur and whether they combine into a single gradient or into qualitatively distinct configurations. The question is most consequential at older ages, where most workers hold stable contracts and instability-based measures therefore locate almost no precarity. Using data from the Survey of Health, Ageing and Retirement in Europe (SHARE), covering 27 European countries, we examine PE across five dimensions – employment stability, work quality, financial stability, employability, and social security integration – integrating both objective job characteristics and subjective employment conditions. We apply a novel higher-order latent class analysis to identify distinct multidimensional profiles of PE among older workers. To our knowledge, this is the first study to employ a higher-order latent class approach in this field, allowing us to capture how multiple employment disadvantages cluster together in later working life. We then examine how these profiles differ systematically with respect to gender and physical and mental health, providing evidence

that the identified profiles capture meaningful labour market inequalities in later working life. While the cross-sectional design does not permit causal conclusions, establishing that these configurations exist, are socially structured, and are health-differentiated advances the conceptualisation and measurement of PE in later working life and provides a foundation for future longitudinal research.

Background

Precarious Employment and Health in Later Life

There is no universally accepted definition of PE, complicating efforts to identify its key characteristics (Bhattacharya & Ray, 2021; Moscone et al., 2016). Broadly, PE refers to work arrangements that diverge from the standard employment relationship of full-time, stable, and socially protected employment with a single employer (Bosch, 2004; Irvine & Rose, 2024). Such employment is characterised by uncertainty and insecurity, with workers bearing greater employment risks while lacking the social protections, economic security, and occupational identity associated with standard employment (Kalleberg, 2009; Standing, 2011). Poor working conditions, workplace marginalisation, and limited access to job resources are also dimensions of precariousness (Lewchuk, 2017; Peckham et al., 2019; Vives et al., 2010).

PE has increasingly been linked to health inequalities (Scott-Marshall, 2010; Vives et al., 2010). Research consistently documents negative associations between PE and mental health (Benach et al., 2014; De Witte et al., 2016; Kim & Knesebeck, 2016), while more limited evidence on physical health indicates associations with poorer self-rated health (Burgard et al., 2009; Lewchuk, 2017; Peckham et al., 2019).

These associations may be particularly consequential for older workers, among whom precarity has become an increasing concern (Grenier & Phillipson, 2018). A life-course perspective further highlights how such disadvantages accumulate over time (Dannefer, 2003): socioeconomic disadvantages can generate material and psychosocial deficits that compound across the life course, while the timing and sequencing of exposures shape later-life outcomes. Repeated exposure to PE may therefore intensify health risks in later life (Oddo et al., 2024; Settersten, 2020). Yet older workers remain underrepresented in this literature. Scott-Marshall (2010) found more pronounced negative associations between workplace insecurity and self-rated health among older than younger workers, while Donnelly (2022) showed that histories of precarious work in midlife were associated with poorer subsequent health trajectories.

Cross-national variation in employment and welfare arrangements may further shape older workers' exposure to precarity. Nordic countries generally provide stronger employment protection and welfare support, while Southern and Eastern European countries combine weaker regulations with more limited social protection, increasing exposure to PE (Börsch-Supan, 2006; Hyde & Dingemans, 2017). Yet across contexts, rising retirement ages and pension reforms point to a shared trend towards longer, more insecure working lives.

Gender, Precarity and Health

Extended working life policies have been introduced with limited attention to their gendered implications (Ní Léime & Ogg, 2019). Gender is central to understanding PE and health in later working life because gendered roles and responsibilities shape women's labour-market trajectories. Women have historically been overrepresented in precarious jobs characterised by low wages, limited non-wage benefits, and restricted advancement opportunities (Jackson, 2004; Vosko, 2004). Despite rising labour force participation and educational attainment (Scott-Marshall, 2010), they continue to bear a disproportionate share of unpaid care and domestic work (Moen et al., 2016), constraining working hours and career progression and contributing to persistent earnings inequalities (Wallace, 2004). Structural labour-market changes, including increasing job insecurity, temporary employment, and declining union protections, have also disproportionately affected female-dominated sectors, further concentrating women in precarious work (Gorman & Kmec, 2007; Scott-Marshall, 2010). Together, these processes may generate cumulative gender inequalities in employment and health across the life course.

Empirical evidence on gender differences in the health effects of PE remains mixed (Benach et al., 2014; Kivimäki & Kawachi, 2015; Scott-Marshall, 2010). Nevertheless, women's greater exposure to insecure and interrupted employment trajectories may produce more persistent long-term health consequences. Men, whose employment trajectories have historically been more stable, may experience adverse health effects when exposed to PE later in life (Kalleberg, 2018; Williams, 2013).

Conceptualisation of PE

Despite growing recognition of PE as a determinant of health, its empirical assessment remains constrained by its operationalisation. Studies frequently rely on individual indicators such as temporary contracts or perceived job insecurity, which cannot fully capture its multidimensional nature (Vives et al., 2010). This limitation is particularly relevant for life-course comparisons, as standard indicators designed for core working-age populations may overlook forms of precarity that are more salient in later life. Kalleberg (2009) and Vosko (2011) emphasise that PE encompasses not only employment instability, but also inadequate income, limited access to social protection, weak bargaining power, and constrained opportunities for skill development.

Multidimensional frameworks instead conceptualise PE as a "person-in-context" phenomenon (Tomba et al., 2007). For instance, the Employment Precariousness Scale (EPRES) (Vives et al., 2010) captures both contractual features (e.g., job instability, low income, limited rights) and relational dimensions (e.g., powerlessness and lack of voice), situating precariousness within broader employment relations. Irvine and Rose (2024) show that repeated employment transitions, limited workplace integration, and persistent insecurity generate stress, social isolation, and overwork, particularly when workers seek to secure future employment. These dynamics are reinforced by power asymmetries and fear of job loss, which may discourage workers from contesting poor conditions and constrain autonomy (Bosmans et al., 2016).

Building on these multidimensional perspectives (Irvine & Rose, 2024; Kalleberg, 2011; Vives et al., 2010; Vosko, 2011), we distinguish five dimensions of precarity relevant to extended working life. *Employment stability* reflects deviations from the standard employment relationship captured by contract type, working hours, multiple jobs, and continuity of work (Krahn, 1995). *Work quality* becomes more salient at older ages because job demands (e.g., physical demands, autonomy, time pressure) interact with ageing-related capacities (Costa & Sartori, 2007; Zacher, 2015). *Financial stability* refers to low earnings and limited supplementary resources, such as household income, which reduce workers' capacity to recover from income shocks (Olsthoorn, 2014). *Employability* concerns older workers' ability to adapt to changing job demands and re-enter employment following job loss, supported by training and career management support (Gevaert et al., 2021; Julia et al., 2017). Finally, *social security integration* reflects the accumulation of pension entitlements, which fragmented careers erode, given that social protection systems remain oriented towards continuous, full-time employment (Kool et al., 2021). This dimension may be particularly salient for workers approaching retirement.

Pathways from multidimensional precarity to health

The five dimensions may be linked to health through three analytically distinct mechanisms identified in previous research (Benach et al., 2014). The first is material. Financial instability and weak social security integration indicate economic deprivation, which may be associated with poorer living conditions and constrained access to healthcare, with implications for both physical and mental health (Olsthoorn, 2014). The second is psychosocial. Poor work quality and employment instability may be associated with greater psychosocial strain, particularly when high job demands coincide with low control and limited support (De Witte et al., 2016; Karasek, 1979). The third concerns opportunities and control. Low employability (e.g., restricted training and weak re-employment prospects) leaves workers with little career control and fewer opportunities to leave adverse employment conditions (Gevaert et al., 2021). These constraints may be particularly relevant in later working life, when re-employment prospects tend to narrow (Henseke, 2018; Tompa et al., 2007).

This framework yields three expectations regarding PE configurations and their associations with health. First, if the dimensions capture distinct aspects of precarity, they should not collapse into a single gradient from less to more precarious employment but may instead form qualitatively different configurations. Second, health penalties should be greatest where mechanisms co-occur, with particularly adverse health profiles expected where psychosocial strain coincides with material and opportunity deficits. Third, given gendered differences in employment trajectories, including greater exposure among women to career interruptions, part-time employment, and lower-paid labour market segments, women are expected to be over-represented in configurations characterised by material deficits and weak labour market attachment. Gender gaps in mental health may also be more pronounced in configurations characterised by greater work strain, particularly where this coincides with unpaid care demands.

Method

Data and sample

This study uses data from SHARE conducted every two years among a panel of population aged 50 + in up to 28 countries. Using wave 9 (2021–2022), we included participants in paid employment at the time of the interview. After excluding respondents not asked PE-related questions (e.g., unemployed n = 1,260, retired n = 44,580 and self-employed, n = 2,070), the final sample consisted of 12,354 respondents across 27 European countries, of which 56% were female (Table 1; country overview in Table A1).

Table 1
Sample description stratified by gender

Characteristic	N	Overall N = 12,354 ¹	female N = 6,959 ¹	male N = 5,395 ¹
Age categories	12,354			
50-54yrs		2,397 (19%)	1,552 (22%)	845 (16%)
55-59yrs		5,155 (42%)	2,968 (43%)	2,187 (41%)
60-64yrs		3,899 (32%)	2,006 (29%)	1,893 (35%)
65-69yrs		678 (5.5%)	326 (4.7%)	352 (6.5%)
70 + yrs		225 (1.8%)	107 (1.5%)	118 (2.2%)
Education attainment	12,318			
Low level		1,530 (12%)	841 (12%)	689 (13%)
Middle level		6,356 (52%)	3,424 (49%)	2,932 (55%)
High level		4,432 (36%)	2,674 (39%)	1,758 (33%)
Missing		36 (0.3%)	20 (0.3%)	16 (0.3%)
Mental Health (Euro-D)	12,164	1.98 (1.94)	2.29 (2.05)	1.57 (1.71)
Missing		190 (1.54%)	88 (1.3%)	102 (1.9%)
Physical Health	12,344	3.24 (0.95)	3.22 (0.96)	3.26 (0.95)
Missing		10 (0.1%)	7 (0.1%)	3 (0.1%)
<i>Note. The number of missing data was low for key variables (e.g., 2% for mental health, 0.1% for physical health, 0% for age and gender). Observations with missing values were included in the analysis using full-information estimation.</i>				
¹ n (%); Mean (SD)				

Measures

Dependent Variables. We used two health indicators: mental health measured using the 12-item EURO-D scale of depressive symptoms (Guerra et al., 2015), and self-rated physical health measured on a 5-point scale (poor to excellent).

Precarious Employment was measured across five dimensions using multiple indicators (Appendix Table A2). *Employment stability* includes contract type (permanent, fixed-term), job tenure (years of current job), weekly working hours (below 24, 25–36, 37–48, 49 + hours), and multiple job holding. *Working conditions* were measured through subjective assessments of job satisfaction, time pressure, autonomy, support in difficult situations, recognition deserved for work done, job security, and adequate salary, measured on a four-point scale, with higher values indicating more favourable conditions. *Financial stability* was measured by individual annual net earnings and equivalized household monthly income. Both measures were categorised into country-specific deciles to account for cross-national differences in income distributions. *Employability* was measured by two items: a subjective assessment of opportunities to develop new skills and perceived promotion prospects (higher values indicate greater opportunities). *Social security integration* included future pension claims, expected pension benefits and pension contribution continuity. Future pension claims were measured using a binary indicator that captures whether respondents expect to claim a pension. The expected pension benefits represent the total anticipated amount from all pension schemes, including public and private pensions, and were grouped into country-specific deciles to ensure cross-national comparability. Pension contribution continuity was measured as the ratio of the maximum number of contribution years in any pension scheme to the respondent's age, allowing for a meaningful comparison of contribution continuity across the age range of the sample.

Sociodemographic Characteristics. Gender, age (50–54, 55–59, 60–64, 65–69, 70+), educational attainment (low/middle/high), and occupation (9 ISCO levels) were used to characterise the composition of the PE profiles. For missing values, information from previous waves was carried forward.

Country. The cross-national design allowed us to consider variation across institutional and labour market contexts. Due to insufficient sample sizes, we grouped countries into four regions (Eastern, Northern, Southern, and Western) that reflect similarities in welfare and employment regimes.

Analytical Strategy

This study adopted a higher-order latent class analysis (LCA), which combined separate categorisation within each PE dimension (lower-level LCA) with general categorisation into PE groups (higher-level LCA). We extend the 3-step LCA (Vermunt, 2010) to the higher-level clustering. At the lower level, the dimension-specific stepwise approach enabled the identification of distinct patterns of precarity within each domain (e.g., 5 classes of work quality). At the higher level, the lower-level patterns were used as categorical predictors of general PE clusters. This higher-order LCA approach enabled the identification of complex configurations of precariousness while explicitly accounting for uncertainty in the lower- and higher-level classifications and prevented any single PE dimension from dominating the final clustering.

Specifically, the construction of PE clusters using higher-order LCA proceeded in five stages. First, separate LCAs were conducted for four dimensions of PE (financial stability, work quality, employability, social security integration). Employment stability was excluded from this step due to low class variation; instead, it was included as a predictor in later analyses (see Results section for details). For the remaining four dimensions, the number of latent classes was determined using the Bayesian Information Criterion (BIC) and Akaike Information Criterion (AIC). Alternative solutions were also assessed for classification quality and substantive interpretability, ensuring that classes were well-separated, sufficiently large, and theoretically meaningful. Second, posterior class-membership probabilities from the selected dimension-specific LCAs were saved and merged into a single dataset containing the class assignments for all four dimensions.

Table 2
Sample Size and Missing Data Patterns for Dimensional LCAs

Characteristic	N = 12,354 ¹
Employment stability	
Included respondents	12,354 (100%)
Work quality	
Respondent with no information	5,045 (41%)
Included respondents	7,309 (59%)
Employability	
Respondent with no information	5,053 (41%)
Included respondents	7,301 (59%)
Financial stability	
Respondent with no information	2,225 (18%)
Included respondents	10,129 (82%)
Social security integration	
Respondent with no information	86 (0.7%)
Included respondents	12,268 (99%)
¹ n (%) <i>Note. Objective indicators were collected for the full analytic sample, whereas subjective indicators—collected in Wave 9 only from follow-up respondents—were restricted to the follow-up subsample</i>	

Third, a higher-order LCA was conducted using the dimension-specific class memberships and items from the employment stability dimension as indicators. The fourth step was the classification of

individuals into higher-order clusters, which accounted for classification uncertainties from the previous steps (Bakk et al., 2013; Vermunt, 2010). Fifth, we examined the associations between PE clusters, dependent variables, and predictors.

All analyses were performed using LatentGOLD 6.1 (Vermunt & Magidson, 2025). Maximum likelihood (ML) correction was used for classification errors involving categorical variables, and the BCH correction (Bolck et al., 2004) was used for continuous health outcomes. Respondents with at least one observed indicator within a dimension were retained in the dimension-specific LCA, while cases missing all indicators for that dimension were excluded (Table 2). Individuals with information on at least one dimension were retained in the higher-order LCA, while those missing all dimensions were excluded, resulting in a final analytic sample of 12,342 respondents.

Results

Latent classes within dimensions of PE

In the first step, we estimated separate LCAs for each PE dimension to identify internally homogeneous and substantively meaningful categories within each domain (model selection statistics are reported in Appendix Table A3). The number of classes in selected dimension-specific models varied, reflecting different degrees of heterogeneity (Appendix). The selected solutions identified five *work quality* classes, ranging from *privileged, secure, and autonomous* to *high-strain, low-reward jobs*; four *financial stability* classes, ranging from low to high income; four *employability* classes, ranging from *resource-constrained* to *high-skill positions*; and two *social security integration* classes, distinguishing *less-protected* from *well-protected* workers. All the LCA models for employment stability showed a strong concentration of older workers in *stable employment arrangements*. This aligns with the theoretical expectation of low variation among older workers regarding employment stability. Employment stability was therefore included in subsequent analyses as a variable-based predictor rather than a latent classification. Posterior profiles for the retained solutions are presented in Figure A1.

Higher-order profiles of employment precariousness

In this step, dimension-specific latent classes were combined into a higher-order LCA model to identify overarching employment profiles that capture configurations of precariousness across dimensions. Comparison of competing models supported a four-cluster solution based on model fit, classification quality, parsimony, and substantive interpretability (Appendix Table A4). Figure 1 shows the composition of these clusters across the five PE dimensions.

Standard Workers, is characterised by a highly secure and advantaged employment profile. Workers are in stable, full-time jobs with permanent contracts and continuous employment. Work quality is largely average to comfortable-low strain. Financial conditions are generally favourable with most individuals in the middle-income class. Employability is strong, with most individuals combining medium to high skills with at least moderate promotion prospects. Social security integration is nearly universal.

Strained Workers, are formally well attached to the labour market but experience disadvantages in security, work quality, financial stability, employability, and social protection. Most individuals are employed full-time, yet the cluster shows the highest incidence of fixed-term contracts and relatively short job tenures. Financial disadvantage is substantial pronounced, though less pronounced than in the *Peripheral* profile. Work quality and employability emerge as the weakest dimensions, with many workers facing limited opportunities for skill development and career progression alongside high-strain, low-reward jobs. Social security integration is also less favourable.

Peripheral Workers, are the most disadvantaged in income and social protection. Employment stability here is fragile and signals more peripheral position, with moderate share of fixed-term contracts and short tenures, and a strong concentration in part-time work. Financial conditions are the most disadvantaged. Social security integration is likewise limited, with a high prevalence in the lowest pension security class. In contrast, work quality and employability are more heterogeneous, with some workers occupying more favourable, even privileged, positions in terms of work quality, and a subset in high-skill, high-promotion trajectories alongside a dominant group with medium skill levels.

Privileged Workers represent structurally and experientially advantaged profile. Workers reported predominantly stable, full-time and long-tenure employment, high work quality, financial stability, employability, and social security integration.

These four clusters represent profiles of employment precariousness derived from five PE dimensions, conceptualising precariousness as a graded, multidimensional employment characteristic. Profile labels describe defining configurations rather than thresholds, as precariousness is treated as graded and multidimensional. The two disadvantaged profiles differ mainly in the source of disadvantage: job content (*Strained*) and labour market attachment (*Peripheral*).

Sociodemographic composition of PE

In the next step, we used posterior class membership probabilities to examine gender, age and education distributions across these four PE profiles (Table 3).

Table 3
Sociodemographic distribution across precarious employment profiles (column percentages)

Variable	Standard	Strained	Peripheral	Privileged	Total Sample
Cluster Size	45%	20%	21%	14%	100%
Gender, n (%)					
Female	52%	60%	85%	34%	58%
Male	48%	40%	15%	66%	42%
Education, n (%)					
Low Level	7%	21%	18%	1%	11%
Middle Level	48%	71%	52%	28%	51%
High Level	45%	8%	30%	71%	38%
Age Category, n (%)					
50–54 yrs	11%	16%	10%	14%	12%
55–59 yrs	35%	49%	29%	35%	37%
60–64 yrs	45%	32%	41%	38%	41%
65–69 yrs	7%	2%	15%	9%	8%
70 + yrs	1%	0%	6%	3%	2%

Gender differences were pronounced: while the *Standard* profile was relatively balanced (52% women), women were overrepresented in the *Strained* (60%) and especially the *Peripheral* profile (85%), whereas the *Privileged* profile was male-dominated (66%). Age differences were modest, although the *Strained* profile was slightly younger and the *Peripheral* profile was somewhat older. Educational attainment showed clearer stratification: lower and middle educational levels were concentrated in disadvantaged profiles, while 71% of *Privileged* workers were highly educated.

Appendix Table A5 shows the distribution of clusters across occupations and regions. *Strained* employment is concentrated in elementary, agricultural, and machine-related occupations, while *Peripheral* employment is more common in service and clerical work. In contrast, *Privileged* workers are found among managers and professionals. Regionally, the most disadvantaged profiles are more prevalent in Southern and Eastern Europe, whereas *Privileged* employment is more common in Northern and Western Europe.

Health and gender

In the final step, we examined associations between PE profiles and health outcomes, accounting for gender differences. Figure 2 presents mean health levels across the four employment profiles. *Privileged*

workers showed the most favourable profile with the highest self-rated health (3.73) and lowest depressive symptoms (1.33), followed by the *Standard* workers (3.29, 1.75). Both disadvantaged profiles displayed poorer outcomes. *Strained* workers reported the lowest physical health (2.91) and highest depressive symptoms (2.63), while *Peripheral* workers also reported elevated depressive symptoms (2.52) and relatively poor physical health (3.06).

Table 4 presents the regression estimates for depressive symptoms and self-rated health by cluster membership and gender. Depressive symptoms show heterogeneity across clusters (Wald $\chi^2=132.61$, $p<.001$), with the highest levels in both the *Strained* and *Peripheral* profiles and the lowest in the *Standard* and especially the *Privileged* profiles (all $p<.001$). Men reported fewer depressive symptoms than women overall ($B = -0.202$, $p<.001$), and the cluster-by-gender interaction was significant ($p=.004$), indicating that the gender difference varied across profiles. As shown in Fig. 3a, the difference was most pronounced in the *Strained* profile and minimal among *Privileged* workers.

Table 4
Regression Estimates of Depressive Symptoms and Self-Rated Health by Cluster and Gender

Cluster	Depression (Euro-D)	Self-rated physical health
Standard	-0.254*** (0.068)	0.011 (0.034)
Strained	0.626*** (0.084)	-0,400*** (0,039)
Peripheral	0.345*** (0.105)	-0,210*** (0,053)
Privileged	-0.718*** (0.089)	0,599*** (0,049)
Male (ref = Female)	-0.202*** (0.040)	-0,067** (0,021)
Cluster × Male		
Standard × Male	-0.073 (0.068)	0,040 (0,034)
Strained × Male	-0.239** (0.084)	0,046 (0,039)
Peripheral × Male	0.055 (0.105)	0,014 (0,053)
Privileged × Male	0.256** (0.089)	-0,101* (0,049)
Wald χ^2 (Cluster)	132.61***	223.75***
Wald χ^2 (Gender)	25.03***	10.00**
Wald χ^2 (Interaction)	13.52**	4.92
<i>Notes: Robust standard errors in parentheses. Cluster and gender are effect-coded. Coefficients for clusters represent deviations from the grand mean of depressive symptoms. The gender coefficient represents the average gender difference across clusters. Interaction terms indicate deviations from the average gender difference.</i> <i>*p < .05, ** p < .01, *** p < .001.</i>		

For self-rated physical health, outcomes also differ significantly across profiles ($p < .001$), with lower ratings in both disadvantage profiles and higher ratings among *Privileged*. The *Standard* profile did not differ from the overall mean (Table 4). Men reported slightly worse physical health than women ($B = -0.067, p = .021$). However, the non-significant cluster-by-gender interaction ($p = .177$) suggests that there were no meaningful gender differences in how physical health varied across profiles (Fig. 3b).

Discussion

The present study advances research on work and ageing by demonstrating that PE in later working life is best understood as a multidimensional configuration rather than a single employment characteristic. Applying a novel stepwise higher-order LCA, we identified distinct profiles of PE that combine objective employment conditions with subjective perceptions of work quality and employability. This approach yields more interpretable and meaningful class solutions than a conventional single-step LCA including

all indicators simultaneously and provides a more differentiated account of precarity among older workers. The findings broadly support the three expectations derived from our framework.

First, PE in later life cannot be understood solely in terms of employment instability. If precarious work were defined only by unstable employment, we would identify relatively little precariousness among older workers, as most in our sample were employed in stable jobs. However, our results demonstrate that workers can experience precariousness despite having stable employment. Differences between workers emerged through distinct configurations of job quality, financial security, employability, and access to social protection. The distinction between the two disadvantaged profiles is particularly important because it shows that similar levels of employment disadvantage can arise through different combinations of the material, psychosocial, and opportunity-related dimensions identified in our theoretical framework.

Strained workers are typically employed full-time but experience insecurity through fixed-term contracts, short tenure, high-strain and low-reward conditions, limited career prospects, and weak pension security. Their profile therefore combines employment instability and psychosocial strain with limited material and career opportunities. This pattern is consistent with arguments that labour market flexibilization, pension retrenchment, and extended working lives weaken exit options and bargaining power (Ghilarducci, 2021, 2024). Financial constraints may make continued employment more important where job quality is poor (Irvine and Rose, 2024).

Peripheral workers, by contrast, are characterised less by contractual instability than by reduced working hours, low income, and weak social security accumulation. Despite often holding permanent contracts, their part-time employment and fragmented contribution histories coincide with both immediate financial strain and long-term protection deficits. Compared to *Strained* workers, they show stronger employability and more varied work quality, suggesting a profile characterised primarily by material and labour market attachment deficits rather than employment instability or uniformly poor work quality. Although cross-sectional data cannot establish cumulative processes, this profile is consistent with a life-course perspective in which fragmented employment histories erode both current earnings and future pension entitlements (Dannefer, 2003; Fasang, 2012).

Second, consistent with our second expectation, PE profiles were associated with distinct levels of physical and mental health, and the least favourable health was observed where multiple forms of disadvantage co-occurred. *Privileged* workers reported the most favourable physical and mental health, whereas both disadvantaged profiles reported higher levels of depressive symptoms and poorer self-rated health. *Strained* workers exhibited the most adverse overall health profile, consistent with our expectation that the combination of psychosocial strain with limited material and career resources would be particularly detrimental to health. Furthermore, the elevated depressive symptoms in the *Peripheral* profile, despite more favourable work quality, suggest that income insecurity and limited social protection matter for mental health. These findings move beyond treating PE as a single risk factor (Benavides et al., 2000; Lee et al., 2021) by showing that distinct configurations of employment

disadvantage are associated with different levels of physical and mental health (Benach et al., 2014; Lewchuk, 2017; Peckham et al., 2019). They also point to potential pathways through which PE may shape retirement transitions. Older workers in precarious positions may face a double disadvantage (Taylor, 2019): poorer health may reduce their ability or willingness to remain employed, while financial insecurity may constrain their capacity to retire. In this way, PE and poor health may jointly contribute to inequalities in the extension of working lives (Ghilarducci, 2024).

Third, the findings also support our expectation that late-career precarity is gendered, although the evidence regarding gender differences in health is more differentiated. Women were overrepresented in both disadvantaged profiles, particularly the *Peripheral* profile, whereas men predominated among *Privileged* workers. This pattern is consistent with research showing women's greater exposure to part-time, lower-paid, and less-protected employment, shaped partly by caregiving interruptions and constrained career advancement (Jackson, 2004; Moen et al., 2016). From a life-course perspective, these gendered employment trajectories may accumulate into weaker labour market attachment and social protection in later working life.

Gender differences were evident for depressive symptoms. Although women reported more depressive symptoms overall, the gender gap was particularly pronounced among *Strained* workers. This provides partial support for our expectation that gender inequalities in mental health would be more pronounced in configurations characterised by greater work strain. The finding is consistent with research linking women's mental health to combinations of high work strain, low rewards, and unpaid care work (Donnelly, 2022; Moen et al., 2016). Yet, we found no evidence that gender differences in physical health varied systematically across PE profiles. Selection into continued employment at older ages may partly contribute to this, as workers with poorer health may already have exited paid employment.

Several limitations should be considered. Although the cross-national data revealed regional variation in PE profiles, the study was not designed as a fully comparative analysis of institutional contexts. Future research could examine how labour market regulation, employment protection, and welfare arrangements shape PE at older ages. The cross-sectional design also precludes causal inference. Health may affect both continued labour market participation and exposure to precarious employment, meaning that the observed associations may partly reflect reverse causality and healthy-worker selection (Rönnerblad et al., 2019), and should be interpreted as associations rather than causal effects. This study is a necessary step towards longitudinal research, since tracking precariousness over time first requires a valid multidimensional measure. A latent transition analysis across SHARE waves is the next step and would also model healthy-worker selection directly. The measurement of PE is also constrained because SHARE lacks information about union protection, schedule flexibility, and career control. Finally, the analysis is restricted to paid employees and therefore does not capture the unemployed or self-employed.

This study advances sociological understanding of PE in extended working lives by demonstrating the value of conceptualising precariousness as a multidimensional configuration. The identified profiles

capture distinct combinations of employment conditions, financial security, social protection, employability, and work quality. These profiles are unequally distributed by gender and associated with physical and mental health, indicating meaningful labour market inequalities in later working life. As working lives extend, policies should therefore address not only labour market participation at older ages but also the quality and security of employment.

Declarations

Author Contribution

E.S. conducted the research and analysis and wrote the main manuscript. K.T. supervised the day-to-day research activities and edited the manuscript. M.K. provided overall supervision and edited the manuscript. J.V. designed the methodology. All authors reviewed and approved the final manuscript.

Data Availability

Data Availability Statement This study uses data from Wave 9 of the Survey of Health, Ageing and Retirement in Europe (SHARE). The data supporting the findings of this study are available from the SHARE Research Data Center (<https://share-eric.eu/data>). Researchers may obtain access by registering and submitting a data access application in accordance with the SHARE Conditions of Use. No new data were generated for this study

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Figures

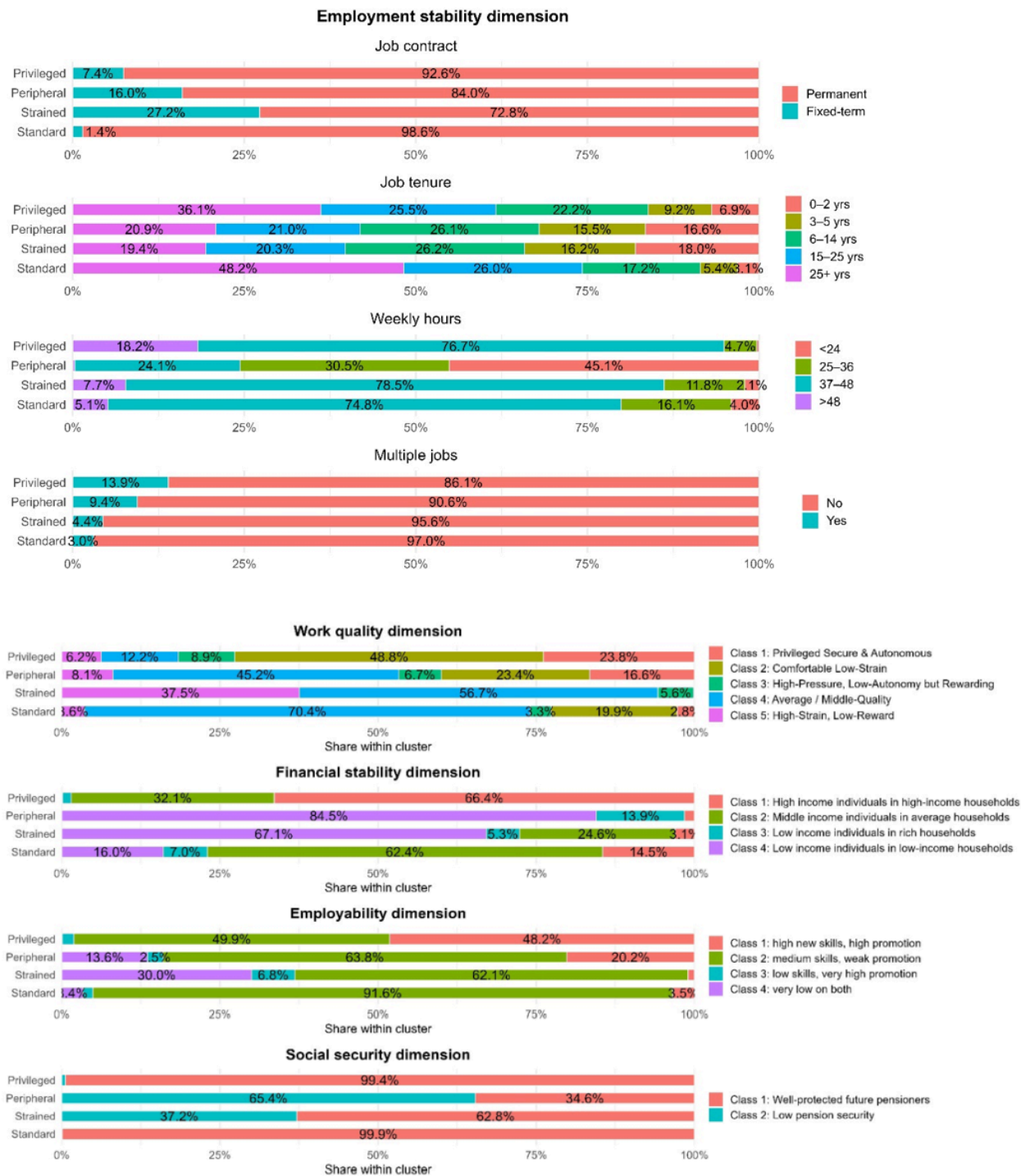


Figure 1

Higher-order precarious employment profiles based on combinations of latent classes across PE dimensions

Note. The upper panel shows the distribution of individual indicators within the employment stability dimension. The lower panel presents the latent class solutions from the first-stage analyses for the

remaining four dimensions. Stacked bars illustrate how profiles across stability, work quality, financial stability, employability, and social security integration combine into higher-order employment profiles.

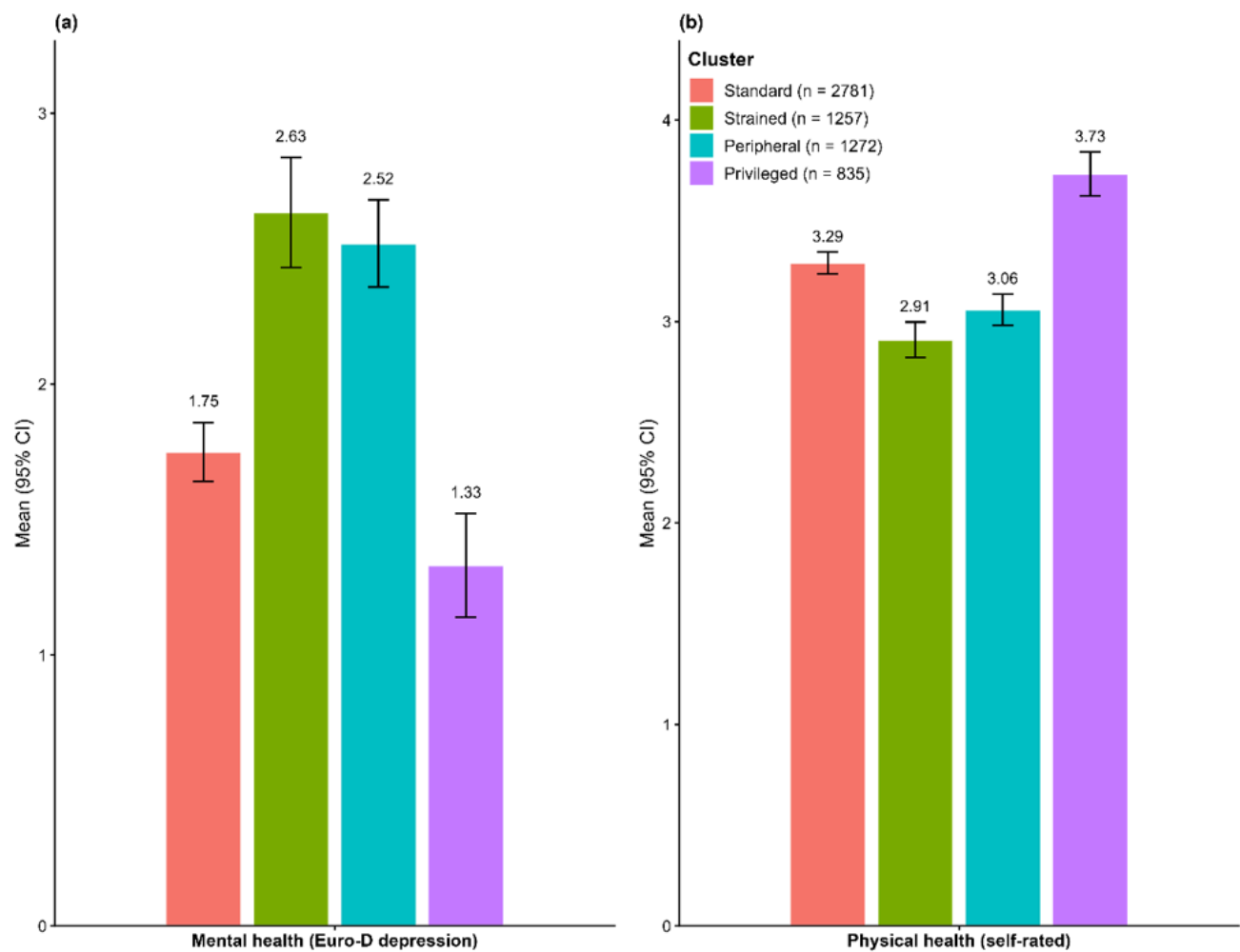


Figure 2

Mean differences in health outcomes across precarious employment profiles

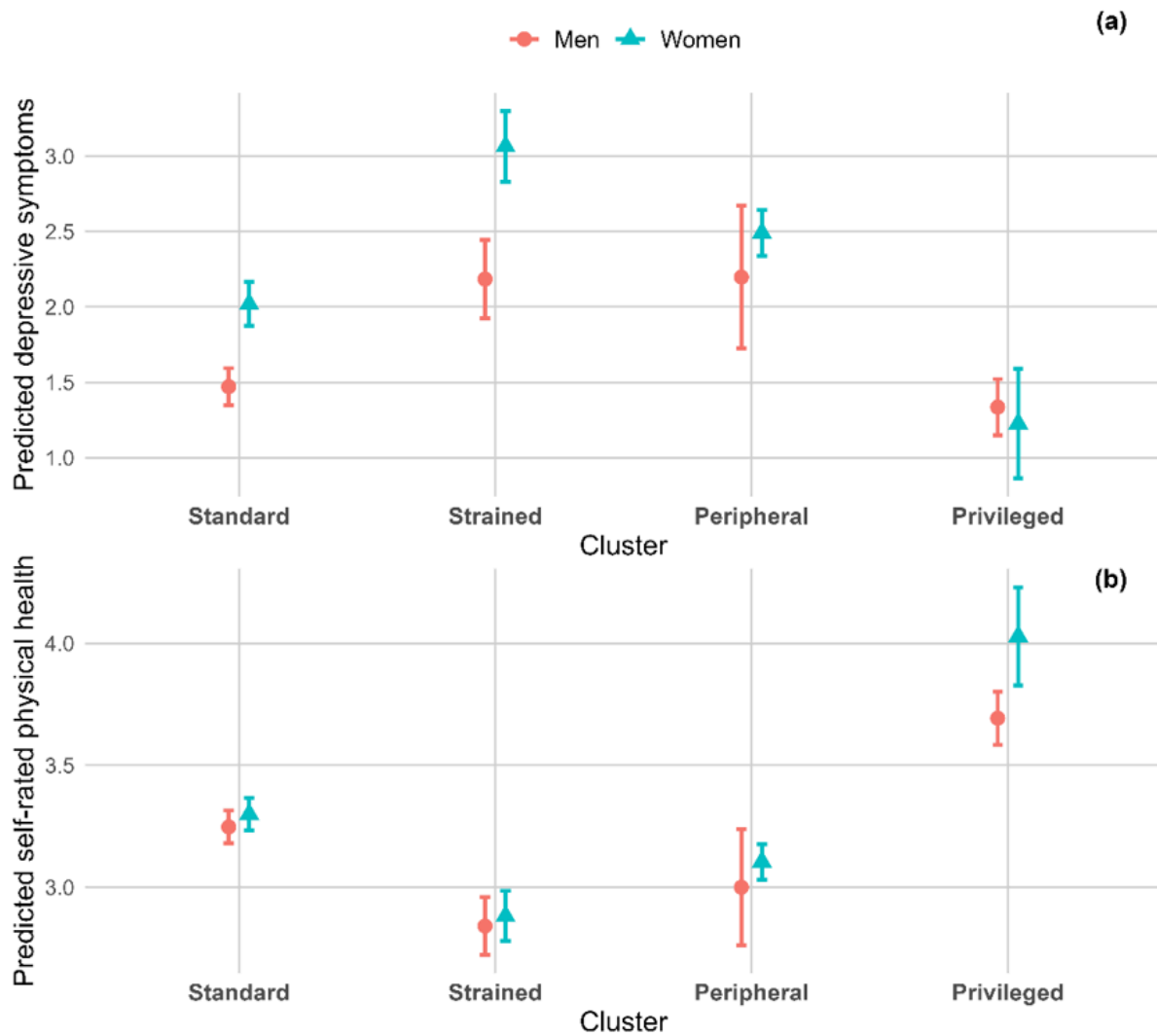


Figure 3

Predicted health outcomes by profile and gender

Supplementary Files

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