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Age and Career Resilience Through the Lens of Life Course Theory: Examining Individual Mechanisms and Macro-Level Context Across 28 Countries

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ABSTRACT

Career resilience is critical to the world's aging workforce, aiding older workers in adapting to the ever-evolving nature of work. While ageist stereotypes often depict older workers as less resilient when faced with workplace changes, existing research

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studies offer conflicting evidence on whether older age hinders or improves career resilience. In response to this conflicting evidence, the present study employs multi-level data from 6772 employees in 28 countries to examine the age-career resilience relationships and underlying mechanisms, hence advancing our understanding of career resilience across the life course. By integrating macro-contextual factors such as the unemployment rate and the culture of education with individual-level mechanisms such as positive career meaning and career optimism, we provide a comprehensive model explaining how career resilience varies across age groups. Grounded in life course theory, our findings resolve prior inconsistencies in resilience research, contribute to bridging the micro-macro gap in HRM literature, and challenge existing age-based stereotypes.

1 | Introduction

As workforces in many economies are rapidly aging (OECD 2019), career resilience becomes increasingly important for maintaining sustainable careers over the life course (De Vos, Van Der Heijden, and Akkermans 2020). Career resilience refers to "persisting, adapting, and/or flourishing in one's career despite challenges, changing events, and disruptions" (Mishra and McDonald 2017, 216). Concerns about the fiscal sustainability of social security systems and labor supply have triggered national policy-makers worldwide to implement labor market and welfare state policies aimed at extending working lives and delaying full-time retirement (Flynn and Schröder 2021; Marcus et al. 2024). Yet, the success of these initiatives is threatened by the widespread stereotypical belief that older workers are less resilient in their careers (Murphy and DeNisi 2021; Ng and Feldman 2012), which may limit the employment chances of these older workers (Abrams, Swift, and Drury 2016; Oude Mulders, Henkens, and Schippers 2017) or even prompt their early retirement during economically turbulent times (Botelho and Weißler 2022). But does career resilience universally decline with advancing age?

Career resilience has been discussed in Human Resource Management (HRM) (e.g., Kossek and Perrigino 2016; Mishra and McDonald 2017, 107) because it enables people to overcome career-related adversities (Akkermans, Seibert, and Mol 2018; Bimrose and Hearne 2012; Seibert, Kraimer, and Heslin 2016), such as the career shocks caused by the Covid-19 pandemic (Akkermans, Richardson, and Kraimer 2020). This makes career resilience crucial as there is a greater need for individuals to adapt to a changing career environment, learn new skills, and remain resilient in the face of various jobs or organizational challenges (Jogulu and Franken 2023). Additionally, career resilience leads to greater income and career satisfaction (Lyons, Schweitzer, and Ng 2015; Mishra and McDonald 2017) by supporting the development of professional attitudes and career self-management behaviors (Peeters, Caniëls, and Verbruggen 2022), as well as improving the ability to cope with career stress (Han, Chaudhury, and Sears 2021).

However, extant studies contradict each other about whether or not older age is a disadvantage for career resilience. Some studies support the stereotypical view that older workers are less willing and able to adapt to new career-related changes (Caniëls and Hatak 2022; Niessen, Swarowsky, and Leiz 2010); however, others show that they are more open to change (Kunze, Boehm, and Bruch 2013), have higher career adaptability (Rudolph, Lavigne, and Zacher 2017), and stay more resilient in the face of crisis (Scheibe, De Bloom, and Modderman 2022) than younger workers. When explaining how age relates to career resilience, prior studies have drawn on different theoretical rationales. These different explanations are arguably both convincing given that human development entails multiple change trajectories, including age-related benefits and losses (Kanfer and Ackerman 2004; Scheibe and Kooij 2024), and a single underlying mechanism is unlikely to explain why older workers may be more or less career resilient.

However, what explains these conflicting findings? In this paper, we argue that the inconsistent results of past studies could be explained by the influence of national economic and social contextual conditions. Yet, the prevailing study designs based on single-country samples cannot account for the variation in age effects across different national contexts. Hence, in line with calls to study the critical importance of context in HRM (Farndale et al. 2023), there is a growing need to bridge the micro-macro gap (Cowen et al. 2022) and theorize the influence of country-level factors in the formation of individual career resilience.

We address the shortcomings in previous literature in several ways: First, by examining the multiple underlying mechanisms that explain the relationship between age and career resilience and second, by investigating how this relationship is influenced by institutional-level contextual factors. We employ a large-scale multi-country study, including 6772 individuals from 28 different societies. We identify two possible mediating mechanisms which underlie the relationship between age and career resilience: namely, career optimism (i.e., positive expectations about the development of individuals' careers in the future; Rottinghaus, Day, and Borgen 2005) and positive career meaning (i.e., the perception of one's career as personally significant and having a positive valence; hereafter - career meaning; Steger, Dik, and Duffy 2012). To contextualize these micro-level mechanisms (Cowen et al. 2022), we investigate how two macro-level contextual factors (i.e., the unemployment rate and the culture of education) can drive or hinder the maintenance of career resilience in later stages of the lifespan across different societies.

Our study makes three contributions. First, our study considerably advances the career resilience literature by developing and testing a comprehensive theoretical model grounded in life course theory (Elder Jr 1998; Elder Jr, Johnson, and Crosnoe 2003). By integrating individual and macro-contextual perspectives, we reconcile mixed findings in previous research and demonstrate how career resilience is driven by multidirectional age-related mechanisms (i.e., career meaning and optimism) embedded within socio-economic contexts, such as unemployment rates and educational culture. Drawing on Cronin, Stouten, and Van Knippenberg's (2021) framework for

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Summary

- What is currently known?
  - Career resilience is a resource that is especially important when working longer in life and in volatile circumstances.
  - Research on the link between age and career resilience at the individual level is inconsistent, and the mechanisms leading to career resilience are unclear.
  - It is not known how the relationship between age and career resilience varies depending on the macro-level country context.
- What does this paper add to the existing literature?
  - Two opposing individual-level mechanisms, operating simultaneously and canceling each other out, connect age to career resilience.
  - Older age is associated with lower career resilience due to lower optimism, but is also associated with greater career resilience due to greater career meaning.
  - These relationships vary depending on the macro-level context. Across various countries, the higher the unemployment rates, the stronger the negative relationship via career optimism. The stronger the culture of education across countries, the stronger the positive relationship via positive career meaning.
- Implications
  - For individuals: becoming more aware of their weaknesses and leveraging their strengths to enhance or preserve their career resilience as they age.
  - For career counselors and development specialists: developing increased sensitivity and understanding of their actions concerning younger and older workers.
  - For HR professionals: designing HR systems that create a higher sense of career meaning and optimism.
  - For policymakers: investing in education programs as long-term, cumulative investments, and undertaking active initiatives to curb unemployment and promote equality.

theory development, we advance the conceptual clarity in career resilience research by integrating unit theories into programmatic theory within a life course perspective. This is, to our knowledge, the first study that integrates both socio-economic conditions and the multifaceted individual age-related differences in career resources, shedding light on context-dependent age-related disparities in career resilience. Our findings shift the research focus from asking *whether* or not older workers maintain career resilience to investigating *how* they do so, and identifying which institutional factors support this.

Second, this study responds to calls for more multi-level research (Zacher and Froidevaux 2021) and contextualized HRM research (Budhwar et al. 2024), addressing the critical gaps in understanding how career resilience is influenced by both individual mechanisms and socio-economic conditions. Addressing calls to go beyond individual agency in developing career outcomes (Jogulu and Franken 2023; Tomlinson et al. 2018), we emphasize the role of broader socio-economic settings and highlight how institutional-level factors drive individual career attitudes and behaviors through shared norms. While the need to contextualize careers has increasingly been highlighted, research examining career actors' goals, behaviors, and outcomes (the micro level) with their institutional context (the macro level) is scarce (Andresen et al. 2023). By accounting for the between-country variance in socio-economic variables, we demonstrate that institutional context not only influences career goals and outcomes (Andresen et al. 2020, 2023) but also age effects on career variables, as these also depend on established norms across countries, occupations, and industries. This addresses the criticism of career research being overly individualistic while opening pathways for exploring how shared norms mediate the relationship between country-level conditions and career behaviors.

Finally, our study advances the literature on aging by illustrating the interaction between age-related benefits and losses in shaping career outcomes. By demonstrating the parallel trajectories of career losses (reduced career optimism) and gains (increased career meaning) with age, we challenge the simplified views of career development and advance a more nuanced understanding of career development across the life course in HRM research.

2 | Theoretical Overview and Hypotheses

2.1 | Life Course Theory

Life course theory (Elder Jr 1998; Elder Jr, Johnson, and Crosnoe 2003) offers a comprehensive framework for understanding how individual biographies are shaped by the interplay of personal choices, social structures, and historical change. Central to this theory is the "agency within structure" paradigm (Settersten Jr and Gannon 2005, 36), which posits that life trajectories are influenced not just by individual agency but also by the socio-economic context in which individuals find themselves. This is particularly relevant to understanding career development over the lifespan, as career resilience can be seen as a result of development processes that are shaped by both human agency and social structures (Heckhausen and Schulz 1995). Age, as a function of life course theory, is therefore not merely a chronological marker but a signifier of accumulated experiences, social expectations, and cultural norms that can either enhance or constrain career resilience (Settersten Jr 2003).

Because life course theory theorizes the dynamics between human agency and socio-economic contexts (Hitlin and Elder Jr 2007), it allows us to investigate the connection between career-related individual attitudes, such as career optimism and career meaning, and socio-economic contexts. From the social and cultural perspective, age serves as a basis for social organization and stratification, influencing life transitions and expectations (Settersten Jr and Hägestad 1996). Age as social expectations sets "social clocks" (Neugarten, Moore, and Lowe 1965) or "chrononormativity" (Riach, Rumens, and Tyler 2014), which are culturally defined timetables for life events. Older age is largely depicted as the time to withdraw from the workforce (Moen et al. 2000; Super 1980), and a negative relationship between age and career optimism might be predicted with this perspective. At the same time,

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individuals' career meaning could be further clarified and enhanced, as they age, thanks to the related career experience (Van Wingerden and Poell 2019).

Furthermore, the predicted relationships may be intensified or attenuated depending on the socio-economic context as, following life course theory, individuals work out their own life course and career trajectories "in relation to institutionalized pathways and normative patterns" (Elder Jr, Johnson, and Crosnoe 2003, 8). Life course theory defines the social context as a multi-level system ranging from governments at the macro end to more proximal variables at the micro levels (Elder Jr and Shanahan 2007). In this study, we focus on two indicators of institutional regulation: the unemployment rate, which reflects the availability of paid jobs (OECD 2018), and the culture of education, which indicates the societal value placed on education and academic knowledge (Kavadias, Spruyt, and Kuppens 2024). Both indicators represent central variables of labor market policy (Thurow 1996). Thurow (1996) emphasizes that labor market policy can intervene to correct structural problems such as unemployment by providing information about the future of the labor market. This helps to reduce the risk of individual decisions to invest in education (e.g., training older people when investing in them no longer seems to pay off in the long term). Through the labor market and the education system, the state acts as a gatekeeper and sorter, and standardizes points of entry and exit into and out of employment and education (Mayer 1986; Thurow 1996), which act as norms. These entry and exit points represent critical life course risks or chances that influence individuals' decisions and development. Thus, career resilience, that is, the remaining individual control over one's career, will vary depending on how favorable an individual views the social context in terms of the risk of unemployment and the personal resources they draw from the meaning they assign to their own career.

Following life course theory, this perceived individual control is not only influenced by someone's current social circumstances, but also by their experiences earlier in life and their anticipation of the future, and it tends to vary by the age at which individuals pass through career transitions (Elder Jr and Shanahan 2007; see also Thurow 1996) as resource differences accumulate over the "working and educational" life course (Ferraro and Shippee 2009). For this reason, we assume and examine the differences in perceived career resilience across different ages; however, given that age influences career resilience through two opposing pathways we do not formulate a direct hypothesis for the overall age-career resilience relationship but rather focus on these distinct explanatory mechanisms. The theory's emphasis on human agency acknowledges how individuals vary in their responses to socially defined expectations regarding age (Heckhausen and Schulz 1995). Thus, the effects of age on various career-related attitudes and behaviors are likely to vary depending on institutionally embedded norms and expectations along with the accumulation of experiences influenced by having multiple institutional contexts over the life course (Elder Jr, Johnson, and Crosnoe 2003). Figure 1 shows the conceptual model.

2.2 | Age and Career Resilience: Career Optimism as a Mediator

Career optimism refers to positive expectations about future career development (Rottinghaus, Day, and Borgen 2005). Whereas, initially, career optimism was conceptualized as a stable trait, scholars now recognize it as a state-like construct (Eva et al. 2020). While younger individuals entering the workforce demonstrate positivity toward their career prospects, this optimism may decline across their lifespan, leading older individuals to be less driven to seek new career opportunities. According to life course theory, people face age-graded norms and "common notions about appropriate behavior or the proper timing" for important life experiences (Elder Jr, Johnson, and Crosnoe 2003, 81), such as plateauing career progression and approaching retirement (Moen et al. 2000). Such norms often contribute to

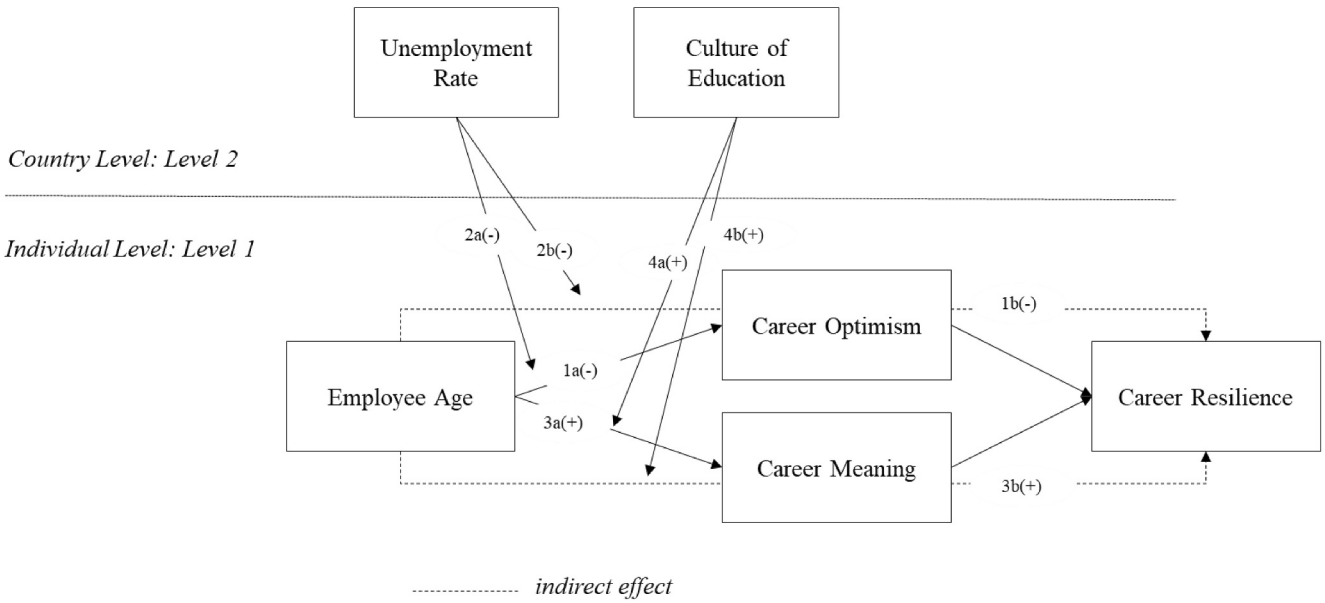


FIGURE 1 | Conceptual model. The numbers on the arrows indicate the hypothesis numbers.

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older individuals perceiving limited opportunities to achieve their career goals (Oettingen and Mayer 2002), leading to lower optimism and a more pessimistic professional outlook (Bown-Wilson and Parry 2013). According to life course theory, which recognizes the impact of societal structures (e.g., the education system) on individuals' attitudes toward career prospects, older workers may also feel less optimistic about their careers due to perceived diminished opportunities for career advancement or training (Posthuma and Campion 2009), negative age discrimination (Oude Mulders, Henkens, and Schippers 2017; Perry, Kulik, and Bourhis 1996), or declining health (Shao et al. 2022).

Research suggests that career optimism generates interest in individuals about their future careers (Eva et al. 2020), encourages them to strive toward their imagined future (Chatterjee, Afshan, and Chhetri 2015), and makes them feel that they will be successful in their careers (Haratsis, Hood, and Creed 2015). Consequently, they perceive the barriers they face as temporary and are more likely to persevere even after encountering adversities (Duffy 2010). Career optimism can act as a resource that propels individuals to engage proactively with their career development, helping them to bounce back from setbacks and navigate transitions more effectively (Mishra and McDonald 2017; Pathak and Lata 2018). With the decrease in career optimism at an older age, individuals lose the resources to adapt and persist in the face of career challenges. Taken together, we hypothesize.

Hypothesis 1a. *Age is negatively related to career optimism.*

Hypothesis 1b. *Career optimism mediates the relationship between age and career resilience.*

2.3 | Age, Career Optimism and Career Resilience: The Moderating Role of the Unemployment Rate

Life course theory suggests individuals' perception of their own career opportunities is "constrained by the opportunities structured by social institutions and culture" (Elder Jr, Johnson, and Crosnoe 2003, 8). Therefore, the relationships between age, career optimism, and career resilience are likely to be influenced by the larger social and economic context. Negative economic conditions, such as a high unemployment rate, can create perceived career constraints and unfavorably alter career experiences (De Hauw and De Vos 2010). Individuals tend to experience high levels of stress during economic downturns (Dooley, Prause, and Ham-Rowbottom 2000; Fenwick and Tausig 1994) and unemployment rates have been found to be negatively correlated with optimistic attitudes toward work (Tay and Harter 2013). Older individuals, whose career optimism could already have been affected by the limited amount of time left in their career (Bown-Wilson and Parry 2013), tend to be particularly vulnerable to poor economic conditions (Hessel et al. 2018), and may perceive their chances of finding new employment or advancing in their careers as particularly bleak (Dello Russo et al. 2020; Goštautaitė and Šerelytė 2024). This is consistent with the concept of "historical time and place" in life course theory, in which the timing of an individual's life events in relation to historical events (such as economic recessions) is pivotal (Elder Jr, Johnson, and Crosnoe 2003). A higher unemployment rate can amplify concerns about job security and future employment prospects, particularly for older workers, who not only face age discrimination (Perry, Kulik, and Bourhis 1996) but are also either the least likely to be hired (Roscigno et al. 2007) or more likely to end up in lower-quality jobs (OECD 2019). A high unemployment rate could therefore accelerate the depletion of older workers' career optimism, meaning that their negative career expectations may be intensified (Stypińska and Nikander 2018).

The overall negative relationship between age and career optimism and career resilience may therefore be exacerbated in countries with high unemployment rates. Despite legislative efforts to combat ageism (e.g., the Age Discrimination in Employment Act of 1967 in the USA; the European Commission's directive on equal treatment in employment), negative economic conditions worsen ageism and the subsequent discrimination against older workers (Eurobarometer 2019), relegating older worker to a less favorable position in the job market (Cheung, Kam, and Man-hung Ngan 2011). Moreover, early retirement policies can lead to older workers being perceived even more negatively—namely as unemployable and redundant (Stypińska and Nikander 2018)—which results in the relative loss of career opportunities for older workers compared to younger workers. Therefore, older workers might face more intense hardship in countries with higher unemployment rates than in those with lower unemployment rates because their resources for combating such negative effects become depleted, potentially making them less resilient. We therefore hypothesize.

Hypothesis 2a. *The negative relationship between age and career optimism is moderated by the country-level unemployment rate such that the relationship is stronger when the unemployment rate is higher.*

Hypothesis 2b. *The indirect relationship between age and career resilience via career optimism is moderated by the country-level unemployment rate such that the indirect relationship is stronger when the unemployment rate is higher.*

2.4 | Age and Career Resilience: Career Meaning as a Mediator

Career meaning reflects the perception of one's career as being personally significant and having a positive valence (Steger, Dik, and Duffy 2012). Drawing on the life course framework (Elder Jr 1998), we argue that career meaning increases with age. Over the life course, individuals navigate significant life events and career transitions, which can enhance self-awareness about their values, interests, and strengths (Haynie and Shepherd 2011; Steindórsdóttir et al. 2023). This allows them to self-select into jobs that align with these values (Zacher and Froidevaux 2021), potentially leading to greater career meaning. Indeed, evidence indicates that older workers are more likely to focus on work that aligns with their personal values and identity (Wong and Tetrick 2017), finding greater meaning in their work-roles compared to younger workers (Kooij et al. 2011). Additionally, older workers benefit from

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accumulated experiences, which allow for a deeper understanding of their work's impact and meaning (Goštautaitė et al. 2020). As individuals age, they often progress through various stages of career development, fostering an alignment between their personal values and their professional roles (Zacher and Froidevaux 2021). The drive for meaning, a fundamental human motivation (Baumeister and Wilson 1996), intensifies as individuals reflect on the achievements they have accumulated throughout their careers.

Life course theory (Elder Jr, Johnson, and Crosnoe 2003) emphasizes how past experiences, present roles, and future aspirations are intertwined into a career narrative, enabling individuals to navigate career-related setbacks more effectively. When individuals perceive their work as congruent with their self-concept and life goals, they are more inclined to develop effective strategies to overcome obstacles in their careers (Rochat, Masdonati, and Dauwalder 2017) and they display resilience in the face of adversity (Treadgold 1999). Indeed, career meaning serves as a personal resource for career resilience (Steger, Dik, and Duffy 2012), enhancing an individual's capacity to adapt to changes and overcome challenges (Van Wingerden and Poell 2019). In this sense, the deepening of career meaning with age could facilitate older individuals' ability to accumulate resources and coping strategies to maintain career resilience. We therefore hypothesize.

Hypothesis 3a. *Age is positively related to career meaning.*

Hypothesis 3b. *Career meaning mediates the relationship between age and career resilience.*

2.5 | Age, Career Meaning and Career Resilience: The Moderating Role of the Culture of Education

In line with life course theory (Elder Jr 1998), we argue that the culture of education in a society moderates the relationships between age, career meaning, and career resilience. The culture of education, defined as the "institutionalization of a set of narratives about the authority and importance of education" (Kavadias, Spruyt, and Kuppens 2024, 9), seems to be particularly important to these relationships. The culture of education indicates the degree to which universal education is considered key to societal progress, the belief that education should be accessible for everyone, and the trust in academic knowledge (Kavadias, Spruyt, and Kuppens 2024). We argue that a strong culture of education creates a social norm that reflects a country's commitment to lifelong learning, which may increase the motivation to pursue educational and career aspirations (Thurow 1996; Yun and Yusoff 2019). Additionally, the social norm of commitment to lifelong learning fosters an expectation for individuals to seek self-realization at work (Shao et al. 2022) and to pursue meaningful employment (Meeks and Murrell 2001). In support of this, higher spending on education, as an indicator of educational culture, has been found to positively influence labor market outcomes for individuals, such as increased job opportunities, education level, income, and skill development (Jones and Zimmer 2001; Kousar et al. 2023; Patel and Annapoorna 2019; Thurow 1996). Therefore, strong cultures of education not only foster the acquisition of essential skills and competencies needed in the labor market, but act as a key institution that drives people's career decisions and trajectories.

Life course theory emphasizes cumulative advantage and disadvantage across the lifespan (Dannefer 2003). Initial advantages or disadvantages tend to compound over time, shaping individuals' trajectories (Ferraro and Shippee 2009) and late-life careers (Turek, Henkens, and Kalmijn 2024). For example, access to education and social expectations of meaningful work earlier in life have long-term consequences for individuals' career opportunities and success later in life (Walsemann, Geronimus, and Gee 2008). This process of cumulative advantage and disadvantage across the lifespan is influenced by socioeconomic factors (Leopold 2016; Sieber et al. 2020). Therefore, we expect that the age-related positive effects on career meaning —driven by enhanced awareness and life-long self-selection into work roles that increasingly align with personal goals (Goštautaitė et al. 2020; Zacher and Froidevaux 2021)—will be more pronounced in countries with a strong culture of education. In these contexts, shared norms foster individuals' lifelong dedication to learning and the pursuit of self-realization at work. Moreover, the societal emphasis on lifelong learning and self-realization enhances the positive impact of age on career resilience, as individuals are more likely to leverage their meaningful career experiences to effectively navigate career challenges (Mishra and McDonald 2017). Taken together, the relationship between age and career resilience through career meaning may therefore be intensified in societies with a strong culture of education. We hypothesize.

Hypothesis 4a. *The positive relationship between age and career meaning is moderated by country-level culture of education such that the relationship is stronger when the culture of education is stronger.*

Hypothesis 4b. *The indirect relationship between age and career resilience via career meaning is moderated by country-level culture of education such that the indirect relationship is stronger when the culture of education is stronger.*

3 | Methods

3.1 | Procedure and Sample

To test our hypotheses, we collected data from multiple sources. First, we obtained archival country data from existing databases, such as the World Bank and OECD databases. Second, we matched the archival data with individual data, which was obtained via an online survey of managers and professionals from 28 countries (Argentina, Australia, Austria, Belgium, Brazil, Canada, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, South Korea, Lithuania, Mexico, the Netherlands, Norway, Serbia, the Slovak Republic, Slovenia, Spain, Switzerland, Thailand, Turkey, the United Kingdom, the United States) between December 2020 and September 2021. The data collection was undertaken by a partner in each country and revolved around four main strategies: namely, through the use of panel providers; alumni lists and personal contacts; social media platforms

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(especially LinkedIn); and requests for reposting and snowballing. The countries varied in the extent to which they relied on each of these due to ease of access, the results obtained via each strategy, etc. After data cleaning, a total of 6772 completed questionnaires were used in the final analyses. The average number of respondents per country was 240, and the median number of respondents per country was 208. On average, the respondents were 45 years old (SD = 12); 44% and 56% of them reported a managerial or professional occupation, respectively. In terms of sector, 65% of the respondents worked in the private sector and 31% in the public sector, with the remaining 4% not providing this information. With regard to industry, "educational services" (14%) was the most represented in the sample, followed by both "healthcare and social assistance" and "technical and scientific services" (11% each), and "manufacturing" (10%).

3.2 | Measures

Career resilience was measured with a five-item scale from London (1993), with response options ranging from "low, less developed, would like to improve" (1) to "high, well developed, no improvement needed" (5). A sample item is "Please indicate how developed you are in the following aspects of your career... able to adapt to changing circumstances (in your career)". London (1993) reported medium to strong positive relationships with career resilience and the other theoretically similar variables, career insight and career identity. The scale demonstrated predictive validity with self-reported salary and general career satisfaction (Peeters, Caniëls, and Verbruggen 2022). The internal consistency was 0.83.

Career optimism was measured with a three-item scale from McIlveen, Burton, and Beccaria (2013), with response options ranging from "strongly disagree" (1) to "strongly agree" (5). A sample item is "I am eager to pursue my career dreams". This scale scores well, concerning the best standards for scale development (Eva et al. 2020) while also having the advantage of being short—and therefore parsimonious in this type of large-scale data collection. The internal consistency was 0.81.

Career meaning was measured with the four-item positive meaning subscale of the Work and Meaning Inventory (WAMI) scale (Steger, Dik, and Duffy (2012), with response options ranging from "absolutely untrue" (1) to "absolutely true" (5). A sample item is "I have a good sense of what makes my job meaningful". This scale was chosen because it captures the construct well, avoiding conflating it with its antecedents or outcomes (Allan et al. 2019). The internal consistency was 0.91.

Age was measured by asking the employees to indicate their chronological age in years, which was then rescaled by 10 to facilitate the interpretation of coefficients.

Unemployment rate was measured as the percentage of citizens between 15 and 64 not working but actively seeking employment in 2019[1] (OECD 2022). In our sample of 28 countries, the unemployment rate ranged from 0.007 to 0.175 (M = 0.06, SD = 0.039), suggesting that on average 6% of the working age population (15–64) was unemployed.

Culture of education was measured using three proxies, as suggested by Kavadias, Spruyt, and Kuppens (2024): (1) government expenditure on education as a percentage of the Gross Domestic Product (GDP); (2) number of researchers per million inhabitants; and (3) trust in the educational system, as reported in the World Values Survey and the European Values Study (for more details, see Kavadias, Spruyt, and Kuppens 2024). Due to different measurement scales, we standardized the values, averaged, and rescaled the score for easier interpretability to range between 0 and 1, so that in our sample of 28 countries, the culture of education ranged from 0.3 to 0.99 (M = 0.60, SD = 0.17). The internal consistency was 0.68.

Control variables. We considered several control variables (gender, occupation, education, hierarchical level, industry, and organizational size), yet, as none of these showed substantial relationships with our study variables (see Table 1), we tested our hypotheses both with and without control variables. The pattern of results was the same in both cases, which supports the robustness of our findings. We report the results without control variables (Bernerth and Aguinis 2016).

TABLE 1 | Descriptive statistics, intercorrelations, and reliability coefficients of study variables.

	Variables	*M*	SD	1	2	3	4	5	6	7	8	9
1	Age	45.64	11.85	—								
2	Gender	0.50	0.50	**0.15**	—							
3	Education	5.43	1.02	−0.01	−0.02	—						
4	Occupation	0.44	0.50	**0.12**	**0.15**	**−0.15**	—					
5	Hierarchical level	4.42	1.54	**0.25**	**0.11**	−0.03	**0.32**	—				
6	Number of employees	3.67	1.66	**−0.06**	0.02	**0.12**	0.01	**−0.31**	—			
7	Career optimism	3.43	0.94	**−0.18**	−0.04	0.03	**0.07**	**0.10**	0.01	*0.81*		
8	Career meaning	3.88	0.88	**0.10**	**−0.08**	0.04	0.02	**0.15**	−0.03	**0.44**	*0.91*	
9	Career resilience	3.78	0.71	−0.03	−0.03	**0.08**	**0.11**	**0.12**	0.04	**0.37**	**0.38**	*0.83*

Note: N = 6727–6772 (pairwise). Gender (0 = female, 1 = male), occupation (0 = professionals, 1 = managers), education (from 1 = early childhood and primary education to 7 = doctorate or equivalent); hierarchical level (from 1 = lowest to 7 = highest); and the size of the organization (i.e., number of employees; from 1 = fewer than 10 employees to 6 = more than 5000 employees); reliability coefficients are presented on the diagonal; correlation coefficients in bold are significant at $p < 0.001$.

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3.3 | Analysis

The test for measurement invariance, following the alignment procedure in Mplus as suggested by Asparouhov and Muthén (2014) for large country projects, permits non-invariance across all loadings and intercepts to be 25%. The results suggested high levels of invariance across the 28 participating countries, as the total invariance across both intercepts and loadings for the three scales were 13%, 9%, and 23%.

Confirmatory factor analysis supported the proposed factor structure, as it revealed that the three-factor model (separate factors for career resilience, positive career meaning, and career optimism; $\chi^2 = 815.57$, $p < 0.001$, $df = 51$, CFI = 0.98, TLI = 0.97, RMSEA = 0.046, SRMR = 0.026) yielded a better fit than the two-factor model (positive career meaning, and career optimism loading on one factor; $\chi^2 = 6237.75$, $p < 0.001$, $df = 53$, CFI = 0.84, TLI = 0.80, RMSEA = 0.129, SRMR = 0.086; $\Delta\chi 2 = 5422.18$, $df = 2$, $p < 0.001$) or the one-factor model (all three individual-level reflective constructs loading on one factor; $\chi^2 = 14456.57$, $p < 0.001$, $df = 54$, CFI = 0.63, TLI = 0.55, RMSEA = 0.196, SRMR = 0.134; $\Delta\chi 2 = 13641.00$, $df = 3$, $p < 0.001$). At the request of an anonymous reviewer, we conducted separate CFAs per country with results presented in online Appendix A (https://osf.io/qtrg7/?view_only=94067d5ac5804f258350198d245c34f9).

We used conventional multi-level modeling[2] (CMLM, González-Romá and Hernández 2023) in Mplus 8.8 (Muthén and Muthén 1998–2022) with maximum likelihood estimation with robust standard errors (MLR) to test the hypotheses. As per the methodological recommendations (Antonakis, Bastardoz, and Rönkkö 2021; González-Romá and Hernández 2023), we used centered within context with reintroduction of the subtracted means (CWC(M)) models to avoid the conflation between the within and between cluster variances. As recommended by Enders and Tofighi (2007), all within-country variables were group-mean centered, and all between-country variables were grand-mean centered. For the multilevel mediation analysis, we used Monte Carlo techniques implemented in R to obtain confidence intervals for the non-normally distributed indirect effects (Preacher and Selig 2012). Before testing our hypotheses, we first estimated null models, which revealed that the intra-class correlations (ICC) for career resilience (0.098), positive career meaning (0.075), and career optimism (0.111) were large enough to warrant a multi-level approach.

To address potential concerns regarding common method bias (CMB), we conducted supplemental analyses using a marker variable—the use of nutrition information (Moorman 1998). These analyses revealed negligible correlations with key study variables, and the CFA Marker Technique indicated that the common method factor accounted for a modest portion of item variance. Together, these results suggest that CMB does not pose a significant threat to the validity of our findings. Full details of these and other supplemental analyses are presented in online Appendices B–D.

4 | Results

The descriptive statistics and correlations are presented in Table 1. The descriptive statistics of the study variables by country are presented in online Appendix E. The results of our multilevel path model are reported in Tables 2 and 3. In support

TABLE 2 | Results of the multilevel modeling.

	Career optimism		Career meaning		Career resilience	
Variables	**Estimate**	**S.E.**	**Estimate**	**S.E.**	**Estimate**	**S.E.**
Intercept	3.48***	0.06	3.92***	0.05	3.81***	0.04
Level-1 (individual-level) predictors						
Age	−0.14***	0.02	0.10***	0.01	0.03*	0.02
Career optimism					0.18***	0.02
Career meaning					0.20***	0.03
Level 2 (national-level) predictors						
Unemployment rate	0.11	1.05			0.45	0.97
Culture of education			0.44**	0.17	0.02	0.18
Cross-level moderation effects						
Age x unemployment rate	−1.78**	0.58				
Age x culture of education			0.16**	0.06		
Variance components						
Residual variance of the random slope between age and career optimism	0.01**	0.00				
Residual variance of the random slope between age and career meaning			0.00	0.00		
Level-1 residual variance	0.75***	0.03	0.70***	0.03	0.38***	0.03
Level-2 residual variance	0.10***	0.03	0.06**	0.02	0.05**	0.02

Note: Level 1: $N = 6{,}772$, Level 2: $N = 28$. Unstandardized coefficients.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

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of H1a, age was negatively related to career optimism ($\gamma = -0.14$, $p < 0.001$), which, in turn, was positively related to career resilience ($\gamma = 0.18$, $p < 0.001$). The indirect relationship between age and career resilience as mediated by career optimism was negative and significant (−0.024; 95% CI = −0.033, −0.017), providing support for H1b.

TABLE 3 | Results of the mediation and the moderated mediation effects.

Indirect effects	Point estimate	95% confidence interval
Total indirect effect	−0.004	[−0.015, 0.006]
Career optimism as a mediator		
Indirect effect	**−0.024**	[−0.033, −0.017]
Index of moderated mediation	**−0.322**	[−0.543, −0.118]
Conditional indirect effects		
High unemployment rate (+1 *SD*)	**−0.037**	[−0.051, −0.024]
Low unemployment rate (−1 *SD*)	**−0.012**	[−0.020, −0.004]
Career meaning as a mediator		
Indirect effect	**0.021**	[0.015, 0.027]
Index of moderated mediation	**0.031**	[0.008, 0.059]
Conditional indirect effects		
High culture of education (+1 *SD*)	**0.026**	[0.018, 0.035]
Low culture of education (−1 *SD*)	**0.015**	[0.009, 0.022]

Note: Level 1: $N = 6{,}772$, Level 2: $N = 28$. Bold coefficients are significant based on 95% Monte Carlo confidence intervals (20000 repetitions).

Next, we examined whether the relationship between age and career optimism depends on the unemployment rate in a country. This moderation effect is illustrated in Figure 2. As presented in Table 2, the interaction term of age and unemployment rate was significant in predicting career optimism ($\gamma = -1.78$, $p < 0.001$), supporting H2a. A simple slope analysis indicated that the age effect for countries with a high unemployment rate (i.e., one standard deviation above the mean) was stronger ($\gamma = -0.21$, $p < 0.001$) than the effect for countries with a low unemployment rate (i.e., one standard deviation below the mean; $\gamma = -0.07$, $p = 0.004$). We also examined whether the unemployment rate shaped the indirect relationship between age and career resilience via career optimism (Table 3). Supporting H2b, the findings indicated that this indirect relationship differed across countries with different levels of unemployment rate. Specifically, at higher levels of unemployment rate (i.e., one standard deviation above the mean), the conditional indirect relationship between age and career resilience via career optimism was −0.037 (95% CI = −0.051, −0.024), while at lower levels of unemployment rate (i.e., one standard deviation below the mean), the conditional indirect relationship between age and career resilience via career optimism was −0.012 (95% CI = −0.020, −0.004). The index of moderated mediation was significant, as its 95% CI excluded zero (−0.322; 95% CI = −0.543, −0.118).

Further, in support of H3a, age was positively related to career meaning ($\gamma = 0.10$, $p < 0.001$), which, in turn, was positively related to career resilience ($\gamma = 0.20$, $p < 0.001$). The indirect relationship between age and career resilience as mediated by career meaning was positive and significant (0.021; 95% CI = 0.015, 0.027), supporting H3b.

Next, we examined whether the relationship between age and career meaning depends on the culture of education in a country. This moderation effect is illustrated in Figure 3. As shown in Table 2, the interaction term of age and educational culture was

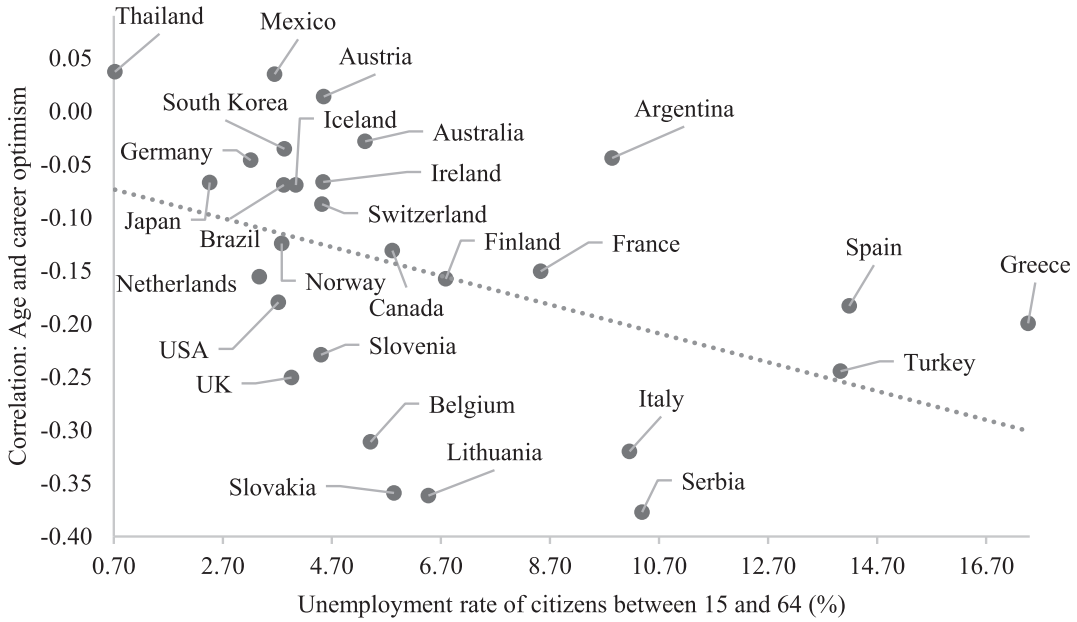


FIGURE 2 | The effect of unemployment rate on the relationship between age and career optimism.

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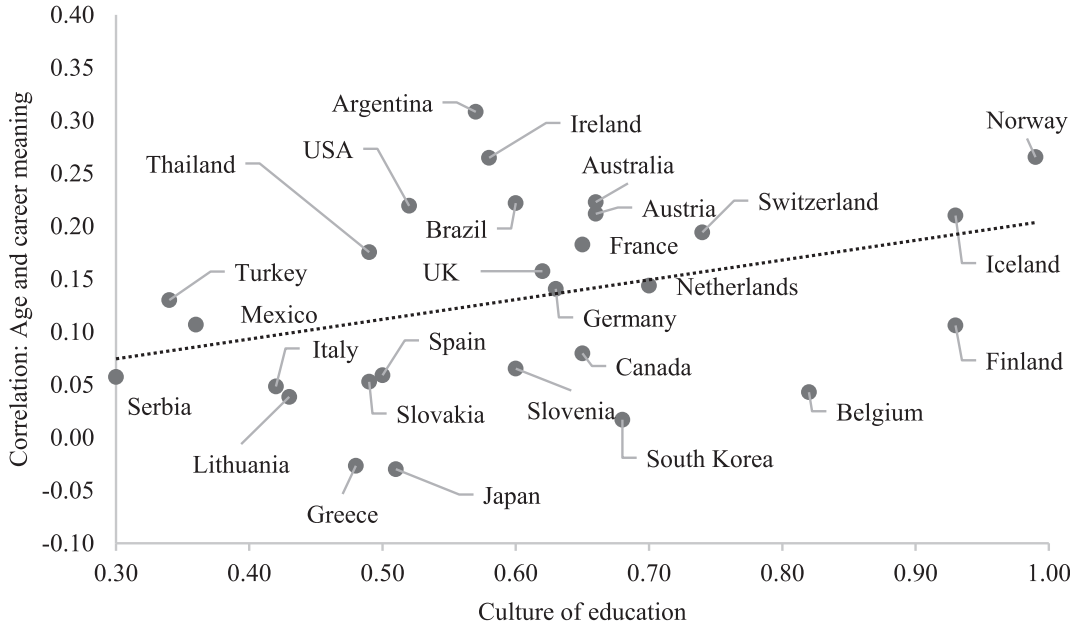


FIGURE 3 | The effect of the culture of education on the relationship between age and positive career meaning.

significant in predicting career meaning ($\gamma = 0.16$, $p = 0.005$), supporting H4a. A simple slope analysis indicated that the age effect for countries with high educational culture (i.e., one standard deviation above the mean) was stronger ($\gamma = 0.13$; $p < 0.001$) than the effect for countries with low educational culture (i.e., one standard deviation below the mean; $\gamma = 0.08$; $p < 0.001$). Next, we tested if educational culture also moderated the indirect relationship between age and career resilience via career meaning. Supporting H4b, this indirect relationship also differed across countries with different levels of educational culture. Specifically, at higher levels of educational culture (i.e., one standard deviation above the mean), the conditional indirect relationship between age and career resilience via career meaning was 0.026 (95% CI = 0.018, 0.035), while at lower levels of educational culture (i.e., one standard deviation below the mean), the conditional indirect relationship between age and career resilience via career meaning was 0.015 (95% CI = 0.009, 0.022).

5 | Discussion

Despite the extension of working lives and the growing need to sustain career resilience in many aging societies worldwide, especially as a result of the Covid-19 pandemic, the existing research has yet to provide a comprehensive theoretical understanding of career resilience throughout the life course as embedded in the country's socio-economic context. Prevalent age-based stereotypes suggest decreasing career resilience across the life course, while studies on age and career resilience report mixed findings. To resolve this puzzle, we proposed a dual mechanism—career optimism and career meaning—as a novel pathway to sustaining career resilience across the life course, which is strengthened under certain socio-economic conditions in a country. Our findings, based on 6772 individuals from 28 countries, are consistent with our theoretical model suggesting that age influences career resilience in two opposing ways: negatively through lower career optimism and positively through increased career meaning. Additionally, these relationships vary by country-level factors—higher unemployment rates strengthen the negative link between age and career optimism, while a stronger culture of education reinforces the positive link between age and career meaning. Together our study showcases the importance of context-dependent research using multi-level models to explain career outcomes, rather than the single-level studies that dominate the extant research in HRM and career management (Farndale et al. 2023).

5.1 | Implications for Theory

Our findings have implications for both career and aging at work literature. First, the present study advances our current understanding of career resilience across the life course by providing an integrated theoretical model that helps resolve a growing disagreement in extant studies and reconciles previous mixed results in career resilience research. Extant studies predominantly focus on isolated aspects of career resilience from either individual or organizational perspectives (Mishra and McDonald 2017). By leveraging life course theory, we provide a more fine-grained picture of whether, why, and when career resilience varies at different ages, depending on the specific combination of macro-contextual conditions and individual resources. In doing this, we integrate and reconcile unit theories explaining the relationship between age and career resilience into a coherent framework, that is, programmatic theory (Cronin, Stouten, and Van Knippenberg 2021). Specifically, our findings provide support for our conceptual model not only showing that multidirectional opposing mechanisms acting in parallel (i.e., career optimism and career meaning) explain the relationship between age and career resilience but that these mechanisms are embedded in socio-economic contexts, such as unemployment and the culture of education in a country. This integration advances theory by addressing the gap highlighted

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by Cronin, Stouten, and Van Knippenberg (2021) in refining conceptual explanations and boundaries in theory building. In this way, we move the conversation on lifelong career resilience forward from whether older workers can maintain resilience over their career course to how they can maintain it on an individual level and which institutional context variables are conducive to life course career resilience. Despite repeated calls for more multi-level research integrating both person-related mechanisms that cause age-related variability in important career outcomes, as well as macro-level contextual conditions of these mechanisms (Tomlinson et al. 2018; Zacher and Froidevaux 2021), to our knowledge, no studies have yet adopted a multi-level approach to investigating lifespan career resilience.

Second, drawing on Budhwar et al.'s (2024) emphasis on contextualized HRM research, our study emphasizes the importance of "the broader context in which modern careers unfold" (Zacher and Froidevaux 2021, 2) as a central concern in career research that can help explain why individuals in some countries are more or less likely to experience decreasing career resilience at an older age. Career literature has been criticized for being "highly individualized and overly agentic" (Tomlinson et al. 2018, 6). Even though researchers emphasize that career resilience may be a function of national institutions and suggest that further research should be conducted on their role (Jogulu and Franken 2023), existing studies tend to focus on single-country samples and ignore the between-country variance due to socio-economic conditions. In contrast, grounded in the contextualist perspective of the life course theory (Elder Jr, Johnson, and Crosnoe 2003) and relying on a large sample from 28 countries, we explain how life course career development is embedded and shaped by institutional contexts, creating structured dependency (Townsend 2006). Often overlooked by career researchers, these structural socio-economic factors reflect norms about the typical entry and exit points into and out of employment and education that drive workers' values, attitudes, and behaviors (Mayer 1986). We suggest that the unemployment rate increases age-based discrimination, and hereby accelerates the negative trajectory of career optimism for older workers (Bown-Wilson and Parry 2013), while a strong culture of education fosters a social norm of a lifelong dedication to learning and the pursuit of meaningful roles at work (Kousar et al. 2023; Patel and Annapoorna 2019). This approach responds to Budhwar et al.'s (2024) call for integrating macro-contextual factors into HRM research, bridging micro-macro gaps, and providing a framework for understanding the influence of socio-economic factors on individual career attitudes. Our focus on the underexplored path through which socio-economic factors influence individual-level attitudes and behaviors resonates with the debate on bridging the micro-macro gap in management theories (Cowen et al. 2022) and opens up new avenues for future research. While our supplemental analyses provide some support for our theorizing, suggesting that amplified age-based discrimination maybe associated with increased unemployment and is likely responsible for age-related decreases in career optimism, further studies are needed to investigate the role of various shared norms as mechanisms between country-level socio-economic factors and individual career behaviors.

Finally, our study also has implications for aging at work literature and addresses recent calls to systematically analyze the mechanisms in the bivariate relationship between age and career outcomes (Zacher and Froidevaux 2021). Although the literature acknowledges that aging at work may follow multiple divergent change trajectories (Kanfer and Ackerman 2004; Scheibe and Kooij 2024), extant studies have mostly relied on single explanatory mechanisms and have rarely considered the interplay of both age-related career benefits and losses to explain different career outcomes. Our study advances the literature by illustrating the usefulness of considering multiple divergent mechanisms acting in parallel and challenging the somewhat simplistic view of how career development is shaped across the life course. Due to decreasing occupational opportunities, older individuals perceive lower career optimism (Bown-Wilson and Parry 2013). At the same time, older individuals are more likely to find their careers personally meaningful because of their heightened awareness and life-long self-selection into work roles that increasingly align with their personal needs (Goštautaitė et al. 2020). By demonstrating the importance of these parallel diverging resource trajectories as a result of aging, our study sets the stage for a more nuanced view of career development across the life course in HRM literature.

5.2 | Limitations and Future Research

The present study also has limitations. The first limitation concerns the cross-sectional design that prevents us from making causal inferences; this design however was necessary to achieve the large and multi-country sample that reinforced our conclusions. We believe our methodology supports covariation, a prerequisite for causality (Spector 2019), and enhances the model's generalizability while illuminating country differences. Future research might focus on exploring causal relationships by adopting a longitudinal design and examining how career meaning and career optimism change as individuals evolve throughout their life courses and how these effects differ for different occupations and industries. A second limitation pertains to the scale of career resilience used in this paper, which mostly covered aspects of adaptation and resistance to career disruptions, leaving unexplored more proactive aspects, such as anticipation (Raetze et al. 2022).

5.3 | Practical Implications

This study has important practical implications for various stakeholders. Individuals can become better aware of their career resilience. For example, knowing that with a more mature age, a person may experience lower career optimism, which in return might lower one's career resilience, individual employees can compensate for this by actively seeking out opportunities that further enhance their strengths, namely, perceived career meaning. For organizations and HRM professionals, efforts could be directed at designing HRM systems that create a higher sense of meaning (e.g., by emphasizing person-job and person-organization fit; Eva et al. 2020), as well as greater optimism (e.g., developmental practices; Eva et al. 2020). At the state level, this study helps to raise awareness of the need to examine the impact of unemployment and

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education policies on the status of older workers and the extent to which they enable them to participate in working life.

Acknowledgments

This multiauthor research team strived to maximize the benefits of international collaboration while upholding research standards. This was critical to our ability to answer our research questions which require a multi-country approach and thousands of respondents. All authors contributed to forming the research concept through virtual and hybrid meetings, with most involved in collecting data across study countries in some capacity. The first 23 authors engaged in preliminary data analysis and discussions through virtual and hybrid meetings. Among them, seven core authors refined these collective insights further. The initial manuscript was composed by the leading seven before soliciting and incorporating comprehensive feedback from all collaborators. The resulting final draft, approved for submission by every author, embodies the collective contributions and perspectives of all 51 research team members, each ready to stand by its design, development and findings. This inclusive approach was also applied during revision phases, enhancing the study's extensive dataset and bolstering the credibility of our findings, an outcome we believe a smaller group would not have achieved.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Research data are not shared.

Endnotes

[1] We retrieved data from the OECD database for 24 countries and from official national sources for the remaining 4 countries.

[2] We used the Conventional Multilevel Modeling (CMLM) as opposed to Multilevel Structural Equation Modeling (MLSEM) (González-Romá and Hernández 2023) because our study's primary objective was to explore the relationships between variables across different levels of analysis (e.g., individual- and country-level), making it essential to account for the hierarchical structure of the data. Multilevel path analysis allows us to directly model these relationships and examine cross-level interactions, providing a clear picture of how variables at one level (i.e., country-level) can influence outcomes at another (individual-level career outcomes such as positive career meaning and career optimism). Moreover, according to recommendations (González-Romá and Hernández 2023), CMLM has several advantages in comparison with MLSEM: it shows fewer convergence problems and requires smaller samples to reach similar power levels. Finally, as our Level 2 variables are operationalized as global L2 variables (Klein and Kozlowski 2000) with no L1 analog, there is no need to correct for measurement error.

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