

ARTICLES

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MENTAL DEMANDS AND THRIVING OF OLDER WORKERS: THE ROLE OF WORK ABILITY

Exigências mentais e prosperidade dos trabalhadores mais velhos: O papel da capacidade para o trabalho

Exigencias mentales y prosperidad de los trabajadores mayores: El papel de la capacidad laboral

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ABSTRACT

The aging of the working population and the increasing mental demands at work represent a challenge to the sustainability of working life and the organizations' competitiveness. Research has focused on thriving at work as a proxy for career sustainability, particularly in its final phase. However, there is limited knowledge about the mechanisms underlying the relationship between thriving and its antecedents. This study aims to examine the mediating role of work ability in the relationship between mental demands at work and thriving among older workers. A sample of 163 workers responded to an online questionnaire. Results support the mediation hypothesis, but the direct effect of mental demands on thriving was insignificant, emphasizing the importance of work ability. Theoretical and practical implications are discussed.

Keywords: Mental demands, work ability, thriving at work, older workers, aging.

RESUMO

O envelhecimento da população ativa e as crescentes exigências mentais no trabalho representam um desafio para a sustentabilidade da vida profissional e para a competitividade das organizações. A investigação tem-se debruçado sobre a prosperidade no trabalho como um proxy da sustentabilidade de carreira, particularmente na sua fase final. No entanto, pouco ainda se sabe sobre os mecanismos subjacentes às relações entre prosperidade e seus antecedentes. O objetivo deste estudo é examinar o papel mediador da capacidade para o trabalho na relação entre as exigências mentais do trabalho e a prosperidade no grupo dos trabalhadores mais velhos. Uma amostra de 163 trabalhadores respondeu a um questionário on-line. Os resultados suportam a hipótese de mediação, mas o efeito direto das exigências mentais na prosperidade não foi significativo, o que enfatiza a importância da capacidade para o trabalho. As implicações teóricas e práticas são discutidas.

Palavras-chave: Exigências mentais, capacidade para o trabalho, prosperidade no trabalho, trabalhadores mais velhos, envelhecimento.

RESUMEN

El envejecimiento de la población activa y el aumento de las exigencias mentales en el trabajo representan un reto para la sostenibilidad de la vida laboral y la competitividad de las organizaciones. La investigación se ha centrado en la prosperidad en el trabajo como indicador proxy de la sostenibilidad de la carrera, especialmente en su fase final. Sin embargo, aún se sabe poco sobre los mecanismos que subyacen a la relación entre la prosperidad y sus antecedentes. El objetivo de este estudio es examinar el papel mediador de la capacidad de trabajo en la relación entre las exigencias mentales del trabajo y la prosperidad en el grupo de trabajadores mayores. Una muestra de 163 trabajadores respondió a un cuestionario online. Los resultados apoyan la hipótesis de mediación, pero el efecto directo de las demandas mentales sobre la prosperidad no fue significativo, lo que subraya la importancia de la capacidad de trabajo. Se discuten las implicaciones teóricas y prácticas.

Palabras clave: Exigencias mentales, capacidad de trabajo, prosperidad en el trabajo, trabajadores mayores, envejecimiento.

INTRODUCTION

Since the end of the 20th century, demographic aging has been increasing globally. The United Nations (2019) called it the “longevity revolution,” triggered by the reduction in early deaths and serious illnesses, thanks to advances in recent decades in areas such as public health and medicine, as well as improvements in countries’ economic and social status. According to the United Nations, this demographic aging and greater longevity have sparked an ongoing debate regarding the sustainability of social security systems (United Nations, 2019). Furthermore, Boissoneault et al. (2020) emphasize the increase in the participation of older workers in the workforce since 1990. In this context, Henkens (2022) argues that these demographic changes have influenced how individuals perceive their professional lives and how companies manage their human resources.

The future of professional life entails expansion, as workers must navigate uncertainties and risks, assume new responsibilities, and even embrace new roles (Vos et al., 2020). Consequently, due to this extension of working life, society, organizations, and individuals must consider postponing retirement while fostering workers’ motivation, performance, and health throughout their careers (Boehm et al., 2021).

At the same time, the nature of work has undergone significant changes due to economic and technological transformations in recent decades (Johnson et al., 2011; Vos & Heijden, 2017). While many jobs were once predominantly physically demanding, such as factory work and cargo handling, today, many professions and services are characterized by complexity and mental demands (Johnson et al., 2011). Rapid technological advancements, constant innovation, and a high level of knowledge in job tasks are current challenges that workers and organizations must manage (Vos & Heijden, 2017). As we entered the 21st century, these workplace transformations began to influence when workers will retire, leading to more prolonged professional careers (Johnson et al., 2011).

These particular changes in the world of work have prompted research aimed at identifying factors that contribute to longer and healthier careers (Picco et al., 2022; Vos et al., 2020), with a particular emphasis on organizations as facilitators of extending the working lives of older employees (Boehm et al., 2021). Job demands and human resources practices have been recognized as significant factors for career sustainability (Heijden et al., 2020; Vos et al., 2020). Consequently, this study focuses on the organization’s role in promoting positive work experiences throughout one’s career. It aims to analyze the influence of mental demands on the thriving at work of older employees and explore the mediating role of work ability in this relationship.

According to Bakker and Demerouti’s (2007) Job Demand-Resources (JD-R) model, job demands are a crucial aspect of job analysis. Such demands refer to the characteristics of the work that require effort or physical and/or psychological capabilities, and the absence of resources to cope with them may harm the individual. High levels of job demands combined with a scarcity of resources, such as autonomy or feedback, can ultimately affect the individuals’ ability to perform their work (Bakker & Demerouti, 2007; Brady et al., 2020).

Work ability is defined as an individual’s perception of their ability, including mental and physical resources, to meet the demands of their job (Cadiz et al., 2019; Sousa et al., 2019). This

concept has garnered significant attention from both the scientific community and employers. It is particularly relevant as they seek ways to address the implications of an aging workforce and explore strategies to maintain and enhance the work ability of their employees, in order to avoid an early retirement (Cadiz et al., 2019).

Career sustainability encompasses various characteristics such as satisfaction, security, well-being, and the potential for career growth (Vos & Heijden, 2017). One noteworthy concept in this context is “thriving at work”, which reflects an individual’s psychological state characterized by a sense of progress and dynamism in their self-development (Spreitzer et al., 2005). Empirical evidence suggests that when older workers experience this state of thriving, they tend to report higher levels of perceived employability, indicating more positive self-evaluations of their careers (Goh et al., 2022).

Despite the notable research on thriving at work in the last decade (Abid & Contreras, 2022; Goh et al., 2022), there is still a need for further elaboration on the role of job demands and work ability as their antecedents. On the one hand, there are mixed results regarding whether demands promote or hinder thriving (Goh et al., 2022). On the other hand, to the best of our knowledge, no studies have explored the relationship between work ability and thriving, which is a suggestion for future research made by Kleine et al. (2023).

Considering the COVID-19 pandemic as a career shock (Akkermans et al., 2020), this study offers a comprehensive insight into how individuals are navigating the current changes in the mental demands of their work and how these changes impact their sense of thriving. Furthermore, this research addresses the call by Vos et al. (2020) to investigate the career sustainability of various worker groups, including older individuals. As such, this study makes significant contributions to the literature on the well-being and job satisfaction of an age group that has been increasingly recognized as “senior talent” in recent decades despite employment rates that still lag behind those of other age groups (as observed in data from Pordata, 2023).

LITERATURE REVIEW

Mental demands of work

In recent decades, we have witnessed profound changes in the nature of work demands and their effects on individuals. Technological advances, the digitization of work processes, and economic shifts have led to a decline in jobs that primarily rely on physical labor and, consequently, a rise in jobs that primarily require mental effort (Johnson et al., 2011).

Under the JD-R model, job demands encompass any physical, psychological, social, or organizational aspect that requires effort or continued competence (physical and/or psychological, cognitive, and emotional) and is associated with certain physiological and/or psychological costs (Bakker & Demerouti, 2007; Demerouti & Bakker, 2011). Although these demands are not inherently negative, they may be stressors when individuals do not adequately recover from the effort to address them (Demerouti & Bakker, 2011).

Although the literature presents categorizations that may vary slightly, we define mental demands as aspects of task performance or coordination that require continuous mental effort and involve memory, information processing, decision-making, attention, and learning requirements in the workplace (Abbasi & Bordia, 2019; Sluiter, 2006). In this sense, mental demands concern indicators such as ambiguity, direct role conflict, time pressure, workload, and problem-solving (Abbasi & Bordia, 2019; Demerouti & Bakker, 2011).

Previous research indicates that exposure to high job demands can lead to various adverse outcomes, including tension, anxiety, depression, emotional exhaustion, and sleep issues (Bakker & Demerouti, 2007), as well as poor psychological well-being, stress, coronary heart disease, among others (Abbasi & Bordia, 2019). Furthermore, certain job demands, such as time pressure, ambiguity, and work overload, have also been identified as antecedents of thriving (Goh et al., 2022). In a similar vein, mental demands have shown a negative relationship with work ability (Brady et al., 2020). When individuals report high levels of mental demands, they tend to perceive themselves as less capable of effectively performing their work.

The potential outcomes stemming from exposure to job demands, specifically the increasingly prevalent mental demands shaping the work landscape, are of particular significance when discussing an aging workforce. From the perspective of extending one's professional life and, consequently, postponing retirement, the significance of job demands and the organizations' role in optimizing them while maintaining competitiveness (Boehm et al., 2021) are topics to be addressed regarding career sustainability. In this context, studying these types of job demands and their relationships with other variables is essential. This research is crucial to ensure that older workers, who may find it challenging to meet previously established standards (e.g., retirement at a certain age), can envision and experience the extension of their professional lives in a positive, sustainable, and dignified manner. Such a positive experience throughout one's career encompasses various inherent components, including thriving.

Thriving at work

According to the World Health Organization (2022), thriving indicates good mental health, and the workplace is critical in preventing psychological issues. Since individuals dedicate a significant portion of their time to work, it is essential to consider the concept of thriving within this context. This has led to the emergence of the concept of "thriving at work" (Spreitzer et al., 2005)

Spreitzer et al. (2005) define thriving at work as a two-dimensional psychological state characterized by a sense of vitality and learning. In essence, thriving entails individuals experiencing a feeling of progress and dynamism in their self-development, which allows them to augment their resources rather than deplete them (Porath et al., 2012; Spreitzer et al., 2005; Spreitzer et al., 2012). The work environment can significantly contribute to individuals experiencing this state of thriving when specific characteristics (e.g., decision-making power, information sharing) and resources (e.g., relational resources, positive affective resources) are present (Spreitzer et al., 2005).

This psychological state comprises two dimensions: vitality and learning. Vitality represents the affective component of this state and encompasses the experience of progress in life with enthusiasm, strength, pleasure, zeal, and energy. On the other hand, learning concerns the cognitive component and reflects the feeling that individuals are acquiring and applying their knowledge and skills (Porath et al., 2012; Spreitzer et al., 2005; Spreitzer et al., 2012). Vitality, often seen as the absence of fatigue, is generated through enthusiasm for work. Individuals who feel this energy and enthusiasm while performing their tasks tend to experience higher levels of vitality (Kleine et al., 2023). Furthermore, it is worth noting that high levels of vitality have been associated with increased engagement and reduced levels of exhaustion (Hakanen et al., 2019).

Learning refers to acquiring new competencies and knowledge (Spreitzer et al., 2012). This experience leads to assuming responsibilities and fulfills key psychological needs, such as competence, relationships, and autonomy, increasing workers' engagement in tasks and promoting collaboration in situations requiring their expertise (Kleine et al., 2023). Individuals engaged in this learning process are characterized by their willingness to challenge the *status quo*. They behave like self-thought professionals seeking new learning and development opportunities (Spreitzer et al., 2012).

For thriving to occur, individuals need to experience both learning and vitality. In other words, if an individual is learning a new procedure but feels exhausted and lacking energy and motivation for their work, the state of thriving is not achieved (Porath et al., 2012; Spreitzer et al., 2005). Similarly, if an individual has energy and motivation but lacks opportunities for learning and personal growth, the result is a feeling of stagnation rather than thriving (Spreitzer et al., 2012).

In recent decades, researchers have given special attention to the concept of thriving at work due to its pivotal role in career development, performance, and organizational sustainability (Abid & Contreras, 2022; Goh et al., 2022; Taneva & Arnold, 2018). Workers who perceive themselves as learning and possess the energy to carry out their tasks tend to exhibit higher job satisfaction, greater organizational commitment and reduced voluntary turnover intentions (Kleine et al., 2019; Porath et al., 2012). According to Spreitzer et al. (2005), individuals experiencing thriving at work are more disposed to generate resources, invest more effort in achieving organizational objectives effectively and efficiently, take the initiative in seeking career growth opportunities, exhibit resilience in the face of adversity, and maintain higher-quality relationships with co-workers. These authors also note that individuals who report thriving at work often extend this positive experience to their personal lives, impacting their interactions with family, friends, and the community. More recently, a study by Taneva and Arnold (2018) involving older workers revealed that thriving is an antecedent of performance at work.

When it comes to its antecedents, the literature has emphasized the influence of job demands, specifically time pressure, ambiguity, and role overload (Goh et al., 2022). On one hand, certain studies, such as Prem et al. (2017), report that demands like time pressure can have a positive relationship with thriving. It has been found that when individuals perceive time pressure as a challenge rather than an obstacle, it can foster a state of thriving by increasing their perception of learning. On the other hand, research like that by Jiang et al. (2019) shows that ambiguity is negatively related to thriving. Thus, when individuals lack clear information

regarding their roles at work, it reduces their opportunities to prosper. Additionally, at the level of organizational practices, factors like flexibility, recognition, and training opportunities exhibit significant positive relationships with this state of thriving (Goh et al., 2022).

The JD-R model is well-suited for explaining the relationship between mental demands and thriving at work, particularly through the motivational process (Bakker & Demerouti, 2007). In a workplace with reduced mental demands, individuals can allocate their resources toward opportunities that foster growth and development, resulting in high levels of energy and learning (Bakker & Demerouti, 2007; Demerouti & Bakker, 2011)

In summary, thriving is a fundamental psychological state for workers in their professional and personal lives, with countless advantages for individuals and organizations. However, this state can be significantly influenced by the various demands in all professions, and individuals may be harmed by excess or inadequacy of these demands (Bakker & Demerouti, 2007). Among these demands, mental demands, prevalent in contemporary work contexts, are antecedents of thriving and can also negatively impact it (Goh et al., 2022). This is especially pertinent for older individuals who contend with the challenges of the modern workplace (Henkens et al., 2018) and may experience natural physical and cognitive declines associated with aging (Tuomi et al., 2001). The effects of demands on their state of thriving and the potential explanatory variables for this relationship must be further studied. Despite the extensive literature on thriving, its antecedents, and consequences, unexplored relationships remain, such as the potential mechanisms to explain the link between mental demands and thriving. In this context, this study proposes to examine work ability as a mediator of this relationship.

The mediating role of work ability

Work ability is a crucial explanatory mechanism influencing older workers' well-being, attitudes, and behaviors, often regarded as their most valuable asset (Ilmarinen & Bonsdorff, 2016). It is defined as the ability (objective ability) or individuals' perception of their ability (perceived ability) to meet the demands of their work while maintaining functionality (Brady et al., 2020; Ilmarinen & Bonsdorff, 2016; McGonagle et al., 2015). Objective work ability involves reports on individuals' medical conditions, while perceived work ability solely pertains to individuals' perceptions of their ability to perform work (Brady et al., 2020; Cadiz et al., 2019). This study focuses explicitly on perceived work ability.

Work ability has been discussed as both a predictor and an outcome in the literature. It serves as a predictor of retirement intentions and age (Brady et al., 2020; Cadiz et al., 2019), sick leave (McGonagle et al., 2015), performance, and motivation (Brady et al., 2020). Individuals with good work ability tend to enjoy a higher quality of life, enhanced well-being, and a stronger interest in remaining in their roles (Tuomi et al., 2001). From the perspective of career longevity, and considering that work ability typically declines with age, it becomes a significant predictor of individuals' professional and life trajectories. Importantly, it exhibits a negative relationship with mortality, underlining its importance in the context of overall well-being and life outcomes (Cadiz et al., 2019).

The literature consistently demonstrates that work ability is influenced by job demands, including mental demands (Brady et al., 2020; Cadiz et al., 2019; McGonagle et al., 2015). However, the study of these variables has faced challenges due to inconsistencies in the conceptualization of mental demands and the operationalization of work ability (objective vs. perceived) (Cadiz et al., 2019). For example, McGonagle et al. (2013) discussed the decline in work ability as a result from job demands surpassing workers' resources and reported significant negative relationships between mental demands and work ability in one of the populations studied. Earlier studies, such as those conducted by Tuomi et al. (2001), also indicated that reducing both physical and mental demands can enhance work ability.

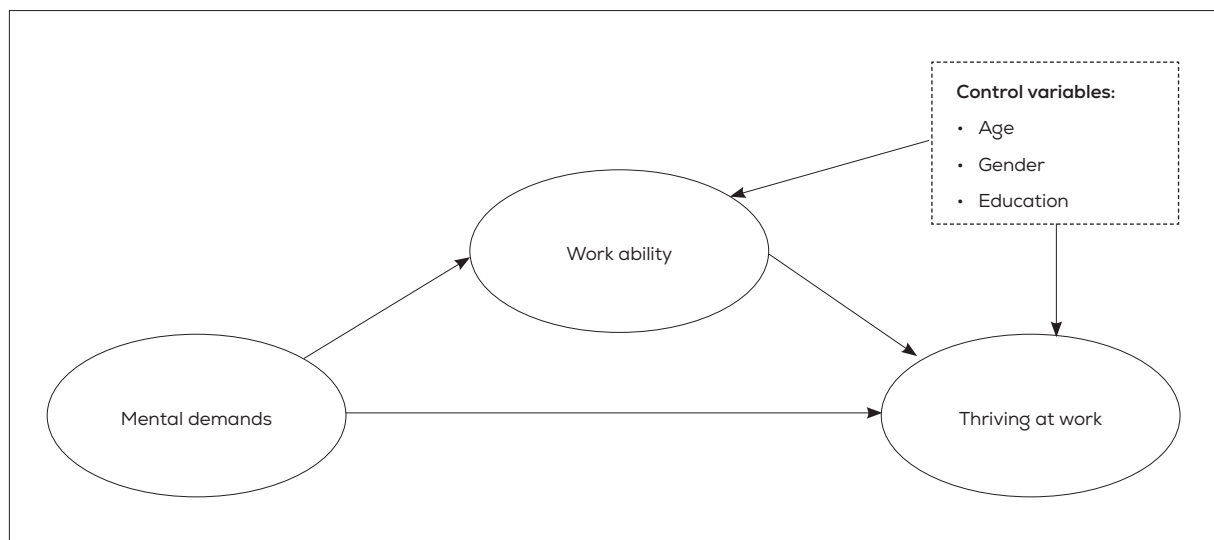
While the literature on the relationship between work ability and thriving is limited, Kleine et al. (2023) have shown that thriving is positively associated with both physical and mental health, hinting at a potential link with work ability – a measure related to health. Consequently, we propose that this connection could elucidate the relationship between mental demands and thriving in older workers. Following the health deterioration process outlined in the JD-R model, high mental demands may deplete an individual's resources, leading to a decline in work ability. Subsequently, the lack of resources to cope with these demands could diminish an individual's energy and morale, contributing to the perception that they are not learning or thriving in their work.

Thus, if older workers perceive their jobs as mentally demanding, this can negatively impact their perceived work ability, resulting in decreased thriving. Therefore, we formulate the following hypothesis:

H1: Work ability mediates the relationship between mental demands and thriving at work.

Figure 1 illustrates the proposed conceptual model.

Figure 1. Conceptual model



METHODOLOGY

Sample

The sample consists of 163 participants aged between 45 and 70 years ($M = 52.80$, $SD = 5.94$), and 63.8% of respondents were female. Regarding education level, 58.9% of participants completed higher education. Regarding tenure in the organization, 33.3% of participants had worked in the organization for ten years or less and 29.7% for over 25 years. Most participants did not have a leadership position (58.0%), and 82.0% were working in the face-to-face mode.

Procedures

A questionnaire was developed using the Qualtrics platform and then disseminated across the research team's various social media platforms and professional networks. The survey was accessible (in Portuguese) to participants between April and May 2022. To be eligible for inclusion in the sample, participants were required to be currently employed or self-employed and aged 45 years or older, following the criteria established by Billet et al. (2011).

The first page of the questionnaire included an informed consent statement. It presented the study's objectives, inclusion criteria, and estimated duration (approximately 5 to 7 minutes). Additionally, it assured participants of data confidentiality and anonymity. Participants were explicitly informed that there were no associated risks with participation and that they could withdraw from the study at any point. Upon providing their consent to participate, respondents gained access to the questionnaire's questions.

Measures

Mental demands

To assess the perceived mental demands of workers, a modified version of the Job Content Questionnaire (JCQ) by Karasek et al. (1998) was employed. The JCQ was previously adapted into Portuguese by Carvalho and Chambel (2014). This scale comprises seven items related to workload and time pressure, with each item rated on a scale from 1 ("Strongly disagree") to 5 ("Strongly agree"). For instance, one of the items reads, "My job requires me to work intensely." After conducting an internal consistency analysis, item number 7 ("I have to deal with contradictory demands in my work") was excluded from the analysis as its removal resulted in an increased Cronbach's alpha value. Therefore, the six-item scale exhibited good reliability ($\alpha=0.88$).

Work ability

The perceived work ability scale used here is based on a version employed by Sousa et al. (2019). This scale comprises four items related to individuals' perceptions of their current and future physical and mental capabilities. For example, one item reads, "How do you rate your current work ability in relation to mental demands?" Responses range from 1 ("Very poor") to 5 ("Very good"). The internal consistency of the scale is good ($\alpha=0.85$).

Thriving at work

The concept of thriving at work was assessed using a translation of the scale by Porath et al. (2012) into Portuguese. This scale evaluates the dimensions of vitality and learning and consists of 10 items, with five corresponding to the first dimension and the remainder to the second. The response scale varies from 1, indicating "Strongly disagree", to 7, indicating "Strongly agree". Sample items include "I have energy and spirit at work" (vitality) and "At work, I continue to learn more and more as time goes by" (learning). The scale, treated as unidimensional in this study, demonstrated very good internal consistency ($\alpha=0.91$).

Control variables

The model included several control variables: age (in years), gender (0 – Female, 1 – Male), and education (0 – No Higher Education, 1 – Higher Education). Prior research has shown weak but significant correlations between these demographic variables and both work ability (Cadiz et al., 2019) and thriving at work (Kleine et al., 2019).

Data Analysis Strategy

The SPSS v.28 was utilized to conduct descriptive data analysis (including means, standard deviations, and correlations), assess measurement reliability via Cronbach's alpha, and perform factor analysis using Principal Component Analysis (PCA). The structural equation model, comprising the measurement and structural models, was tested using AMOS v.28 software. The bootstrap sampling procedure determined the significance of direct and indirect effects, constructing a 95% confidence interval (95% CI) based on 5000 bootstrap samples. To evaluate the model's explanatory power, we initially tested a structural model (model 0) that solely considered the influence of control variables on work ability and thriving. Subsequently, the complete model (model 1) was assessed. Results are reported with two decimal places, except for confidence intervals and significance levels, where three decimal places are presented.

RESULTS

Measurement model and common method variance

In this study, we run a Confirmatory Factor Analysis (CFA) using the Maximum Likelihood estimation method to evaluate the measurement model. The results indicated a very good fit: $\chi^2 (df) = 229.45 (162)$, $p < 0.001$, $\chi^2 / df = 1.42$, $CFI = 0.97$, $TLI = 0.96$, $RMSEA = 0.05$, $SRMR = 0.06$. As displayed in Table 1, the measurement model exhibited superior fit indices compared to models with fewer factors, and these differences were statistically significant.

Table 1. Fit indexes for CFA: Base model and alternative models

Models	χ^2	df	p	χ^2/df	CFI	TLI	RMSEA	SRMR
Three-Factor Model (Base Model)	229.45	162	< 0.001	1.42	0.97	0.96	0.05	0.06
Two-Factor Model ^a	499.57	164	< 0.001	3.05	0.83	0.80	0.11	0.16
Two-Factor Model ^b	362.49	164	< 0.001	2.21	0.90	0.88	0.09	0.20
Two-Factor Model ^c	274.88	164	< 0.001	1.68	0.94	0.93	0.07	0.10
One-Factor Model (Harman's Test)	572.89	165	< 0.001	3.47	0.79	0.76	0.12	0.20

Note. χ^2 – Chi-squared, df – degrees of freedom, CFI – Comparative Fit Index, TLI – Tucker-Lewis Index, RMSEA – Root Mean Square Error of Approximation, SRMR – Standardized Root Mean Square Residual.

a Mental demands and work ability combined into a single factor, thriving at work as the second factor.

b Mental demands and thriving at work combined into a single factor, work ability as the second factor.

c Work ability and thriving at work combined into a single factor, mental demands as the second factor.

Source: Author's own work.

The reliability and validity of the constructs are detailed in Tables 2 and 3. All constructs demonstrated high internal reliability, as both Cronbach's alpha and Composite Reliability indicators exceeded 0.70 (Hair et al., 2010). The Average Variance Extracted (AVE) surpassed 0.50 for all constructs, indicating convergent validity (Hair et al., 2010). Concerning the assessment of discriminant validity, the Maximum Shared Variance (MSV) was consistently lower than the AVE for all constructs (see Tables 2 and 3). Additionally, the Fornell-Larcker criterion was satisfied, with the square root of the AVE exceeding the Pearson correlations (Fornell & Larcker, 1981) and the HTMT measure (Heterotrait-Monotrait Ratio) remaining below 0.85 (Henseler et al., 2015). These results confirm the discriminant validity of the studied constructs.

Table 2. Constructs Reliability and Convergent Validity

Construct	CR	CI 95% CR	AVE	CI 95% AVE
Mental demands	0.865	0.770-0.926	0.519	0.363-0.676
Work ability	0.838	0.717-0.915	0.573	0.410-0.732
Thriving at work	0.848	0.647-1.005	0.742	0.490-1.011

Note. CR – Composite reliability; AVE – Average Variance Extracted; CI 95% – Confidence Interval of 95%

Source: Author's own work.

Table 3. Constructs discriminant validity

Constructs	MSV	$\sqrt{\text{AVE}}$	HTMT	
			1	2
1. Mental demands	0.048	0.720		
2. Work ability	0.260	0.756	0.215	
3. Thriving at work	0.260	0.861	0.167	0.510

Note. MSV – Maximum Shared Variance; $\sqrt{\text{AVE}}$ – Square root of the Average Variance Extracted; HTMT – Heterotrait-Monotrait Ratio

Source: Author's own work.

Following Podsakoff et al.'s (2003) recommendation, we conducted Harman's single-factor test to examine potential biases in the results arising from common method variance (CMV). The single-factor model demonstrated a poor fit to the data (Table 1). Moreover, the factor analysis of all variables, based on the Kaiser criterion (i.e., eigenvalues greater than 1), indicated the presence of four factors, with the first factor explaining only 35.09% of the variance. These findings suggest that the risk of CMV significantly impacting the results is low.

Descriptive analysis

Table 4 presents the results of the descriptive analysis of the variables. On average, participants perceive a medium level of mental demands in their work ($M = 3.44$; $SD = 0.85$). These are negatively correlated with work ability ($r = -0.22$, $p = 0.005$) and thriving at work ($r = -0.18$, $p = 0.025$). Individuals also consider, on average, to be thriving in their work ($M = 4.89$; $SD = 1.08$), a variable that is positively correlated with work ability ($r = 0.51$, $p < 0.001$).

Table 4. Descriptive analysis of the variables

Variables	M	SD	1	2	3	4	5
1. Mental demands	3.44	0.85					
2. Work ability	3.51	0.74	-0.22**				
3. Thriving at work	4.89	1.08	-0.18*	0.51***			
4. Age	52.80	5.94	-0.07	-0.08	0.17*		
5. Gender ^a	0.36	0.48	-0.10	0.18*	0.04	0.04	
6. Education ^b	0.59	0.49	-0.03	0.17*	0.03	0.00	-0.07

Note. M – Mean, SD – Standard deviation

a Female – 0, Male – 1

b No higher-education – 0, Higher education – 1

* $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$

Source: Author's own work.

Regarding the control variables, age was positively correlated with thriving at work ($r = 0.17$, $p = 0.033$). Work ability was positively associated with gender ($r = 0.18$, $p = 0.019$) and education ($r = 0.17$, $p = 0.028$).

Structural model

The structural model also presents a good fit to the data: $\chi^2 (df) = 316.80 (220)$, $p < 0.001$, $\chi^2 / df = 1.44$, $CFI = 0.95$, $TLI = 0.94$, $RMSEA = 0.05$, $SRMR = 0.06$. The results are shown in Table 5. The proposed model explains 51.6% of the variance of thriving, a considerable increase compared to the model that only included the control variables ($R^2 = 0.04$).

Table 5. Results of the structural model

Variable	Work ability			Thriving at work		
	β	SE	CI 95% BC	β	SE	CI 95% BC
<i>Model 0</i>						
<i>Control variables</i>						
Age	-0.05	0.09	-0.235; 0.135	0.21	0.09	0.021; 0.371

Continue

Table 5. Results of the structural model

Concludes

	Work ability			Thriving at work		
Gender	0.21	0.08	0.060; 0.364	-0.01	0.08	-0.177; 0.136
Education	0.23	0.08	0.080; 0.372	0.02	0.08	-0.138; 0.185
	R ² = 0.10			R ² = 0.04		
<i>Model 1</i>						
<i>Direct effect</i>						
Mental demands	-0.25	0.10	-0.423; -0.044	-0.04	0.08	-0.193; 0.118
Work ability				0.71	0.07	0.568; 0.827
<i>Indirect effect</i>						
Mental demands				-0.18	0.07	-0.320; -0.032
<i>Total effect</i>						
Mental demands				-0.21	0.10	-0.410; -0.010
<i>Control variables</i>						
Age	-0.06	0.10	-0.245; 0.133	0.24	0.07	0.111; 0.368
Gender	0.21	0.08	0.053; 0.353	-0.18	0.07	-0.311; -0.050
Education	0.22	0.08	0.055; 0.361	-0.15	0.17	-0.273; -0.014
	R ² = 0.15			R ² = 0.52		

Note. Values are standardized.

SE – Standard error; CI 95% BC – Confidence Interval of 95% Bias Corrected

Source: Author's own work.

Empirical evidence suggests that mental demands negatively influence work ability ($\beta = -0.25$, 95% CI BC = -0.423, -0.044), which, in turn, positively influences thriving at work ($\beta = 0.71$, 95% CI BC = 0.568, 0.827). The indirect effect of mental demands on thriving via work ability is significant ($\beta = -0.18$, 95% CI BC = -0.320, -0.032), supporting the hypothesis under study. This means that the higher the level of mental demands that participants perceive in their work, the lower their work ability, consequently, the lower the perception that they are thriving at work. It is also worth noting that mental demands have no direct effect on thriving ($\beta = -0.04$, 95% CI BC = -0.193, 0.118), which suggests a full mediation.

Regarding the control variables, gender and education positively influence work ability ($\beta = 0.21$, 95% CI BC = 0.053, 0.353; $\beta = 0.22$, 95% CI BC = 0.055, 0.361, respectively). Age positively influences thriving at work ($\beta = 0.24$, 95% CI BC = 0.111, 0.368). Gender and education negatively influence thriving ($\beta = -0.18$, 95% CI BC = -0.311, -0.050; $\beta = -0.15$, 95% CI BC = -0.273, -0.014, respectively).

DISCUSSION

Demographic changes and the paradigm shift in the nature of work demands have impacted individuals and organizations, putting career sustainability on the agenda (Henkens, 2022; Vos & Heijden, 2017). At the same time, thriving has also received special attention in research, positioning itself as central to promoting successful aging and organizational competitiveness (Abid & Contreras, 2022; Taneva & Arnold, 2018). This study sought to investigate the extent to which work ability mediated the relationship between mental demands and thriving at work in older workers, with the results supporting this mediation hypothesis.

According to the JD-R model, as aspects of work that are associated with effort, continued competence, and certain psychological costs (Bakker & Demerouti, 2007), and despite the literature suggesting that older workers are better suited to less physically demanding jobs with more mental demands (Abbasi & Bordia, 2019), the effects of demands can have negative impacts on individuals if there are not adequate resources (Bakker & Demerouti, 2007; Demerouti & Bakker, 2011). When high levels of mental demands are reported at work, individuals tend to perceive themselves as less capable of performing their functions (Brady et al., 2020). Thus, work ability is a mechanism that explains the relationship between demands and thriving through the health deterioration process of the JD-R model, as the negative effects of demands are intrinsically linked to the process of tension that is generated in the absence or unavailability of resources (Bakker & Demerouti, 2007). The study by McGonagle et al. (2013) corroborates this assumption by showing that people have low levels of work ability in the presence of high levels of mental demands. Tuomi et al. (2001) also suggest that individuals whose work involves a high mental load and where there is role ambiguity feel less able to perform their work. Therefore, when faced with time pressure and work overload, individuals perceive themselves as less capable of working.

Although a hypothesis was not put forward for a direct relationship between mental demands and thriving at work, the results showed the absence of a significant effect. This result is contrary to what is portrayed by some studies (Goh et al., 2022; Kleine et al., 2019) and the premise of the JD-R model that, in the absence of resources, job demands can exhaust individuals (Bakker & Demerouti, 2007; Demerouti & Bakker, 2011). However, there have been mixed results in the literature concerning mental demands. Prem et al. (2017) showed the positive role that demands can have on thriving by concluding that time pressure has a significant and positive effect on learning.

Therefore, it is possible to distinguish two ways of looking at demands. They can be considered challenges, which presumably have positive impacts on thriving, or obstacles, which will have negative impacts (Yang & Li, 2021). Thus, the number of demands may not necessarily have negative consequences since, by interpreting them positively and having resources to deal with them, the individual follows the motivational psychological process portrayed in the JD-R model, through which performance is maintained, skills developed, there are feelings of self-efficacy, and continuous learning (Bakker & Demerouti, 2007; Yang & Li, 2021). This could explain the absence of a significant direct relationship between demands and thriving at work in this study.

Previous studies show that thriving at work can vary over time (Kleine et al., 2023; Niessen et al., 2012). Thus, another possible justification for the absence of a significant direct relationship between demands and thriving at work could be attributed to the single administration of the questionnaire. This single assessment may not have captured participant vitality and learning fluctuations over time or during specific periods. Notably, Kleine et al. (2023) conducted their study across multiple assessment moments and found that only the learning dimension exhibited statistically significant relationships with mental health, suggesting that the effects of these fluctuations may not manifest immediately.

Theoretical and practical implications

The findings of this study make a significant contribution to the existing literature on thriving at work, work ability, and aging, offering strategies to be implemented by organizations. These implications are particularly pertinent in the current landscape, where individual well-being takes precedence in research and is a top priority for many employers.

Considering theoretical implications, although thriving at work is receiving increasing attention (Abid & Contreras, 2022), there remains a lack of in-depth studies on this topic, specifically regarding the mechanisms underlying the relationships between thriving and its antecedents (Yang & Li, 2021). Thus, this study contributes to filling this gap in the literature by showing the mediating role of work ability in the relationship between mental demands and thriving among older workers. This contribution is particularly relevant if we consider that previous research shows that work ability decreases with age (Brady et al., 2019; Tuomi et al., 2001), mainly for individuals aged 50 and older and those in physically demanding occupations (Cadiz et

al., 2019; Tuomi et al., 2001). Promoting work ability as individuals age is essential to improving health and the quality and production of work, quality of life and well-being (Tuomi et al., 2001).

This study makes a theoretical contribution to the discussion about the role of mental demands in thriving, as there is still no consistent conclusion about the relationship between stress factors and thriving at work. Despite the negative indirect effect, the direct relationship was not significant, suggesting that demands can be interpreted as challenges and, thus, promote the development of older workers (Yang & Li, 2021). More recent literature has adopted a positive perspective on mental demands, but most studies still report a negative relationship with thriving (Goh et al., 2022), so this topic requires further research.

When considering the increasingly heterogeneous society and market, this is a challenging time regarding the development of resilient career systems that allow individuals to satisfy their individual needs, promote and develop their talent, and at the same time, allow organizations to respond flexibly to market fluctuations (Vos & Heijden, 2017). In this sense, our findings represent an important practical contribution to informing employers on how to foster a fuller working life (Boehm et al., 2021; Vos & Heijden, 2017).

This study underscores the importance of giving special attention to mental demands and work ability to enhance the experiences of older workers, fostering their sense of development, vitality, and learning opportunities within their work environments. Organizations must proactively monitor these demands while considering the specific nature of the work and the characteristics of the individuals (Abbasi & Bordia, 2019; Brady et al., 2020). For instance, the type of time pressure perceived by a nurse may significantly differ from that experienced by a consultant, owing to the unique characteristics of their roles, organizational context, or individual traits. In this context, it is crucial to actively seek input from individuals regarding their perceptions of job demands, health, and well-being. This input can guide the adoption of policies and practices tailored to the needs of this age group, thus promoting their capacity to thrive at work (Sousa et al., 2019). Additionally, leveraging personal resources can play a pivotal role in sustaining individuals' work ability (McGonagle et al., 2015) and mitigating the negative effects of job demands (Bakker & Demerouti, 2007). Offering coaching, especially in the later stages of one's career, is a strategic intervention. It helps define objectives aligning with an individual's specific life stage, fostering a higher perception of occupational self-efficacy. Consequently, individuals are likely to experience increased energy and motivation for continuous learning.

Furthermore, healthy habits such as physical exercise, good quality sleep, good nutrition, and social activities during breaks have been proven to facilitate thriving (Spreitzer et al., 2012) and work ability (Cadiz et al., 2019). These habits can be promoted through internal initiatives such as training, protocols with external entities (e.g., gym) or benefits such as vouchers for health or education. Spatial and temporal flexibility, particularly relevant since the beginning of the COVID-19 pandemic, is also seen as an advantage for maintaining motivation, performance, and work ability in the long term (Cadiz et al., 2019). Measures such as teleworking or in-person work

with flexible hours facilitate the reconciliation of personal and professional life, simultaneously contributing to the success of individuals in the workplace.

It is also crucial for employers to address ageist stereotypes prevalent within organizations, as these stereotypes often result in a lack of opportunities for older workers to engage in training and development programs. Promoting continuous career-long training and learning is essential to maintain the motivation and performance of this age group (Boehm et al., 2021). However, training initiatives must be designed and implemented, considering the specific characteristics associated with the natural aging process. For instance, it is important to consider factors such as the decline in fluid intelligence and the peaking of crystallized intelligence, which typically occurs around the age of 50 (Abbasi & Bordia, 2019), as well as individual preferences.

With that said, organizations and their practices play a fundamental role in facilitating the extension of individuals' professional lives (Boehm et al., 2021). Without the organizations' intervention, creating workplaces where employees can consistently experience a state of thriving throughout their careers becomes challenging.

Limitations and suggestions for future research

While this study offers valuable theoretical and practical insights, some limitations can be identified, along with suggestions for future research. Firstly, the use of a convenience sample restricts the generalizability of the results to the broader population. Additionally, the study's relatively small sample size represents a limitation. In future investigations, researchers may consider employing a probabilistic sampling approach or, when such methods are not feasible, utilizing quota sampling techniques that align with the age distribution of the target population.

Since this study employs a cross-sectional design, causal relationships between the investigated variables cannot be established. Therefore, future research should consider adopting a longitudinal methodology. Previous studies have indicated that thriving can fluctuate over time (e.g., Kleine et al., 2023; Prem et al., 2017), and some variables may not exert immediate effects, manifesting later. A longitudinal approach would enable regular assessments of workers' thriving states at various ages and allow for tracking aging effects over time.

Furthermore, it would be valuable to incorporate the worker's job into the model in future research. In this study, only the sector of activity was identified, and it was not analyzed due to substantial group size differences. Case studies could provide insights in this regard.

Future studies may also consider examining other types of mental demands, such as those related to role ambiguity or information complexity, in addition to time pressure and task quantity. Following the JD-R model, resources (e.g., autonomy, feedback) could be included as moderating variables in the relationships between demands, work ability, and thriving. Age-sensitive organizational practices, like age diversity initiatives (Sousa et al., 2019), could be investigated for their potential to enhance work ability directly or indirectly. Additionally, given

that work ability is a complex construct influenced by both work and non-work factors, future research might explore the moderating role of variables such as family support.

CONCLUSION

The need to extend working life has spurred both scholars and practitioners to focus on fostering more sustainable careers in which individuals experience thriving at work. This study proposed and demonstrated that mental demands negatively influence work ability, which, in turn, positively impacts the thriving at work of older workers. This research highlighted the crucial mediating role of work ability as an explanatory mechanism in the relationship between job demands and the opportunity to experience vitality, energy, enthusiasm, and learning at work. These findings hold significant implications for both academic research and practical application by highlighting work-related factors as predictors of sustainable career extension. Consequently, organizations should proactively create workplaces that enable older workers to thrive, including monitoring mental demands and providing necessary resources.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

AUTHORS' CONTRIBUTION

Inês C. Sousa: Conceptualization; Formal analysis; Methodology; Project administration; Supervision; Validation; Writing – original draft; Writing – review & editing.

Daniela Baltazar: Conceptualization; Data curation; Investigation; Methodology; Resources; Visualization; Writing – original draft; Writing – review & editing.