International Journal of Organizational Analysis

153

How do flexible working time policies, telework from home and work fatigue impact on the work-life balance?

Juan Herrera-Ballesteros
Faculty of Social and Labour Studies, University of Malaga, Malaga, Spain

Carlos Javier de las Heras-Rosas
School of Industrial Engineering, University of Malaga, Malaga, Spain

Pedro Mota Veiga
Universidade da Maia, Maia, Portugal; NECE – Research Centre for Business Sciences, Covilha, Portugal and LIACC – Artificial Intelligence and Computer Science Lab, Porto, Portugal, and

Felipe Sampaio Rodrigues
Universidade da Maia, Maia, Portugal

Received 24 March 2025
Revised 10 May 2025
Accepted 12 May 2025

Abstract

Purpose – Human resource management (HRM) has become one of the main tools for improving organisational performance and satisfaction. Numerous research studies have shown the importance of promoting work-life balance (WLB), as it influences individual and family well-being. In this context, organisations are looking for strategies such as flexible working hours (FWH) or telecommuting from home to facilitate WLB. The aim of this study is to analyse how these practices, together with physical and mental fatigue, impact both WLB and overall performance, offering implications for HRM.

Design/methodology/approach – A theoretical model with 4 variables was designed. To test the hypotheses, a structural equation model with partial least squares was applied. A subsample of 13,724 responses from the 2021 special edition of the European Working Conditions Telephone Survey was analysed. Fieldwork was conducted between March and November 2021 in 36 European countries.

Findings – Teleworking from home (TWH) is shown to negatively impact WLB, highlighting the challenges of balancing work and personal spheres simultaneously. However, the impact of TWH on work fatigue was not statistically significant. In contrast, flexible work schedule policies showed a positive impact on both improving WLB and reducing work-related fatigue (WF). Furthermore, WF emerged as a key factor in the relationship between flextime and WLB, but not in the relationship with TWH. Finally, TWH acted as a moderator in the relationship between flextime and WLB, suggesting that the combination of both practices contributes to reduced fatigue and improved WLB.

Practical implications – This study offers key guidance for the design of human resource policies focused on employee well-being. Findings show that combining home-based teleworking with flexible schedules enhances WLB and reduces WF. Organisations can improve performance and job satisfaction by adopting strategies that integrate both practices. Additionally, clear boundaries for digital disconnection and workload adjustment are

Funding: Of the open access fee: University of Malaga / CBUA.

International Journal of Organizational Analysis
Vol. 33 No. 12, 2025
pp. 153-173
Emerald Publishing Limited
1934-8835
DOI 10.1108/IJOA-03-2025-5353

recommended. The evidence provides HR managers with a solid empirical foundation to position working-time flexibility as a strategic tool that fosters more sustainable and competitive working environments.

Social implications – The findings highlight the broader societal impact of flexible working practices on employees' quality of life across Europe. Promoting WLB not only enhances individual well-being but also strengthens family cohesion and reduces widespread social stress. Implementing flexible hours and responsible teleworking may help reduce gender inequalities, support caregiving responsibilities and improve mental health. In the post-pandemic context, these measures emerge as essential social tools for shaping more equitable, inclusive and resilient labour models within contemporary societies.

Originality/value – This study adds value by integrating home-based telework, flexible working hours and fatigue into a unified analysis of WLB. Although previous research has often examined these variables separately, their interaction and the role of fatigue remain underexplored. This study offers a novel perspective on how these factors influence employee well-being and organisational performance, thereby providing valuable recommendations for designing more effective human resource policies.

Keywords Flexible working hours, Work-life balance, EWCTS, Teleworking from home, Work-related fatigue

Paper type Research paper

1. Introduction

Human resource management (HRM) continues to establish itself as one of the primary tools used by organisations to achieve business objectives. Numerous studies indicate that achieving an adequate work-life balance (WLB) leads to measurable organisational performance and increased job satisfaction (Allen *et al.*, 2000). Researchers have demonstrated that, beyond organisational performance, WLB influences individual well-being, family satisfaction and overall life satisfaction (Keyes, 2002; Whiston and Cinamon, 2015). Both society at large and the research community have addressed this issue, driven by business considerations (Testi and Andriotto, 2013; Blazovich *et al.*, 2014; Alegre and Pasamar, 2018) as well as approaches from the social and behavioural sciences (Fu and Shaffer, 2001; Voydanoff, 2004; Allen *et al.*, 2013). Moreover, political, legal and cultural changes have, in some cases, increased the pressure on employers to promote WLB (Pasamar Reyes and Valle Cabrera, 2011).

The body of scientific research on WLB is substantial and points to a consensus regarding the positive benefits that WLB provides to both organisations and individuals. For instance, an improvement in WLB facilitates higher job performance (Blazovich *et al.*, 2014; Whiston and Cinamon, 2015); increases job satisfaction (Allen *et al.*, 2000; De Simone *et al.*, 2014); enhances organisational commitment (Kossek and Ozeki, 1998; Allen *et al.*, 2000); reduces job burnout (Kossek and Ozeki, 1998; Wayne *et al.*, 2004); and decreases absenteeism and turnover intentions (Frone *et al.*, 1997; Wayne *et al.*, 2004). Conversely, a decline in WLB has negative effects, including increased psychological distress (Whiston and Cinamon, 2015), greater overall stress (Allen *et al.*, 2000), heightened emotional exhaustion (Lee and Kim, 2013), emotional distress (Whiston and Cinamon, 2015), as well as anxiety and irritability (Kossek and Ozeki, 1998; Allen *et al.*, 2000), among others.

Consequently, it is logical for organisations to explore ways to facilitate WLB within their structures, seeking benefits for both the company and its employees. Such initiatives could even provide competitive advantages by attracting and retaining top talent (Allen, 2001; Poelmans *et al.*, 2003). Managers should assess which organisational policies and programmes are most effective in fostering and facilitating WLB. Common practices such as offering flexible work schedules, part-time work, teleworking from home (TWH), and other arrangements can be implemented to enhance WLB (Sirgy and Lee, 2018). Both physical and psychological fatigue – as well as the opportunity to benefit from flexible schedules and/or telework – are considered relevant factors in achieving WLB.

The transformation of the work environment, driven by the expansion of telework and the adoption of flexible schedules, has placed WLB at the centre of the debate. Although there is an extensive literature that has partially addressed these issues, a significant gap persists in the comprehensive understanding of how telework and flextime can be strategically used to mitigate work fatigue and strengthen WLB. Fawzy *et al.* (2023) note the high prevalence of burnout in radiologists, highlighting the need to investigate organisational factors that can alleviate this burden, but without integrating the analysis of telework and flextime as preventive tools. Gajjar *et al.* (2022) note a generalised increase in burnout during the pandemic, but their study does not examine whether schedule redesign or telework can act as containment strategies. Irfan *et al.* (2021) link good WLB to job satisfaction, but their research lacks concrete proposals on how flexible models can enhance that balance in different work environments. Leo *et al.* (2022) show unequal impacts by gender during the pandemic, without assessing whether flextime and teleworking could reduce those differences. Correia Leal *et al.* (2022) reveal how organisational pressure and rigid supervision increase fatigue, but do not explore structural flexibility mechanisms that could counteract that effect. Finally, Palumbo *et al.* (2021) warn about the lack of exploration into how flexible time organisation influences perceived quality and performance. Taken together, these studies address symptoms and consequences but fail to articulate comprehensive and empirical solutions, which justifies the need for research that studies how strategically designed telework and flextime can become tools to reduce fatigue and promote sustainable WLB. Therefore, the aim of this research is to analyse the influence of flextime and/or telework on WLB. In addition, we will investigate the relationships between flextime, teleworking and workers' physical and mental fatigue. For this purpose, this empirical work uses the latest wave of the European Working Conditions Survey (EWCTS), which provides data from a total of 71,758 workers in 32 countries. We believe that the results of this study have important implications for both researchers and decision-makers in HR management departments in designing HR policy strategies that improve employee well-being and, in turn, enhance performance.

The structure of the paper is as follows: after this introductory section, a review of the literature and the research hypotheses are presented. Section 3 describes the methodology and the data used. Section 4 is devoted to the empirical analysis of the results, followed by a discussion in Section 5 that covers the theoretical and practical implications, the study's limitations, and suggestions for future research. Finally, the conclusions are presented in Section 6.

2. Literature review and hypotheses

The number of research studies that have addressed work–family reconciliation has been remarkable, generating various definitions of WLB from different areas of knowledge. Among these, Clark (2000) stands out, as it introduces a key perspective by highlighting the importance of the physical, temporal and psychological boundaries that separate the work and family domains. According to this theory, WLB depends not only on the absence of role conflict but also on the active management of these boundaries, whose permeability and flexibility determine the degree of role integration or segmentation, influencing people's well-being and satisfaction. Other conceptualisations have focused on aspects such as role engagement in both work and personal life and the minimal conflict between them (Sirgy and Lee, 2018). These definitions have addressed, for example, the pursuit of balanced work and non-work satisfaction (Kirchmeyer, 2000; Greenhaus *et al.*, 2003); the allocation of time and psychological energy in a balanced way (Greenhaus *et al.*, 2003); or the smooth functioning of work and family roles with minimal conflict (Kossek and Ozeki, 1998; Allen *et al.*, 2000).

Work-life conflict generates high stress and reduces both work and non-work life satisfaction (Allen *et al.*, 2000; Greenhaus and Powell, 2006; Fisher *et al.*, 2009). The high commitment to work and personal life roles contributes to this stress, and according to Voydanoff (2005), WLB will be achieved when people are fully committed to their various social roles in both work and non-work life. This requires people to be engaged in these roles and able to fulfil them by effectively allocating time and effort to each (Marks *et al.*, 2001; Kalliath and Brough, 2008). Research by Greenhaus *et al.* (2003) shows how a balance between work and personal roles positively influences both domains, which requires a high investment of time and involvement in each. The opposite case, when an individual does not invest much time and energy in work or family life, produces a negative balance in quality of life that affects both work and personal life (Marks and MacDermid, 1996).

However, work-family role conflict arises because the demands of one domain and the other are inherently incompatible (Fisher *et al.*, 2009; Sirgy and Lee, 2018). Conflict arises when the performance of one role is threatened by the demands of another, making time and energy management essential to achieving a balance. Organisations should promote and facilitate WLB, not only because of the benefits it will generate for the individual, but also because it will have a positive impact on the organisation.

Teleworking and flexible working hours (FWH) are presented as options available to facilitate WLB, although it is unclear how these practices affect work performance and employees' own WLB. Excessive physical and mental tiredness and fatigue also influence the performance of work and personal roles, interfering with the fulfilment of these roles. The hypotheses proposed in this research are described below.

2.1 Teleworking and work-life balance

Telework is considered one of the organisational modalities included in flexible work arrangements. It coexists with other concepts describing different possibilities, such as telecommuting, working from home, e-work or smart working (Eurofound, 2020). Although these terms are often used interchangeably, each refers to different scenarios with varying degrees of flexibility in schedules and locations (Charalampous *et al.*, 2019). Currently, there is no globally unified statistical or conceptual standard, which complicates the distinction among these categories [International Labour Organization (ILO), 2020]. In the specific case of telework, the activity is carried out partially or entirely outside the company's usual premises, using information and communication technologies (ICT). This modality may take place in coworking spaces, coffee shops, clients' facilities or even at home (Eurofound, 2020). Teleworking can also vary in intensity: it can be part-time – for instance, only one or two days a week – or full-time, with occasional visits to the office. This distinction is relevant when analysing the impact on aspects such as WLB, working hours, productivity and well-being (ILO, 2021). Several studies highlight the importance of considering the intensity with which telework is practised, rather than grouping all teleworkers together in a generic manner (Dancaster and Baird, 2016; Hoornweg *et al.*, 2016). Among the different modalities, TWH has the greatest psychosocial impact on employees (Antunes *et al.*, 2023). Consequently, and with the aim of identifying vulnerabilities along the thin line separating work and family spheres when sharing the same space, this research focuses on TWH.

During the COVID-19 pandemic lockdown, teleworking – especially from home – was adopted as an emergency solution to the need for social distancing, which led to an exponential increase in this practice. Once normal conditions were restored, the use of telework continued to grow, driven, among other factors, by employees' own interests.

Clark (2000) argues that the boundaries between work and family can vary in permeability, flexibility and strength, and that these characteristics directly affect the possibility of integrating or segmenting both domains. In telework contexts, where the physical and temporal boundaries between home and workspace are blurred, permeability tends to increase. This can promote greater role integration but also generate conflicts when the demands of each domain do not align.

Numerous studies have examined the effects of teleworking on WLB, with results that remain inconclusive. Some authors have evidenced that TWH is associated with positive emotional outcomes (Biron and van Veldhoven, 2016; Darouei and Pluut, 2021), while other research indicates that the use of ICT at home improves both flexibility and boundary permeability between the two domains (Leung and Zhang, 2017). However, this increased integration may expose teleworkers to interdomain conflicts and technological stress when such factors are not properly managed. Moreover, studies by Elbaz *et al.* (2022) and Zalat and Bolbol (2022) report an increase in overall work performance, although there are exceptional cases where both work and personal domains have been affected, thereby impacting performance and WLB (Villavicencio-Ayub *et al.*, 2021). Along these lines, research by Palumbo (2020) and Palumbo *et al.* (2022) suggests that telework can negatively affect WLB, primarily due to the difficulty separating the two domains.

The impact of telework on work fatigue has been extensively studied, showing that, although this modality provides advantages in terms of autonomy and flexibility, it can also induce both physical and psychological fatigue when it is not properly managed. Several investigations point out that teleworking can intensify the stressors inherent to its practice, which diminishes its attractiveness if its benefits are not balanced with measures that promote adequate disconnection (Weinert *et al.*, 2015; Sardeshmukh *et al.*, 2012; Wepfer *et al.*, 2018). In this regard, Jamal *et al.* (2021) highlights that full-time teleworking brings new psychological and physical challenges, derived from digital overload and the difficulty separating personal and professional spheres, which favours a progressive burnout. Giauque *et al.* (2022) point out that, although telework improves the perception of autonomy, it also increases the emotional and physical burden, especially when working hours are not adequately regulated and clear disconnection measures are not established. Likewise, Hu and Subramony (2022) emphasise that the conditions imposed by the pandemic intensified the practise of teleworking without adequate planning, generating disruptive effects and increasing the psychological burnout of employees. Bhat *et al.* (2023) warn that the difficulty in separating the boundaries between personal and professional life in teleworking contributes to a sense of continuous burnout, while Stoian *et al.* (2022) highlight the absence of effective organisational models to manage the associated fatigue, which underlines the need to adopt a strategic approach that avoids emotional and physical saturation of workers.

Based on these considerations, we propose the following hypotheses:

H1. Teleworking from home has a negative impact on work-life balance.

H2. Teleworking from home increases work-related fatigue.

2.2 Flexible working hours and work-life balance

FWH constitute another labour flexibility policy adopted by organisations to facilitate the reconciliation of employees' work and family life, and are sometimes implemented in conjunction with teleworking. Moreover, FWH are generally perceived positively by workers (Barros and da Silva, 2010), as they allow individuals to control the time dedicated to their work activities – adjusting start and end times and even determining the number of hours worked per day or week. Over the years, the demand for FWH has experienced a

remarkable increase in most industrialised countries, a phenomenon particularly significant among younger generations (Chung and Van der Lippe, 2020).

Although some research has observed that, in certain contexts, the combination of flexible hours and working from home could increase conflicts between the work and family domains (Golden *et al.*, 2006; Allen *et al.*, 2013), it is important to note that the empirical evidence supporting this situation remains limited. In contrast, flexible working time is prominently associated with a better balance between work and personal life, offering significant benefits for both individuals and organisations; indeed, when employees have greater control over their schedules, they tend to report a more favourable perception of WLB (Hill *et al.*, 2001). In this sense, FWH reinforce their potential to improve the quality of working life and reduce conflicts (Clark, 2000; Back-Wiklund *et al.*, 2011). Regarding the impact of FWH on job fatigue, Chung and Van der Lippe (2020) highlight that this modality reduces the stress derived from rigid schedules, thereby facilitating WLB.

Based on these arguments, the following hypotheses are put forward:

H3. Flexible working hours improve employees' work-life balance.

H4. Flexible working hours reduce work-related fatigue.

2.3 Work-Related fatigue and Work-Life balance

Work fatigue is defined as a feeling of physical and mental tiredness resulting from prolonged work demands and lack of adequate recovery, affecting both the physical and psychological well-being of employees. From the perspective of the Job Demands–Resources Model (Bakker and Demerouti, 2007), fatigue acts as a critical indicator of imbalance, signalling the need to implement corrective strategies. Furthermore, it is highlighted that work-related tiredness and fatigue can increase stress and burnout, further hindering WLB (Weinert *et al.*, 2015; Kelly *et al.*, 2020).

These aspects allow us to hypothesize the following:

H5. Work-related fatigue negatively affects workers' work-life balance.

2.4 Fatigue at work, teleworking from home, flexible working hours and work-life balance

Work fatigue, TWH, flexible hours and WLB are interrelated elements that have a significant impact on employee well-being.

Teleworking can provide considerable benefits in reducing work fatigue, as eliminating commuting and decreasing the need for physical presence in the office optimises time and reduces the stress associated with these factors (Golden *et al.*, 2006; De Simone *et al.*, 2014). These time savings and increased flexibility contribute to an improved WLB. However, when telework is implemented in a disorganised manner, it can make it difficult for workers to disconnect from work, thereby negatively affecting the level of fatigue experienced during the workday (Lazauskaitė-Zabielskė *et al.*, 2023). In addition, some studies indicate that teleworkers may experience greater mental health-related stress symptoms compared to office-based employees, due to increased permeability between roles, which adversely impacts WLB (Mann and Holdsworth, 2003; Palumbo *et al.*, 2022; Sardeshmukh *et al.*, 2012).

In this regard, we hypothesize the following:

H5a. Fatigue at work negatively mediates the relationship between teleworking from home and work-life balance.

Although FWH can have negative consequences, such as fostering a culture of constant availability or leading to self-imposed additional burdens, increasing fatigue and undermining WLB (Kelliher *et al.*, 2010; Mazmanian *et al.*, 2013), their well-managed benefits can be transformative. They allow employees to tailor their work schedules to their personal needs, facilitating better time management, reducing fatigue and promoting physical and mental recovery (Chung and van der Lippe, 2020). Therefore, with proper management, FWH not only mitigate adverse effects but can also become a key tool to improve employees' well-being and WLB.

With this argument in mind, we propose the following hypothesis:

H5b. Fatigue at work positively mediates the relationship between flexible working hours and work-life balance.

TWH can present significant challenges if physical, temporal and psychological boundaries are not properly managed. When these boundaries are too permeable, employees find it difficult to disengage, which can increase work fatigue and negatively affect WLB (Clark, 2000). However, if these practices are structured correctly, telework offers key benefits, such as the elimination of commuting and greater control over interruptions; these advantages can alleviate tensions related to managing multiple roles, reducing fatigue and enabling flexible working hours to have a more positive impact on WLB (Gajendran *et al.*, 2007; Allen *et al.*, 2020). Thus, well-managed telework moderates the relationship between FWH and fatigue, reinforcing its effect on improving WLB.

In addition to its role in reducing fatigue, TWH can directly moderate the relationship between FWH and WLB. Combining the two practices enhances employees' perceived control over their schedules and responsibilities, which reinforces the positive impact of FWH on WLB (Chung and van der Lippe, 2020). However, these positive effects depend on factors such as organisational support and clarity of policies on digital disconnection.

Based on this argument, we hypothesize the following:

H6. Teleworking from home positively moderates the impact of flexible working hours on work–life balance through reduced work-related fatigue.

H7. Teleworking from home positively moderates the impact of flexible working hours on work–life balance.

2.5 Conceptual model

Figure 1 outlines the structural relationships between the constructs "Work-related Fatigue" (WF), "Flexible Working Hours" (FWH), "Teleworking from Home" (TWH) and "Work–Life Balance" (WLB) in the conceptual model under investigation. The model illustrates direct and moderated interactions, highlighting the influence of FWH and TWH on WF and WLB as well as the reciprocal impact of WF on WLB. Additionally, the interaction between FWH and TWH is represented, indicating a moderating effect on the relationships with both dependent constructs, WF and WLB. This conceptual diagram captures the complexity of the interplay between flexible work practices and their effects on WF and WLB.

3. Research methodology

3.1 Data and sample

In this paper, we analyse a sample from the data produced in the 2021 special edition of the European Working Conditions Telephone Survey (EWCTS). The survey was expanded to

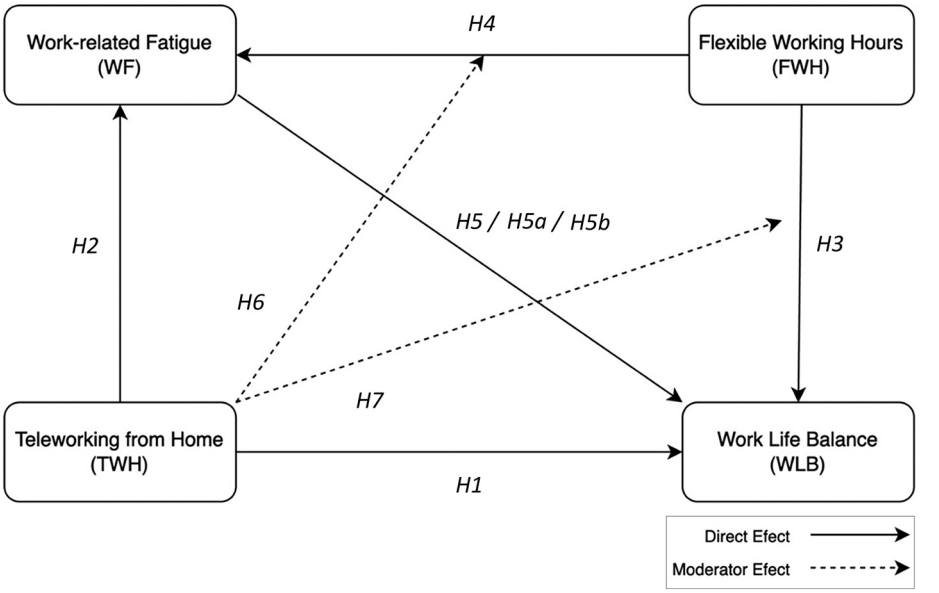

Figure 1. Conceptual model
Source: Authors' own elaboration

include more workers in 36 European countries, including the EU Member States, the UK, Norway, Switzerland, Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia. The sample used in EWCTS 2021 is representative of people aged 16 and over who are working and residing in the surveyed countries. A single-stage, non-clustered sampling design was used in 35 of the 36 countries. Data collection took place between March and November 2021. For this work, the following criteria were applied to the sample for the purposes of the research: workers in all countries included in the survey who were employed and either worked at their place of work or always teleworked from home. Cases with missing values in the analysed variables of more than 15% were eliminated. The final sample size used in the analyses is 13,724 workers (Table 1).

3.2 Variables and measures

3.2.1 Independent variables. The independent variables used in the statistical model were TWH and FWH (Table 2). TWH is a dichotomous variable, where "0" indicates that respondents never telework and "1" indicates that respondents always telework from home. The other independent variable, FWH, measures the extent to which respondents are able to combine their work schedule with family or social commitments outside of work. This variable was originally measured on a 1–4 Likert scale (1 = "very well"; 4 = "not at all well"), which we recorded by inverting its values (Appendix).

3.2.2 Dependent variable. WLB was analysed as a dependent variable in our model. This construct is formed by the aggregation of three items that aim to capture the impact of work on personal life and vice versa. It explores the preoccupation with work during leisure time, how work fatigue affects household chores, as well as how family responsibilities impact work concentration. In short, it highlights the tension between the work and personal spheres. It was

Table 1. Characteristics of the sample

Country	*N*	%
Austria	282	2,10
Belgium	838	6,10
Bulgaria	380	2,80
Cyprus	270	2,00
Czechia	286	2,10
Germany	779	5,70
Denmark	298	2,20
Estonia	390	2,80
Greece	333	2,40
Spain	663	4,80
Finland	355	2,60
France	567	4,10
Croatia	377	2,70
Hungary	342	2,50
Ireland	415	3,00
Italy	593	4,30
Lithuania	357	2,60
Luxembourg	262	1,90
Latvia	352	2,60
Malta	275	2,00
Netherlands	363	2,60
Poland	446	3,20
Portugal	356	2,60
Romania	435	3,20
Sweden	329	2,40
Slovenia	532	3,90
Slovakia	281	2,00
United Kingdom	426	3,10
Montenegro	210	1,50
North Macedonia	220	1,60
Serbia	231	1,70
Switzerland	209	1,50
Norway	582	4,20
Albania	189	1,40
Bosnia and Herzegovina	245	1,80
Kosovo	256	1,90
Telework from home		
Never	10.540	76,80
Alwais	3.184	23,20

Source(s): Authors' own elaboration

measured on a 1–5 Likert scale, rating the tension from less to more. We recoded and inverted these variables to orient their values from less to more WLB.

3.2.3 Mediating variable. WF was used as a mediating variable between TWH and WLB, and between FWH and WLB. This variable aims to assess, through two items, the respondents' sense of physical and mental exhaustion at the end of the working day. It was measured on a 1–5 Likert scale.

Table 2. Reliability and validity measures

	Average	SD	Range	Factor loadings	Alpha	Rho_A	RhoC	AVE
Work life balance					*0.567*		*0.770*	*0.530*
Q45Ai	3.463	1.245	1–5	0.675				
Q45Bi	3.283	1.136	1–5	0.839				
Q45Di	3.970	1.009	1–5	0.656				
Work-related fatigue					*0.602*		*0.834*	*0.715*
Q90Di	3.012	1.187	1–5	0.844				
Q90Gi	3.578	1.187	1–5	0.847				

Source(s): Authors' own elaboration

3.2.4 Moderating variable. TWH served as a moderating variable. The purpose was to determine, to what extent TWH affects the relationship between FWH and WLB and between FWH and WLB mediated by WF.

3.3 Data analysis

To examine the hypotheses proposed in this research, structural equation modelling (SEM) was applied using the partial least squares approach for the estimation process. This technique is well-regarded and extensively used in the field of business studies (Hair *et al.*, 2019; Wichaisri and Sopadang, 2017).

The evaluation of the model adhered to established standards to ensure measurement accuracy and reliability. Key aspects such as the consistency and validity of the indicators were scrutinised to guarantee a faithful representation of the theoretical constructs (Hair *et al.*, 2019).

Construct validity was assessed based on four essential criteria:

(1) composite reliability (CR), with values exceeding 0.70 deemed acceptable;

(2) factor validity, where factor loadings above 0.5 are expected, with optimal results being above 0.7;

(3) convergent validity, determined by the average variance extracted (AVE), which must surpass 0.50 to confirm that the construct explains more than 50% of the variance of its indicators; and

(4) discriminant validity, which requires that the AVE of each construct exceeds the square of the correlation between it and any other construct, ensuring conceptual distinctiveness (Benitez *et al.*, 2020; Fornell and Larcker, 1981; Sarstedt *et al.*, 2019).

To test the structural model and validate the proposed hypotheses, the model's fit was analysed, focusing on the path coefficients for direct, indirect and moderation effects, along with their statistical significance. These evaluations were complemented by the coefficient of determination (R^2), which provides insights into the model's predictive strength. The bootstrapping method, with 5,000 subsamples, was used to calculate *t*-statistics and assess significance. All analyses were performed using SmartPLS software, version 4.0.9.5 (Ringle *et al.*, 2024).

4. Results

4.1 Measurement model

The results presented in Tables 2 and 3 show that the constructs "work–life balance" and "work-related fatigue" have acceptable convergent validity. Although the Cronbach's alpha

Table 3. Discriminant validity

	FH	WLB	FW	
Fornell–Larcker				
FH	*1.000*			
WLB	0.342	*0.728*		
FW	0.343	0.524	*0.846*	
	FH	TWH	WLB	FW
HTMT				
FH	*0.080*			
TWH	0.437	*0.145*		
WLB	0.443	0.113	*0.850*	
FW	0.451	0.136	0.219	*0.228*

Source(s): Authors' own elaboration

values for WLB and WF are slightly below the standard threshold, the composite reliability (RhoC > 0.7) and convergent validity (AVE > 0.5) justify their acceptance (Hair *et al.*, 2019). Discriminant validity was established through the Fornell–Larcker and HTMT criteria, indicating that the constructs are distinct from one another, which supports the theoretical structure of the model. Thus, despite some limitations in the reliability indices, the constructs demonstrate adequate psychometric properties to be used in subsequent analyses.

4.2 Analysis of the model

Table 4 details the results of the estimated model. The results indicate that the model effectively explains the variability in the constructs of WLB and WF. The coefficient of determination (R^2) shows that 31.7% of the variability in WLB is explained by the independent variables included in the model, while 11.9% of the variability in WF is explained.

The estimated model reveals significant relationships between the constructs, confirming some of the proposed hypotheses while rejecting others. TWH shows a negative and statistically significant impact on WLB ($\beta = –0.266$; $p < 0.000$), supporting *H1*. This finding highlights that teleworking may compromise employees' ability to maintain a healthy balance between their professional and personal lives. However, contrary to *H2*, TWH does not significantly affect WF ($\beta = –0.024$; $p = 0.203$). This suggests that teleworking does not directly increase fatigue in the current context.

FWH show a positive and significant influence on both WLB and WF ($\beta = 0.182$; $p < 0.000$ and $\beta = –0.331$; $p < 0.000$, respectively). These results confirm *H3* and *H4*, indicating that FWH improve employees' WLB and simultaneously contribute to reducing fatigue. WF strongly influences WLB ($\beta = –0.462$; $p < 0.000$), supporting *H5* and emphasising the crucial role of fatigue in shaping employees' ability to balance work and personal demands.

Regarding the moderating effects, the interaction between TWH and FWH positively influences both WLB and WF ($\beta = 0.052$; $p = 0.004$ and $\beta = –0.059$; $p = 0.003$, respectively). This supports *H6* and *H7*, suggesting that FWH can mitigate some of the negative effects of teleworking, reducing fatigue and enhancing WLB when used in conjunction with remote work.

Table 5 presents a summary of the hypothesis-testing results, providing a clear overview of which relationships in the proposed model were supported by the data. The findings confirm most of the hypotheses, showing significant effects of TWH, FWH and WF on WLB, as well as the moderating and mediating roles of these variables. Notably, Hypotheses

Table 4. Estimated model output

Direct effects	Path	SE	*p*
TWH → WLB (*H1*)	−0.266	0.017	0.000**
TWH → WF (*H2*)	−0.024	0.019	0.203
FWH → WLB (*H3*)	0.182	0.009	0.000**
FWH → WF (*H4*)	−0.331	0.009	0.000**
WF → WLB (*H5*)	−0.462	0.008	0.000**
TWH x FWH → WF (*H6*)	−0.059	0.020	0.003**
TWH x FWH → WLB (*H7*)	0.052	0.018	0.004**
Specific indirect effects			
TWH → WF → WLB (*H5a*)	0.011	0.009	0.204
FWH → WF → WLB (*H5b*)	0.153	0.005	0.000**
TWH x FWH → WF → WLB	0.027	0.009	0.003**
Total effects			
FWH → WLB	0.335	0.009	0.000**
FWH → WF	−0.331	0.009	0.000**
TWH → WLB	−0.255	0.019	0.000**
TWH → WF	−0.024	0.019	0.203
WF → WLB	−0.462	0.008	0.000**
TWH x FWH → WF	−0.059	0.020	0.003**
TWH x FWH → WLB	0.079	0.020	0.000**
Model estimation	R^2	Adjusted R^2	BIC
Work life balance (WLB)	0.317	0.317	−5,184.345
Work-related fatigue (WF)	0.119	0.118	−1,695.828

Note(s): *$p < 0.05$; **$p < 0.01$; SE = Standard Error; BIC = Bayesian Information Criterion **Source(s):** Authors' own elaboration

Table 5. Hypothesis table

Hypotheses	Result
H1. Teleworking from home has a negative impact on work-life balance	Validated
H2. Teleworking from home increases work-related fatigue	Not validated
H3. Flexible working hours improve employees' work-life balance	Validated
H4. Flexible working hours reduce work-related fatigue	Validated
H5. Work-related fatigue negatively affects workers' work-life balance	Validated
H5a. Fatigue at work negatively mediates the relationship between teleworking from home and work-life balance	Not validated
H5b. Fatigue at work positively mediates the relationship between flexible working hours and work-life balance	Validated
H6. Teleworking from home positively moderates the impact of flexible working hours on work-life balance through reduced work fatigue	Validated
H7. Teleworking from home positively moderates the impact of flexible working hours on work-life balance	Validated

Source(s): Authors' own elaboration

H1, *H3*, *H4*, *H5*, *H5b*, *H6* and *H7* were supported, indicating that FWH improve WLB while influencing fatigue, and that teleworking moderates these relationships. However, Hypotheses *H2* and *H5a* were not supported, suggesting that teleworking does not significantly increase fatigue, nor mediate the relationship with WLB through fatigue. This table provides a concise and comprehensive summary of the model's empirical findings.

5. Discussion

The purpose of this research was to examine the influence of TWH, FWH and work fatigue on WLB. To this end, an empirical study was conducted using SEM with data from 13,724 workers. This data set comes from the latest wave of the EWCTS, which collects information from 71,758 workers in 32 countries.

The findings of this study show that TWH has a negative impact on WLB (*H1*). This result aligns with Palumbo *et al.* (2022), who argue that teleworkers' inability to separate work and personal life is a key factor negatively affecting WLB. These results reinforce the notion that, although telework may provide greater flexibility, it can also blur the boundaries between work and personal spheres, leading to role conflicts (Allen *et al.*, 2000; Clark, 2000; Fisher *et al.*, 2009; Greenhaus and Powell, 2006).

Regarding the potential increase in work fatigue derived from TWH (*H2*), the results do not conclusively support this relationship. This observation contrasts with previous research, such as Weinert *et al.* (2015) and Mann and Holdsworth (2003), who noted that teleworking may heighten physical and mental fatigue due to increased emotional load and lack of disconnection. The discrepancy may stem from variability in workers' experiences. Some studies, such as Palumbo (2020), argue that workers with heavy job demands may fail to recognise how work invades their personal lives. Along these lines, other research indicates that some workers view telework as a way to avoid commuting stress and better manage their time, thus minimising perceptions of work fatigue (Golden *et al.*, 2006; De Simone *et al.*, 2014).

FWH exert a positive influence on WLB and help reduce work fatigue (*H3* and *H4*). These findings are consistent with Hill *et al.* (2001), who emphasise the mutual benefit of flexible schedules for both organisations and employees. They also align with Clark (2000) and Back-Wiklund *et al.* (2011), who identify FWH as an effective strategy to mitigate conflicts between professional and personal obligations. The ability to adjust work schedules according to individual needs not only contributes to improving WLB but also lowers mental and physical exhaustion. This reduction in fatigue can be explained by more efficient management of time and responsibilities, which translates into greater well-being for workers.

Work fatigue negatively affects WLB (*H5*), mirroring the findings of Weinert *et al.* (2015) and Kelly *et al.* (2020), who highlight the role of physical and emotional stress, as well as burnout, in reducing employees' capacity to manage demands from both domains. Such burnout not only depletes the energy needed to meet personal responsibilities but also hampers effective decision-making, thereby creating a cycle of work-family conflict (Bakker *et al.*, 2008).

Moreover, fatigue increases the risk of "work spillover" behaviours – when professional duties and concerns intrude upon personal time – exacerbating conflict between these two spheres (Greenhaus and Beutell, 1985). These findings underscore the importance of adopting strategies to reduce fatigue, such as wellness initiatives, flexible work schedules and balanced workload management. Tackling fatigue promotes a better quality of life, higher productivity and increased job satisfaction, underscoring its relevance in policies aimed at achieving a sustainable WLB.

With respect to the negative mediation of fatigue in the relationship between home-based telework and WLB (*H5a*), the hypothesis could not be confirmed. The results suggest that

the effect of fatigue on the link between home-based telework and WLB is negligible. In other words, its negative effect on WLB may stem from other factors – such as blurred boundaries between professional and family domains or hyperconnectedness – rather than fatigue arising from working at home. This finding diverges from studies suggesting that teleworking helps reduce fatigue by offering greater flexibility and schedule control (Golden *et al.*, 2006).

On the other hand, the data confirm the mediating role of work fatigue in the relationship between working-time flexibility and WLB (*H5b*). These findings align with earlier research (Hill *et al.*, 2001), which indicates that flexible work schedules enable employees to adapt their workday to personal needs, alleviating stress caused by rigid patterns and, consequently, fatigue. By mitigating burnout, flextime not only directly enhances WLB but also serves as a protective mechanism for managing energy and time more efficiently. Furthermore, this mediation reveals that flexible schedules are more effective when supported by organisational policies that respect employees' time, preventing hyper-availability (Kossek *et al.*, 2017). Therefore, this conclusion underscores the strategic importance of flexible schedules not only as an employee benefit but also as a key lever to reduce fatigue and foster well-being, generating positive effects for both individuals and organisations.

Finally, the results indicate that TWH positively moderates the relationship of schedule flexibility with WLB, both when taking into account the effect of work fatigue (*H6*) and when the effect of schedule flexibility is direct on WLB (*H7*). These findings support the idea that teleworking, combined with flexible schedules, helps alleviate the tensions arising from managing demands in both the work and personal domains. In this context, employees not only experience reduced work fatigue but also achieve a more satisfactory WLB, consistent with previous studies (Allen *et al.*, 2021; Chung and van der Lippe, 2020; Gajendran *et al.*, 2007). Furthermore, research suggests that combining flextime with telework amplifies flextime's positive effect on WLB (Chung and van der Lippe, 2020). This result contrasts with studies such as Golden *et al.* (2006) and Allen *et al.* (2013), which propose that home-based teleworking – even when coupled with flexible schedules – could increase work-family conflict. This discrepancy might be explained by the challenges of balancing flexible hours effectively.

5.1 Theoretical and practical implications

5.1.1 Theoretical implications. The results of this study contribute to the literature on WLB, telework and flexible work schedules in several important ways. Firstly, this research provides a more integrated understanding of how flexible work schedules and telework jointly affect WLB, offering empirical evidence that highlights the need to consider both practices together, rather than in isolation. In addition, it delves into the role of WF as both a mediating and moderating variable; a dimension that has been relatively underexplored in previous research, thereby shedding new light on the complex influence of fatigue in the relationship between flexible work schedules and WLB.

This article also challenges some previous findings in the literature, particularly regarding the impact of telework on WF. Although earlier studies, such as Weinert *et al.* (2015), suggested that telework increases WF, the results of this study did not confirm that relationship, indicating that fatigue may depend on various factors, including the post-pandemic context or individual worker characteristics.

5.1.2 Practical implications. From a practical standpoint, the findings of this research have crucial implications for human resource management and organisational policies. Firstly, organisations aiming to enhance employees' WLB should consider not only implementing telework policies but also complementing them with flextime measures. The

results show that employees who benefit from both telework and flextime report better WLB, and lower levels of WF. Secondly, the study indicates that organisations must address the critical role of WF. Merely offering telework, without tackling the root causes of fatigue (e.g. excessive workloads or lack of disconnection), may not suffice to improve WLB. Therefore, companies should introduce measures designed to mitigate WF, such as clear limits on working hours, wellness initiatives and adequate breaks.

Finally, these findings suggest that teleworking and flextime are not universal solutions for all employees. Individual differences – such as self-management skills, job type and family circumstances – can significantly affect the effectiveness of these policies. Consequently, HR managers need to implement tailored strategies, adapting these practices to meet the specific needs of each employee.

5.2 Limitations and future research

5.2.1 Limitations. This study has several limitations that should be considered when interpreting the results. Firstly, although data from the 2021 EWCTS provide a large and representative sample, the findings are based on self-reported information, which may introduce social desirability bias or recall errors. Such biases could affect the accuracy of responses related to WLB, work fatigue and telework. Secondly, the study's cross-sectional design limits the ability to establish causal relationships between variables. Although SEM was used to identify relationships, it remains unclear whether changes to telework or flexible work schedules directly result in changes to WLB or work fatigue over time. Finally, the focus on a sample of European workers may restrict the generalisability of the findings to other cultural and economic contexts. Perceptions of telework and flexible schedules may differ considerably across regions or industries, highlighting the need to expand the geographical and sectoral scope of future research.

5.2.2 Future research. Future research could explore how diverse groups of workers experience telework and flexible work schedules. Factors such as gender, age, job type, family structure and cultural background may significantly shape how employees perceive these practices and their potential to enhance WLB Investigating these differences could inform the development of more inclusive policies that address the specific needs of various groups. It would also be valuable to examine organisational interventions aimed at mitigating the adverse effects of telework and flexible schedules on WF. Future studies might evaluate the effectiveness of wellness programmes, digital disconnection policies and workload management strategies in reducing worker fatigue, thereby improving long-term performance and job satisfaction.

6. Conclusions

This study investigated the effects of TWH and FWH on WLB, as well as their influence on WF. TWH was found to have a negative impact on WLB, supporting the idea that the simultaneous management of work and personal spheres can be challenging. Contrary to expectations, TWH showed a slight indication of reducing WF although this result was not statistically significant.

FWH, on the other hand, positively confirmed their impact on improving WLB, and reducing WF, in line with previous studies highlighting their benefits for WLB. Furthermore, it was confirmed that WF plays a crucial role in WLB as a significant factor in this balance.

Regarding the mediating role of WF, the results indicated that FWH can indeed reduce WF and, consequently, improve WLB. However, no significant evidence was found that TWH affects WLB through the reduction of WF. Finally, the moderating effect of TWH on the relationship between FWH and WLB was demonstrated, suggesting that combining TWH with FWH may be beneficial for reducing WF and improving WLB.

References

Alegre, J. and Pasamar, S. (2018), "Firm innovativeness and work-life balance", *Technology Analysis and Strategic Management*, Vol. 30 No. 4, pp. 421-433, doi: 10.1080/09537325.2017.1337091.

Allen, T.D. (2001), "Family-supportive work environments: the role of organizational perceptions", *Journal of Vocational Behavior*, Vol. 58 No. 3, pp. 414-435.

Allen, T.D., French, K.A., Dumani, S. and Shockley, K.M. (2020), "A cross-national meta-analytic examination of predictors and outcomes associated with work-family conflict", *Journal of Applied Psychology*, Vol. 105 No. 6, pp. 539-576, doi: https://doi.org/10.1037/apl0000442.

Allen, T.D., Johnson, R.C., Kiburz, K.M. and Shockley, K.M. (2013), "Work-family conflict and flexible work arrangements: deconstructing flexibility", *Personnel Psychology*, Vol. 66 No. 2, pp. 345-376.

Allen, T.D., Herst, D.E.L., Bruck, C.S., Sutton, M. and Barling, J. (2000), "Consequences associated with work-to-family conflict: a review and agenda for future research", *Journal of Occupational Health Psychology*, Vol. 5 No. 2, pp. 278-308, doi: 10.1037/1076-8998.5.2.278.

Antunes, E.D., Bridi, L.R.T., Santos, M. and Fischer, F.M. (2023), "Part-time or full-time teleworking? A systematic review of the psychosocial risk factors of telework from home", *Front. Psychol.*, Vol. 14, p. 1065593, doi: 10.3389/fpsyg.2023.1065593.

Back-Wiklund, M., Van der Lippe, T., Den Dulk, L. and Doorne-Huiskes, A. (2011), *Quality of Life and Work in Europe*, Springer, London.

Bakker, A.B. and Demerouti, E. (2007), "The job demands-resources model: state of the art", *Journal of Managerial Psychology*, Vol. 22 No. 3, pp. 309-328, doi: 10.1108/02683940710733115.

Bakker, A.B., Schaufeli, W.B., Leiter, M.P. and Taris, T. W. (2008), "Work engagement: an emerging concept in occupational health psychology", *Work and Stress*, Vol. 22 No. 3, pp. 187-200, doi: 10.1080/02678370802393649.

Barros, A.M. and da Silva, J.R.G. (2010), "Percepções dos indivíduos sobre as consequências do teletrabalho na configuração home-office: estudo de caso na shell brasil", *Cadernos EBAPE.BR*, Vol. 8 No. 1, pp. 72-91, doi: 10.1590/S1679-39512010000100006.

Benitez, J., Henseler, J., Castillo, A. and Schuberth, F. (2020), "How to perform and report an impactful analysis using partial least squares: guidelines for confirmatory and explanatory is research", *Information and Management*, Vol. 57 No. 2, p. 103168.

Bhat, Z.H., Yousuf, U. and Saba, N. (2023), "Revolutionizing work-life balance: unleashing the power of telecommuting on work engagement and exhaustion levels. [revista no especificada]", doi: 10.1080/23311975.2023.2242160.

Biron, M. and van Veldhoven, M. (2016), "When control becomes a liability rather than an asset: comparing home and office days among part-time teleworkers", *Journal of Organizational Behavior*, Vol. 37 No. 8, pp. 1317-1337, doi: 10.1002/job.2106.

Blazovich, J.L., Smith, K.T. and Smith, L.M. (2014), "Employee-friendly companies and work-life balance: is there an impact on financial performance and risk level?", *Journal of Organizational Culture, Communications and Conflict*, Vol. 18, pp. 1-13.

Charalampous, M., Grant, C.A., Tramontano, C. and Michailidis, E. (2019), "Systematically reviewing remote e-workers' well-being at work: a multidimensional approach", *European Journal of Work and Organizational Psychology*, Vol. 28 No. 1, pp. 51-73, doi: 10.1080/1359432X.2018.1541886.

Chung, H. and Van der Lippe, T. (2020), "Flexible working, work–life balance, and gender equality: introduction", *Social Indicators Research*, Vol. 151 No. 2, pp. 365-381, doi: 10.1007/s11205-018-2025-x.

Clark, S.C. (2000), "Work/family border theory: a new theory of work/family balance", *Human Relations*, Vol. 53 No. 6, pp. 747-770.

Correia Leal, C., Ferreira, A.I. and Costa de Carvalho, H. (2022), "Hide your sickness and put on a happy face: the effects of supervision distrust, surface acting and sickness surface acting on hotel employees' emotional exhaustion", *Journal of Organizational Behavior*, Vol. 44 No. 6, doi: 10.1002/job.2676.

Dancaster, L. and Baird, M. (2016), "Predictors of the adoption of work–care arrangements: a study of South African firms", *Int. J. Hum. Resour. Manag*, Vol. 27 No. 4, pp. 456-475, doi: 10.1080/09585192.2015.1042898.

Darouei, M. and Pluut, H. (2021), "Work from home today for a better tomorrow! how working from home influences work-family conflict and employees' start of the next workday", *Stress and Health*, Vol. 37 No. 5, pp. 986-999, doi: 10.1002/SMI.3053.

De Simone, S., Lampis, J., Lasio, D., Serri, F., Ciotto, G. and Putzu, D. (2014), "Influences of work-family interface on job and life satisfaction", *Applied Research in Quality of Life*, Vol. 9 No. 4, pp. 831-861.

Elbaz, S., Richards, J.B. and Provost Savard, Y. (2022), "Teleworking and work–life balance during the COVID-19 pandemic: a scoping review", *Canadian Psychology/Psychologie Canadienne*.

Eurofound (2020), *Telework and ICT-Based Mobile Work: Flexible Working in the Digital Age, New Forms of Employment Series*, Eurofound, Loughlinstown, doi: 10.2806/70118.

Fawzy, N.A., Tahir, M.J., Saeed, A., Ghosheh, M.J., Alsheikh, T., Ahmed, A., Lee, K.Y. and Yousaf, Z. (2023), "Incidence and factors associated with burnout in radiologists: a systematic review", *European Journal of Radiology Open*, Vol. 11, doi: 10.1016/j.ejro.2023.100530.

Fisher, G.G., Bulger, C.A. and Smith, C.S. (2009), "Beyond work and family: a measure of work/nonwork interference and enhancement", *Journal of Occupational Health Psychology*, Vol. 14 No. 4, pp. 441-456.

Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50, doi: 10.1177/002224378101800104.

Frone, M. R., Russell, M. and Cooper, M.L. (1997), "Relation of work–family conflict to health outcomes: a four-year longitudinal study of employed parents", *Journal of Occupational and Organizational Psychology*, Vol. 70 No. 4, pp. 325-335, doi: 10.1111/j.2044-8325.1997.tb00652.x.

Fu, C.K. and Shaffer, M.A. (2001), "The tug of work and family: direct and indirect domain-specific determinants of work-family conflict", *Personnel Review*, Vol. 30 No. 5, pp. 502-522.

Gajendran, R.S., Harrison, D.A. and Zedeck, S. (2007), "The good, the bad, and the unknown about telecommuting: Meta-Analysis of psychological mediators and individual consequences", *Journal of Applied Psychology*, Vol. 92 No. 6, pp. 1524-1541, doi: 10.1037/0021-9010.92.6.1524.

Gajjar, J., Pullen, N.M., Li, Y., Weir, S. and Wright, J.G. (2022), "Impact of the COVID-19 pandemic upon self-reported physician burnout in Ontario, Canada: evidence from a repeated cross-sectional survey", *BMJ Open*, Vol. 12 No. 9, doi: 10.1136/bmjopen-2021-060138.

Giauque, D., Renard, K., Cornu, F. and Emery, Y. (2022), "Engagement, exhaustion, and perceived performance of public employees before and during the COVID-19 crisis", *Public Personnel Management*, Vol. 51 No. 3, doi: 10.1177/00910260211073154.

Golden, T.D., Veiga, J.F. and Simsek, Z. (2006), "Telecommuting's differential impact on work–family conflict: is there no place like home?", *Journal of Applied Psychology*, Vol. 91 No. 6, pp. 1340-1350.

Greenhaus, J.H. and Beutell, N.J. (1985), "Sources of conflict between work and family roles", *Academy of Management Review*, Vol. 10 No. 1, pp. 76-88, doi: 10.2307/258214.

Greenhaus, J.H. and Powell, G.N. (2006), "When work and family are allies: a theory of work-family enrichment", *Academy of Management Review*, Vol. 31 No. 1, pp. 72-92.

Greenhaus, J.H., Collins, K.M. and Shaw, J.D. (2003), "The relation between work-family balance and quality of life", *Journal of Vocational Behavior*, Vol. 63 No. 3, pp. 510-531.

Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019), "When to use and how to report the results of PLS-SEM", *European Business Review*, Vol. 31 No. 1, pp. 2-24, doi: 10.1108/EBR-11-2018-0203.

Hill, E.J., Hawkins, A.J., Ferris, M. and Weitzman, M. (2001), "Finding an extra day a week: the positive influence of perceived job flexibility on work and family life balance", *Family Relations*, Vol. 50 No. 1, pp. 49-58.

Hoornweg, N., Peters, P. and Van Der Heijden, B. (2016), "Finding the optimal mix between telework and office hours to enhance employee productivity: a study into the relationship between telework intensity and individual productivity, with mediation of intrinsic motivation and moderation of office hours", *Adv. Series Manag*, Vol. 16, pp. 1-28, doi: 10.1108/S1877-636120160000016002.

Hu, X. and Subramony, M. (2022), "Disruptive pandemic effects on telecommuters: a longitudinal study of work–family balance and well-being during COVID-19", *Applied Psychology*, Vol. 71 No. 3, doi: 10.1111/apps.12387.

International Labour Organization (ILO) (2020), *Defining and Measuring Remote Work, Telework, Work at Home and Home-Based Work Key Points*, International Labour Organization, Geneva.

International Labour Organization (ILO) (2021), "Teleworking arrangements during the COVID-19 crisis and beyond", *2 nd Employment Working Group Meeting during 2021 Italian Presidency of the G20, International Labour Organization, Geneva*.

Irfan, M., Khalid, R.A., Kaka Khel, S.S.U.H., Maqsoom, A. and Sherani, I.K. (2021), "Impact of work–life balance with the role of organizational support and job burnout on project performance", *Engineering, Construction and Architectural Management*, doi: 10.1108/ECAM-04-2021-0316.

Jamal, M.T., Anwar, I., Khan, N.A. and Saleem, I. (2021), "Work during COVID-19: assessing the influence of job demands and resources on practical and psychological outcomes for employees", *Asia-Pacific Journal of Business Administration*, Vol. 13 No. 3, pp. 293-319, doi: 10.1108/APJBA-05-2020-0149.

Kalliath, T. and Brough, P. (2008), "Work-life balance: a review of the meaning of the balance construct", *Journal of Management and Organization*, Vol. 14 No. 3, pp. 323-327.

Kelliher, C., Anderson, D., Hammer, L.B., Kossek, E.E. and Lewis, S. (2010), "Doing more with less? Flexible working practices and the intensification of work", *Human Relations, New York*, Vol. 63 No. 1, pp. 83-106, doi: 10.1177/0018726709349199.

Kelly, M., Soles, R., Garcia, E. and Kundu, I. (2020), "Job stress, burnout, work-life balance, well-being, and job satisfaction among pathology residents and fellows", *American Journal of Clinical Pathology*, Vol. 153 No. 4, pp. 449-469.

Keyes, C.L. (2002), "The mental health continuum: from languishing to flourishing in life", *Journal of Health and Social Behavior*, Vol. 43 No. 2, pp. 207-222.

Kirchmeyer, C. (2000), "Work-life initiatives: greed or benevolence regarding workers' time? ", *Trends in Organizational Behavior*, Vol. 7, pp. 79-94.

Kossek, E.E. and Ozeki, C. (1998), "Work–family conflict, policies, and the job–life satisfaction relationship: a review and directions for organizational behavior–human resources research", *Journal of Applied Psychology*, Vol. 83 No. 2, pp. 139-149.

Kossek, E.E., Su, R. and Wu, L. (2017), "Opting out" or "pushed out"? Integrating perspectives on women's career equality for gender inclusion and interventions", *Journal of Management*, Vol. 43, pp. 228-254.

Lazauskaitė-Zabielskė, J., Urbanavičiūtė, I. and Žiedelis, A. (2023), "Pressed to overwork to exhaustion? The role of psychological detachment and exhaustion in the context of teleworking", *Economic and Industrial Democracy*, Vol. 44 No. 3, pp. 875-892.

Lee, S. and Kim, S.L. (2013), "Social support, work-family conflict, and emotional exhaustion in South Korea", *Psychological Reports*, Vol. 113 No. 2, pp. 619-634.

Leo, A., Holdsworth, E.A., Wilcox, K.C., Khan, M.I., Mola Ávila, J.A. and Tobin, J.I. (2022), "Gendered impacts of the COVID-19 pandemic: a mixed-method study of teacher stress and work-life balance", *Community, Work and Family*, Vol. 25 No. 5, doi: 10.1080/13668803.2022.2124905.

Leung, L. and Zhang, R. (2017), "Mapping ICT use at home and telecommuting practices: a perspective from work/family border theory", *Telematics and Informatics*, Vol. 34 No. 1, pp. 385-396, doi: 10.1016/j.tele.2016.06.001.

Mann, S. and Holdsworth, L. (2003), "The psychological impact of teleworking: stress, emotions and health", *New Technology, Work and Employment*, Vol. 18 No. 3, pp. 196-211.

Marks, S.R. and MacDermid, S.M. (1996), "Multiple roles and the self: a theory of role balance", *Journal of Marriage and the Family*, Vol. 58 No. 2, pp. 417-432.

Marks, S.R., Huston, T.L., Johnson, E.M. and MacDermid, S.M. (2001), "Role balance among white married couples", *Journal of Marriage and Family*, Vol. 63 No. 4, pp. 1083-1098.

Mazmanian, M., Orlikowski, W.J. and Yates, J. (2013), "The autonomy paradox: the implications of mobile email devices for knowledge professionals", *Organization Science*, Vol. 24 No. 5, pp. 1337-1357, doi: 10.1287/orsc.1120.0806.

Palumbo, R. (2020), "Let me go to the office! an investigation into the side effects of working from home on work-life balance", *International Journal of Public Sector Management*, Vol. 33 Nos 6/7, pp. 771-790, doi: 10.1108/IJPSM-06-2020-0150.

Palumbo, R., Manna, R. and Cavallone, M. (2021), "Beware of side effects on quality! investigating the implications of home working on work-life balance in educational services", *The TQM Journal*, Vol. 33 No. 4, doi: 10.1108/TQM-05-2020-0120.

Palumbo, R., Flamini, G., Gnan, L., Pellegrini, M.M., Petrolo, D. and Fakhar Manesh, M. (2022), "Disentangling the implications of teleworking on work–life balance: a serial mediation analysis through motivation and satisfaction", *Journal of Organizational Effectiveness: People and Performance*, Vol. 9 No. 1, pp. 68-88.

Pasamar Reyes, S. and Valle Cabrera, R. (2011), "Institutional pressures for work-life balance", *Cuadernos de Economia y Direccion de la Empresa*, Vol. 14 No. 4, pp. 258-268.

Poelmans, S.A.Y., Chinchilla, N. and Cardona, P. (2003), "The adoption of family-friendly HRM policies: competing for scarce resources in the labour market", *International Journal of Manpower*, Vol. 24 No. 2, pp. 128-147.

Ringle, C.M., Wende, S. and Becker, J.-M. (2024), "SmartPLS 4", Bönningstedt: SmartPLS, available at: www.smartpls.com

Sardeshmukh, S.R., Sharma, D. and Golden, T.D. (2012), "Impact of telework on exhaustion and job engagement: a job demands and job resources model", *New Technology, Work and Employment*, Vol. 27 No. 3, pp. 193-207.

Sarstedt, M., Hair, J.F., Cheah, J.-H., Becker, J.-M. and Ringle, C.M. (2019), "How to specify, estimate, and validate higher-order constructs in PLS-SEM", *Australasian Marketing Journal*, Vol. 27 No. 3, pp. 197-211, doi: 10.1016/j.ausmj.2019.05.003.

Sirgy, M. and Lee, D.J. (2018), "Work-Life balance: an integrative review", *Applied Research in Quality of Life*, Vol. 13 No. 1, pp. 229-254, doi: 10.1007/s11482-017-9509-8.

Stoian, C.-A., Caraiani, C., Anica-Popa, I., Dascălu, C. and Lungu, C.I. (2022), "Telework systematic model design for the future of work", *Sustainability*, Vol. 14 No. 12, doi: 10.3390/su14127146.

Testi, E. and Andriotto, M. (2013), "Effectiveness of employee welfare schemes: differences of specific professional profiles", *The International Journal of Human Resource Management*, Vol. 24 No. 17, pp. 3232-3246.

Villavicencio-Ayub, E., Quiroz-González, E., García-Meraz, M. and Santamaría-Plascencia, E. (2021), "Afectaciones personales y organizacionales derivadas del confinamiento por COVID-19 en México", *Estudios Gerenciales*, Vol. 37, pp. 85-93, doi: 10.18046/J.ESTGER.2021.158.4270.

Voydanoff, P. (2004), "Implications of work and community demands and resources for work-to-family conflict and facilitation", *Journal of Occupational Health Psychology*, Vol. 9 No. 4, pp. 275-285.

Voydanoff, P. (2005), "Toward a conceptualization of perceived work-family fit and balance: a demands and resources approach", *Journal of Marriage and Family*, Vol. 67 No. 4, pp. 822-836.

Wayne, J.H., Musisca, N. and Fleeson, W. (2004), "Considering the role of personality in the work-famil experience: relationships of the big five to work-family conflict and facilitation", *Journal of Vocational Behavior*, Vol. 64 No. 1, pp. 108-130.

Weinert, C., Maier, C. and Laumer, S. (2015), "Why are teleworkers stressed? An empirical analysis of the causes of telework-enabled stress".

Wepfer, A.G., Allen, T.D., Brauchli, R., Jenny, G.J. and Bauer, G.F. (2018), "Work-life boundaries and well-being: does work-to-life integration impair well-being through lack of recovery?", *Journal of Business and Psychology*, Vol. 33 No. 6, pp. 727-740.

Whiston, S.C. and Cinamon, R.G. (2015), "The work-family interface: integrating research and career counselling practice", *Career Development Quarterly*, Vol. 63, pp. 44-56.

Wichaisri, S. and Sopadang, A. (2017), "Integrating sustainable development, lean, and logistics concepts into a lean sustainable logistics model ", *International Journal of Logistics Systems and Management*, Vol. 26 No. 1, pp. 85-104, doi: 10.1504/IJLSM.2017.080631.

Zalat, M. and Bolbol, S. (2022), "Telework benefits and associated health problems during the long COVID-19 era", *Work*, Vol. 71 No. 2, pp. 371-378.

Appendix

Table A1. Items used for operationalise the concepts

Constructs	Variable	QUESTION	SCALE
Teleworking from Home (TWH)	QM35E	During the last 12 months, how often have you worked in your own home?	0 Never 1 Always
Flexible working hours (FWH)	Q44	How do your working hours fit in with your family or social commitments outside work?	1 Not at all well * 2 Not very well 3 Well 4 Very well
Work life balance	Q45A	Kept worrying about work when you were not working	1 Always ** 2 Often 3 Sometimes 4 Rarely 5 Never
	Q45B	Felt too tired after work to do some of the household jobs which need to be done	1 Always ** 2 Often 3 Sometimes 4 Rarely 5 Never
	Q45D	Found it difficult to concentrate on your job because of your family responsibilities	1 Always ** 2 Often 3 Sometimes 4 Rarely 5 Never
WorK-related fatigue (WF)	Q90D	I feel physically exhausted at the end of the working day	1 Never 2 Rarely 3 Sometimes 4 Often 5 Always
	Q90G	I feel emotionally drained by my work	1 Never 2 Rarely 3 Sometimes 4 Often 5 Always

Note(s): *Recoded values. Originally 1 Very Well, 2 Well, 3 Not very well and 4 Not at all well. **Recoded values. Originally 1 Never, 2 Rarely, 3 Sometimes, 4 Often and 5 Always
Source(s): Authors' own elaboration

Corresponding author
Juan Herrera-Ballesteros can be contacted at: Juanherrera@uma.es