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RESEARCH ARTICLE

Work environment and health of bank employees working from home: Lessons from the COVID-19 pandemic

Carla Azpíroz-Dorronsoro[1] | **Beatriz Fernández-Muñiz**[2] | **José Manuel Montes-Peón**[2] | **Camilo José Vázquez-Ordás**[2]

[1]Faculty of Economics and Business, University of Oviedo, Oviedo, Spain

[2]Department of Business Administration, University of Oviedo, Oviedo, Spain

Correspondence
Beatriz Fernández-Muñiz, Department of Business Administration, Faculty of Economics and Business, University of Oviedo. Avenida del Cristo, s/n, 33071, Oviedo, Spain.
Email: beatrizf@uniovi.es

Abstract

Teleworking in the banking sector has increased considerably as a result of the outbreak of the COVID-19 pandemic. This work examines the role that home work environment and organisational support for teleworking played in the health of bank employees who were forced to work from their homes during the health emergency. For this, the authors propose and test a structural equation model and a moderated serial mediation model using a sample of 1037 bank employees in Spain, obtained through an online self-administered survey. The results reveal the direct and indirect effects of home physical conditions on health, mediated by family interference with work and technological overload. The results also show that the organisation's support for teleworking enhances the impact of home physical conditions on family interference and technological overload, also detecting that the indirect effects of physical conditions on health have been conditioned by the organisation's support for teleworking. The study therefore provides a better understanding of the impact of home environment on teleworkers' health and identifies useful strategies to improve the well-being of bank employees who wish to work from home.

1 | INTRODUCTION

The banking sector is undergoing a process of digital transformation with the aim of improving efficiency, customer service, and reducing the impact of the activity on the environment. This process of digitalisation has been accelerated by the outbreak of the COVID-19 pandemic, which resulted in a large number of employees being forced to telework from home.

Teleworking was first defined by Nilles in 1973 as 'all work-related substitutions of telecommunications and related information technologies for travel' (Nilles, 1988). After the oil crisis in the US, teleworking began to be considered a possible solution to the problems associated with the energy crisis, by avoiding the displacement of workers. Thus, in the 1980s, great expectations were generated by this new way of working, which were not fulfilled (Olson & Primps, 1984). It is from the 21st century onwards, with the development of information technologies, that remote working has received increasing attention (Bergefurt et al., 2022). However, its boom occurred in 2020 when the global health crisis caused by the COVID-19 pandemic led governments to adopt confinement and social isolation measures, forcing employees to work from their homes through the use of digital media. Thus, the number of teleworkers increased extraordinarily (Oakman et al., 2020), exceeding any expectations previously generated.

In Spain, the declaration of a state of alarm in March 2020 resulted in the temporary suspension of all non-essential activities (Cuerdo-Vilches et al., 2021). In the banking industry, about 30% of the branch network was closed, and it is estimated that approximately 70% of employees in the sector were teleworking at the beginning of the pandemic and that 40% were still teleworking one year later (Bank of Spain, 2020), becoming one of the industries that presented the highest rates of implementation

of teleworking during the health emergency. The use of teleworking has meant that banking has been the sector with the lowest productivity declines during the worst moments of the health emergency (Bras & Schaefer, 2020). The increase in teleworking in the banking sector due to the pandemic has been significant, given that previously only 10% of its employees teleworked (Anghel et al., 2020). Although many workers resumed their face-to-face activity after the pandemic, the popularity of teleworking increased worldwide (Golden, 2021), leading to a predictable future hybrid scenario where face-to-face work and remote work combine to take advantage of the investments made and experiences gained during the global pandemic.

There is no unanimous definition of teleworking and it has often been referred to under the terms of distance working, telecommunication or virtual work. However, several authors define it as remote work using a technological component (Haddon & Brynin, 2005; Peters et al., 2004). Golden (2021, p.1) defines teleworking as 'a work practice that involves working away from the corporate office for a portion of the work week, typically from home, and using technology as needed to conduct work'. When teleworking is carried out at the employee's home, it has also been referred to as working from home.

Teleworking can offer advantages for both companies and employees. This method of working has been associated with sustainability as an important tool to reduce traffic congestion, the environmental impact of transport, and energy consumption (Hook et al., 2020; Lari, 2012). Furthermore, teleworking offers employees the opportunity to work from home without loss of time in commuting, with greater autonomy and a more flexible timetable (Anderson et al., 2015; Grant et al., 2013) and with greater concentration (Bergefurt et al., 2022), allowing a better balance of work and family life (Zhang et al., 2020) and improving employee satisfaction and well-being (Beckel & Fisher, 2022). However, teleworking can have adverse effects on the physical and mental health of the employee by causing musculoskeletal disorders, anxiety, or stress, as a result of an inadequate work environment in the home (Oakman et al., 2020; Sousa-Uva et al., 2021; Xiao et al., 2021).

The research on teleworking has largely focused on work-related outcomes, such as performance, rather than employee health and well-being (Beckel & Fisher, 2022), paying little attention to ergonomic and safety issues within their homes (Ekpanyaskul & Padungtod, 2021). Consequently, there is a lack of clarity regarding the effects of teleworking on employee health (Beckel & Fisher, 2022; Crawford, 2022), especially in the banking sector. Given the current rise of teleworking, there is a critical need for new research focused on understanding how teleworking influences the physical and psychological well-being of employees.

Beckel and Fisher (2022), after reviewing the existing literature on teleworking, concluded that its impact on health is conditioned by individual and work characteristics, the social context of work, and technological systems. Likewise, the literature review by Buomprisco et al. (2021) concluded that the main hazards for the health of teleworkers are the unavailability of an ergonomic work environment and a dedicated working area, the risk of overwork, and psychosocial implications of working from home. On the other hand, Meier et al. (2023) highlight that the success of teleworking, i.e., teleworkers' satisfaction and performance, results from the combination of three factors: the information and communication technologies (ICTs) used for teleworking, the work, and the family. Bentley et al. (2016) reflect that the consequences of teleworking for the mental health of employees depend on the degree of fit between the person and the environment. An inadequate fit between the home work environment and the individual's needs can result in stress, depression, or burnout (Bergefurt et al., 2022). Therefore, it is essential to carefully integrate and design organisational, human, and technological subsystems during teleworking to improve not only productivity but also the health and well-being of employees (Beckel & Fisher, 2022). In this sense, Weber et al. (2023), following the socio-ecological framework applied to health promotion provided by Stokols (1996), identify three interrelated environments with potential effects on the health of teleworkers: (1) social environment, referring to the presence of the family when working; (2) built environment, referring to home office conditions;

Policy Implications

- The popularity of teleworking as a way to improve the sustainability of the organization is increasing, but the success of this work arrangement requires the protection of the employee's health.
- The health of the teleworker is conditioned by the home work environment, i.e., ergonomic conditions of the workspace, presence of the family and technological overload.
- The success of teleworking will depend on the ability of organizations to assess and control the home work environment and monitor the health of teleworkers, making necessary specific support of the organization towards teleworking.
- Occupational health providers must establish adequate mechanisms for occupational risk prevention and health promotion of teleworkers.
- It is of great importance to develop regulations and establish protocols that make it easier for organizations to monitor the health of employees who work from home.

and (3) structural or psychosocial environment, referring to job demands and resources. However, they state that the effects of the psychosocial environment, the home office environment, and the social environment on well-being as well as their interactions are under-explored.

In summary, the impact of teleworking on the health of employees seems to depend on the conditions under which it is performed. However, the empirical evidence on the effect of such conditions on the health of teleworkers is inconsistent, making it necessary to shift the focus of research towards the analysis of the environmental conditions of teleworking in order to establish work designs that support the well-being and productivity of employees working from home (Crawford, 2022; Vander Elst et al., 2020).

In this work, we aim to fill the gaps identified by examining the impact of the work environment on the physical and psychological health of bank employees who were forced to work from home during the pandemic. Specifically, following Weber et al. (2023), we differentiate three work environments: the physical environment, linked to home office conditions; the social environment, assessing the family interference with work; and the structural environment, addressing technological demands and, more specifically, the technological overload perceived by the worker as a consequence of the use of information and communication technologies for the performance of their work. We also examine the mediating role of family interference with work and technological overload and the moderating role of the support provided to teleworking by the organisation. Therefore, with this study, we aim to answer the following research questions: was the health of bank employees forced to telework during the pandemic affected by the home work environment? Are there interrelationships between the different work environments? Has the support provided by the organisation to teleworking allowed better use of available resources so that there is a perception of greater privacy and less technological overload?

This work makes important contributions to the knowledge on the effects of teleworking on the health of employees since it proposes and contrasts an integrative model that allows analyzing the impact of the home work environment on health and the different interactions between physical, social, and structural environment. This represents an important novelty, as although studies analyzing telework conditions during the pandemic have highlighted a worsening of ergonomic conditions in relation to face-to-face work and a higher occurrence of musculoskeletal disorders (El Kadri Filho & de Lucca, 2022), the interactions between the different work environments have hardly been considered.

The conclusions obtained are very relevant not only to human resources management but also to public policy on remote work in relation to employee health, well-being, and family-life balance. The pandemic created ideal conditions for assessing the impact of teleworking on employee health and, given the foreseeable continuity of teleworking in the future, the experience lived can serve to propose strategies to improve the well-being and take advantage of the talent of employees who decide to use this work formula.

2 | THEORETICAL FRAMEWORK

Working from home forced by the pandemic was introduced in a disruptive, unique, and unexpected way, on many occasions without previous training plans, with employees having to adapt quickly to their new working environments in their homes (Bergefurt et al., 2022) and having to deal with the simultaneity of family and work responsibilities. Cuerdo-Vilches et al. (2021) state that not all households have provided the ideal conditions for teleworking, given the lack of stable and recurrent teleworking practices carried out previously. Most of the workers, surprised by the imposition of teleworking, had only a laptop to work at home, lacked adequate space, and used mostly inadequate chairs and tables, even many months after the start of the pandemic (Davis et al., 2020; El Kadri Filho & de Lucca, 2022; Gerding et al., 2021). Following the Person-Environment fit theory developed by Edwards et al. (1998), when individuals perceive a misfit between their needs and the characteristics of the environment, psychological, physical, and behavioral tensions arise, which in the long term can trigger physical and mental illnesses in the worker, such as stress, depression, poor sleep quality, or loss of concentration. In this sense, Weber et al. (2023) identified three interrelated environments with potential effects on employee health: built environment, social environment, and structural environment.

The built or physical environment can be understood as the equipment and space where the individuals carry out their work activities. Working from home requires a telecommunication system, mainly through the use of personal computers, tablets, or smartphones, which increases the exposure of employees to Visual Display Terminal (VDT). Intensive use of VDT is associated with health problems, such as headaches, stress, and different musculoskeletal disorders (El Kadri Filho & de Lucca, 2022; Larrea-Araujo et al., 2021). These problems can be aggravated by workstation characteristics (Ekpanyaskul & Padungtod, 2021). Cuerdo-Vilches et al. (2021) identified adequate lighting, indoor air quality, thermal and acoustic comfort, and user comfort with respect to furniture and digital resources as relevant characteristics of the home workspace. Additionally, Xiao et al. (2021) reflect that lighting, temperature, noise, or available furniture have been very important for the mental health of employees. Therefore, the health problems generated by the use of information technologies could be alleviated by the existence of a place reserved for teleworking

and an ergonomic workstation design (Buomprisco et al., 2021; Ekpanyaskul & Padungtod, 2021; El Kadri Filho & de Lucca, 2022; Larrea-Araujo et al., 2021; Xiao et al., 2021). In this work, we frame the physical characteristics of the workspace under the term home conditions. Therefore, we propose the following hypothesis:

H1. Good home conditions are negatively related to employee health problems.

Social environment refers to the presence of the family when teleworking (Weber et al., 2023). Several studies have analyzed the impact of teleworking on the work–family conflict. Teleworking gives employees greater flexibility and more control over tasks, in addition to bringing the worker closer to the family environment, which could facilitate the reconciliation of work and family life. In fact, the greater balance between work and family life was identified as one of the main precursors of teleworking (Haddad et al., 2009), but the research is inconclusive (Zhang et al., 2020).

Golden (2021) considers that the balance between work and family demands is one of the main challenges of working from home. Role theory proposes that individuals play multiple roles in their daily lives. In other words, they assume different responsibilities, obligations, and expectations related to their position and status (Martin & Wilson, 2005), which require time and energy commitment. Role responsibilities in multiple domains of life are often incompatible and can lead to a conflict between roles (Greenhaus & Beutell, 1985). This conflict between roles has two directions: work-to-family conflict, where work prevents the correct assumption of family responsibilities, and family-to-work conflict, where the family interferes with work. In teleworking situations, there is an integration of the work and family domain, eliminating the physical distance between work and home. In addition, in the context of COVID-19 lockdowns, many parents had to combine work with childcare and education, due to the closure of educational centres (Weber et al., 2023). The greater availability of the employee to the family, the existence of children who may require care, or the noise generated by other family members create distractions and interruptions for the employee while working, leading to greater permeability of the workplace by giving greater control to the family domain. In this way, working at home could reduce the work interference with the family at the expense of increasing family interference with the work (Golden, 2021; Golden et al., 2006; Zhang et al., 2020). Therefore, in this study, we focus on analyzing the latter direction of the conflict.

Family interruptions at work are considered a hindrance stressor (Keller et al., 2020; Perry et al., 2023), as they make it difficult to return to the interrupted task, hindering job performance and goal attainment. Thus, interruptions and boundary violations increase time pressure, frustration, tension, and anxiety (Golden, 2021), leading to a significant detriment of worker well-being. However, the separation of both domains could help employees better manage the family-to-work conflict (Golden, 2021). Thus, the availability of an unshared suitable workspace at home, free of noise and with good lighting, reduces interruptions and distractions and favours the individual's need for privacy, with the employee perceiving less interference of the family with their work (Bergefurt et al., 2022). Accordingly, we propose the following hypotheses:

H2. Family-to-work interference is positively related to employee health problems.

H3. Good home conditions are negatively related to the perception of family-to-work interference.

Finally, structural or psychosocial environment refers to the job design, i.e., job demands and resources. Job demands can be considered 'physical, social, or organizational aspects of a job that require sustained physical or mental effort' (Demerouti et al., 2001, p. 501). Teleworking involves the use of digital media, leading to greater exposure of workers to information and communication technologies. Although technology can be a positive instrument to improve work processes, it also represents a challenge for employees. Constant phone calls, virtual meetings, instant messaging, numerous incoming emails, or collaborative applications generate interruptions and can lead the worker to multitask, causing information overload and a greater perception of workload (Tarafdar et al., 2011), forcing employees to have to work faster, hence increasing the risk of not doing their job well. This technological overload can cause workflow disconnections, make sustained mental attention and task completion difficult, and, consequently, lead to different health problems such as exhaustion, tension, or anxiety. In fact, techno-overload is one of the main creators of technostress as identified by Tarafdar et al. (2007). Technological overload can therefore be considered one of the most important job demands in teleworking situations. However, the availability of adequate computer equipment and a good Internet connection can reduce delays and technology malfunction, considered by Weinert et al. (2021) as an important source of emotional exhaustion. Therefore, good working conditions that avoid delays and favour concentration could reduce the technological overload perceived by the employee. Thus, we propose the following hypotheses:

H4. Technological overload is positively related to employee health problems.

H5. Good home conditions are negatively related to the perception of technological overload.

In addition, when members of the same household occupy the home space, working from home may result in overlap between the work and family domains, involving tremendous taxing of resources (Perry et al., 2023). The continuous interference of the family in work leads the worker to suffer constant interruptions and to combine work responsibilities with household tasks, perceiving a lengthening of the working day. These interruptions consume cognitive and time resources and, following the Hobfoll (1989) Conservation of Resources Theory, reduce the resources available to deal with complex technological systems to process the vast amount of information and deal with communication overload, which can lead to a greater perception of technological overload. Consequently, the following hypothesis is proposed:

> **H6.** Family-to-work interference is positively related to the perception of technological overload.

The theoretical approach developed above allows analyzing the impact of the work environment on employee health, as well as establishing connections between the three types of environment identified, observing that there could be an indirect effect of the physical environment on health mediated by the social environment and the structural environment. Therefore, home conditions by reducing the perception of family-to-work interference and technological overload could generate a further reduction of health problems, leading us to formulate the following hypothesis:

> **H7.** Family-to-work interference and technological overload mediate the relationship between home conditions and employee health problems.

Finally, organisational support is a job resource that can help employees achieve their job goals, reduce job demands, and stimulate personal development (Schaufeli & Taris, 2014). It can therefore strengthen the confidence of employees when facing the roles demanded (Jawahar et al., 2007). Thus, the support an individual receives from the organisation plays an important role in facilitating employee well-being (Beckel & Fisher, 2022; Bentley et al., 2016). Organisational support for teleworking comprises a set of practices focused on improving the teleworking experience, such as interaction with colleagues, help provided by the supervisor or training, and information provided by the organisation, which could contribute to reduce the psychological strain caused by teleworking (Bentley et al., 2016), However, there is no consensus on the role played by this support.

Following Cohen and Wills (1985), when support is specific to a highly stressful event for the employee, i.e., provides resources closely related to the specific need generated by the stressful situation, it may help revaluate a stressor as benign or suggest an appropriate coping response that could counteract the perceived lack of control of the situation. Thus, the support provided by the organisation could act as a moderator between the stressful event and its outcomes. The training provided by the organisation to start teleworking and the help provided by superiors or colleagues improves the employee's abilities and resources to deal with the situation of teleworking, which can lead employees to make better use of home conditions, and, therefore, home conditions could have a greater impact on family-to-work interference and technological overload. As a result, the indirect effects of home conditions on health could be conditioned by the support received from the organisation. Accordingly, we propose our last research hypothesis:

> **H8.** Organizational support for teleworking moderates the indirect effects of home conditions on employee health through family-to-work interference and technological overload so that the reduction of health problems is greater when individuals receive greater support.

Furthermore, in order to ensure that the relationships between the variables analyzed are not spurious, we introduce control variables in the model proposed. Given that Weber et al. (2023) state that home work environments and their impact on health can be conditioned by individual characteristics, we consider as control variables the existence of children under 6 years of age in the home, age, and the employee's ability to respect work schedules. In a context of school closures as a result of COVID-19 lockdowns, some parents had to combine full-time work with childcare. In particular, young children may cause interruptions and distractions to their work, which may increase family interference and aggravate the psychosocial problems associated with teleworking (Ekpanyaskul & Padungtod, 2021). Age may also be a relevant variable since older employees may have more difficulty with technological tools and less potential to adapt to changes and may perceive greater technological overload and suffer greater health problems. Also, age could negatively influence work–family conflict since as the employee ages, childcare tends to decrease. On the other hand, Larrea-Araujo et al. (2021) detected that a recurrent problem of teleworking is the inadequate use of the time allocated to work, which could affect the perception of family interference and technological overload and have an impact on musculoskeletal disorders, visual fatigue, or anxiety problems. Figure 1 summarises the research hypotheses.

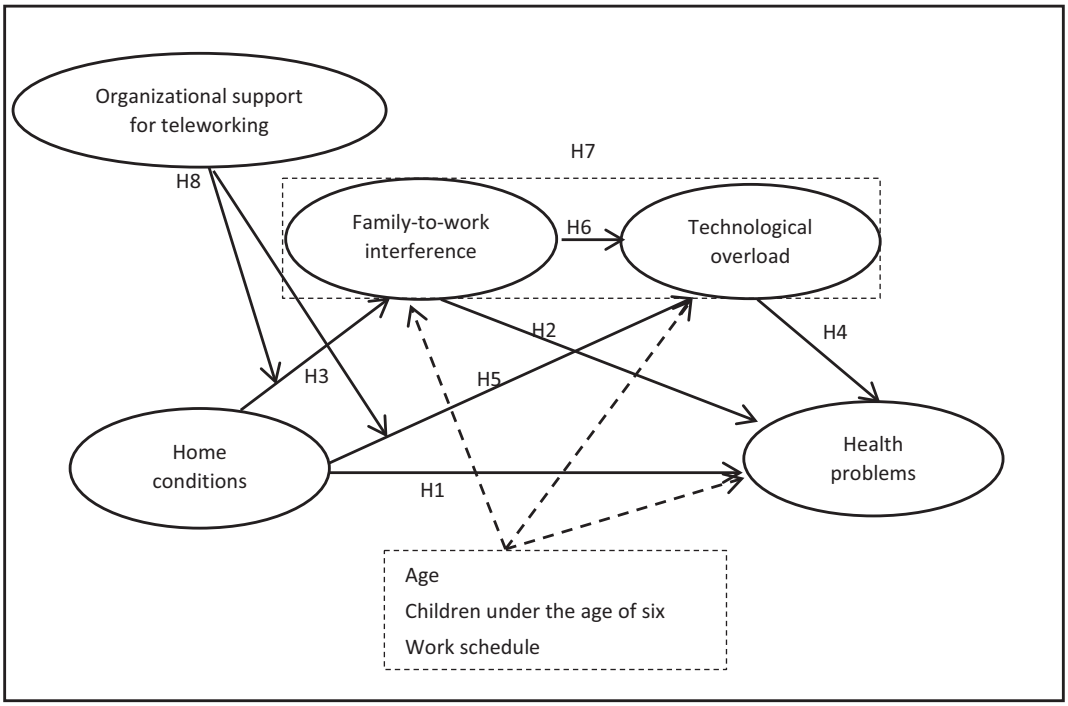

FIGURE 1 Proposed conceptual model.

3 | METHODOLOGY

In order to achieve the proposed aim, we have carried out an empirical study, considering as target population employees of the banking sector in Spain who worked from home at some point during the COVID-19 pandemic. To gather the information, a questionnaire was designed as a result of an exhaustive bibliographic review. Once an initial list of items was obtained and a first draft was prepared, the questionnaire was subjected to a filtering process for which the opinion of several professionals in the field of Psychology and Information Technologies was taken into account. Specifically, four experts were contacted in February 2021. After accepting their collaboration in the study, they were sent the questionnaire in order to assess the correct composition of the different measurement scales used in the research. The information provided was very useful since it offered guidance on possible redundant items that could be eliminated and identified items whose wording could be modified in order to make them clearer and more concise and, consequently, facilitate the understanding of the questionnaire.

Subsequently, after the selection of the definitive items, the questionnaire was submitted to a pre-test with employees of different banks, with the aim of testing the correct understanding of the questions and checking the application of the questionnaire in the Spanish banking sector. All items were presented in neutral terms in order not to cause bias or intentional errors, using Likert 1–5 scales. The items finally used are listed in the Appendix A to this work.

The employees were identified through the professional network LinkedIn. After prior contact, an email was sent during the months of March and April 2021 to all those who agreed to take part in the study, explaining the objectives of the research, the need for the study, and the importance of their participation. We tried to contact employees with different demographic characteristics, who carry out different functions and belong to different banking entities operating in Spain with the aim of obtaining the widest possible generalisation of the results. Specifically, a total of 4000 emails were sent and 1037 completed questionnaires were obtained, with a response rate of 25.92%. Figure 2 shows the distribution of respondents according to gender, age, number of children under the age of 6, and the department to which they belong.

4 | RESULTS

4.1 | Estimation of the measurement model

Prior to the estimation of the structural model, we proceeded to evaluate the reliability and validity of the scales used to measure the concepts of the study (Anderson & Gerbing, 1988). To that end, we performed a confirmatory factor analysis using EQS 6.2 software. For the model estimation, the method of robust maximum likelihood has been used (Bentler, 1995) since it allows a global

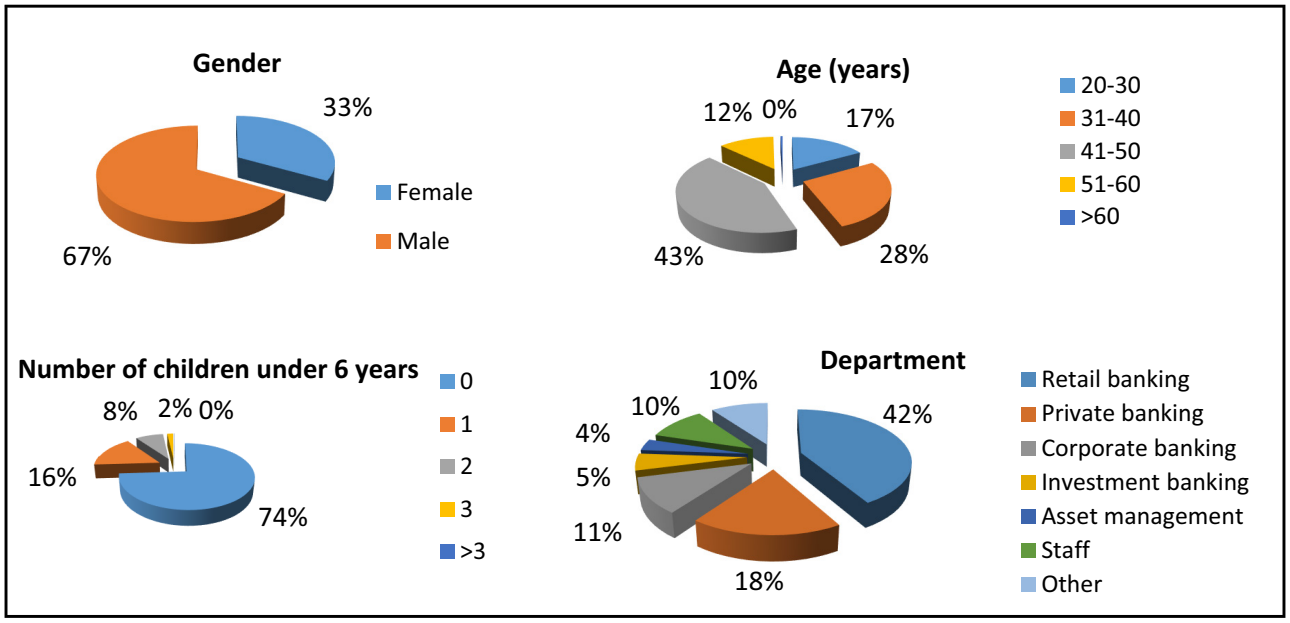

FIGURE 2 Characteristics of the sample.

fit of the model proposed on different statistics that have been corrected to assume the non-normality of the data. Table 1 shows that the hypothetical five-factor model has satisfactory goodness-of-fit indices (Bentler, 1995; Hair et al., 1998), except for the Chi-square contrast which does not reach the desirable level of significance as it is less than 0.05. However, it should be noted that this indicator is very sensitive to sample size and the complexity of the model (Bentler & Bonett, 1980; Hair et al., 1998). For that reason, we have proceeded to examine other fit indices such as RMSEA, SRMR, IFI, CFI, BBNNFI, and GFI.

The convergent validity was analyzed through the standardised factor regression coefficients between the set of explanatory variables of the scale and its corresponding latent saturation variable (Anderson & Gerbing, 1988), noting that all coefficients were significant and above 0.5. The discriminatory validity was verified following the approach proposed by Anderson and Gerbing (1988), consisting in estimating the confidence interval of the correlation coefficients existing between the dimensions considered, taking into account the value of this coefficient and the corresponding standardised errors, to verify that no interval includes the value 1.0 (Table 1). Likewise, following the Fornell and Larcker (1981) criterion, we observed that the square root of the average variance extracted by a construct is greater than the correlation between the construct and any other construct, thus confirming the discriminant validity of all dimensions.

The reliability of the measurement scale was assessed through Cronbach's Alpha coefficient and the Composite Reliability Index of each factor. As can be seen in Table 1, all factors present Cronbach's Alpha coefficients higher than the value of 0.7, considered a level of reliability suitable for contrasting causal relationships (Nunnally, 1978). It is also noted that the Composite Reliability Index (CRI) presents in all cases values above the minimum level of 0.6 as recommended by Bagozzi and Yi (1988).

Finally, to control the common method bias (CMB), we follow a procedural and statistical approach (Podsakoff et al., 2003). First, we pay special attention to the design stage of the questionnaire, separating the dependent from the independent variables. In addition, we pose the questions concisely to reduce the ambiguity of the items and facilitate their understanding. We also guarantee the anonymity of responses and emphasise the need to respond honestly. On the other hand, we performed a statistical control based on Harman's single-factor test using the non-rotated factorial solution. The results showed an explained variance of 23.11%, which was significantly lower than the required value of 50%. Therefore, a single factor does not collect the variance of the data and CMB is not a problem in this study.

4.2 | Estimation of the structural model

Once the suitability of the measurement scales of the concepts used in the study is verified, the proposed structural model was estimated. Table 2 shows that the goodness-of-fit indices exceed the recommended values, except for the Chi-square value, allowing us to say that the model proposed is adequate. The coefficients shown in Table 2 confirm the negative and statistically significant influence of the home conditions on employees' health problems, corroborating hypothesis H1. Likewise, a positive and significant influence of the family-to-work interference on health problems

TABLE 1 Results of the confirmatory factor analysis.

Dimension Variables	Cronbach's alpha	CRI	Standardised factor loading	*t*-values	Dimension-dimension	Correla-tion	Confidence interval
Home conditions (HC)	0.873	0.875			HC-TO	−0.230	(−0.298 to -0.162)
HC 1			0.538	17.523	HC-FWI	−0.221	(−0.295 to -0.147)
HC 2			0.612	17.931	HC-HP	−0.227	(−0.301 to -0.153)
HC 3			0.770	34.471	HC-OS	0.486	(0.418 to 0.554)
HC 4			0.772	36.275	TO-FWI	0.345	(0.273 to 0.417)
HC 5			0.786	28.601	TO-HP	0.363	(0.297 to 0.429)
HC 6			0.765	26.658	TO-OS	−0.199	(−0.279 to −0.119)
HC 7			0.692	19.031	FWI-HP	0.294	(0.220 to 0.368)
Technological overload (TO)	0.830	0.831			FWI-OS	−0.170	(−0.250 to −0.090)
TO 1			0.721	29.615	HP-OS	−0.391	(−0.465 to −0.317)
TO 2			0.706	25.505			
TO 3			0.727	27.416			
TO 4			0.640	21.929			
TO 5			0.723	29.954			
Family-to-Work interference (FWI)	0.819	0.795					
FWI 1			0.801	27.906			
FWI 2			0.774	29.210			
FWI 3			0.644	18.754			
FWI 4			0.577	16.547			
Health problems (HP)	0.858	0.861					
HP 1			0.633	22.483			
HP 2			0.526	17.311			
HP 3			0.786	32.887			
HP 4			0.833	37.049			
HP 5			0.626	21.398			
HP 6			0.684	22.986			
HP 7			0.650	23.893			
HP 8			0.512	15.414			
Organisational support (OS)	0.749	0.751					
OS 1			0.586	17.665			
OS 2			0.590	18.129			
OS 3			0.520	15.221			
OS 4			0.681	24.667			
OS 5			0.684	24.812			
Results of Model Fit: S-Bχ^2 (365) = 1305.7716 $p < 0.001$							
SRMR = 0.049 IFI = 0.913 CFI = 0.913 RMSEA = 0.050 BBNNFI = 0.903 GFI = 0.907							

Note: *t*-values above 1.96 indicate significance at 95% confidence level.

was detected, allowing us to corroborate hypothesis H2. Hypothesis H3 is also corroborated since the results show a negative and significant influence of the home conditions on the family-to-work interference. In addition, a positive and significant influence of technological overload on health problems is observed, corroborating hypothesis H4. Finally, the results show that technological overload is negatively influenced by home conditions and positively influenced by family-to-work interference, thus corroborating hypotheses H5 and H6, respectively.

On the other hand, the introduction of control variables in the model yields the following results. The age of the employee exerts a positive and significant influence

TABLE 2 Results of the proposed structural model.

Hypothesis	Independent variable		Dependent variable	Standardised parameter	Non standardised parameter	*t*-values	Supported
H1 (–)	Home conditions	⟶	Health problems	−0.106*	−0.110	−2.774	Yes
H2 (+)	Family-to-work int.	⟶	Health problems	0.164*	0.187	4.040	Yes
H3 (–)	Home conditions	⟶	Family-to-work int.	−0.196*	−0.177	−4.659	Yes
H4 (+)	Techno. overload	⟶	Health problems	0.257*	0.192	6.622	Yes
H5 (–)	Home conditions	⟶	Techno. overload	−0.144*	−0.198	−4.033	Yes
H6 (+)	Family-to-work int.	⟶	Techno. overload	0.303*	0.464	6.860	Yes
Control variables	Age	⟶	Techno overload	0.073*	0.076	2.308	
	Age	⟶	Family-to-work int.	−0.033	−0.023	−0.989	
	Age	⟶	Health problems	−0.029	−0.022	−0.907	
	Children <6y	⟶	Techno overload	−0.032	−0.043	−1.055	
	Children <6y	⟶	Family-to-work int.	0.145*	0.127	4.256	
	Children <6y	⟶	Health problems	0.009	0.009	0.287	
	Work schedule	⟶	Techno overload	−0.152*	−0.100	−4.411	
	Work schedule	⟶	Family-to-work int.	−0.081*	−0.035	−2.283	
	Work schedule	⟶	Health problems	−0.121*	−0.059	−3.770	
Results of Model Fit S-Bχ^2 (304) = 1015.0301 $p < 0.001$ SRMR = 0.042 RMSEA = 0.048 IFI = 0.927 CFI = 0.927 BBNNFI = 0.915 GFI = 0.923							

*$p < 0.05$.

TABLE 3 Mediating effects of Family-to-work interference and Technological overload on the relationship between Home conditions and Health problems.

Path	Effect	SE	*p*-value	LL 95% CI	UL 95% CI
Total effect	−0.1573	0.026	<0.001	−0.2088	−0.1058
Direct effect (HC→HP)	−0.1040	0.026	<0.001	−0.1546	−0.0534
Total indirect effects	−0.0533	0.010	–	−0.0740	−0.0349
Indirect 1: HC → FWI → HP	−0.0184	0.006	–	−0.0311	−0.0082
Indirect 2: HC → TO → HP	−0.0279	0.007	–	−0.0423	−0.0155
Indirect 3: HC → FWI → TO → HP	−0.0070	0.002	–	−0.0115	−0.0035

Dependent Variable = Health problems; Independent Variable = Home conditions. Abbreviations: FWI, Family-to-work interference; HC, Home conditions; HP, Health Problems; TO, Technological overload.

on the perception of technological overload, while the number of children under 6 years of age positively and significantly influences the interference of the family in the work. In addition, respect for work schedule reduces the perception of family-to-work interference, the perception of technological overload, and health problems.

4.3 | Analysis of the mediating effects of family-to-work interference and technological overload

We performed a serial mediation analysis using Model 6 in the macro PROCESS (v.4) for SPSS to examine the mediating effect of family-to-work interference and technological overload on the relationship between home conditions and employee health (Hayes, 2022). This approach makes it possible to isolate the indirect effect of each mediator and allows examining the indirect effect through both mediators in a series (Van Jaarsveld et al., 2010). Based on a random resampling of 10,000 subsamples, the statistical significance of the indirect effects was evaluated through the bootstrapping method with 95% confidence intervals, so that if these confidence intervals do not include the value of 0, the indirect effects can be considered statistically significant.

Table 3 shows the results of the serial mediation analysis performed, considering as covariates age, the number of children under 6 years of age, and respect for working hour schedules. The analysis reveals a direct and negative effect of home conditions on health problems (Total Effect), which continues to be significant when mediators are introduced into

the analysis (Direct Effect). The three indirect effects of home conditions on health are also significant. Thus, we can conclude that the relationship between home conditions and health is partially mediated by family-to-work interference and by the perception of technological overload, allowing us to corroborate hypothesis H7.

4.4 | Analysis of moderated mediation

In order to assess whether the indirect effects of home conditions on health are conditioned by organisational support for teleworking, we analyzed moderated mediation using Model 84 of the macro PROCESS (Hayes, 2022). This model not only estimates the direct and indirect effects but also allows analyzing the strength and direction of an interaction in the indirect path, taking into account different values of the moderator. The variables that define the terms of the product were centered on the mean, and the conditioning values for the mean ±1 standard deviation were calculated.

When organisational support for teleworking is introduced as a moderator, Table 4 shows that the interaction terms are significant, confirming the moderating role of organisational support in the relationship between home conditions and family-to-work interference and in the relationship between home conditions and technological overload.

The conditional effects of home conditions on the family-to-work interference and on the technological overload for different values of the organisational support to teleworking are shown in Table 4. It can be observed that the effect of the home conditions on family interference is significant for any moderator value, although the effect is increased when employees receive greater support from the organisation. In contrast, the significance of the effect of home conditions on technological overload depends on the value of the moderator, observing that for low levels of support, the effect is not significant, but it is when employees receive medium and high support, increasing the effect when receiving greater support. Therefore, the negative impact of home conditions on family-to-work interference and technological overload is greater for high moderator values. The interaction graphs for low and high moderator values can be seen in Figures 3 and 4, respectively.

The conditional indirect effects of home conditions on health through family-to-work interference and technological overload for different values of organisational support for teleworking are shown in Table 5. The results reveal that the conditional indirect effect of the

TABLE 4 Moderating effect of Organisational support for teleworking.

	D.V. = FWI		D.V. = TO		D.V. = HP	
	Coeff	***p*-value**	**Coeff**	***p*-value**	**Coeff**	***p*-value**
Predictor						
HC	−0.1489*	<0.001	−0.1482*	<0.001	−0.1040*	<0.001
FWI	–	–	0.2443*	<0.001	0.1172*	<0.001
TO	–	–	–	–	0.1741*	<0.001
Control Variables						
Age	−0.0322	0.285	0.0699*	0.033	−0.0005	0.984
Children <6y	0.1627*	<0.001	−0.0264	0.528	−0.0008	0.980
Work schedule	−0.0448*	0.019	−0.1006*	<0.001	−0.0664*	<0.001
Interaction						
HC×OST	−0.0719*	0.018	−0.0857*	0.010	–	–

Conditional effects of Home conditions for different values of Organisational support for teleworking

	Effect	***p*-value**	**LLCI**	**ULCI**
D.V. = FWI				
Low organisational support (−1SD)	−0.0859*	0.026	−0.1616	−0.0103
Medium organisational support (M)	−0.1489*	<0.001	−0.2155	−0.0822
High organisational support (+1SD)	−0.2118*	<0.001	−0.3044	−0.1193
D.V. = TO				
Low organisational support (−1SD)	−0.0732	0.082	−0.1556	0.0092
Medium organisational support (M)	−0.1482*	<0.001	−0.2213	−0.0752
High organisational support (+1SD)	−0.2233*	<0.001	−0.3248	−0.1217

Abbreviations: D.V., Dependent variable, FWI, Family-to-work interference; HC, Home conditions; HP, Health problems; OST, Organisational support for teleworking; TO, Technological overload.

*Indicates significant at 95% confidence level.

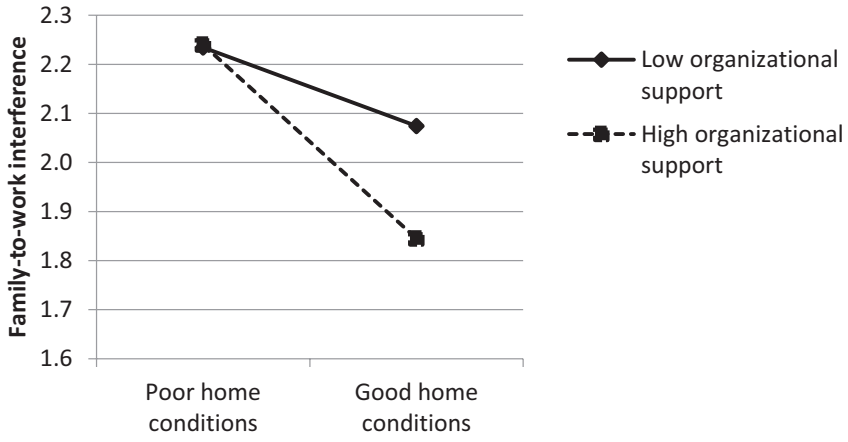

FIGURE 3 Moderating effect of Organisational support for teleworking on the relationship between Home conditions and Family-to-work interference.

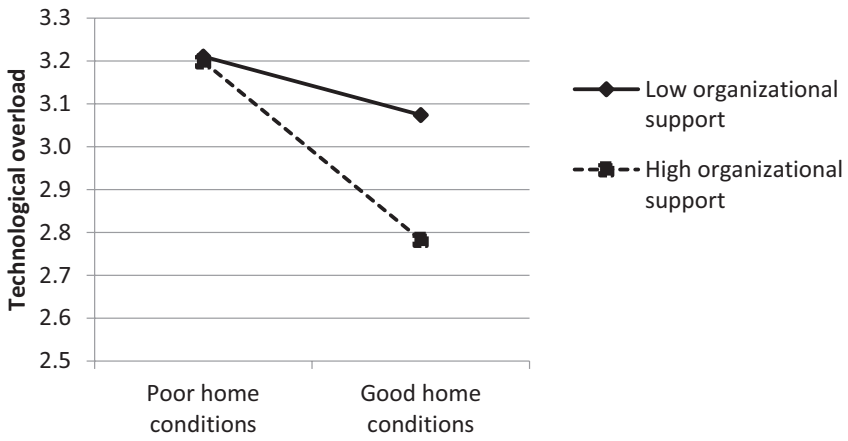

FIGURE 4 Moderating effect of Organisational support for teleworking on the relationship between Home conditions and Technological overload.

TABLE 5 Conditional indirect effects of Home conditions on Health problems.

D.V. = health problems	Effect	Boot LLCI	Boot ULCI
Conditional indirect effect through FWI			
Low organisational support (–1SD)	−0.0101	−0.0219	−0.0008
Medium organisational support (M)	−0.0174	−0.0309	−0.0072
High organisational support (+1SD)	−0.0248	−0.0432	−0.0105
Index of moderated mediation	−0.0084	−0.0175	−0.0015
Conditional indirect effect through TO			
Low organisational support (–1SD)	−0.0127	−0.0283	0.0026
Medium organisational support (M)	−0.0258	−0.0404	−0.0127
High organisational support (+1SD)	−0.0389	−0.0612	−0.0197
Index of moderated mediation	−0.0149	−0.0291	−0.0022
Conditional indirect effect through FWI and TO			
Low organisational support (–1SD)	−0.0037	−0.0077	−0.0003
Medium organisational support (M)	−0.0063	−0.0109	−0.0028
High organisational support (+1SD)	−0.0090	−0.0153	−0.0041
Index of moderated mediation	−0.0031	−0.0061	−0.0006

Abbreviations: D.V., Dependent variable, FMI, Family-to-work interference; TO, Technological overload.

home on employee health through family interference was significant for the three moderator values, with the index of moderated mediation being significant. On the other hand, the conditional indirect effect of the home conditions on health through technological overload is only significant for medium and high moderator values, with the index of moderated mediation being significant. Finally, the conditional serial indirect effect of the home on health conditions through family interference and technological overload was found to be significant for the three moderator values, with the index of moderated mediation being significant. Therefore, it is observed that the three mediation effects are stronger when the organisational support for teleworking is higher, allowing us to corroborate hypothesis H8.

5 | CONCLUSION

Teleworking in the banking sector experienced significant growth as a result of the outbreak of the COVID-19 pandemic. Teleworking can be a motivating agent of change for a more sustainable future (United Nations, 2015) and has great potential to create more meaningful, flexible, and productive work environments to improve employee well-being (Crawford, 2022). However, if these practices are not implemented correctly, there is a risk of causing significant damage to employees' health.

Confinement due to the global health emergency caused radical changes in the lifestyle and job demands of the employees as they were suddenly forced to continue their work at home, in many cases without any experience or preparation. Employees had to improvise a workplace environment in their homes, which, in most cases, was not ideal from an ergonomic point of view, as it did not have the appropriate infrastructure to meet the basic standards of comfort for the productive activity entrusted to them (Belzunegui-Eraso & Erro-Garcés, 2020; Larrea-Araujo et al., 2021). Therefore, it is not surprising that previous studies have linked teleworking during the COVID-19 pandemic to various health problems, both physical and mental (Oakman et al., 2020; Xiao et al., 2021). Thus, the COVID-19 pandemic seems to have enhanced the negative effects of teleworking on health, making it an ideal situation to identify the factors that have contributed to the worsening health of employees who worked from home in order to establish strategies to improve their well-being.

In this paper, we have analyzed the impact of the home work environment on the health of bank employees who were forced to work from home because of the health emergency, examining the influence of physical, social, and structural factors, following the social–ecological model applied to health promotion (Stokols, 1996) and the contributions of Weber et al. (2023). The results obtained show the existence of three predictors of bank employees' health problems: the home conditions, that is, the physical characteristics of workspace in the home; the family interference with work; and the technological overload. Likewise, the results show interconnections between these three predictors by detecting a direct and negative influence of good home conditions on family interference with work and on technological overload, as well as a direct and positive influence of family interference on technological overload, highlighting the interactions between the physical, social, and structural work environment. In turn, the mediation analysis conducted reveals that home physical conditions exert, in addition, an indirect influence on health, mediated by family-to-work interference and technological overload.

Consequently, this study confirms that the health of bank employees who worked from home was conditioned by the availability of a private workspace with the necessary digital tools for the development of the activity and adequate furniture, free of noise, with proper lighting, and thermal comfort, in short the availability of a sustainable workspace from an ergonomic point of view. This workspace contributed to reducing the perception of interruptions by family members, facilitating concentration on work tasks, which in turn led to a lower perception of technological overload. Finally, through the reduction of family interruptions and technological overload, good home physical conditions have allowed an additional improvement in health by reducing anxiety or stress problems possibly generated by information technologies or the family.

This work also shows that the indirect effects of the home conditions on health are moderated by the support to teleworking provided by the organisation, given that the three indirect paths (via family-to-work interference, via technological overload, and via serial mediation of family-to-work interference and technological overload) are conditioned by the support received, detecting that the indirect effects of home conditions on health are greater as employees receive greater organisational support for teleworking. These results reveal that the organisation has an important role in protecting the health of employees who work from home, through training and information and the creation of a support network that allows employees to have the help of managers or colleagues in case of need. Thus, this work supports the arguments developed by Cohen and Wills (1985), observing that specific support in the face of a highly stressful event for the employee, such as the reorganisation of work when the pandemic was declared, contributes to improve the coping response, allowing bank employees to improve their knowledge and attitudes, and make better use of the available resources and facilities, adapting better to teleworking (Beckel & Fisher, 2022) and, consequently, perceiving less interference from the family and less technological overload.

The control variables introduced in the model allow the following conclusions to be drawn. The age of the employee seems to increase the perception of technological overload, which confirms that older employees have more difficulties in dealing with the new information and communication technologies. In addition, we observed that the existence of young children at home increases family-to-work interference because family responsibilities and interruptions are greater. However, the establishment and observance of working hours is negatively related to family-to-work interference, technological overload, and health problems, making it clear that the establishment of a work schedule that avoids the simultaneity of work and family responsibilities favours concentration, allowing the employee to be more productive, to deal better with technology, have more time resources to assume the family role, and suffer less anxiety or stress problems.

This paper makes significant contributions to the existing knowledge on the effect of teleworking and working from home on employee health, given that the literature on teleworking has focused more on analyzing its impact on work outcomes, such as performance. It is in the wake of the health emergency caused by COVID-19 that papers analyzing its relationship with health began to emerge. However, little attention has been paid to the role of the home work environment, an emerging topic where previous research is inconclusive. This work develops a theoretical framework that has made it possible to provide an integrative model that assesses the impact of different types of factors present in teleworking situations (workspace, social, and technological factors) on health, taking into account the interactions between them, which is an important novelty.

Thus, the work has important implications for human resource management in the banking sector to improve the teleworker's well-being. First, teleworking should not be forced since its impact on health is determined by the home work environment and by individual characteristics of the employee, such as age, the existence of young children at home, or the ability to properly organise the work schedule. Therefore, teleworking should be carried out only if there is prior agreement between the organisation and the employee, respecting his or her preferences. Secondly, banks should provide their employees with the necessary technological resources for the development of the activity entrusted to them at home so as to minimise dysfunctions and delays due to inadequate functioning of the technology. It is also important to avoid excessive communication and information overload, respecting the employee's right to digital disconnection. Thirdly, banks should facilitate contact and help from superiors and colleagues and provide employees with training and information on the risks to which they are exposed when working from home and the correct way to control them so that they do not suffer deterioration in their state of health, thus improving their well-being. This training should focus on three areas: the ergonomic design of the workspace, the management of the work–family conflict to separate the two domains and minimise distractions and interruptions in the presence of family members, and the appropriate use of information technologies and visual display terminals.

Finally, according to El Kadri Filho and de Lucca (2022), it is essential that companies monitor teleworking conditions to reduce health risks among their employees, for which they should conduct a risk assessment of the workspace at home and periodic surveillance of the health of these employees. It is worth mentioning that EU Occupational Safety and Health legislation makes employers responsible for work-related risks to their employees, so there is a great need to properly assess the risks to which remote workers are exposed. However, the assessment of these risks is a major challenge, given the greater difficulty in obtaining information on the working conditions of their homes.

For their part, employees need to understand the importance of having an adequate and private workspace that allows to establish boundaries between the work and family domains, in order to avoid combining work and household tasks. The limits define the scope of both domains and allow employees to mentally categorise their roles and responsibilities, reducing the introduction of the family into the work domain and facilitating the management of this conflict, as also pointed out by Golden (2021). They must also comply with the health and safety requirements indicated by their organisation, providing the company at all times with the relevant information on their working conditions at home so that banks can correctly monitor the risks to their health.

Teleworking also has implications in terms of public health since it means a reduction in mobility to workplaces and energy consumption and, in short, in environmental impact. However, given that many companies lack adequate policies and regulations for proper ergonomic assessment of the workspace at home (Beckel & Fisher, 2022), the risks to employees' health could override the benefits associated with reduced environmental impact. Therefore, health policies should be oriented to promote the improvement of the safety and health conditions of employees working from home, providing information to companies on the ergonomic, psychosocial, and organisational risks derived from teleworking and developing guidelines and protocols that facilitate the monitoring by companies of the working conditions at home.

This work suffers from a number of limitations. First, the study has a cross-sectional design, so that

variables are examined at a single point in time, which makes causal inferences difficult. Therefore, the potential causal relationships identified in the study should be interpreted with caution and subsequently examined by means of a longitudinal design study. On the other hand, the relationship between the work environment at home and employee health during the COVID-19 pandemic, which forced employees to suddenly work from home for an extended period of time under exceptional circumstances, has been analyzed. Although this situation provided a unique opportunity to assess the health effects of working from home, working conditions beyond the pandemic may be very different (Crawford, 2022), so it would be interesting to undertake new studies in a different context. Finally, it would be interesting to identify and incorporate other variables in the analysis that may affect the well-being of employees working from home, expanding the model developed in this work.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to declare.

DATA AVAILABILITY STATEMENT

Research data are not shared.

ORCID

Beatriz Fernández-Muñiz https://orcid.org/0000-0003-1656-8023
José Manuel Montes-Peón https://orcid.org/0000-0002-9650-5403
Camilo José Vázquez-Ordás https://orcid.org/0000-0003-1162-6802

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APPENDIX: Measurement Scales

		Source
Health Problems		Adapted from Ekpanyaskul and Padungtod (2021) and European Agency for Health and Safety at Work (2007, 2008)
HP1	Musculoskeletal disorders	
HP2	Visual problems	
HP3	Nervousness or anxiety	
HP4	Mental fatigue /exhaustion	
HP5	Headache	
HP6	Difficulty concentrating	
HP7	Trouble sleeping	
HP8	Gastrointestinal problems	
Home Conditions		Adapted from Buomprisco et al. (2021), European Agency for Health and Safety at Work (2007, 2008), ISO 6385 (2016), and Xiao et al. (2021)
HC1	I have adequate computer equipment for teleworking	
HC2	I have a good Internet connection while I telework	
HC3	I have adequate furniture for teleworking	
HC4	I have my own separate space for teleworking	
HC5	My workplace lighting is adequate	
HC6	Noise level when teleworking is reduced	
HC7	Temperature is adequate	
Technological overload		Adapted from Tarafdar et al. (2007)
TO1	New technologies force me to do more work than I used to do	
TO2	New technologies force me to work faster	
TO3	Technology forces me to work with very tight schedules	
TO4	New technologies force me to change my work habits in order to adapt to them	
TO5	My workload is higher due to greater technological complexity	
Family-to-work interference		Adapted from Carlson et al. (2000)
FWI1	Time spent with my family interferes with my work responsibilities	
FWI2	Time dedicated to my family prevents me from doing activities that would facilitate my promotion	
FWI3	When I telework, my home activities and chores prevent me from doing my job well	
FWI4	I often have to interrupt my work to attend to family responsibilities	
Organisational support for teleworking		Adapted from Eisenberger et al. (1986) and Tarafdar et al. (2011)
OS1	I perceive that my coworkers are motivated by teleworking	
OS2	When teleworking I can easily interact and share necessary information with my colleagues	
OS3	My direct manager helps me if I have technical–professional or personal problems while teleworking	
OS4	I have received training to start my teleworking activity	
OS5	My company has provided me with recommendations and advice suitable for teleworking (working postures, workplace conditions, etc.)	

AUTHOR BIOGRAPHIES

Carla Azpíroz-Dorronsoro is a PhD candidate in the Economics and Business programme at the University of Oviedo. She has extensive professional experience in the banking sector, and her main areas of research interest are digitalisation, occupational health, and employee satisfaction.

Beatriz Fernández-Muñiz is Associate Professor of Business Organisation at the University of Oviedo. Her primary areas of research interest are risk climate in banking, occupational health, safety culture, and digitalisation.

José Manuel Montes-Peón is Full Professor of Business Organisation at the University of Oviedo. His current research interests include reputation, banking culture, and occupational health.

Camilo José Vázquez-Ordás is Full Professor of Business Organisation at the University of Oviedo and Visiting Researcher at Bangor University (UK). He has contributed to a number of topics in business management, especially on mergers and acquisitions, innovation, growth strategies, organisational learning and safety culture, and climate.