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From career-related fear to intention: A hybrid methodological approach to telework research

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ABSTRACT

Teleworking has received increased attention in research, particularly since the onset of the COVID-19 pandemic. While existing studies have predominantly focused on the outcomes of mandatory telework, there remains a dearth of literature examining telework intentions and their antecedents, especially in post-pandemic contexts. This study examines the influence of career-related fear (CRF) on telework intentions, mediated by telework attitudes, and explores the moderating effect of telework intensity on the relationship between attitudes and telework intentions. A comprehensive survey-based methodology was used to collect data from a sample of 660 professionals. The data were analyzed using a hybrid approach that integrates partial least squares structural equation modeling (PLS-SEM) with necessary condition analysis (NCA) and artificial neural network (ANN) analysis. The results confirm the direct and indirect effects of the CRF on teleworking intentions, mediated by attitudes. Moreover, telework intensity moderates the relationship between attitudes and telework intention, with higher intensity levels associated with a reduced influence of attitudes on telework intention. This research contributes to a deeper understanding of telework dynamics by elucidating the complex interplay between CRF, attitudes, and telework intensity. The findings support the importance of addressing CRF and tailoring telework policies to accommodate different intensity levels, providing valuable insights for both academia and practice in managing telework arrangements.

1. Introduction

Teleworking as a research topic has blossomed since the COVID-19 pandemic. This research has been mainly focused on the outcomes of forced teleworking (Athanasiadou & Theriou, 2021). However, papers addressing the intention to telework and its antecedents are relatively scarce (Nguyen, 2021) and generated in the "natural experiment of the COVID-19″ context (Magnus et al., 2022). These papers show a very favorable attitude to telework and a future intention to increase its intensity compared to what was established prior to COVID. However, the present research was conducted after the pandemic, so it is relevant because it examines workers' intention to telework after a significant event that forced them to do so, and not always under the best of conditions (Loh et al., 2023).

The successful implementation of telework is related to the degree to which it fits personal characteristics and interests (Han et al., 2023). Consequently, before implementing telework, it is convenient to study whether employees intend to telework, and the determinants of this intention. Behavioral intention is an estimate of the likelihood of performing a given behavior. Although the relationship between intention and actual behavior is not perfect, intention provides an accurate prediction of actual behavior (Ajzen, 1991).

The intention of individuals to telework is a complex construct. According to the literature, one of the aspects that most influences the intention to telework is the attitude towards this arrangement. In turn, attitudes towards telework may be negatively affected by the perception that professionals have of the potential impact of telework on their careers.

Career-Related Fear (CRF) is particularly relevant in telework settings due to its potential impact on career progression and organizational rewards, two factors that frequently weigh heavily in

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Abbreviations

CRF	Career-related fear
PLS-SEM	Partial least squares structural equation modeling
NCA	Necessary condition analysis
ANN analysis	Artificial neural network

professionals' decisions about telework adoption. Studies highlight that CRF encompasses fears related to professional isolation, perceived lack of commitment, and reduced visibility within the organization (de Vries et al., 2019; Golden & Eddleston, 2020). In remote work settings, employees often miss out on informal interactions with colleagues and supervisors—interactions that typically serve as key moments for professional visibility and networking (Nemțeanu & Dabija, 2023; Charalampous et al., 2019). This isolation can lead to a perception of reduced career growth opportunities. Additionally, Tannenbaum et al. (2015) emphasize that fear, whether perceived or real, can directly influence behavioral intentions by prompting individuals to avoid actions that might harm their careers. This body of evidence thus positions CRF as a significant factor influencing telework intentions, warranting its inclusion as a focal variable in understanding telework-related decisions. Several papers have analyzed this career related fear (CRF), both at the level of subjective perception (e.g., de Vries et al., 2019; Ficapal-Cusí et al., 2023) and through objective data demonstrating career progression within a telework arrangement (Golden & Eddleston, 2020). However, the results of this research line are inconclusive.

Additionally, most studies on teleworking primarily treat it as a binary concept, focusing on whether a person teleworks or not. This approach overlooked crucial factors such as the intensity of telework (Labrado Antolín et al., 2022), also referred to as frequency in the literature, and its impact on the various outcomes of telework. This limited focus may explain the inconclusive results of research on teleworking intentions and current teleworking practices (Golden, 2006; Prodanova & Kocarev, 2022).

This study builds on the theoretical understanding of telework by addressing important gaps in research on how career-related fears (CRF) affect telework intentions through employee attitudes—a relationship that has not been fully explored in previous literature (de Vries et al., 2019; Golden & Eddleston, 2020). This work broadens telework frameworks by showing the indirect path through which CRF influences attitudes toward telework, which in turn impacts employees' intentions to adopt telework. From a practical viewpoint, the findings provide organizational leaders with insights on the need to actively manage CRF to support effective telework arrangements.

This may be because there are many more variables that interact with CRF and telework status to affect employee attitudes, and subsequent intention to telework.

This research delves into how people may have the intention to telework with greater or lesser intensity because of the CRF consequences that this may bring them. The reasons for this variety of intentions may be diverse, either because of the professional isolation to which they may be subjected and that would affect possible promotions and/or salary improvements, or because of the stigma associated with people who embrace telework and are therefore perceived by their supervisors and colleagues as less committed to the organization.

From an academic perspective, the understanding of the determinants of telework represents a relevant area for flexible working arrangements study. With a significant number of workers recently acquiring a certain degree of teleworking experience (Asgari et al., 2023), practitioners such as human resource managers and supervisors need to know how intensity of telework affects people (Labrado Antolín et al., 2022). Telework intensity has been identified as a significant factor impacting a range of telework outcomes. Prior studies suggest that greater intensity may amplify negative outcomes like professional isolation and reduced informal feedback, which are key elements of CRF (Golden et al., 2008). Specifically, Gajendran and Harrison (2007) show that higher telework intensity is associated with decreased work-life balance and diminished quality of relationships with colleagues, factors likely to influence telework attitudes. This potential for high intensity telework to moderate the relationship between attitudes and intentions is supported by recent literature (Lescarret et al., 2022), which proposes that telework intensity may not only shape individual perceptions but also adjust the strength of attitudinal influences on telework intentions. By examining intensity as a moderating variable, this study seeks to expand current knowledge on how telework arrangements can be tailored to mitigate CRF and optimize telework outcome and, therefore, propension.

Considering the arguments mentioned above, this research proposes two objectives. The first one is to analyze the effect of career related fear (CRF) on the intention to telework. With this purpose, the direct and indirect effects of CRF on telework intention, mediated by attitudes, will be analyzed. The second objective is to study the moderating effect of the intensity of telework on the relationship between attitudes and the intention to telework.

To fulfill these objectives, this paper is structured as follows. After this introduction, the theoretical foundations are presented. Subsequently, the applied methodology is introduced, which involved the completion of a questionnaire. A sample of 660 professionals was obtained. The results were analyzed utilizing Partial Least Squares-Structural Equation Modeling (PLS-SEM) with necessary Condition Analysis (NCA) and Artificial Neural Network (ANN) analysis. A comprehensive discussion of these findings ensues, culminating in the presentation of conclusive remarks. In addition to testing all hypothesized relationships, the results provide evidence that telework intensity moderates the full relationship between CRF and telework intention, as mediated by attitudes towards telework. The findings provide a deeper understanding of telework, offering insights for managers and teleworkers alike.

2. Theoretical framework

2.1. Career related fear and intention to telework

Literature points out that telework can harm professional career development so employees could be reluctant to adopt telework (de Vries et al., 2019; Jämsen et al., 2022; Nakrošienė et al., 2019). This feeling that teleworking may harm one's career is what we refer to as CRF.

This CRF is related to different circumstances. Teleworking generates loss of interpersonal relationship with colleagues, reduces informal learning, and undermines the possibilities of sharing information with colleagues (Jämsen et al., 2022) and supervisors (Charalampous et al., 2019; Nemțeanu & Dabija, 2023), and makes teleworkers less visible for possible promotions and/or new job assignments and responsibilities (Jämsen et al., 2022; Nakrošienė et al., 2019). Morganson et al. (2010) provide quantitative evidence that teleworkers show lower levels of inclusion in their departments than their non-teleworking peers and lower job satisfaction. Additionally, Golden and Eddleston (2020) report lower performance. Employees fear that working outside the office reduces their chances of promotion and access to organizational rewards (de Vries et al., 2019; Nemțeanu & Dabija, 2023). Golden et al. (2008) found that the negative impact of professional isolation on job performance increases for people who spend more time teleworking. The work of De Vries et al., 2019) confirms, in a sample of public employees, that working from home is positively related to professional isolation.

Related to CRF, some works suggest that individuals who show a desire to telework may be labeled by their bosses and peers as less committed to the company and to their work (Golden & Eddleston, 2020). Thus, these individuals may suffer negative career effects

(Athanasiadou & Theriou, 2021).

In the analysis of fear variables related to the intention or not to do something, Tannenbaum et al. (2015) confirm that fear (perceived or real) influences intention and not only attitudes. Thus, if one fears that one's career will be affected, then one will avoid career-damaging behaviors such as teleworking. Considering the above arguments, the following research hypothesis is proposed.

Hypothesis 1. Career related fear (CRF) negatively influences intention to telework.

2.2. The mediating role of attitude on the relationship between CRF and intention to telework

Ajzen (1991) points out that attitude is linked to the beliefs that the individual has about the object of that attitude. Regarding teleworking, Han et al. (2023) and Ficapal-Cusí et al. (2023) establish the antecedents of attitude, focusing on the individual's own beliefs linked to telework. Attitudes towards telework have been related to advantages and disadvantages that the person identifies with telework. Specifically, previous research has addressed advantages and disadvantages such as job satisfaction (Masuda et al., 2017), productivity (Prodanova & Kocarev, 2022), work-life balance (Magnus et al., 2022) and economic aspects (Ton et al., 2022; Verano Tacoronte et al., 2014).

One of the beliefs that can negatively affect the professional's attitude towards telework is the fear of decreasing contact with colleagues and supervisors, being less visible for potential career opportunities and, consequently, suffering negative effects on their compensation (Jämsen et al., 2022; Tietze & Nadin, 2011), as argued in previous section. These negative perceptions may therefore influence, as antecedents, the attitude that the worker may develop towards telework (Han et al., 2023).

There is a consensus in the literature that attitude has a positive impact on the intention to telework (Asgari et al., 2023; Beck et al., 2020; Han et al., 2023; Magnus et al., 2022; Nguyen, 2021). Prior to COVID, Morrison et al. (2019) and Khalifa and Davison (2008) find that attitude towards telework is a significant and important predictor of intention. Considering these arguments, the following hypothesis is proposed.

Hypothesis 2. Attitude toward telework mediates the relationship between fear to career related fear (CRF) and intention to telework.

2.3. The moderating effect of telework intensity on the relationship between attitudes and intention to telework in the future

In early studies about telework, it is conceptualized and measured as a binary variable that categorizes workers into teleworkers and non-teleworkers. This way of proceeding does not allow addressing the heterogeneity among teleworkers (Golden & Eddleston, 2020). Therefore, it becomes relevant to consider the intensity of telework (i.e., days per week of telework) when assessing a person's perception of telework (Athanasiadou & Theriou, 2021; Golden & Eddleston, 2020).

Telework intensity has been related to positive outcomes as higher organizational commitment (Golden, 2006), productivity (Bloom et al., 2015; Labrado Antolín et al., 2022), job satisfaction (Loh et al., 2023), and a lower intention to leave (Golden, 2006). In contrast, Morikawa (2022), with a sample of 5105 employees in Japan, indicates that the higher intensity of teleworking at home is associated with decreases in worker-perceived productivity.

Besides these outcomes, recent research has addressed specifically the relationship between intensity and intention to telework. On the one hand, in a COVID lockdown context, with a 100% intensity, Beck et al. (2020) reported that 70% respondents wanted to continue teleworking in the future. Labrado Antolín et al. (2022) and Nguyen (2021) argue that the intensity of telework positively affects the intention to continue teleworking. However, Loh et al. (2023) classify workers into three levels of intensity and report that all groups of workers want to telework less frequently in the future.

The variable "intensity of telework" has been used as a moderating variable in the study of the effects of telework (Athanasiadou & Theriou, 2021). For example, Gajendran and Harrison (2007), studied how telework intensity moderated positively the relationship between teleworking and work-life balance, but negatively moderated the quality of relationships with colleagues, especially in high-intensity arrangements. These results coincide with those by Golden (2006). Therefore, positive aspects of teleworking are rated higher by those who telework moderately than by those who telework infrequently or at high intensity.

Literature analyzing specifically moderating effects in the relationship between attitudes and intention to telework is scarce. The only work addressing moderating effects in this relationship, but in a non-home-based telework context, is the one of Lescarret et al. (2022). This work confirms that the relationship between attitudes and intention to telework in a coworking space is moderated by several variables such as the degree of agreement of management with the performance of work in a coworking space. However, Lescarret et al. (2022) and Deschênes (2024) use intensity of telework as a control variable but they propose a deeper analysis of intensity of telework as a potential moderator of this relationship.

Therefore, it is conceivable that a higher intensity of teleworking may mean that the disadvantages associated with teleworking, for example, CRF, may outweigh its potential benefits. This may generate a negative attitude resulting in a lower intention to telework. For these reasons, the next research hypothesis can be proposed.

Hypothesis 3. The intensity of telework moderates negatively the relationship between attitudes and intention to telework, such that the higher the intensity of telework, the lower the influence of attitudes on intention to telework.

The proposed model is shown in Fig. 1.

3. Materials and methods

To achieve the proposed objectives, a questionnaire was developed based on a review of the literature, which included questions aimed at measuring telework intention, CRF and attitudes towards telework. The development of these scales followed the recommendations of Fishbein & Ajzen (Fishbein & Ajzen, 2010).

Three items were used to measure CRF. Three items were used to measure attitude. In both cases a 7-point Likert scale was used (1 = strongly disagree; 7 = strongly agree). The actual intensity of telework was measured on a 5-point Likert-scale (0 = never; 1 = less than one day per week; 2 = one to two; 3 = three to four; 4 = five or more days) (see Annex 1).

Likewise, the intention to telework in more than 6 months was measured on a 5-point scale through two items: 1. Beyond the next six-month period, if your university would allow it, would you intend to do homeworking? (percentage of your work time) (0 = never; 1 = less than 25%; 2 = 26–50%; 3 = 51–75%; 4 = more than 75%); and 2. Beyond the next six-month period, if the university you work for allows it, would you intend to do homeworking? (average days per week) (0 = never; 1

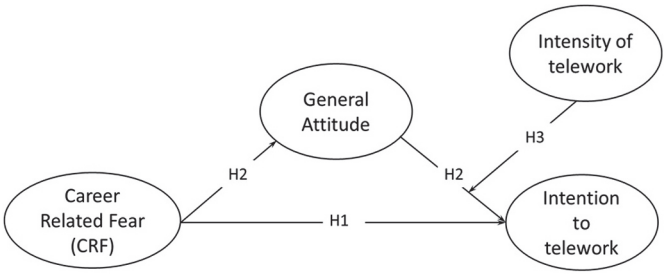

Fig. 1. Proposed model.

= less than one day; 2 = one to two; 3 = three to four; 4 = five or more days).

Data were also requested to characterize the respondents. Specifically, questions were asked about their job profile (Administrative Staff, AS, or Teaching and Researching Staff, TRS), age, gender, dedication to the university (full-time or part-time), years of professional experience overall and at the university where they currently work.

As has been done in other research on teleworking (Golden & Eddleston, 2020; Ollo-López et al., 2021), gender and age of the teleworkers were included as control variables.

Data were collected using an online questionnaire tool, Microsoft Forms. This questionnaire was sent to a random sample of 306-unit managers of Spanish public universities, requesting their collaboration in disseminating the questionnaire to their staff. Finally, 660 valid questionnaires were received.

The population studied is made up of AS and TRS in the 50 Spanish public universities. According to official data in Spain (SGAUISGU, 2020), the TRS of public universities amounted to 103,876 people and the AS amounted to 52,443. Assuming an infinite population, the sampling error is 3.8% at the 95% confidence level.

According to the Human Research Ethics Commitee (CEIH) of our institution, the University of Las Palmas de Gran Canaria, ethical approval is not required for behavioral research studies if there is no risk to adult participants, anonymity, voluntariness, and non-threatening nature are guaranteed. In this study, all these conditions were met. Nevertheless, the formal procedure was carried out to obtain a favorable certification from the Ethics Committee, which gave its approval on October 4, 2023, with reference number CEIH-2023-11. In addition, by completing the questionnaire to the end, all participants gave their informed consent to participate in this study and accepted that their data would be processed anonymously and aggregated. Participants had all the legal information about their informed consent on the first page of the questionnaire introduction. This first page had to be read to access the questions in the questionnaire, thus ensuring that participation in the study complied with the regulations on research involving human subjects.

Personal data processing was done in accordance with the provisions of current legislation on the Protection of Personal Data. The right to confidentiality was clearly acknowledged, and also the right to access personal information and to withdraw from the study. The format in which the data are processed and delivered includes encryption techniques that allow only aggregates and anonymous forms of statistical analysis.

To determine the minimum sample size, G*Power 3.1 was used (Cunningham & McCrum-Gardner, 2007). The result was 119 (significance level = 0.05, f2 size effect = 0.15, power 0.95 and number of predictors = 3). The number of observations used for this work was 660, which is considerably higher than the number cited above.

Next, the common method bias was analyzed using Harman's one-factor test. Firstly, an exploratory factor analysis was carried out in which all the indicators were included and forced into a single factor (Podsakoff & Organ, 1986). In this analysis, principal components were used, and the value of the variance explained by the factor in the unrotated solution is below the 50% limit, namely 44.056%. In addition, for the same purpose and as a more robust test, a confirmatory factor analysis was performed comparing a single-factor model with all the indicators of the model and the proposed model (Podsakoff et al., 2003). The one-factor model has a considerably lower fit. For the single factor Satorra-Bentler $\chi2(35) = 570.786$; $\chi2/df = 16.308$; Comparative Fit Index (CFI) = 0.830; Root Mean Square Error of Approximation (RMSEA) = 0.152, and for the one proposed in the Satorra-Bentler research $\chi2(30) = 54.838$; $\chi2/df = 1.828$; CFI = 0.992; RMSEA = 0.035. Given this, it is understood that there is no problem of common method bias.

A Partial Least Squares-Structural Equation Modeling (PLS-SEM) analysis is conducted. The use of PLS v.4.1.0.8 is justified because the key variables are composites. In this work, variance-based structural equation modelling (PLS-SEM) was used to test the research model because a composite model was estimated from a predictive causal perspective (Hair et al., 2020). Thus, according to Magalhães-Teixeira et al. (2024) and Poop et al. (2015), the utility of this type of analysis for evaluating interaction effects and complex model assessment is widely recognized. Specifically, the software Smart-PLS ver. 4.1.0.8 and the R-Package CSEM ver. 0.5.0 were used. Finally, it is important to highlight the advantages of PLS when it is necessary to use the scores of its components in other analyses (Wright et al., 2012), as is the case with ANN and NCA.

It also allows the results to be combined with other techniques. In recent years, an increasing number of studies have complemented PLS-SEM studies with Necessary Condition Analysis (NCA) (e.g., Ngoc Su et al., 2023; Shoukat et al., 2023; Sukhov et al., 2022). This is because NCA allows to analyze the existence of necessity between the dependent and independent variables. It should be considered that, given the asymmetric nature of this technique, both the presence and the absence of the exogenous variable must be studied for the result of the endogenous variable to be small or large (Richter et al., 2020). In the case of the present work, intention was used as the endogenous variable and all the exogenous variables that were significantly related to it in the PLS-SEM analysis were used (CRF, attitude and intensity).

Following authors such as Lau et al. (2021) or Lee et al. (2020), Artificial Neural Network analysis (ANN) has been applied in this work to complement the PLS analysis. This is done to exploit the high predictive capabilities of this machine learning technique. Starting from the latent values obtained in PLS for each of the variables, an ANN was implemented with the exogenous variables that were significant in the PLS analysis in the input layer and the endogenous variables in the output layer. As for the hidden layers, several tests were carried out, with the result that the one with the best results, lower Root Mean Square Error (RMSE) and Sum Square of Error (SSE) was the one composed of two layers with two neurons each. The type of network used was multilayer perceptrons and the hyperbolic tangent activation function. The SPSS algorithm for neural networks was used for its implementation, using the 10-fold cross-validation technique and using 90% of the sample for training and 10% for testing.

Following authors such as Lau et al. (2021) or Lee et al. (2020), Artificial Neural Network analysis (ANN) has been applied in this work to complement the PLS analysis. This combined use of both techniques has already been addressed by a significant number of authors. (eg. Mishra et al., 2023; Talukder et al., 2020; Wang et al., 2019). This is done to exploit the high predictive capabilities of this machine learning technique. This approach is more accurate because it takes into account not only linear relationships but also non-linear ones (Wang et al., 2019). En este sentido, según (Richter & Tudoran, 2024), the combined use of both techniques allows for a better understanding of the relationships proposed in the model and improves its predictive capability. Starting from the latent values obtained in PLS for each of the variables, an ANN was implemented with the exogenous variables that were significant in the PLS analysis in the input layer and the endogenous variables in the output layer. As for the hidden layers, several tests were carried out, with the result that the one with the best results, lower Root Mean Square Error (RMSE) and Sum Square of Error (SSE) was the one composed of two layers with two neurons each. The type of network used was multilayer perceptrons and the hyperbolic tangent activation function. The SPSS algorithm for neural networks was used for its implementation, using the 10-fold cross-validation technique and using 90% of the sample for training and 10% for testing. In order to conduct this analysis, SPSS ver. 28 was used.

4. Results

4.1. Description of the sample

Firstly, the characteristics of the sample are presented. As can be seen in Table 1, 71.7% of the sample is TRS and 28.3% AS. 48.8% of the people surveyed are over 50 years old and more than half of them identify themselves as female. More than 90% of them work full-time at the university. It is also observed that most of them have more than 20 years of professional experience, both in their current university (51.4%) and in their working life as a whole (66.1%).

4.2. Partial Least Squares-Structural Equation Modeling (PLS-SEM)

4.2.1. Measurement model

As a first step in the analysis, the individual reliability of the items was studied (Hair et al., 2019). For the reflective constructs, attitude and intention, the loadings values exceed the 0.7 threshold. As for composite reliability, Cronbach's alpha (Dijkstra & Henseler, 2015) and the rho_A coefficient (rho_A) exceed the value of 0.7. On the other hand, the average variance extracted (AVE) is greater than 0.5. As for the formative construct, CRF, the weight of all indicators was significant. The multicollinearity of this construct indicators was studied through the variance inflation factor (VIF) values. The VIF values found were between 1.099 and 1.313. According to Hair et al. (2022), this magnitude of values indicates the absence of multicollinearity (see Table 2).

In order to verify discriminant validity, the Heterotrait-Monotrait 2 ratio (HTMT2) test (Roemer et al., 2021) and the test of Fornell & Larcker (Fornell & Larcker, 1981) were performed (see Table 3). Regarding the first one, all values are under the threshold of 0.9, the highest value being 0.699. Regarding the second one, the value that is located on the diagonal of the matrix (square root of the AVE), is the highest of all the row and column where it is located. This is indicative that the construct is more related to itself than to the rest. After performing these two tests, discriminant validity can be considered to exist.

Finally, following Henseler (Henseler, 2021), a confirmatory analysis of the fit of the saturated model was applied to assess the external validity of the constructs. The following measures were considered: a) standardized root mean square residual (SRMR), b) unweighted least squares discrepancy (dULS) and c) geodesic discrepancy (GD). The fit achieved can be considered good since the values obtained were as follows: [SRMR = 0.033; SRMR95 = 0.052; SRMR99 = 0.060; dULS = 0.070; dULS_95 = 0.175; dULS_99 = 0.236; dG = 0.016; dG_95 = 0.024; and dG_99 = 0.030]. All values are lower than the corresponding HI95 of their saturated model, therefore, the proposed model can be continued.

Table 1
Sample characteristics.

		N	Percentage
Professional profile	Administrative and service staff (AS)	187	28.3
	Teaching and research staff (TRS)	473	71.7
Age (years)	20–30	51	7.7
	31–40	85	12.9
	41–50	202	30.6
	51–60	263	39.9
	61–65	51	7.7
	More than 65	8	1.2
Gender	Male	294	44.5
	Female	352	53.3
	Other	12	1.8
Dedication	Part-time	63	9.5
	Full-time	597	90.5
Total experience (years)	Less than 1	1	0.2
	1–5	49	7.4
	6–10	44	6.7
	11–20	130	19.7
	More than 20	436	66.1
Experience at current university (years)	Less than 1	23	3.5
	1–5	102	15.5
	6–10	66	10.0
	11–20	130	19.7
	More than 20	339	51.4

Table 2
Measurement model results.

Construct	VIF	Weight	p-value	Loadings	p-value	
Attitude						
ATT1	3.452	0.368	<0.001	0.933	<0.001	α = 0.936
ATT2	4.719	0.350	<0.001	0.949	<0.001	Rho_A = 0.937
ATT3	4.471	0.345	<0.001	0.944	<0.001	AVE = 0.887
CRF						
CRF1	1.313	0.522	<0.001	0.831	<0.001	NA
CRF2	1.256	0.476	<0.001	0.777	<0.001	
CRF3	1.099	0.336	0.005	0.584	<0.001	
Intention						
INT1	2.836	0.545	<0.001	0.953	<0.001	α = 0.892
INT2	2.836	0.508	<0.001	0.946	<0.001	Rho_A = 0.895
						AVE = 0.902
Intensity						
ITY1	1.000	1.000	–	1.000	–	–

Notes: α = Cronbach's Alpha, Rho_A = (Dijkstra & Henseler, 2015) 's rho_A, AVE = average variance extracted, NA= Not applicable.

4.2.2. Structural model

Once the measurement model was considered correct, the structural model was analyzed. First, the fit of the estimated model was analyzed. According to Henseler (2021) the following measures were considered: a) standardized root mean square residual (SRMR), b) unweighted least squares discrepancy (dULS) and c) geodesic discrepancy (DG). The fit achieved can be considered good since the values obtained were as follows: SRMR = 0.033; SRMR95 = 0.052; SRMR99 = 0.060; dULS = 0.070; dULS_95 = 0.175; dULS_99 = 0.236; dG = 0.016; dG_95 = 0.024; and dG_99 = 0.030]. With these results the proposed model cannot be rejected as the discrepancy values are below the 95th percentile of its corresponding reference distribution. Related to Composite Reliability, the NFI value is 0.907, this exceeds 0.9 and consequently also indicates a good model fit (Henseler et al., 2016).

On the other hand, bootstrapping of 5.000 samples with a confidence level of 95% was applied to verify the significance of the hypotheses. Table 4 shows that all the hypotheses are supported, however, the relationships between control variables (age and gender) and intention are not supported. Thus, there is a significant positive relationship between attitude and intention ($\beta = 0.598$, $p < 0.001$), between CRF and attitude ($\beta = -0.299$, $p < 0.001$) and between CRF and intention ($\beta = -0.073$, $p = 0.010$ (direct effect)). In addition, the moderation hypothesis of the intensity variable on the relationship between attitude and intention is also supported ($\beta = -0.128$, $p < 0.001$). Finally, the hypothesis of mediation of attitude on the relationship between CRF and intention is supported (total effect: $\beta = -0.252$, $p < 0.001$). To analyze the mediation hypothesis, the method proposed by Hayes et al. (2011) is followed.

Regarding effect sizes, according to Hair et al. (2022), an effect is considered large when f^2 is > 0.35; medium if $0.35 \leq f^2 \leq 0.15$; low $0.15 < f^2 \leq 0.02$; and not substantial $f^2 < 0.02$. In the case of the model presented, only the relationship between attitude and intention can be considered large. The effects of CRF on attitude and moderation can be considered low, the rest not substantial. As for the R^2 for the endogenous variables, attitude and intention, it was 9.0% for attitude and 45.0% for intention.

In addition to the above, and using the procedure proposed by Cheah et al. (2021), we analyzed whether there is a conditional mediation effect where intensity moderates the mediation effect of the attitude variable between CRF and intention. As can be seen in Table 5, this effect

Table 3
Discriminant validity results.

Fornell-Larcker						Heterotrait-Monotrait 2					
	ATT	ITY	INT	AGE	GEN		ATT	ITY	INT	AGE	GEN
ATT	**0.942**					ATT					
ITY	0.027	**1.000**				TT	0.028				
INT	0.644	0.157	**0.954**			INT	0.699	0.151			
AGE	−0,099	−0,098	−0,081	**1.000**		AGE	0.119	0.098	0.083		
GEN	0,057	0,005	0,027	−0,019	**1.000**	GEN	0.060	0.005	0.029	0.019	

Notes: ATT = attitude, ITY = intensity, INT = intention, GEN = gender. The diagonal elements in bold are the square roots of the AVEs (Average Variance Extracted).

Table 4
Results of the evaluation of the structural model.

Hypothesis path	β	SE	t-value	p-value	CIs (5.0%–95.0%)	Decision	f^2
Direct effects							
ATT → INT	0.598[b]	0.026	23.068	<0.001	(0.553; 0.637)	Supported	0.565
CRF → ATT	−0.299[b]	0.037	8.207	<0.001	(-0.364; −0.243)	Supported	0.098
CRF → INT	−0.073[a]	0.031	2.340	0.010	(-0.127; −0.024)	Supported	0.009
AGE→ INT	−0.008[c]	0.028	0.299	0.382	(-0.054; −0.038)	Not supported	0.000
GEN→ INT	−0.013[c]	0.016	0.770	0.221	(-0.034; −0.013)	Not supported	0.000
ITY[a]ATT → INT	−0.128[b]	0.032	3.994	<0.001	(-0.179; −0.075)	Supported	0.022
Indirect effects							
CRF → ATT → INT	−0.179[b]	0.024	7.616	<0.001	(-0.221; −0.143)	Supported	–
Total effects							
CRF → INT	−0.252[b]	0.037	6.801	<0.001	(-0.315; −0.195)	Supported	–

Notes: ATT = attitude, CRF = career related fear, INT = intention, ITY = intensity.**p < 0.01.
[a] p < 0.05.
[b] p < 0.001.
[c] Not significant.

Table 5
Results of conditional indirect effect CoMe.

Conditional Mediated Effect	β	Std Error	t-value	p-value	CIs (5.0%–95.0%)	Decision
Index of conditional mediation	0.039[a]	0.011	3.544	<0.001	[0.021; 0.057]	Supported
Intensity (moderator)						
Low	0.583[a]	0.030	18.852	<0.001	[0.508; 0.606]	Supported
Medium	0.597[a]	0.026	23.036	<0.001	[0.553; 0.637]	Supported
High	0.635[a]	0.027	23.952	<0.001	[0.591; 0.678]	Supported

Notes:*p < 0.05.**p < 0.01.
[a] p < 0.001.

Table 6
PLS predict results.

Items		PLS		LM		
	Q^2 predict	RMSE	MAE	RMSE	MAE	Skewness
ATT1	0.071	1.863	1.587	1.892	1.589	−0.434
ATT2	0.073	1.701	1.401	1.702	1.404	−0.692
ATT3	0.074	1.759	1.471	1.757	1.468	−0.450
INT1	0.087	1.024	0.779	1.027	0.808	−0.166
INT2	0.056	1.130	0.922	1.136	0.925	0.288

Notes: ATT = attitude, INT = intention, RMSE = root mean square error, MAE = mean absolute error, PLS = partial least squares, LM: linear regression model.

is significant (β = 0.039, p < 0.001), with moderation occurring at low, medium and high levels of the moderating variable, intensity.

In line with Shmueli et al. (2016, 2019), the predictive power of the proposed model was analyzed through PLSpredict and with holdout sample (10 folds were used). As can be seen in Table 6, the model has predictive power since all Q^2 values predict greater than 0 (Hair et al., 2020). Since the values obtained are less than 0.25 it can be considered that the predictive relevance is low. A last step to evaluate the predictive power of the model is to check that the errors generated with PLS are smaller than those generated with linear regression. Such differences should be evaluated through RMSE or the Mean Absolute Error (MAE), depending on the errors (Hair et al., 2020). Since the errors are symmetrically distributed and, therefore, the RMSE is used, which is lower for all items in PLS than in linear model except in the case of one of the attitude indicators. Above all, the model can be considered to have predictive relevance.

4.2.3. Necessary conditional analysis (NCA)

The analysis shows that the condition of need regarding intention (INT) is significant only for attitude (ATT), both in corner 1, that is, for a high level of intention to exist, a minimum level of attitude is needed (16.1%), and in corner 4, which implies that for a low level of intention to exist, a maximum level of attitude must be present (83.4%). On the other hand, CRF was significant only in corner 2, which means that for a high level of intention to occur, at most a certain level of CRF can be present (83.3%). The relationship between these variables was not significant in corner 3. Because of this, the results of corner 3 are not considered in Table 8. Finally, the intensity (ITY) variable was not necessary for intention to exist (see Tables 7 and 8).

Table 7
Necessity analysis results.

Relationships	Effect size (d) CE-FDH	p-value	Effect size (d) CE-FDH	p-value
	Corner 1		Corner 4	
ATT → INT	0.04[a]	0.003	0.04[b]	<0.001
	Corner 2		**Corner 3**	
ITY → INT	0.02[c]	0.822	0.00 [ns]	1.000
CRF → INT	0.08[b]	<0.001	0.00 [ns]	1.00

Effect size (d) and p_value for each predictor following NCA CE-FDH analysis.
Effect size (d) considerations: $0 < d < 0.1$ small effect; $0.1 \leq d < 0.3$ medium; $0.3 \leq d < 0.5$ large; $d \geq 0.5$ very large.
p_value considerations.
Note: INT= Intention; ATT = Attitude; CRF = career related fear; ITY= Intensity.
[a] $p < 0.01$.
[b] $p < 0.001$.
[c] not supported.

Table 8
Bottleneck table (in percentages).

Endogenous variable	Corner 1	Corner 2	Endogenous variable	Corner 4
INT	ATT	CRF	INT	ATT
0	NN	NN	100	100.0
10	NN	NN	90	100.0
20	NN	NN	80	100.0
30	NN	NN	70	100.0
40	NN	NN	60	100.0
50	NN	NN	50	100.0
60	NN	83.3	40	100.0
70	NN	83.3	30	100.0
80	16.7	83.3	20	83.4
90	16.7	83.3	10	83.4
100	16.7	83.3	0	83.4

Note: INT = Intention; ATT = Attitude; CRF = career related fear.

4.2.3.1. Artificial neural network analysis (ANN). To conclude the analysis, this last subsection of results includes the results obtained by ANNs. As mentioned in the methodology section, RMSE and SSE were used to evaluate the performance of the neural networks. Table 9 shows that in the 10-fold the results were very similar, being in the test data, on average, 18.513 for the SSE and 0.480 for the RMSE.

Table 10, which shows the average of the synaptic weights of the network, and Table 11, which presents the sensitivity analysis of the ANN, indicate that attitude is the variable that most influences the prediction of intention, with a notable difference, intensity being the second and CRF the third.

Table 9
ANN model error metrics.

Neural network	Model 1 (Inputs = ATT. CRF. ITY; Output = INT)					
	Training (~90% of data sample)			Test (~10% of data sample)		
	N	SSE	RMSE	N	SSE	RMSE
1	587	158.15	0.540	71	14.053	0.573
2	583	158.728	0.528	75	23.705	0.579
3	584	157.612	0.541	74	17.345	0.464
4	583	158.349	0.544	75	18.428	0.400
5	592	159.205	0.539	66	18.941	0.568
6	591	162.506	0.551	67	20.271	0.431
7	593	162.05	0.547	65	17.166	0.458
8	591	174.899	0.593	67	15.064	0.375
9	586	152.055	0.520	72	23.159	0.478
10	593	166.328	0.562	65	16.997	0.474
Mean		160.988	0.547		18.513	0.480
Standard deviation		6.146	0.020		3.146	0.072

N: number of data; SSE: sum square of error; RMSE: root mean square of error.

5. Discussion

The first objective of this study is to examine the effect of CRF on the intention to telework. With this purpose, the direct and indirect effects of CRF on telework intention, mediated by attitudes, have been analyzed.

The results confirm the direct relationship between CRF and intention to telework (H1) which is consistent with previous works (Golden & Eddleston, 2020; Nemțeanu & Dabija, 2023). Furthermore, the indirect effect of CRF on intention, mediated by attitude (H2), is also confirmed. In this case, the influence of CRF as an antecedent of the attitude has been contrasted. CRF related to pay and promotions detriments and decreased employee visibility for possible job improvements have a negative influence on the attitude towards teleworking. The direct relationship between attitudes and intention is verified, that is aligned with (Han et al., 2023).

Regarding the second objective, our results confirm that the intensity of telework moderates the relationship between attitudes and intention to telework (H3), such that the higher the intensity of telework, the lower the influence of attitudes on intention to telework. Intensity has been related to the effects of teleworking (Gajendran & Harrison, 2007; Golden, 2006). Part of the literature focusing on teleworking during the pandemic presents evidence of a negative relationship between intensity and intention (Nguyen, 2021). These results suggest that the forced experience of teleworking during lockdown has made people unwilling to telework full time. Another possible explanation is that as the intensity of telework increases, employees may experience telework fatigue or saturation. Over a longer period of time, teleworking may lead to negative effects such as emotional exhaustion and loss of job satisfaction due to less differentiation between work and home environments. This may diminish the influence of positive attitudes towards telework, as the experience of intensive telework may counteract these previously favorable perceptions. That is, a high frequency of teleworking may reduce the weight of initially positive attitudes towards teleworking because of the emotional and physical strain involved.

Also, as the intensity of teleworking increases, there may be a process of adaptation or normalization, whereby teleworking is no longer perceived as an advantage or privilege, but as a routine part of the job. In this context, the positive perception of initial attitudes may diminish and the intention to telework may depend more on pragmatic factors (such as the convenience of the home working environment or access to appropriate technological resources) than on favorable attitudes towards teleworking. That is, once teleworking is established as a regular feature, prior attitudes lose strength as predictors of intention.

As the hypothesized mediating and moderating relationships were confirmed, an additional step was taken and the relationships between the variables in the model were further explored. Therefore, we analyzed the conditional mediation effect of intensity. It is crucial to apprehend how the intensity could shape the connection between CRF and the intention to telework mediated by attitude. This result implies that telework intensity significantly impacts the relationship between CRF, attitude (mediator), and the intention to telework, across varying ranges of intensity (low, medium, high). Specifically, the results indicate that, for higher intensity levels, the indirect effect is greater than when the intensity levels are lower. However, even those who telework sporadically may experience the influence of CRF on their intention to telework, highlighting the importance of addressing concerns about low-intensity telework implementation.

In addition, the precise interaction between variables appears crucial in influencing the prediction of the intention to telework, emphasizing the importance of considering intricate relationships among CRF and attitude when analyzing their impact on intention to telework. The results confirmed certain predictions improving the understanding of telework intentions. The joint presence of CRF and attitude becomes necessary for an accurate prediction of the intention to telework. This result goes further than Han et al. (2023) who postulate that beliefs,

Table 10
Average synaptic weights for inputs and neurons in the hidden layer.

Predictor	Model 1 (Inputs = ATT. CRF. ITY; Output = INT)						
		Hidden layer 1		Hidden layer 2		Output layer	Total contribution
		H(1:1)	H(1:2)	H(2:1)	H(2:2)		
Input layer	**Bias**	−0.205	0.163				0.368
	ATT	0.253	0.085				0.338
	ITY	0.126	0.042				0.168
	CRF	0.004	−0.015				0.019
Hidden layer 1	**Bias**			0.152	−0.011		0.163
	H(1:1)			−0.053	−0.478		0.531
	H(1:2)			0.032	−0.357		0.389
Hidden layer 2	**Bias**					0.039	
	H(2:1)					0.449	
	H(2:2)					−0.560	

Notes: ATT = attitude, CRF = career related fear, INT = intention, ITY = intensity.

Table 11
ANN sensitivity analysis.

Model (output intention)			
Neural Network	ATT	ITY	CRF
1	0.756	0.202	0.042
2	0.644	0.275	0.081
3	0.667	0.28	0.053
4	0.651	0.284	0.066
5	0.71	0.198	0.092
6	0.754	0.193	0.053Rn
7	0.754	0.184	0.063
8	0.729	0.183	0.088
9	0.655	0.296	0.049
10	0.97	0.207	0.123
Average relative importance	0.729	0.230	0.071
Normalized relative importance	100.000%	31.578%	9.739%

Notes: ATT = attitude, CRF = career related fear, INT = intention, ITY = intensity.

such as perceived CRF, and attitudes would influence intention. The results confirm that the absence of CRF and a positive attitude towards telework not only influence but are also certainly necessary for increasing intention. As in Athanasiaodu and Theriou (2021), the mediation effect of attitude to intention of telework is confirmed by our NCA analysis.

The sensitivity analysis conducted confirms the important influential role of attitude in the model's predictive outcome. Intensity and CRF had a comparatively diminished influence on the model's predictive performance when contrasted with attitude. The ANN findings elucidate that the most important variable predicting intention is attitude. This is consistent with Asgari et al. (2023) and Magnus et al. (2022). However, our research advances upon these findings by introducing a ranking system, where the predictive capacity of attitude is significantly greater than that of intensity and CRF.

5.1. Theoretical and practical implications

Our findings contribute to a more comprehensive understanding of the motivations and barriers associated with teleworking intention. This research unveils a complex network of relationships among CRF, attitude, and teleworking intensity, providing relevant insights to inform both theory and practice in teleworking.

As reflected in the theoretical framework, the research on telework has not always been consistent. This may be due to partial analyses of the study variables that do not fully reflect the complexity of the relationships between them. This work seeks to further develop this line. This study contributes to telework research in several significant ways. First, it introduces CRF as a core determinant influencing telework intentions, both directly and indirectly through employee attitudes. Previous studies have broadly examined telework impacts on career development; however, this research distinctly operationalizes CRF as an independent variable, offering new insights into how specific career-related fears—such as concerns about visibility and professional growth—affect decisions regarding telework adoption.

Second, this study advances theoretical understanding by identifying a conditional mediation effect in which telework intensity moderates the relationship between CRF and telework intention, mediated by attitudes. This model highlights the varying effects of telework intensity on the CRF-telework intention link, providing a more detailed understanding of how different levels of telework engagement impact CRF's influence on employees' intentions to telework.

This study advances the knowledge of teleworking by answering the call of scholars such as Athaniasiadou et al. (2021) regarding the moderating role of intensity on the relationship between attitude and intention to telework. To our understanding, no other study had specifically examined the moderating impact of intensity on the relation between attitudes and the intention to telework.

One of the most relevant and novel aspects of this paper is the finding of a conditional mediation relationship in the overall model, that is, the existence of a moderating effect of intensity on the relationship between CRF and intention to telework, mediated by attitude. This result has theoretical implications because it analyzes in more detail the complexity of this relationship. Understanding that telework intensity moderates this relationship provides evidence that CRF is not an absolute impediment to telework, but its effect is contingent upon specific working conditions, such as the amount of time the employee already dedicates to telework. This finding expands the theory by suggesting that targeted interventions, such as gradual telework adaptation programs, could mitigate CRF. Additionally, this finding contributes to the literature that connects attitudes and behaviors in the telework context by showing how attitudes, which are the mediator in this case, are not only dependent on CRF but also influenced by the actual experience and exposure to telework. This helps refine and enrich theoretical models based on the Theory of Planned Behavior, integrating the moderating influence of telework intensity.

Finally, this research presents a hybrid methodological approach by combining Partial Least Squares (PLS), Necessary Condition Analysis (NCA), and Artificial Neural Network (ANN) modeling techniques. This integration enhances the rigor of telework research by allowing for robust testing of complex relationships and greater predictive accuracy. Furthermore, the inclusion of NCA establishes the necessary conditions for CRF's impact on telework intentions, providing a comprehensive view of the conditions under which CRF is likely to influence telework decisions. By utilizing these methods, this study makes an important methodological contribution, as this approach has been minimally applied in telework research, offering new pathways for analyzing and predicting telework behavior.

This research has significant implications for business management.

Organizations must actively recognize and address perceived CRF among their employees when implementing teleworking. By taking concrete measures, companies can proactively address the CRF and work to eliminate the stigma attached to individuals who choose teleworking. In this sense, clear policies, communication strategies and support programs can play a pivotal role in alleviating these concerns and fostering positive attitudes (Golden, 2006; Golden & Eddleston, 2020). Establish clear and measurable performance metrics for teleworkers, ensuring that expectations align with on-site employees, regularly assess and communicate performance results to foster a sense of accountability and recognition, providing teleworkers with access to ongoing professional development opportunities, mentoring programs, and training sessions to enhance their skills and contribute to career growth. Developing flexible career paths that accommodate both on-site and remote work and ensuring that teleworkers have equal access to career progression opportunities, promotions, and leadership roles, counter any perception of career stagnation linked to teleworking.

Furthermore, understanding that teleworking intensity moderates the relationship between CRF and intention implies that teleworking policies and practices should adapt to different intensity levels. Flexibility in teleworking implementation, considering individual needs and variations in intensity, may enhance the acceptance of this arrangement.

5.2. Future research lines

Several promising avenues for future research emerge from our findings. Future research could examine how persistent telework affects employees' well-being, job satisfaction, and retention, particularly whether telework exhaustion moderates these relationships over time. Longitudinal studies could reveal how the accumulation of telework-related exhaustion may shift initially positive attitudes to more cautious or negative perspectives, ultimately affecting telework intentions and overall job satisfaction. Such studies could provide insights into how organizations might design telework schedules that prevent burnout and maintain positive engagement.

Another valuable line of research would be to examine how telework becomes routine in employees' work lives and how this normalization process affects motivation, productivity, and engagement. This research could address how telework intensity interacts with employees' perceptions of autonomy, flexibility, and value alignment with the organization. In addition, studies could explore whether normalized telework leads to a decrease in the novelty effect often associated with increased productivity in remote environments, which could have implications for the design of strategies to maintain engagement over time.

An intriguing line of inquiry stems from the possibility that individuals aspiring to managerial positions might be particularly susceptible to the negative impacts of teleworking. For instance, where career advancement often involves assuming leadership roles, understanding how teleworking influences the career aspirations and progression of those aspiring to managerial positions could uncover unique challenges and opportunities.

It is essential to interpret these findings with consideration of the occupational differences within our sample, specifically between administrative and teaching staff. Prior research indicates that job characteristics, such as the degree of autonomy, exposure to visibility, and requirements for collaboration, vary significantly between administrative and teaching roles and may moderate the influence of CRF on telework intentions (Golden & Eddleston, 2020; Jämsen et al., 2022). For instance, teaching staff, who rely on student interactions and peer visibility, may experience CRF differently from administrative personnel who may have more structured tasks and less need for visibility in career progression. Therefore, future research could benefit from examining how specific job functions, like teaching versus administrative roles, impact the relationship between CRF, telework attitudes, and telework intensity. Other studies could explore whether teaching staff, whose roles are inherently more public and interaction-based, experience higher levels of CRF when teleworking compared to administrative staff. Such comparative analyses across occupational roles within similar organizational settings would clarify how CRF manifests differently across job functions, offering a more granular understanding of how telework policies can be adapted to support diverse occupational needs effectively.

Research could also explore potential variations in attitudes and intentions based on gender and age groups, elucidating how these factors may shape perceptions and behaviors related to teleworking.

Future models of teleworking intention should consider conditional mediation and the moderation of teleworking intensity, more precisely integrating emotional, cognitive, and contextual dimensions.

Moreover, comparing the established model with samples from different organizational settings could provide valuable insights into how telework dynamics vary across sectors and work environments. Furthermore, extending the research to international contexts introduces an additional layer of complexity. Examining telework attitudes and intentions in countries with different career models could provide cross-cultural perspectives on the interplay between CRF, attitude, and telework intensity.

In addition to the suggested ideas, other potential research lines may include investigating the role of organizational support in mitigating the perceived negative consequences of teleworking, examining the long-term career implications for employees who telework over extended periods.

This study's findings are based on a sample drawn from public universities in Spain, which may limit the generalizability of the results to other cultural and organizational contexts. Spain's public sector telework environment differs from that of private companies and public institutions in other countries, where telework practices and norms may vary significantly. Future research should aim to replicate this study across diverse organizational settings and cultural environments to validate the extent to which Career-Related Fear and telework intensity interact in different telework scenarios. Such cross-sectional studies could provide a more comprehensive understanding of how organizational structures and cultural factors shape telework attitudes and intentions. Additionally, studies in private and international contexts might reveal distinct telework dynamics, allowing for a better understanding of CRF and its career implications across various institutional frameworks.

6. Conclusion

The intention to telework is influenced by the possible negative consequences for the professional career. However, both the attitude and the intensity of the telework arrangement are determining factors in this decision. Therefore, it is essential for managers to be aware of the influence of these variables for telework to be accepted in their organizations. Consequently, the teleworking adoption must be accompanied by measures that mitigate the CRF while controlling the intensity of teleworking.

CRediT authorship contribution statement

Alicia Bolívar-Cruz: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Inmaculada Galván-Sánchez:** Writing – review & editing, Writing – original draft, Investigation, Data curation, Conceptualization. **Agustín J. Sánchez-Medina:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Conceptualization. **Domingo Verano-Tacoronte:** Writing – review & editing, Writing – original draft, Investigation, Formal analysis, Data curation, Conceptualization.

Declarations

All authors confirm that this manuscript has not been published elsewhere and is not under consideration by another journal.

All authors have approved the manuscript and agree with its submission to Computers and Human Behavior Reports.

Availability of data and materials

The datasets generated and/or analyzed during the current study are available in the ZENODO repository, https://zenodo.org/records/8399296.

Compliance with ethical Standards

According to the Human Research Ethics Committee (CEIH) of the University of Las Palmas de Gran Canaria, ethical approval is not required for behavioral research studies if there is no risk to adult participants, anonymity, voluntariness, and non-threatening nature are guaranteed. In this study, all these conditions were met. Nevertheless, the pertinent procedures were carried out and the research was approved on October 4, 2023, and assigned the reference number CEIH-2023-11.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

ANNEX 1. ITEMS ANALYZED

CAREER-RELATED FEAR (CRF): Please indicate your level of agreement with the following statements: 1 means "Strongly Disagree" and 7 means "Strongly Agree".

- Homeworking can be harmful to my career development
- Homeworking makes me less visible for possible career promotion
- Homeworking could result in a reduction of my salary

ATTITUDES: Please indicate your level of agreement with the following statements: 1 means "Strongly Disagree" and 7 means "Strongly Agree".

- Homeworking is beneficial for me
- Homeworking is a good idea
- Homeworking is pleasant

INTENSITY OF TELEWORK:

- Previous to COVID-19 confinement, what percentage of your work was done at home, rather than at your workplace?

  Never.
  Less than one day per week.
  One to two days per week.
  Three to four days per week.
  Five or more days per week.

INTENTION TO TELEWORK:

- Imagine that the health conditions allow you to be physically present at your workplace. Beyond the next six-month period, if the university you work for allows it, would you intend to do homeworking? (average days per week):

  Never.
  Less than 1 day per week.
  1–2 days.
  3–4 days.
  5 or more days per week.

- Imagine that the health conditions allow you to be physically present at your workplace. Beyond the next six-month period, if your university would allow it, would you intend to do homeworking ? (percentage of your work time):

  None.
  Less than 25%
  26–50%
  51–75%
  More than 75%

Data availability

The datasets generated and/or analyzed during the current study are available in the ZENODO repository, https://zenodo.org/records/8399296

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