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The relation of telework, hybrid work, and in-person work to mental health: A study of Brazilian civil servants

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ABSTRACT

There is evidence that civil servants experience job-related distress, often due to factors such as bureaucratic overload or shifts from permanent to temporary contracts. As of 2019, the Brazilian public administration introduced new work regimes, including telework. As a result, new occupational health challenges have emerged, especially since the COVID-19 pandemic, which has been a significant catalyst for these changes in work regimes. This quantitative cross-sectional survey compared levels of burnout, depression, anxiety, and work engagement among Brazilian civil servants across three work regimes: telework, hybrid work, and in-person work. A sample of 1,612 civil servants completed an online questionnaire anonymously. We used the 12-item version of the Burnout Assessment Tool, the PHQ-4, and the Utrecht Work Engagement Scale to assess mental health. Of the respondents, 37% were in telework, 51% in in-person work, and 12% experienced hybrid work. Results showed that levels of burnout, depression, and anxiety were highly similar across all three work regimes. Work engagement was slightly higher in the in-person group than in the hybrid group. Overall, the mental health of Brazilian civil servants appears largely unrelated to their work regime. Brazilian civil servants may have effectively adapted to the recent changes in their working conditions.

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Work has a profound influence on mental health. On one hand, it can lead to suffering and illness, contributing to conditions like burnout, depression, and anxiety. On the other hand, it can foster well-being, enhance life satisfaction, and increase job engagement. Understanding these dual outcomes

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requires examining the delicate balance between factors that promote health (salutogenic) and those that contribute to illness (pathogenic) (Areosa & Queirós, 2020; Schaufeli et al., 2009; Vazquez et al., 2019).

In recent years, alternative work formats—enabled by advances in information technologies—have gained prominence. These innovations warrant close examination by occupational health specialists to better understand their implications for workers' mental health and well-being (Eurofound, 2020). This study aims to explore how telework affects mental health outcomes such as burnout, anxiety, depression, and work engagement among Brazilian civil servants.

Work-related suffering and well-being: Burnout, depression, anxiety, and engagement

Burnout is a complex syndrome that develops in response to chronic work stress. It is typically characterized by emotional exhaustion, depersonalization (or cynicism), and a diminished sense of personal accomplishment or professional efficacy (Maslach & Leiter, 2016; Maslach et al., 2001). While early research on burnout focused on health professionals (Areosa & Queirós, 2020; Arnsten & Shanafelt, 2021; Leiter et al., 2018), the World Health Organization (WHO) has recognized burnout as an occupational phenomenon in the ICD-11, broadening its relevance across various sectors (WHO, 2019).

Recent models, such as that proposed by Schaufeli et al. (2020), describe burnout as a profound state of exhaustion marked by fatigue, mental distancing from work, and cognitive and emotional impairment. Secondary symptoms include depressive moods and psychological and psychosomatic complaints. The Burnout Assessment Tool (BAT) reflects these refinements and evaluates both primary and secondary dimensions of burnout while deliberately excluding depressive mood, which is assessed using separate validated measures (Sinval et al., 2022).

Depression, as a stress-related condition, encompasses symptoms such as dysphoria, anhedonia, fatigue, and sleep disturbances (DSM-5; American Psychiatric Association [APA], 2022). These symptoms range from mild to severe, with depressive disorders at the end of the spectrum (WHO, 2017a, 2019). Anxiety, by contrast, is characterized by persistent worry, physical tension, and cognitive disruptions like fatigue and difficulty concentrating (DSM-5; APA, 2022; WHO, 2017b, 2019).

Engagement, viewed as the opposite of burnout, reflects positive, fulfilling work experiences characterized by high energy, dedication, and immersion in one's tasks. These dimensions—vigor, dedication, and absorption—

contrast with the depletion and detachment that mark burnout (Schaufeli, 2017; Schaufeli & Bakker, 2004; Schaufeli & Salanova, 2011).

New work regimes: Telework and mental health in Brazilian civil servants

The rise of telework, accelerated by the COVID-19 pandemic, has introduced new challenges for workers. Telework is often linked to extended working hours, work overload, and social isolation, which can negatively impact mental health and well-being (Predotova & Vargas-Llave, 2021; Schonfeld & Chang, 2017). Globally, telework is considered a promising work format, driven by technological advancements and the rapid adoption of remote work during the pandemic. Before COVID-19, 10% to 30% of European Union workers were telecommuting (Eurofound, 2018), increasing to between 40% and 60% post-pandemic (Eurofound, 2020).

Several studies have raised concerns about the mental health impact of telework, particularly among civil servants. International research has documented significant levels of burnout, stress, depression, and anxiety in this workforce (Schaufeli et al., 2009). For example, a survey of Mexican civil servants found high levels of emotional exhaustion and depersonalization alongside low professional accomplishment (Castillo et al., 2007). In China, 12% of civil servants reported high levels of burnout (Guan et al., 2017). Japanese studies have shown that nearly 80% of male civil servants experienced depressive symptoms, while 36% suffered from burnout. In comparison, 59% of women reported depressive symptoms, and 50% experienced burnout (Saijo et al., 2015).

In Poland, civil servants and nurses—often considered a high-burnout group—showed no significant differences in burnout intensity (Bąk & Wawrzyniak, 2021; Jaracz et al., 2017). A study of Korean civil servants working in administrative, technical, and educational roles identified a statistically significant risk of work-related mental health disorders (Choi et al., 2024). A longitudinal study of civil servants in a large Dutch municipality examined their well-being during the pandemic. The findings revealed a rise in burnout and a drop in engagement, primarily driven by increased work pressure and challenges with work-life balance (Van der Meer et al., 2024).

In Brazil, moderate to high levels of stress and burnout have also been observed among civil servants, though further research is needed to fully understand the extent of these issues (Boechat & Ferreira, 2014; Mallmann et al., 2009; Minari & Souza, 2011). For instance, a study of 239 civil servants at a large Brazilian university found that 20%

experienced high anxiety and 22% reported depressive symptoms (Gavin et al., 2015). Another study revealed that 32% of civil servants working in a Brazilian court reported psychological exhaustion, with 11% experiencing severe burnout (Carlotto & Câmara, 2019). In Rio Grande do Sul, civil servants in administrative roles reported high emotional exhaustion, depersonalization, and low professional achievement (Mallmann et al., 2009; Palazzo et al., 2012). Another study of civil servants in São Paulo investigated the incidence and risk factors of suicidal ideation during the COVID-19 pandemic, revealing a threefold rise in suicidal thoughts (Bacchi et al., 2024).

This study examines civil servants employed by the National Institute of Social Security (NISS), the Brazilian federal agency responsible for managing the General Social Security System. Prior research has identified concerning levels of psychological distress among NISS employees. Specifically, a study reported that 30% of civil servants demonstrated moderate levels of depression, while 18% exhibited severe depressive symptoms (Missiatto et al., 2019a, 2019b).

In response to various organizational demands and global trends in work modernization, the NISS implemented a pilot telework program in September 2019 (INSS, 2020a). Subsequently, the institution introduced a hybrid work model that allows employees to alternate between three days of remote work and two days of in-person work each week (INSS, 2020b). Employees are assigned monthly performance targets regardless of the work arrangement—in-person, hybrid, or telework. However, in the telework regime, performance expectations are increased by 30% relative to the in-person regime. This increase is applied proportionally to the remote workdays in the hybrid format.

Employees in the telework arrangement can manage their schedules flexibly, provided they meet their monthly productivity targets. Team leaders conduct regular virtual meetings, and summoned employees are expected to attend. Suppose an employee working under either the telework or hybrid model fails to meet the established performance target within three or more months within 12 months. In that case, they are reallocated to the in-person regime (INSS, 2024).

Notably, employees within the same team may operate under different work arrangements, requiring constant coordination through organizational systems and synchronous communication platforms like WhatsApp. As of 2024, participation in telework and hybrid work models is limited to 50% of the workforce. The remaining personnel must work in person, and the NISS holds monthly selection processes for employees interested in transitioning to remote or hybrid modalities (INSS, 2024).

Given this context, the central research question guiding this study is: How are different work arrangements— in-person, hybrid, and telework— associated with levels of burnout, depression, anxiety, and work engagement among Brazilian civil servants?

This study aims to contribute to understanding how recent transformations in work organization—particularly the adoption of telework and hybrid models—affect the psychological well-being of public sector workers. Building on prior findings and considering the ongoing institutional changes within the NISS, this research investigates the relationship between work modality and key mental health outcomes. Specifically, the study compares levels of burnout, depression, anxiety, and work engagement among employees engaged exclusively in in-person work, those in hybrid arrangements, and those working entirely through telework.

Method

Participants

We conducted a quantitative cross-sectional survey relying on convenience and snowball sampling. The inclusion criteria required participants to be active civil servants currently employed at the NISS. All participants provided informed consent. The presence of another type of employment relationship with the NISS (e.g., internship) was an exclusion criterion. We stratified the civil servants into groups: in-person work, hybrid work, and telework regimes. The sample consisted of 1,612 Brazilian civil servants: 59.5% ($n = 959$) were female, 40.5% ($n = 653$) were male, 69.7% ($n = 1,124$) were married or in a relationship, a total of 91.6% ($n = 1,476$) had at least some higher education (bachelor, master or doctorate), and 8.4% ($n = 136$) had at most a secondary degree. A total of 50.9% ($n = 821$) worked in-person, 37.4% ($n = 603$) in telework and 11.7% ($n = 188$) in hybrid work; the mean age was 43.61 years ($SD = 8.83$), the average time of NISS was 14.24 years ($SD = 8.23$), the average number of children was 1.09 ($SD = 1.13$), 72.5% ($n = 1,168$) of participants lived with a spouse or children, 42% ($n = 677$) lived in the Southeast and 24.6% ($n = 396$) in the Northeast of Brazil. The sample included participants from all Brazilian states. To check on the representativeness of the sample, we used NISS official data to confirm that these sociodemographic characteristics were reflective of NISS employees' sociodemographic and workplace factors: sex (51% female) and work regime (69% in-person and 20% telework).

The project complied with the ethical requirements of the Ethics Committee of the Faculty of Psychology and Educational Sciences of the University of Porto (reference 2021/10-03b).

Measures

We used the Brazilian Portuguese version of the Burnout Assessment Tool (BAT; Schaufeli et al., 2020; Sinval et al., 2022), the Patient Health Questionnaire (PHQ-4; de Lima Osório et al., 2009; Kroenke et al., 2009), and the Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006; Vazquez et al., 2015), accompanied by a sociodemographic and work characterization questionnaire.

The brief version of the BAT consists of 12 items evaluated on a 5-point Likert scale (ranging from 1 = never to 5 = always), organized into primary symptoms. These primary symptoms include exhaustion, mental distancing, cognitive impairment, and emotional impairment. In addition, we used ten items from the full BAT scale that assess secondary symptoms. Secondary symptoms consisted of psychological complaints and psychosomatic complaints. The PHQ-4 was employed to assess depressive symptoms (two items) and anxiety symptoms (two items). The items are rated on a 4-point Likert scale ranging from 1 for “not at all” to 4 for “nearly every day.” The UWES-9 consists of nine items rated on a 7-point Likert scale, divided into three dimensions: vigor, dedication, and absorption (ranging from 0 = never to 6 = always). All questionnaires presented good Cronbach’s alpha (BAT-12, Cronbach’s $\alpha = 0.91$; PHQ-4, Cronbach’s $\alpha = 0.92$; and UWES-9, Cronbach’s $\alpha = 0.95$), indicating excellent internal consistency (Field, 2009).

Data collection and data analysis

Data collection occurred between 12/2021 and 2/2022 in a computerized version of the questionnaires, included in the SOMSII Innovation & Research Flexsaude platform, which, after the fulfillment of the questionnaire, return results using a three-color semaphore level for self-monitoring and self-care proposes. We contacted civil servants *via* institutional email and invited them to participate spontaneously in the on-screen survey. In the body of the email, we sent a link and instructions for accessing the research informed consent.

We analyzed the data using SPSS version 28. First, t-tests were employed to compare means between two groups, while correlational analyses examined the strength and direction of relationships between key variables. For group comparisons involving more than two categories, we conducted ANOVAs to detect any significant differences across groups. We applied the Games-Howell post hoc test and variances to further inquire about group differences.

Results

Descriptive statistics and correlations among the mental health and socio-demographic variables are reported in Table 1. Expectedly, all mental health variables correlated substantially with each other. Age correlated negatively with burnout (and its secondary symptoms), depression, and anxiety and positively with work engagement. The pattern of correlations was highly similar when considering length of service instead of age.

Table 2 presents the means in each scale by work regime and the results of a one-way ANOVA comparing the means across groups. We found significant differences in some variables investigated as a function of the work regime, although we found small effect sizes ($\eta^2 = .004$ to $.006$). For example, hybrid work had higher means than other work regimes for cognitive impairment, psychological complaints, and anxiety. On the other hand, the in-person work regime presented the highest averages compared to the other two in terms of psychosocial protection factors, including vigor, dedication, and engagement.

Table 3 shows a comparative analysis according to the work regime, using post-hoc tests. Hybrid work presents a higher average compared to in-person work in one of the dimensions of burnout (cognitive impairment) and lower averages concerning engagement, vigor, and dedication. In-person work has a slightly higher average than telework in one of the dimensions of engagement: dedication.

Comparative analysis of means according to sociodemographic variables did not reveal statistically significant differences in marital status (married or unmarried). However, there are significant differences according to sex. Women scored higher in exhaustion ($t(1610) = -8.20, p = .039, d = .87$), psychological complaints ($t(1610) = -7.09, p = .004, d = .89$), and burnout ($t(1610) = -4.93, p = .050, d = .73$), as well as lower averages in engagement. On the other hand, men presented higher averages in engagement ($t(1610) = 1.64, p = .005, d = 1.36$) and all its subdimensions.

Regarding the existence of children, we found that there are significant differences; civil servants who reported having children had higher means in vigor ($t(1610) = -6.18, p < .001, d = 1.41$), dedication ($t(1610) = -6.03, p < .001, d = 1.45$), absorption ($t(1610) = -6.45, p < .001, d = 1.43$), and engagement ($t(1610) = -6.63, p < .001, d = 1.35$). Furthermore, regarding the position of the area at work (core area—civil servants who work directly in serving the public and granting social security benefits or administration area—civil servants who work in management, finance, human resources, among other administrative functions), the civil servants in the core area had higher averages in mental distancing ($t(1610) = 2.34, p = .028, d = 1.01$). Civil servants in the administrative area had higher engagement averages ($t(1610) = -5.58, p < .001, d = 1.35$).

Table 1. Descriptive measures and correlations of burnout, anxiety, depression and engagement.

Dimensions	n	M	SD	Age	LS	1.E	2.MD	3.Cl	4.El	5.PC	6.PSC	7.B	8.A	9.D	10.V	11.D	12.A
1. Exhaustion	1612	3.390	0.883	-0.105**	-0.085**												
2. Mental distancing	1612	2.708	1.021	-0.172**	-0.126**	.622**											
3. Cognitive impairment	1612	2.748	0.820	-0.149**	-0.070**	.553**	.612**										
4. Emotional impairment	1612	2.302	0.858	-0.015	-0.013	.540**	.557**	.560**									
5. Psychological Complaints	1612	3.256	0.902	-0.084**	-0.073**	.678**	.576**	.559**	.614**								
6. Psychosomatic Complaints	1612	2.691	0.843	-0.057*	-0.032	.620**	.487**	.499**	.527**	.721**							
7. Burnout- BAT-12	1612	2.787	0.740	-0.136**	-0.092**	.823**	.861**	.816**	.798**	.734**	.644**						
8. Anxiety	1612	1.388	0.980	-0.118**	-0.087**	.679**	.583**	.523**	.601**	.756**	.616**	.723**					
9. Depression	1612	1.273	1.000	-0.112**	-0.067**	.669**	.671**	.563**	.555**	.679**	.614**	.748**	.775**				
10. Vigor	1612	2.223	1.433	.197**	.125**	-0.663**	-0.726**	-0.591**	-0.464**	-0.561**	-0.520**	-0.738**	-0.576**	-0.657**			
11. Dedication	1612	2.390	1.475	.193**	.140**	-0.545**	-0.751**	-0.554**	-0.445**	-0.505**	-0.446**	-0.704**	-0.505**	-0.611**	.876**		
12. Absorption	1612	2.779	1.450	.205**	.152**	-0.439**	-0.625**	-0.445**	-0.354**	-0.377**	-0.350**	-0.573**	-0.379**	-0.486**	.762**	.833**	
13. Engagement	1612	2.464	1.365	.211**	.148**	-0.573**	-0.746**	-0.564**	-0.448**	-0.512**	-0.466**	-0.715**	-0.518**	-0.622**	.935**	.962**	.921**

* $p \leq .050$, ** $p \leq .010$.

Note: LS = Length of service; 1.E = Exhaustion; 2.MD = Mental distancing; 3.Cl = Cognitive impairment; 4.El = Emotional impairment; 5.PC = Psychological Complaints; 6.PSC = Psychosomatic Complaints; 7.B = Burnout—BAT-12; 8.A = Anxiety; 9.D = Depression; 10.V = Vigor; 11.D = Dedication; 12.A = Absorption.

Table 2. ANOVA results—Comparative analysis according to the work regime.

Dimensions (scale)	Face-to-face <i>M (SD)</i>	Hybrid <i>M (SD)</i>	Telework <i>M (SD)</i>	<i>F (df1, df2)</i>	<i>p</i>	η^2
Exhaustion (1 to 5)	3.39 (0.88)	3.40 (0.83)	3.39 (0.91)	0.02 (2, 1609)	.979	.000
Mental distance ^a	2.68 (1.00)	2.81 (0.96)	2.72 (1.06)	1.63 (2, 532)	.198	.002
Cognitive impairment ^a	2.70 (0.81)	2.84 (0.73)	2.79 (0.85)	3.98* (2, 543)	.019	.005
Emotional impairment ^a	2.26 (0.82)	2.30 (0.81)	2.36 (0.92)	2.44 (2, 526)	.088	.003
Psychological complaints	3.20 (0.89)	3.36 (0.87)	3.39 (0.92)	3.21* (2, 1609)	.041	.004
Psychosomatic complaints	2.66 (0.83)	2.76 (0.80)	2.73 (0.87)	2.04 (2, 1609)	.130	.003
Burnout-BAT-12 ^a	2.75 (0.72)	2.84 (0.66)	2.82 (0.78)	1.83 (2, 540)	.162	.002
Anxiety (0 to 3)	1.33 (0.97)	1.50 (0.98)	1.43 (0.99)	2.98 (2, 1609)	.051	.004
Depression	1.26 (1.00)	1.37 (0.98)	1.26 (1.00)	1.06 (2, 1609)	.347	.001
Vigor (0 to 6) ^a	2.31 (1.44)	1.98 (1.26)	2.18 (1.46)	5.37** (2, 547)	.005	.006
Dedication ^a	2.43 (1.49)	2.10 (1.30)	2.43 (1.50)	5.01** (2, 548)	.007	.005
Absorption ^a	2.84 (1.46)	2.61 (1.31)	2.75 (1.47)	2.50 (2, 541)	.087	.003
Engagement—UWES-9 ^a	2.53 (1.38)	2.23 (1.20)	2.45 (1.39)	4.41* (2, 547)	.013	.005

p* ≤ .050, *p* ≤ .010, ****p* ≤ .001.

^aLevene Statistic pointed out that some variables—burnout, mental distance, cognitive impairment, emotional impairment, vigor, dedication, absorption, and engagement—violated the homogeneity of variance. In this case, we reported the values obtained in the Welch Tests.

Table 3. Post-hoc tests—Comparative analysis according to the work regime.

Dimensions (scale)	Work Regime 1	Work Regime 2	Mean difference	Standard error	<i>p</i>
Cognitive impairment ^a	Face-to-face	Hybrid	−0.148*	0.060	.039
	Face to face	Telework	−0.093	0.045	.098
	Hybrid	Telework	0.055	0.063	.660
Psychological complaints ^b	Face-to-face	Hybrid	−0.160	0.073	.073
	Face to face	Telework	−0.089	0.048	.158
	Hybrid	Telework	0.071	0.075	.613
Vigor ^a	Face-to-face	Hybrid	0.333**	0.105	.005
	Face to face	Telework	0.138	0.078	.181
	Hybrid	Telework	−0.195	0.109	.177
Dedication ^a	Face-to-face	Hybrid	0.326**	0.108	.008
	Face to face	Telework	0.004	0.080	.999
	Hybrid	Telework	−0.322*	0.113	.012*
Absorption ^a	Face-to-face	Hybrid	0.232	0.109	.084
	Face to face	Telework	0.096	0.079	.437
	Hybrid	Telework	−0.135	0.113	.455
Engagement UWES-9 ^a	Face-to-face	Hybrid	0.297**	0.100	.009
	Face to face	Telework	0.079	0.074	.533
	Hybrid	Telework	−0.218	0.104	.094

p* ≤ .050, *p* ≤ .010, ****p* ≤ .001.

^aWe used the post hoc Games-Howell test for the variables in which the homogeneity of variances was not preserved (cognitive impairment, vigor, dedication, absorption, and engagement).

^bWe used the Tukey post hoc test for the variables in which variances' homogeneity (psychological complaints) was preserved.

Discussion

The study revealed that the hybrid work regime, in which workers live with mixed working conditions—telework, and in-person work—resulted in higher averages in some components of burnout (cognitive impairment and psychological complaints) and anxiety, followed by workers in telework. The mean levels of cognitive impairment, psychological complaints, psychosomatic complaints, burnout, and anxiety were lowest in the in-person work group. On the other hand, as expected, civil servants who work in-person had a higher average in the protective factor, engagement, a relationship reported in previous studies (Mäkikangas et al., 2022; Medina

et al., 2021). However, it is essential to highlight that although we found statistically significant differences in some of the categories researched for the three work regimes, this difference is relatively small.

The results indicated that the averages obtained in the psychological variables, including burnout, anxiety, and depression, are in the middle zone of the respective scale. Furthermore, high levels of exhaustion and psychological complaints, components of burnout, showed high average results, consistent with other studies (Borges et al., 2021; Guan et al., 2017; Schaufeli et al., 2020). On the other hand, engagement and all its components, namely vigor, dedication, and absorption, showed low average levels, with vigor being the category with the lowest score, consistent with previous studies (Medina et al., 2021). Note that the higher the level of burnout, depression, and anxiety the worker presents, the greater the psychosocial risks involved and, therefore, the higher the level of illness. On the other hand, the lower the level of engagement, the lower the psychosocial protection factors that can combat these factors that cause illness.

It is important to highlight that in the evaluation of the conditions of teleworking and hybrid work, the results showed conditions that were below those necessary in some aspects, mainly concerning an isolated and uninterrupted space, since 42% of the civil servants who are in teleworking or hybrid work, reported not having a space with favorable conditions; 13% of these employees do not have a personal computer, having to share it with other members of their family; 80% reported the impact of the accumulation of domestic tasks and telework, although the vast majority (89%) still preferred to remain teleworking in times of COVID-19.

We found that women had higher levels of burnout and lower levels of engagement. Compared to men, women, on average, have housework and more difficulty reconciling the demands of work with those of the family, while the unmarried seems to be affected by the overload of telework schedules (Duarte et al., 2020; Predotova & Vargas-Llave, 2021). Consistent with Souadka et al. (2020), civil servants with children showed higher levels of engagement compared to colleagues without children; however, no differences between parents and non-parents were found for burnout. As expected, civil servants in the core area, given the tremendous demand from the institution and society, develop higher levels of burnout and lower levels of engagement compared to civil servants in the administrative area.

The study has at least two limitations. First, the design was cross-sectional. We cannot be assured that the individuals in the telework, hybrid work, and in-person work groups represent all such civil servants and that the differences we found are generalizable to all civil servants. However, we found that the characteristics of our overall sample ($n = 1,612$) were similar to that of the population of civil servants in Brazil. Second, because the study was cross-

sectional, we could not evaluate the implications for civil servants of time-related changes such as moving from telework to in-person work.

Conclusion

Our study suggests that levels of burnout, depression, and anxiety are similar across telework, hybrid work, and in-person work regimes. We found work engagement slightly higher in the in-person group than in the hybrid group. The mental health of Brazilian civil servants appears to be largely unaffected by their work regime. Our findings suggest that these professionals have effectively adapted to the recent changes in their working conditions. The study paves the way for more research on the impact of work regimes in public administration. We call for longitudinal research and organization-based experiments with random assignment examining the impact of shifts from telework to in-person work or vice versa on work engagement. Such research may also help identify an optimal balance between people's workplaces and homes when considering hybrid work.

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Data availability statement

The data that support the findings of this study are openly available in Mendeley Data at <http://doi.org/10.17632/kpcpgk6v3f.1>.

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