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*Scientific articles*

## **Impact of teleworking on the work stress of university teachers due to covid-19**

***Impacto del teletrabajo en el estrés laboral de docentes universitarios por el covid-19***

***Impacto do teletrabalho no stress laboral de docentes universitarios debido à covid-19***

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### **Resumen**

La presente investigación tuvo como objetivo analizar el impacto del teletrabajo en el estrés laboral de los docentes universitarios por la pandemia del covid-19, así como establecer la relación entre agotamiento laboral y estrés laboral. Para ello, se utilizó una metodología cuantitativa, de tipo descriptiva y correlacional. El diseño de investigación fue no experimental de forma transversal debido a que solo se recolectaron datos durante el periodo de confinamiento, en los meses de agosto y septiembre de 2021. La población de estudio fueron los docentes de la Universidad Autónoma del Estado de México. Los resultados revelan que el teletrabajo a causa de la pandemia del covid-19 provocó en una proporción mayoritaria de docentes universitarios un nivel leve de estrés laboral y un nivel medio de agotamiento laboral. Los principales síntomas asociados al estrés laboral que manifestaron los docentes fueron molestias gastrointestinales y dolores de cabeza. Además, las mujeres docentes presentaron mayores niveles de estrés, en comparación con los hombres. En definitiva, según los resultados, el estrés laboral se correlaciona de forma significativa, positiva y alta con el agotamiento laboral.



**Palabras clave:** agotamiento laboral, *home-office*, pandemia, profesores, trabajo a distancia.

## **Abstract**

The objective of this research was to analyze the impact of teleworking on the work stress of university teachers due to the covid-19 pandemic, it also sought to establish the relationship between work exhaustion and work stress. A quantitative, descriptive and correlational methodology was used. The research design was non-experimental in a cross-sectional way, since data was only collected during the confinement period, in the months of August and September 2021. The study population was the teachers of the Universidad Autónoma del Estado de México. The results reveal that teleworking due to the covid-19 pandemic caused a mild level of job stress and a medium level of job burnout in a majority of university professors. The main symptoms associated with work stress that teachers manifested were gastrointestinal discomfort and headaches. In addition, female teachers presented higher levels of stress, compared to men. However, according to the results job stress correlates significantly, positively and highly with job burnout.

**Keywords:** burnout, home-office, pandemic, teachers, remote work.

## **Resumo**

O objetivo desta investigação foi analisar o impacto do teletrabalho no stress laboral dos docentes universitários devido à pandemia de covid-19, procurou também estabelecer a relação entre o esgotamento laboral e o stress laboral. Foi utilizada uma metodologia quantitativa, descritiva e correlacional. O desenho da pesquisa foi não experimental de forma transversal, pois os dados foram coletados apenas durante o período de confinamento, nos meses de agosto e setembro de 2021. A população do estudo foram os professores da Universidad Autónoma del Estado de México. Os resultados revelam que o teletrabalho devido à pandemia de covid-19 provocou um nível ligeiro de stress laboral e um nível médio de burnout laboral na maioria dos docentes universitários. Os principais sintomas associados ao estresse laboral que os professores manifestaram foram desconforto gastrointestinal e dores de cabeça. Além disso, as professoras apresentaram maiores níveis de estresse, em comparação aos homens. No entanto, de acordo com os resultados, o estresse no trabalho se correlaciona significativamente, positivamente e altamente com o esgotamento profissional.

**Palabras-chave:** esgotamiento profesional, home-office, profesores, trabajo remoto.

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## Introduction

The health emergency caused by covid-19 led to the massive closure of in-person activities in educational institutions of all levels. Globally, more than 190 countries implemented the closure of educational centers, impacting more than 1.6 billion students and more than 100 million teachers (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2023). In Mexico, more than 32 million students at the preschool, primary, and secondary levels were affected (UNESCO, 2022). Faced with this situation, schools were forced to suspend all face-to-face teaching-learning activities to make way for the virtual modality in order to contain and mitigate infections between students and teachers, which represented a radical and abrupt change.

Thus, during the covid-19 pandemic, teleworking became a crucial tool to guarantee operational continuity (International Labor Organization [ILO], 2020), thanks to which the impact of containment measures could be mitigated in the functioning of companies, institutions and schools (Economic Commission for Latin America and the Caribbean [ECLAC] *et al.*, 2020).

In Mexico, during the covid-19 pandemic, 23.5% of the employed population worked from home, which is equivalent to approximately 7.7 million employees; The main difficulties they faced were the lack of equipment necessary to carry out their work, as well as the lack of adequate training (National Institute of Statistics and Geography [INEGI], 2020).

In educational institutions, teleworking became the most adopted modality during the covid-19 pandemic (Ribeiro *et al.*, 2020). However, this forced teachers to leave the classrooms, to which they had been accustomed for years, to continue in a virtual environment without being prepared or having little experience (Sánchez *et al.*, 2020). Consequently, they had to transform the spaces of their homes into improvised classrooms, and enter the world of educational technologies due to the circumstances (Pérez *et al.*, 2021). This transition generated insecurities and uncertainties in the teaching staff, which mainly generated anxiety and stress due to the new work modality because, with distance teaching, they had to double the work hours to adapt the contents of the face-to-face classes. to virtual mode. In addition, they had to learn to use virtual platforms, which increased the time spent

assigning and evaluating tasks (Cortés, 2021). Under these working conditions, teachers were exposed to risks associated with teleworking such as work stress (Costa *et al.*, 2020). According to the ILO (2016), work stress is defined as the physical and emotional response to harm that a worker may suffer when work demands and pressures do not match their knowledge and skills, or exceed their capabilities, resources or needs which tests your ability to deal with work situations. In this sense, it is important to highlight that when work stress persists and becomes chronic, it can lead to the development of the so-called *burnout syndrome* (Cirera *et al.*, 2012).

Work stress has been identified as a latent risk for education workers, since their daily work involves interacting with people (Rodríguez *et al.*, 2017). In fact, it is relevant to note that, even before the covid-19 pandemic, more and more cases of work stress derived from the arduous work days and the exhausting demands imposed by employers were reported in Mexico (Maldonado, May 21 2019), and with the arrival of covid-19, significantly higher levels of stress, anxiety and depression have been observed in the general population (Brooks *et al.*, 2020). Therefore, it is plausible to assume that during the covid-19 pandemic the problem of work stress becomes even more serious, which is why the objective of this research is to analyze the impact of teleworking on the work stress of university teachers due to the pandemic of covid-19.

## Literature review

Teleworking is not a new work modality, since it has been implemented for several years. However, with the pandemic, its prevalence increased and it became the main source to protect the constitutional right to work. This was done with the objective of maintaining the economy of many companies and guaranteeing the functioning of the State and all its obligations to society (Ramírez-Velásquez *et al.*, 2022).

The term *teleworking* or *home office* refers to a non-face-to-face work activity in which employees and employers fulfill their work obligations and responsibilities from their homes through the use of certain technological requirements (Buitrago, 2020; Meo and Dabenigno, 2020). Although teleworking does not require the physical presence of the employee at the workplace or the physical supervision of a supervisor, it does require that the assigned tasks be carried out and the conditions established by the employer be respected (Espinoza, 2020). In practical terms, teleworking separates the employee from personal

contact with co-workers, but information technologies facilitate communication between them (Camacho, 2020).

The positive effects of teleworking, according to Messenger *et al.* (2019) is that it reduces the travel time of workers, allows them to combine work tasks with domestic tasks at home and grants a certain degree of autonomy or freedom to employees, and also gives the opportunity to include workers with a disability.

On the other hand, the risk factors for the health of people who work under this modality include psychosocial and ergonomic risk factors (Buomprisco *et al.*, 2021). In addition, workers who work from home have less physical activity, greater consumption of junk food, less communication with co-workers, greater workload, longer work hours and more distractions, especially when there are children at home, triggering physical health problems and a decrease in workers' mental well-being (Xiao *et al.*, 2021). Teleworking due to covid-19 generated emotional and health implications in workers, due to the conflict between family and work and social isolation during the pandemic, causing employees to work stress from home (Galanti *et al.*, 2021).

Stress manifests itself as a reaction of the organism to various stimuli, which causes mental, physical and/or emotional tension that causes an adaptive response by the organism (Robles Medina, 2023). Stress, therefore, is associated with variables such as fatigue, depression, anxiety and other diseases that can limit the individual's ability to carry out their daily activities (Dolores *et al.*, 2023). Consequently, high levels of stress lead to a poor quality of life for people, especially as far as their health is concerned (Lipp, Costa and Nunes, 2017).

Work stress, for its part, is defined as the negative reaction that arises when work demands exceed the individual's ability to cope with them (Suárez *et al.*, 2020). It is important to highlight that work stress can manifest itself in any work environment and affect any worker (Chiang *et al.*, 2018). According to Palacios and Montes de Oca (2017), stress contributes to the deterioration of health and triggers symptoms of illness and exhaustion. Burnout syndrome arises in the worker as a response to chronic work stress, which arises under difficult conditions, characterized by a state of physical, emotional and cognitive exhaustion, having very negative consequences for the individual and the organization (Rodríguez and Rivas, 2011).

Therefore, stress represents a significant health problem and is an important concern for organizations, because work stress significantly affects workers' work performance (Dolores *et al.*, 2023).

## Objectives

The general objective of this research is to analyze the impact of teleworking on the work stress of university teachers due to the covid-19 pandemic. Regarding the specific objectives, they are the following:

- Determine the level of work stress and the level of work exhaustion of university professors due to working remotely during the covid-19 pandemic.
- Identify the main symptoms associated with work stress that teachers presented due to teleworking during the confinement of the covid-19 pandemic.
- Establish the degree of relationship between job exhaustion and job stress in university teachers due to teleworking.

## Methodology

A descriptive and correlational quantitative methodology was used in this research. The research design was non-experimental, since the study variables were not manipulated. Furthermore, the research is classified as cross-sectional, since data was collected at a single specific time, during the confinement period of the Covid-19 pandemic, in the months of august and september 2021.

## Instruments

Inventory (MBI) questionnaire developed by Maslach and Jackson in 1993 was used. However, since in this case the aspect of work exhaustion was specifically measured, it was They adapted the questions to the remote work modality. The job exhaustion subscale evaluates the experience of being emotionally exhausted due to the demands of the job and consists of nine questions identified as 1, 2, 3, 6, 8, 13, 14, 16 and 20. The reference values for the evaluation are the following (table 1):

**Table 1.** Reference values for level of work exhaustion

	Low	Half	High
Work exhaustion	0 – 18	19 – 26	27 – 54

Source: Own elaboration based on Maslach and Jackson (1993)

Additionally, the Mexican Social Security Institute (IMSS) work stress test was applied, which was adapted from the psychosomatic problems questionnaire. This test consists of 12 items, and in each of them the degree of the symptom experienced during the last three months had to be selected, according to the following options: never, almost never, rarely, sometimes, relatively frequent and very frequently. Below are the reference values to determine the stress level (table 2):

**Table 2.** Reference values for level of work stress

	Without stress	Mild stress	Medium stress	High stress	Serious stress
Work stress	0-12	13-24	25-36	37-48	49-60

Source: self made

The questionnaire that evaluated work exhaustion due to teleworking yielded a Cronbach's alpha of 0.969, which indicates that, despite the adaptation in the wording of the questions for the remote work modality, it presents an excellent interrelation between the nine questions. Similarly, the work stress test obtained a Cronbach's alpha of 0.947, which means that the 12 questions maintain excellent internal consistency.

## Participants

The population under study in the research included 46 teachers from the Universidad Autónoma del Estado de México, Campus Tejupilco. It is important to note that both full-time teachers and subject teachers participated. The only inclusion criterion considered was that the teachers were teaching classes remotely during the confinement period due to Covid-19. To calculate the sample, the finite population formula was applied, which yielded a result of 42 teachers. This sample was selected with a margin of error of 5% and a confidence level of 95%. It should be noted that intentional non probabilistic sampling was used.

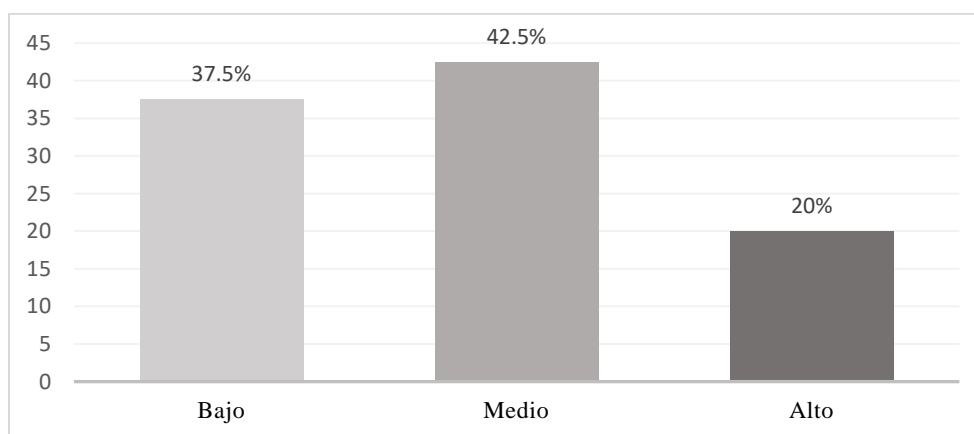
## Analysis of data

The data obtained were analyzed through descriptive statistics by calculating percentages. The correlation was carried out through the Pearson correlation coefficient; these calculations were carried out with SPSS version 23 *software*.

## Results

The results show that 42.5% of university teachers experienced a medium level of emotional exhaustion due to teleworking during the covid-19 pandemic. On the other hand, 37.5% presented a low level, while 20% showed a high level (figure 1).

**Figure 1.** Level of job exhaustion

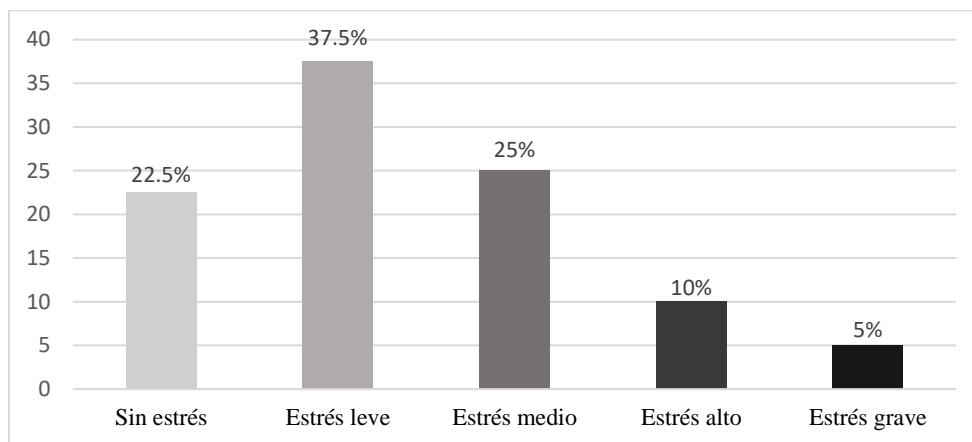


Source: self made

When examining stress levels, it is notable that 37.5% of teachers experienced a mild level of stress in the last three months when they worked remotely due to Covid-19. In contrast, 25% reported a medium level of stress. However, 10% of teachers experienced a high level of stress, and 5% reported a severe level of stress from teleworking (Figure 2).



**Figure 2.** Level of work stress



Source: self made

In relation to the symptoms associated with work stress that teachers experienced the most due to teleworking during the covid-19 pandemic, table 3 shows that indigestion and gastrointestinal discomfort were the most prevalent, affecting 20.8% of teachers. Secondly, 16.6% had migraines and headaches, and another 16.6% reported a feeling of extreme tiredness or exhaustion.

**Table 3.** Symptoms associated with work stress

Description	Percentage
Inability to fall asleep	0.0
Migraines and headaches	16.6
Indigestion and gastrointestinal discomfort	20.8
Feeling extremely tired or exhausted	16.6
Tendency to eat, drink, or smoke more than usual	4.2
Decreased sexual interest	0.0
Short breathing or feeling of suffocation	8.3
Decreased appetite	4.2
muscle tremors	0.0
Punctures or painful sensations in different parts of the body	8.3
Strong temptations not to get up in the morning	12.7
Tendencies to sweat or palpitations	8.3

Source: self made

On the other hand, table 4 shows that women were the most affected by work stress due to remote work during the covid-19 pandemic. The results indicate that 11% of female teachers experienced a high level of stress, and another 11% experienced severe stress. In contrast, 46% of male teachers did not experience significant stress from teleworking.

**Table 4.** Level of work stress according to sex

Description	Without stress	Mild stress	Medium stress	High stress	Serious stress
Female	11.0%	41.0%	26.0%	11.0%	11.0%
Male	46.0%	31.0%	23.0%	0%	0%

Source: self made

Finally, the results in table 5 indicate that there is a high positive correlation between job burnout and job stress, with a Pearson correlation coefficient of 0.770, and this correlation was significant at the 0.01 level (two-sided significance). Therefore, it can be concluded that an increase in job stress is associated with an increase in teachers' levels of job burnout.

**Table 5.** Pearson correlation between job exhaustion and job stress

		Work exhaustion	Work stress
Work exhaustion	Pearson correlation	1	.770**
	Sig. (bilateral)		,000
Work stress	Pearson correlation	.770**	1
	Sig. (bilateral)	,000	

\*\* . The correlation is significant at the 0.01 level (two-sided).

Source: self made

## Discussion

The main findings of this research reveal that a majority proportion of university professors experienced a medium level of job burnout due to teleworking during the Covid-19 pandemic. These teachers reported feeling emotionally tired, fatigued before starting the work day, experiencing work overload and fatigue at the end of the day, as well as facing excessive effort and workload. These results indicate that teleworking generated job exhaustion in university professors, possibly due to the increase in workload and home responsibilities. According to Maslach (2003), job burnout is a basic response to stress.

The results also show that the majority of university teachers experienced a mild or medium level of stress due to teleworking during the covid-19 pandemic. Previous studies suggest that teleworking generated a medium level of stress in teachers, especially due to the use of digital platforms and the tension associated with the covid-19 pandemic (González-Palma and Alarcón-Chávez, 2021). However, some teachers experienced high or severe levels of stress while working remotely. According to Losada *et al.* (2021), the covid-19 pandemic generated high levels of stress that significantly affected people's health, since they were not prepared for teleworking. For many university professors, teleworking resulted in higher levels of stress, as they had to carry out work activities remotely and, at the same time, take care of home responsibilities. Additionally, they faced the challenge of ensuring that students learned remotely, which involved implementing new teaching strategies.

The main symptoms associated with work stress that teachers experienced most due to teleworking during the Covid-19 pandemic were indigestion, headaches and the feeling of extreme tiredness or exhaustion when working remotely with students. These findings are in line with those of Olga and Terry (1997), who suggest that stress can lead to headaches and indigestion. Furthermore, Leal (2006) mentions that excessively frequent stress can cause headaches, abdominal pain, colitis, irritable bowel syndrome, among others. Similarly, Rodríguez *et al.* (2017) maintain that work stress not only affects teachers in their work environment, but also in their health, and point out that some manifestations of this pathology include symptoms of fatigue, gastrointestinal problems, eating disorders, among others. The results of this research support the idea that university teachers experienced some of these physical symptoms in response to the pressure generated by remote work during the covid-19 pandemic.

The data also indicates that female faculty experienced higher levels of stress due to teleworking compared to male faculty. This observation had already been highlighted by Jorquera and Herrera (2020), who point out that during social isolation due to the covid-19 pandemic, women faced higher levels of stress due to the need to balance work with home and family responsibilities raising children. Similarly, Qiu *et al.* (2020) showed that, during the pandemic, women experienced higher levels of stress. This is because, during the confinement due to the covid-19 pandemic, women mainly assumed the burden of caring for children, sick people and maintaining homes, including preventing the spread of the virus (UN Women, 2020). In addition, women teachers had to adapt to the new modality of remote

work using technology, which represented a significant challenge as they had to double their work hours and continue taking care of household chores.

Another relevant finding of this research is the high and statistically significant positive relationship between job exhaustion and job stress, which agrees with what was stated by Jorquera and Herrera (2020), who indicate that stress is significantly associated with higher levels of work exhaustion.

## Conclusions

The results show that teleworking during the covid-19 pandemic generated, in a majority of university professors, a mild level of work stress and a medium level of work exhaustion due to remote work. The main symptoms associated with work stress that teachers reported included indigestion or gastrointestinal discomfort, as well as migraines or headaches. Likewise, women teachers were more affected by work stress due to teleworking compared to men. Furthermore, the results showed that work stress influences the levels of work exhaustion of teachers, and the existence of a close correlation between both variables was statistically demonstrated.

Given these findings, it is suggested that higher educational institutions implement preventive measures to prevent work stress from becoming chronic in teachers and leading to *burnout syndrome*. In this sense, it is crucial to adopt strategies that promote the emotional well-being and mental health of teachers, as well as provide support in adapting to new work modalities to mitigate the negative impacts associated with teleworking during emergency situations such as the pandemic. For this reason, it is crucial that educational institutions implement strategies aimed at preventing and managing work stress. Identifying the factors that trigger it will allow a more effective approach, hence it is essential to follow NOM-035-STPS, which aims to promote a favorable environment in workplaces, including those of an educational nature.

## Future research lines

Given that work stress is becoming increasingly common and affects not only the physical and psychological well-being of workers, but also the proper functioning of organizations, it is imperative to continue researching the socioeconomic impact of work stress in the university academic environment. In this context, hybrid education, which combines face-to-face teaching with online education, is increasingly being used in higher education. Therefore, it is relevant to study the effects of teacher work stress in the hybrid educational model.

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