


Psychosocial factors associated with the health perception of university professors working from home in Brazil

Fatores psicossociais associados à percepção de saúde de professores universitários em home office no Brasil

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ABSTRACT | INTRODUCTION: University professors have faced changes in teaching methodology since the COVID-19 pandemic, requiring an emergency adaptation to remote learning. Continuing remote activities after the pandemic has become part of the routine; however, its impact on the mental health of these workers is unknown. **OBJECTIVE:** To identify the factors associated with university professors' health perception during the pandemic. **METHODS:** This cross-sectional study collected data from June to September 2020 from 207 university professors. Data were collected using an electronic form, with a sociodemographic and occupational questionnaire, and the short version of the Copenhagen Psychosocial Questionnaire (COPSOQ II-Br). Descriptive statistical and logistic regression analyses for the outcome of general health perception were performed in SPSS. **RESULTS:** The noise in the home office (OR=4.20; 95%CI=1.87-9.43); number of medications in use (OR=1.52; 95%CI=1.12-2.07); burnout symptoms (OR=1.48; 95%CI=1.17-1.87) and the body mass index (OR=1.10; 95%CI= 1.01-1.21) increased the chance of reporting poor general health perception. **CONCLUSION:** During the adaptation to emergency remote teaching, university professors faced several psychosocial risks, and factors were associated with their general health perception. In this context, physiotherapy interventions in occupational health, including the management of work-related psychosocial factors, can mitigate psychosocial risks in similar situations. Future research with multidisciplinary strategies, including ergonomic interventions, are needed to achieve a healthier work environment during remote teaching.

KEYWORDS: Faculty. Remote Work. Psychosocial Factors. Pandemics. Cross-Sectional Studies.

RESUMO | INTRODUÇÃO: Professores universitários têm enfrentado mudanças na metodologia de ensino desde a pandemia de COVID-19, as quais exigiram uma adaptação emergencial ao ensino remoto. A permanência de atividades remotas após a pandemia se tornou parte da rotina, no entanto o impacto destas na saúde mental destes trabalhadores é desconhecido. **OBJETIVO:** Identificar os fatores associados à percepção de saúde dos professores universitários durante a pandemia. **MÉTODOS:** Este estudo transversal coletou dados de junho a setembro de 2020 de 207 professores universitários. Os dados foram obtidos por formulário eletrônico, com questões sociodemográficas e ocupacionais, além da versão curta do *Copenhagen Psychosocial Questionnaire* (COPSOQ II-Br). Análise estatística descritiva e análise de regressão logística para o desfecho percepção geral de saúde foram realizadas no SPSS. **RESULTADOS:** Ruído em home office (OR=4,20; 95%IC=1,87-9,43); número de medicamentos em uso (OR=1,52; 95%IC=1,12-2,07); sintomas de burnout (OR=1,48; 95%IC=1,17-1,87) e índice de massa corporal (OR=1,10; 95%IC=1,01-1,21) aumentaram a chance de os professores reportarem percepção de saúde ruim. **CONCLUSÃO:** Durante a adaptação ao ensino remoto emergencial, os professores universitários enfrentaram diversos riscos psicossociais e fatores foram associados à sua percepção geral de saúde. Nesse contexto, a atuação fisioterapêutica na saúde do trabalhador, incluindo o manejo de fatores psicossociais relacionados ao trabalho, poderia mitigar os riscos psicossociais em situações similares. Investigações futuras com estratégias multidisciplinares, incluindo intervenções ergonômicas, são necessárias para um ambiente de trabalho mais saudável no ensino remoto.

PALAVRAS-CHAVE: Docentes. Trabalho Remoto. Fatores Psicossociais. Pandemia. Estudos Transversais.

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1. Introduction

University professors represent a highly prestigious class of education professionals in society due to their responsibility in the academic training of future professionals¹. During the COVID-19 pandemic, the work method has changed, with teleworking being one of the main changes². The need to continue professional activities remotely has had an impact, increasing the workload at home, often shared with other family members who are also working from home³.

In many cases, the home environment has fostered stress and an imbalance between work and family demands due to increased work pace, sitting and screen time, which has affected the physical and mental health of university professors⁴⁻⁶. Thus, the health perception of Brazilian professors has also been impacted⁷.

Studies show that teachers spend more time planning remote lessons and report pain in various areas of the body related to the lack of adequate furniture and workspace⁸. Thus, physical, cognitive, and organizational conditions may have negatively impacted these workers. General health perception is a good indicator of a person's health status and can be a predictor of mortality outcomes⁹. Several factors can influence this self-assessment, such as the presence of chronic diseases, physical activity level, age group, and psychosocial aspects^{9,10}. A study of teachers at various levels of education in Brazil found a lack of regular physical activity during the pandemic¹¹.

In this context, physiotherapy interventions focused on ergonomics and health education can contribute to worker health through prevention, promotion, and rehabilitation actions, such as return-to-work programs¹² or physical activity, which can also help manage work-related psychosocial risk factors^{13,14}. Thus, this study reinforces the need for multidisciplinary actions to promote health in the occupational context, in which Occupational Physiotherapy plays a strategic role¹². It is possible that physiotherapy in occupational health, by addressing the management of

work-related psychosocial factors, can mitigate psychosocial risk in university professors, especially in similar situations of emergency remote teaching. Furthermore, physiotherapy can contribute to remote work through personalized guidance for a healthier work environment. Thus, the importance of qualified physiotherapists in occupational health programs in educational institutions is highlighted as an important role in preventing injuries and caring for the physical and mental well-being of these professionals.

Given the importance of studies on the delayed impacts of the pandemic on the workers' health, especially university professors, it is crucial to understand the implications of work changes, which can be detrimental to health. Therefore, the objective of this study was to identify the psychosocial factors most affected by university professors and the factors associated with their health perception during the COVID-19 pandemic.

2. Methods

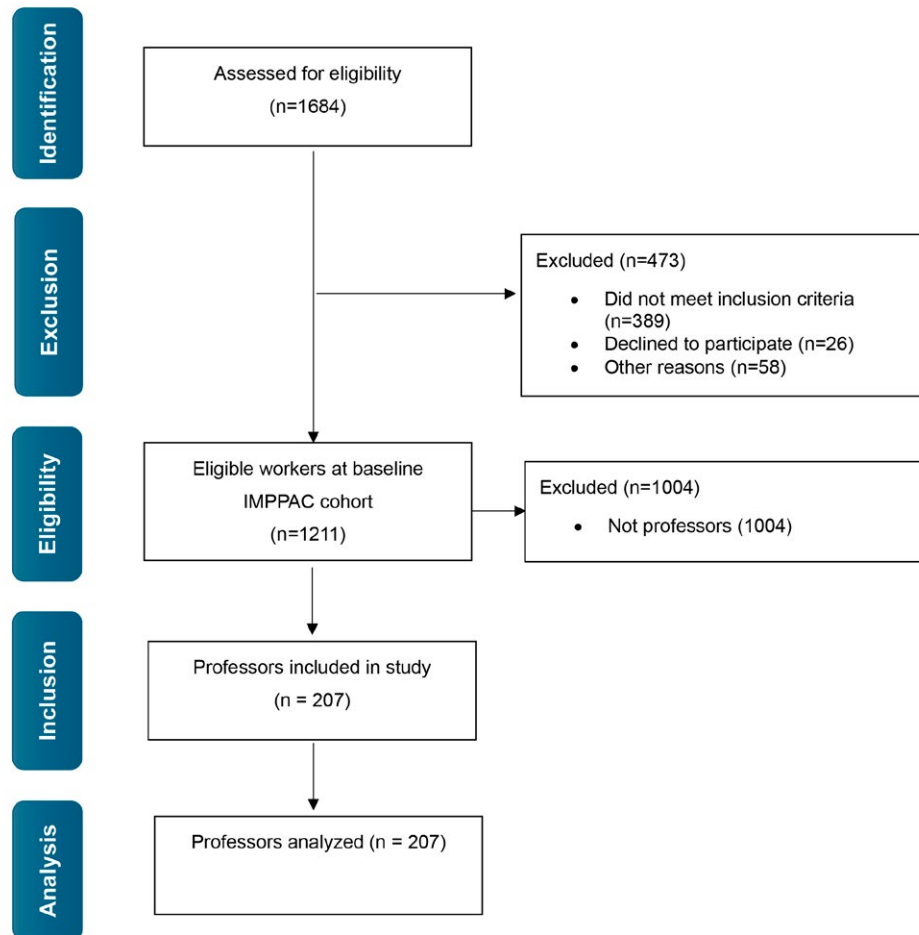
2.1 Study design

This is a cross-sectional study, reported according to the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) initiative guidelines¹⁵. Participants are university professors who participated in the IMPPAC (Implications of the COVID-19 pandemic on psychosocial aspects and work ability in Brazilian workers) cohort study. Data collection was conducted online between June and September 2020⁷.

2.2 Participant selection

University professors participating in the baseline cohort were selected and met the following inclusion criteria: age over 18, availability to respond to the questionnaires, and working as a university professor during the assessment period (Figure 1).

Figure 1. Adapted flowchart of the IMPPAC cohort



Source: the authors (2025).

2.3 Ethical aspects

This study was approved by the National Research Ethics Committee (CONEP), opinion number 4,166,321 (CAAE: 31885020.9.0000.5504). All participants signed an informed consent form (ICF). The research followed all the standards established by Resolution 466/2012 of the National Health Council¹⁶.

2.4 Data collection

Participants were invited via social media to complete the questionnaire. Before agreeing to participate in the study, workers had the option to download the file with the informed consent form (ICF) signed by the researchers. All responses were collected via Google Forms⁷.

The sociodemographic and occupational questionnaire was developed by the research team, with questions related to: gender, age, marital status, education, type of work contract, occupation, social isolation, remote work, difficulties faced while working remotely, among others. The questions were objective to facilitate understanding of the respondents.

The short version of the COPSOQ II-Br, cross-culturally adapted to Brazilian Portuguese, was used to assess the psychosocial aspects of work. Responses were obtained using a Likert scale, separately for the following dimensions¹⁷: quantitative work demands, work pace, emotional work demands, influence on work, new skill development, meaningful work, commitment to workplace, predictability, appreciation and recognition, role clarity, leadership quality, social support from superiors, job satisfaction, work-family conflict, management/work trust, justice and respect, self-rated health, burnout, stress, unwanted sexual attention, threat of violence, physical violence, and bullying.

For each of the dimensions, the scores were categorized as: safe, attention, and risk. The job satisfaction dimension has a final score from 0 to 3, with 0 and 1 representing risk, and 2 and 3 representing safety. Work-family conflicts are scored from 0 to 6, with 0 to 2 representing safety, 3 representing attention, and 4 to 6 representing risk. Health perception ranges from 0 to 4, with 0 and 1 representing risk, 2 representing attention, and 3 and 4 representing safety. Quantitative demands and emotional demands are scored from 0 to 8, with 0 to 3 representing safety, 4 representing attention, and 5 to 8 representing risk. Work pace from 0 to 8, safety from 0 to 3, attention 4 and 5 and risk from 6 to 8. Influence at work, new skill development, commitment to work, predictability, recognition, leadership quality, management/work trust and justice and respect, from 0 to 8, risk from 0 to 3, attention 4 and safety from 5 to 8. Meaningful work from 0 to 8, attention is 5, risk from 0 to 4 and safety from 6 to 8. Role clarity and social support from superiors are scored from 0 to 8, with 0 to 3 representing risk, 4 and 5 representing attention, and 6 to 8 representing safety. Burnout and stress are scored from 0 to 8, with 0 to 2 representing safety, 3 representing attention, and 4 to 8 representing risk. Unwanted sexual attention, threats of violence, physical violence, and bullying do not have final scores, any form of offensive behavior is classified as risk¹⁸.

2.5 Data analysis

Data were analyzed descriptively, calculating the mean, standard deviation, and absolute and relative frequencies. General health perception (primary outcome) was assessed using the COPSOQ II-Br question: "In general, would you say your health is good?" Responses were dichotomized into risk and not at risk^{17,18}.

The factors sex, age, race, job seniority, body mass index (BMI), number of medications in use, job satisfaction, workplace bullying, burnout symptoms, and home office noise were entered into the logistic regression model, using the stepwise method, as independent variables. Odds ratios (OR) and 95% confidence intervals (95% CI) were obtained. The sample was selected by convenience, selecting workers from the IMPPAC cohort who reported being university professors. The sample size was not defined a priori. However, considering the number of independent variables included in the regression model and the recommendation of at least 15 participants per variable, the minimum sample size of 150 participants was met¹⁹. Data were analyzed using SPSS software, and the significance level was 5%.

3. Results

The sample consisted of 207 professors, of which 107 (51.7%) were men. Participants' age ranged from 24 to 72 years, with the most frequent age group being between 30 and 59 years (Table 1). Professors from all Brazilian regions took part of the study, with the highest percentage from the Southeast region (55%). Most professors (72%) are civil servants, and 56% have children at home.

Table 1. Sociodemographic characteristics of Brazilian university professors (*n* = 207)

Characteristics	<i>n</i>	%
Sex		
Female	100	48.3
Male	107	51.7
Brazilian regions		
North	6	2.9
Northeast	23	11
Central West	43	20.7
Southeast	114	55
South	21	10.1
Marital status		
Single	53	25.6
Married	142	68.6
Divorced	12	5.8
Children at home		
Yes	116	56
No	91	44
Educational level		
Higher education	11	5.3
Postgraduate	196	94.7
Race*		
White	113	77.4
Yellow	3	2.1
Indigenous	1	0.7
Not declared	2	1.4
Brown	23	15.8
Black	4	2.7
Smoker	10	4.8
Work contract		
Public servant	151	72.9
Self-employed	3	1.4
Formal contract	53	25.6
Family income		
Not declared	12	5.8
Up to 1 MMW**	1	0.5
>1 to 3 × MMW	12	5.8
>3 to 6 × MMW	21	10.1
>6 to 9 × MMW	26	12.6
>9 to 12 × MMW	52	25.1
>12 × MMW	83	40.1
Age		
18–29 years	13	6.3
30–39 years	71	34.3
40–49 years	59	28.5
50–59 years	51	24.6
>60 years	13	6.3
Job seniority*		
Up to 1 year	1	0.5
1–5 years	48	23.6
6–10 years	48	23.6
11–15 years	39	19.2
≥16 years	67	33

Source: the authors (2025).

*Missing data **MMW: monthly minimum wage = R\$ 1045 ≅ US\$ 200.

The results of the COPSOQ II-Br can be seen in table 2. The dimensions that presented psychosocial risk were symptoms of burnout, stress, emotional demands, work pace, and work-family conflict.

Table 2. Psychosocial risks identified in the COPSOQ II-Br (*n* = 207)

Dimensions	No Risk		Risk	
	<i>n</i>	%	<i>n</i>	%
Quantitative work demands	134	64.7	73	35.3
Work pace	22	10.6	185	89.4
Emotional work demands	39	18.8	168	81.2
Influence on work	114	55.1	93	44.9
New skill development	198	95.7	9	4.3
Purpose of work	195	94.2	12	5.8
Commitment to the workplace	185	89.4	22	10.6
Predictability	129	62.3	68	37.7
Appreciation and recognition	149	72	58	28
Role clarity	146	70.5	61	29.5
Leadership quality	131	63.3	76	36.7
Social support from superiors	100	48.3	107	51.7
Job satisfaction	182	87.9	25	12.1
Work-family conflict	87	42	120	58
Management/worker trust	165	79.7	42	20.3
Justice and respect	137	66.2	70	33.8
Self-rated health	124	59.9	83	40.1
Burnout	28	13.5	179	86.5
Stress	26	12.6	181	87.4
Unwanted sexual attention	200	96.6	7	3.4
Threats of violence	182	87.9	25	12.1
Physical violence	205	99	2	1
Bullying	173	83.6	34	16.4

Source: the authors (2025).

Logistic regression analysis indicated that body mass index (BMI), number of medications in use, noise in the home office, and symptoms of burnout increased the likelihood of poor self-perceived health (Table 3).

Table 3. Results of logistic regression analysis

Factors	OR	95% CI	
Body mass index	1.10	1.01	1.21
Number of medications in use	1.52	1.12	2.07
Noise in the home office	4.20	1.87	9.43
Burnout	1.48	1.17	1.87

Source: the authors (2025).

4. Discussion

In our study, we highlighted the psychosocial aspects reported by the university professors during COVID-19 pandemic, with an emphasis on emotional demands and work pace. We also found that some characteristics of university professors' work, such as noise at home, symptoms of burnout, high BMI, and number of medications in use, were associated with poor health perception.

Higher education professors were heavily impacted by the COVID-19 pandemic through changes in their workplace, the use of technology, or the development of new teaching skills. These challenges had deleterious effects on their perceived health and mental health due to the increased work pace. Similarly, a study of professors in São Paulo found that demands, such as restructuring classes and the teaching process, generated work overload, and this overload was described as one of the main risk factors for illness²⁰.

Work pace, social support, emotional demands, and symptoms of stress and burnout are psychosocial risks present in our study. Canadian teachers working from home showed negative results for work pace and social support compared to those working in person²¹. The perceived risk related to emotional demands confirms a study of university professors, which identified a decline in this domain before and after the pandemic²². Stress symptoms were present but were not associated with perceived health. This finding differs from another study with public school teachers in Brazil, which found worse health perceptions among workers with high levels of stress²³.

Most of the university professors in our study work in public institutions. This type of employment relationship is known to offer stability, security, and fair pay, all of which contribute to a better quality of life²⁴. These favorable conditions may explain the results obtained in the domains of meaning of work, new skill development, recognition, predictability, role clarity, leadership quality, job satisfaction, and justice. However, we found that 51% of professors reported risks in the work-family conflict domain. These findings are similar with another study of professors, in which work-family conflict was the main stressor reported, directly impacting quality of life and mental health²⁵.

The number of medications in use was associated with perceived health, with the greater the number of medications taken, the worse the perceived health. These findings are consistent with a study of teachers in southern Brazil, which also found that excessive medication use was a way to cope with work demands and maintain professional activities²⁶.

Our study found that noise while working from home increases the likelihood of teachers reporting poor health by approximately four times. The same was true for Italian teachers working from home, who found that annoyance at work due to household noise, even when using headphones, negatively impacted productivity and the sense of accomplishment²⁷. Teachers in Bahia reported that, among the difficulties they faced while working from home, 83% considered the noise level inadequate²⁸.

Symptoms of burnout were identified in three out of four teachers evaluated. A study of teachers in Peru showed that 50% reported burnout, overwork, lack of recognition, and impaired psychosocial factors²⁹. Symptoms of burnout increase the likelihood of teachers reporting poor health perception, which reinforces the presence of signs of professional exhaustion, leading to physical health problems. It is worth noting that this finding was already known before the pandemic and was intensified during this period of abrupt changes in work practices³⁰.

High BMI was also associated with poorer health perception, which was an expected finding due to the known deleterious effects of being overweight and obesity to the health status. A study of teachers also found that BMI has an inverse relationship with health and quality of life³¹.

4.1 Limitations and perspectives

Physical therapy interventions focused on ergonomics, physical activity, and health education can improve burnout symptoms and contribute to the worker health. Our findings reinforce the need for multidisciplinary prevention, promotion, and rehabilitation actions in the occupational context, with Occupational Physical Therapy being an important ally in building a healthy work environment. As expected, our results highlight the importance of including physical therapists in occupational health programs at educational institutions, preventing

injuries, and caring for the physical and mental well-being of these professionals by considering work-related psychosocial factors.

Although our findings offer contributions, their limitations should be noticed. Online studies suffer from selection bias due to convenience sampling methods via social media. Furthermore, there is a self-report bias that can compromise results regarding self-rated health and psychosocial factors. Thus, our findings can be generalized to similar populations and refer to the initial context of the pandemic in Brazil. When comparing data obtained through traditional methods and questionnaires administered via Facebook, North American researchers found no significant differences in demographic aspects or difficulties in interpretation between the samples. However, biases associated with social values inherent to the digital platform were identified, such as greater loyalty and authority when applied using traditional methods³². Another limitation is the cross-sectional design, which does not allow for inferences about a causal relationship. Therefore, a longitudinal study is important to understand the long-term effects of the pandemic on teacher's health.

5. Final considerations

University professors were directly impacted by the COVID-19 pandemic. Although they were considered privileged workers for "staying at home," many family and work contexts were detrimental to their health.

In our study, we found that this group of workers suffered from virus containment measures. The distress caused by remote work and being in the same environment as family members generated noise that impaired their concentration and, consequently, increased work-life conflicts. Symptoms of burnout, elevated BMI, and medication use were associated with professors' perceived health. Based on these findings, we demonstrate that mental health was significantly impacted by the imposition of remote work and the immediate adaptation to the home environment.

Psychosocial risks related to work pace, emotional demands, work-family conflict, stress symptoms, and burnout were also present. These findings are concerning because they directly impact the worker performance. The faster the work pace, the more exhausting the worker's routine becomes. Dealing with family emotions while working may have been indicative of how work imposed the need for multitasking. This constant connection and constant availability of work may have created difficulties in family relationships. Thus, stressful situations became routine, and stress-relieving outlets such as talking to coworkers, going to the gym, or going out to dinner were suspended, culminating in burnout symptoms.

Therefore, our study suggests that public policies for the physical and mental health of remote workers be developed and implemented, strengthening the role of occupational physiotherapists in preventing health-threatening factors.

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Authors' contributions

The authors declared having made substantial contributions to the work in terms of the conception or design of the research; the acquisition, analysis, or interpretation of data for the work; and the drafting or critical review of relevant intellectual content. All authors approved the final version to be published and agreed to assume public responsibility for all aspects of the study.

Competing interests

No financial, legal, or political conflicts involving third parties (government, private companies and foundations, etc.) were declared for any aspect of the submitted work (including, but not limited to, grants and funding, advisory board membership, study design, manuscript preparation, statistical analysis, etc.).

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