

# Psicologia em Pesquisa

<https://periodicos.ufjf.br/index.php/psicologiaempesquisa>

## **Impacto do contexto de trabalho para transtornos mentais comuns entre professores universitários**

## **The Impact of the Work Context on Common Mental Disorders Among University Professors**

## **Impacto del contexto laboral en los trastornos mentales comunes entre docentes universitarios**

Francisco Pablo Huascar Aragão Pinheiro<sup>1</sup>, Taiza Pereira Aguiar<sup>2</sup>, David Sousa Rodrigues<sup>3</sup>,  
Francisco Mayckson Felismino Lopes<sup>4</sup>, Gutemberg de Sousa Moreira<sup>5</sup>, Luciana Fontenele de  
Sena<sup>6</sup>, Esthela Sá Cunha<sup>7</sup> & Haline Maria Parente Rodrigues<sup>8</sup>

---

<sup>1</sup> Universidade Federal do Ceará. E-mail: [pablo.pinheiro@ufc.br](mailto:pablo.pinheiro@ufc.br) ORCID: <https://orcid.org/0000-0001-9289-845X>

<sup>2</sup> Universidade Federal do Ceará. E-mail: [psi.taizaguilar@gmail.com](mailto:psi.taizaguilar@gmail.com) ORCID: <https://orcid.org/0000-0002-3157-5961>

<sup>3</sup> Universidade Federal do Ceará. E-mail: [davidrdgs@alu.ufc.br](mailto:davidrdgs@alu.ufc.br) ORCID: <https://orcid.org/0000-0002-9935-2174>

<sup>4</sup> Universidade Federal do Ceará. E-mail: [maycksonlopes@alu.ufc.br](mailto:maycksonlopes@alu.ufc.br) ORCID: <https://orcid.org/0000-0002-0424-4665>

<sup>5</sup> Universidade Federal do Ceará. E-mail: [gutembergmoreira@alu.ufc.br](mailto:gutembergmoreira@alu.ufc.br) ORCID: <https://orcid.org/0000-0001-5748-1050>

<sup>6</sup> Universidade Federal do Ceará. E-mail: [lucianafontenele@alu.ufc.br](mailto:lucianafontenele@alu.ufc.br) ORCID: <https://orcid.org/0000-0002-3799-6548>

<sup>7</sup> Faculdade 5 de Julho. E-mail: [esthelas7@gmail.com](mailto:esthelas7@gmail.com) ORCID: <https://orcid.org/0000-0002-4822-0454>

<sup>8</sup> Centro Universitário INTA. E-mail: [halineparente22@gmail.com](mailto:halineparente22@gmail.com) ORCID: <https://orcid.org/0000-0002-4176-8812>



*Informações do Artigo:*

Francisco Pablo Huascar  
Aragão Pinheiro  
[pablo.pinheiro@ufc.br](mailto:pablo.pinheiro@ufc.br)

Recebido em: 27/03/2024  
Aceito em: 07/06/2024

**RESUMO**

A pandemia de COVID-19 teve impactos na educação que repercutiram na saúde mental dos professores. Este estudo objetivou avaliar a adequação psicométrica da Escala de Avaliação do Contexto de Trabalho Docente Remoto (EACTDR) e a prevalência e os preditores de Transtornos Mentais Comuns (TMCs). Participaram 235 docentes de uma universidade pública brasileira. A adaptação da EACTDR demonstrou evidências de validade a partir de análise fatorial exploratória, consistência interna e validade convergente. Constatou-se que 38,3% dos professores apresentavam TMCs. Os preditores foram: raça, renda, grupo de risco para a covid-19, idade e organização do trabalho.

**PALAVRAS-CHAVE:**

Trabalho Docente; Ensino superior; Escalas; Saúde mental.

**ABSTRACT**

The COVID-19 pandemic impacted the educational sector, affecting the mental health of teachers. This study evaluated the psychometric properties of the Remote Teaching Work Context Assessment Scale (RTWCAS) and identified the prevalence and predictors of Common Mental Health Disorders (CMHDs) among 235 professors from a Brazilian public university. Adaptation of the RTWCAS demonstrated validity through exploratory factor analysis, internal consistency, and convergent validity. Approximately 38.3% of participants reported CMHDs, with race, income, COVID-19 risk group status, age, and work organization as significant predictors.

**KEYWORDS:**

Teaching work; Higher education; Scales; Mental health.

**RESUMEN**

La pandemia de COVID-19 y los cambios en la educación afectaron la salud mental de los docentes. Este estudio tuvo como objetivos evaluar la adecuación psicométrica de la Escala de Evaluación del Contexto de Trabajo Docente Remoto (EACTDR) y identificar la prevalencia y los predictores de Trastornos Mentales Comunes (TMC). Participaron 235 profesores de una universidad pública brasileña. La EACTDR presentó evidencia de validez a partir de análisis factorial exploratorio, consistencia interna y validez convergente. La prevalencia de TMCs fue de 38,3%. Raza, ingresos, grupo de riesgo para COVID-19, edad y organización del trabajo fueron predictores de TMC.

**PALABRAS CLAVE:**

Trabajo docente; Educación superior; Escalas; Salud mental.

The COVID-19 pandemic impacted education and affected teachers' routines and mental health (Cortés-Álvarez et al., 2022). In higher education, most universities started offering remote classes, and teachers had to adapt to the use of technologies for education (Kita et al., 2022). Teachers also needed to learn how to handle and develop methodologies for teaching, evaluating, and monitoring students remotely (Kita et al., 2022). Remote work, added to the adversities related to the pandemic, such as the increasing number of cases and deaths from SARS-CoV-2, social isolation, and changes in family routine, impaired the mental health of teachers (Casali & Torres, 2021; Kita et al., 2022; Silva, et al., 2020).

---

University professors faced challenges during the COVID-19 pandemic in their work. In work organization, teachers reported increased workload, time management problems in performing activities, and overlap between work and private life (Akour et al., 2020; Mäkelä et al., 2022; Matias et al., 2023). Regarding work conditions, there were difficulties in using technology for remote teaching and poor internet quality (Akour et al., 2020; Mäkelä et al., 2022). In socio-professional relationships, there were fewer interactions with colleagues and students (Akour et al., 2020; Casacchia et al., 2021; Mäkelä et al., 2022).

Given the challenges imposed on teaching activity during the COVID-19 pandemic, several studies have investigated the repercussions of the work context on the mental health of university teachers. Among this population, the prevalence of anxiety ranged from 17.6% to 92.3% (Freitas et al., 2021; Fu et al., 2022; Santos & Bellemo, 2022; Urcos et al., 2020). Depression was present in 25.8% to 50% of teachers (Casacchia et al., 2021; Freitas et al., 2021; Ozamiz-Etxebarria et al., 2021), while stress was prevalent to some degree among 24% to 69.6% of them (Akour et al., 2020; Denisova et al., 2020; Freitas et al., 2021; Ribeiro et al., 2021). In a sample of Spanish university teachers ( $n = 239$ ), a prevalence of 95.8% of stress specifically related to the use of technology during remote teaching was observed (Abilleira et al., 2021).

Previous studies before the COVID-19 pandemic found a prevalence of common mental disorders (CMDs) between 19.5% and 29.6% in university teachers (Ferreira et al., 2015; Neme & Limongi, 2019; Tavares et al., 2012). During the pandemic, a Brazilian study found that CMDs were present in 53.4% of the sample (Pinho et al., 2021). CMDs are defined by non-psychotic symptoms such as insomnia, forgetfulness, difficulty concentrating, and other somatic complaints (Santos et al., 2009).

Psychological distress among university teachers was associated with demographic, work-related, and pandemic-related variables. Regarding sociodemographic variables, being female (Evanoff et al., 2020; Fu et al., 2022; Losa-Iglesias et al., 2022; Parlangeli et al., 2022), age (Akour et al., 2020; Evanoff et al., 2020; Freitas et al., 2021; Fu et al., 2022), family income (Evanoff et al., 2020; Fu et al., 2022), and marital status (Freitas et al., 2021) were related to mental disorders such as anxiety, depression, and stress.

Regarding work-related variables, studies found that low motivation for distance teaching (Akour et al., 2020), job stressors (Losa-Iglesias et al., 2022), and job stability (Ozamiz-Etxebarria et al., 2021) predicted mental disorder. One also found that working in multiple higher education institutions (Freitas et al., 2021) and lower professional identity and job satisfaction (Chen et al., 2020) were associated with mental illnesses.

Adverse experiences during the COVID-19 pandemic that include social isolation time (Caldas et al., 2022), exposure or contamination by SARS-CoV-2, and death of relatives due to coronavirus (Evanoff et al., 2020; Fan et al., 2021) were predictors of psychological distress. Moreover, during the pandemic, mental disorders were associated with lower indicators of resilience, self-esteem (Losa-Iglesias et al., 2022), and quality of life (Almhdawi et al., 2021; Caldas et al., 2022).

In summary, these studies showed that the changes in work caused by the COVID-19 pandemic impacted the mental health of university teachers. However, the research mentioned above did not use measures with adequate psychometric properties to assess the context of teaching work during the pandemic. One must further investigate the relationship between work and teacher mental health, focusing on work organization, working conditions, and socio-professional relationships.

Therefore, considering the limitations presented above, the goals of this study were (a) to evaluate the psychometric adequacy of the Escala de Avaliação do Contexto de Trabalho Docente Remoto - EACTDR (Teachers' Remote Work Context Assessment Scale) for a sample of university teachers; (b) to determine the prevalence, and (c) the predictors of CMDs in this sample. In this study, the following hypotheses were tested: (a) the adaptation of the EACTDR will be appropriate for higher education teachers, encompassing three factors: work organization, working conditions, and socio-professional relationships; (b) female, non-white, and unmarried participants will have higher mean scores in CMDs; (c) teachers who had negative experiences related to the COVID-19 pandemic (being in a high-risk group, being diagnosed with COVID-19, losing friends or family, and experiencing a decrease in income) will have higher mean scores in CMDs; (d) younger and lower-income participants will have higher CMDs scores; and (e) worse perceptions of work-related variables (organization, conditions, and socio-professional relationships) will be related to higher CMDs scores.

## Method

### Participants

A total of 235 teachers from a public university in Northeast Brazil participated in the study, of whom 51.5% were female. Age ranged from 26 to 75 years ( $M = 46.18$ ,  $SD = 10.05$ ). In the sample, 56.2% of participants were white. Marital status-wise, 59.6% of participants were married. 87.2% of teachers held a Ph.D. in their education. The average monthly per capita family income was R\$ 5,764.04 ( $SD = 3,774.64$ ). A decrease in income after the start of the COVID-19 pandemic was reported by 28.1% of the respondents. Furthermore, 94.9% of teachers were civil servants.

## Measures

The following instruments were used: the Self-Report Questionnaire-20 (SRQ-20) and the TRWCAS. The questionnaire also included questions addressing the teachers' experience during the COVID-19 pandemic (e.g., "Have you been diagnosed with COVID-19?") and participants' demographics.

The SRQ-20 is used for screening CMDs and consists of 20 items (e.g., "Have you been feeling sad lately?"), which can be answered "yes" or "no" about symptoms that occurred in the 30 days prior to its administration. This instrument does not provide specific mental disorder diagnoses. The cut-off point established for the Brazilian population of 7/8 for case/non-case was used (Gonçalves et al., 2008). In this study, the instrument showed adequate internal consistency ( $\alpha = 0.94$ ;  $\omega = 0.94$ ).

The EACTDR (Cunha et al., 2024) was developed to assess the remote work context for K12 teachers, consisting of 33 items organized into three factors: work organization, working conditions, and socio-professional relationships (Ferreira & Mendes, 2008). The first refers to work and people management, such as time, pace, work hours, productivity, and rules (e.g., "Work activities carried out over the internet require much preparation time"). The second factor concerns the material resources and infrastructure of the work environment, such as instruments, equipment, and organizational support (e.g., "The computer or cell phone is slow or freezes while I do my work"). The last factor represents the interactions between teachers and other school community members (e.g., "There are difficulties in communication between professors and coordinators").

In the validation study (Cunha et al., 2024), the three factors explained 55.8% of the total variance. The instrument showed adequate fit indices (RMSEA = .05, 90% CI [.048-.049], TLI = .99, CFI = .99). Cronbach's alpha for the three factors ranged from .83 to .92. McDonald's

---

omega ranged from .87 to .94. The instrument uses a 5-point scale ranging from 1 ("never") to 5 ("always"). Since the items contain negative statements, higher scores imply worse perceptions of the work context.

In the present study, we adapted the EACTDR for higher education teachers. We excluded ten items that did not apply to the university context, and minor changes were made to the remaining items to adjust them to the sample.

## **Procedures**

### ***Data Collection***

A convenience sampling method was used to collect data between July 08 and November 08, 2021. When data collection was completed, the country's total number of COVID-19 cases and deaths were 21,890,000 and 609,573, respectively (Dong et al., 2020). During this period, the university adopted a hybrid teaching approach, with theoretical disciplines being taught remotely and practical courses and internships being allowed to conduct in-person activities. The professors completed a self-administered questionnaire sent electronically (via email, social media, etc.).

### ***Data Analysis***

We ran the analyses using RStudio (version 2022.02.3) and its packages psych (version 2.2.5) and olsrr (version 0.5.3). In Study 1, an Exploratory Factor Analysis (EFA) was conducted to examine the dimensionality of the. We use Kurtosis and Mardia's skewness to assess the multivariate normality of the data. The Kaiser-Meyer-Olkin criterion and Bartlett's sphericity test were employed to evaluate the factorability of the data matrix. Parallel analysis and the Minimum Average Partial (MAP) criterion were used to determine the number of factors to retain.

An oblimin rotation was employed to evaluate the possibility of correlated factors (Damásio, 2012). A factor was considered adequate if it had at least three items with factor loadings above  $|.40|$ , internal consistency reliability above  $.70$  (Cronbach's alpha and McDonald's Omega), and theoretical relevance. Convergent validity analysis was also performed between the scores of EACTDR and SRQ-20.

In Study 2, multiple linear regression (enter method) was performed to evaluate the predictors of CMDs. In this case, the sum of SRQ-20 scores was used, with higher scores indicating higher levels of CMDs. Demographic data, variables related to the COVID-19 pandemic, and work context were included as independent variables. The following regression assumptions were evaluated: (a) outliers (Cook's distance), (b) multicollinearity (VIF, tolerance, and condition index), (c) independence of residuals (Durbin-Watson test), (d) normality of residuals (Kolmogorov-Smirnov test), and (e) homoscedasticity (Breusch Pagan test).

### **Compliance with Ethical Standards**

The study protocol (CAAE 48306121.2.0000.5053) followed all directives and regulatory norms described in resolutions 466/2012 and 510/2016 of the Brazilian National Health Council, and the Research Ethics Committee of the Universidade Estadual Vale do Acaraú approved it. Informed consent was obtained from all participants included in the study.

## **Results**

### **Study 1: EFA of the EACTDR**

There were no missing data among the respondents. Mardia's skewness and kurtosis were both significant ( $p < .001$ ). Given the data's non-normality and the TRWCAS items' ordinal nature, we opted for using a polychoric correlation matrix (Watkins, 2018) and principal axis factoring as the extraction method (Cudeck, 2000). The Bartlett's sphericity test

was significant ( $\chi^2(253) = 2313.9, p < 0.001$ ), and the KMO statistic was .84, which showed that the correlation matrix was appropriate for factor analysis.

**Table 1**

*Results from an Exploratory Factor Analysis of the TRWCAS*

(TRWCAS) item	Factor loading		
	1	2	3
Factor 1: Work organization			
Students demand quickly responding to queries and questions sent via social networks (e.g. WhatsApp, Instagram, Messenger, etc.).	<b>0.46</b>	0.03	0.24
I must answer emails, phone calls, or work messages that arrive outside office hours.	<b>0.70</b>	0.06	-0.06
Work activities carried out over the internet require much preparation time.	<b>0.68</b>	-0.07	0.09
Rest time and/or weekends are used for work.	<b>0.68</b>	-0.12	0.02
The deadlines for task completion are short.	<b>0.72</b>	-0.04	0.08
There are a lot of online forms or questionnaires to fill out	<b>0.52</b>	0.06	0.12
There are too many online meetings.	<b>0.61</b>	0.07	0.00
There is a strong request for results in my work	<b>0.50</b>	0.12	0.17
There is no time to take rest breaks at work.	<b>0.77</b>	0.11	-0.09
Factor 2: Socio-professional relationships			
The managers plan and make decisions about the school without consulting the teachers.	0.04	<b>0.83</b>	-0.17
There are difficulties in communication between teachers and principals.	0.04	<b>0.86</b>	-0.01
The managers' support is lacking in performing my work.	0.00	<b>0.79</b>	0.16
Communication between teachers is poor.	-0.01	<b>0.69</b>	0.07
There is no autonomy to decide on the teaching methodologies used in the classes.	-0.12	<b>0.45</b>	0.14
There are professional conflicts among teachers.	0.12	<b>0.54</b>	-0.03
The professors do not participate in the decisions about the undergraduate program.	-0.19	<b>0.54</b>	0.16
Factor 3: Work conditions			
During my work, my internet connection is bad (it drops frequently, is slow, takes a long time to load videos, etc.).	-0.03	0.02	<b>0.75</b>
When holding online meetings, audio and/or video glitches impair communication.	0.11	0.06	<b>0.70</b>
The space for carrying out the work is noisy and/or busy.	0.16	0.03	<b>0.52</b>
The computer or cell phone is slow or freezes while I do my work.	0.19	0.03	<b>0.59</b>
Equipment used for work (mobile, computer, tablet, etc.) is shared with others.	-0.15	-0.05	<b>0.55</b>

*Note.*  $N = 235$ . The extraction method was Principal Axis Factoring with oblimin rotation.

Factor loadings above .40 are in bold.

The parallel analysis (Hayton et al., 2004) and MAP criterion (Velicer, 1976) suggested the retention of up to six and three factors, respectively. The solutions with six, five and four factors did not present theoretical adequacy. A three-factor solution was examined, as suggested by the theory (Ferreira & Mendes, 2008). Two items were rejected ("Remote activities make it difficult to monitor student performance" and "Remote activities make it difficult to interact with students during classes") because they loaded on a different factor than expected theoretically.

Finally, nine items were loaded on factor 1 (work organization), seven on factor 2 (socio-professional relationships), and five on factor 3 (working conditions). The eigenvalues for the three factors were 3.98, 3.51, and 2.43, respectively. Regarding total variance, the work organization factor was responsible for 19%, the socio-professional relationships factor was responsible for 17%, and the working conditions factor was responsible for 12%. Results from an exploratory factor analysis are presented in Table 1.

Cronbach's alpha and McDonald's omega were acceptable for all three factors. There was a significant positive correlation between all factors and CMDs. These results are presented in Table 2.

**Table 2**

*Descriptive Statistics, Correlations, and Internal Consistency Reliability Estimates for the Factors of the Teachers' Remote Work Context Assessment Scale (TRWCAS)*

Variable	<i>M</i>	<i>SD</i>	$\alpha$	$\omega$	1	2	3
1. Work organization	3.58	0.75	.86	.88	—		
2. Socio-professional relationships	2.57	0.82	.83	.86	.38***	—	
3. Work conditions	2.39	0.70	.76	.79	.51***	.26***	—
3. SRQ-20	6.46	4.67	.94	.94	.41***	.22***	.31***

*Note.* \*\*\* $p < .001$

### Study 2: Prevalence and Predictors of CMDs

In the sample, 38.3% of teachers had CMDs. In the regression analysis, we removed 16 outliers. Additionally, the assumptions of the regression were met, except for homoscedasticity. Thus, we calculated the model with robust errors (HC3). The model explained 41% of the variance in CMDs ( $R^2 = .41$ ,  $F(12, 206) = 11.79$ ,  $p < .001$ ). Regression analysis results are shown in Table 3.

The results revealed that white individuals, those who experienced a decrease in income during the pandemic, and those in the risk group for COVID-19 had higher mean CMD scores. Additionally, younger participants and those with a more negative perception of work organization had higher mean CMD scores.

**Table 3**  
*Regression Results for Common Mental Disorders*

Variable	B	95% CI for B		SE B	β
		LL	UL		
Constant	0.58	-3.60	4.75	2.12	
Gender (female)	0.25	-0.75	1.26	0.51	0.03
Race (non-white)	-1.00*	-1.96	-0.04	0.49	-0.12*
Age	-0.13***	-0.19	-0.07	0.03	-0.31***
Marital status (without a partner)	0.75	-0.34	1.85	0.56	0.08
Per capita income	0.00	0.00	0.00	0.00	0.08
Income during the pandemic (decreased)	2.49***	1.28	3.70	0.61	0.26***
Covid-19 risk group (yes)	1.62**	0.47	2.76	0.58	0.18**
Covid-19 diagnosis (yes)	0.25	-0.79	1.29	0.53	0.02
Loss of friends or Family members (yes)	0.45	-0.52	1.41	0.49	0.05
Work organization	2.46***	1.72	3.19	0.37	0.42***
Socio-professional relationships	0.05	-0.57	0.67	0.31	0.01
Working conditions	0.33	-0.48	1.15	0.41	0.05

Note. CI = confidence interval; LL = lower limit; UL = upper limit.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

---

## Discussion

In Study 1, the adaptation of the TRWCAS for university teachers showed evidence of psychometric validity, demonstrated through exploratory factor analysis, internal consistency, and convergent validity. However, two items ("Remote activities make it difficult to monitor student performance" and "Remote activities make it difficult to interact with students during classes") presented high factor loadings in the working conditions factor, which diverged from the original scale (Cunha et al., 2024).

Such items were expected to saturate in the socio-professional relations factor because their contents refer to the relationship between teachers and students. Despite this, one can hypothesize that the statements have captured the difficulty of teachers in dealing with online-mediated classes, for example, the use of electronic devices and problems with an internet connection, as demonstrated in other studies (Akour et al., 2020; Mäkelä et al., 2022). Thus, this would explain the high factor loadings of both items in the working conditions factor.

The internal consistency analysis showed that the items presented evidence within each factor that referred to the same construct. The original study found a similar result, where the items also showed satisfactory reliability (Cunha et al., 2024). Finally, the instrument showed a correlation between its factors and the scale that measured CMDs. Several studies before the COVID-19 pandemic have demonstrated a negative relationship between a worse perception of the teaching work context and mental health conditions in teachers (Brun et al., 2021; Pinheiro et al., 2023).

In Study 2, we observed that over one-third of the sample had CMDs. This rate was higher than in previous Brazilian studies conducted before the COVID-19 pandemic (Campos et al., 2020; Ferreira et al., 2015; Neme & Limongi, 2019; Tavares et al., 2012). On the other

---

hand, this result was lower than that found in a study with private higher education teachers in Bahia, for whom CMDs were prevalent in more than half of the sample (Pinho et al., 2021).

It was shown that white participants had worse mean CMDs scores. This result contradicted the hypothesis raised in this investigation. A study conducted with American adults showed that during the pandemic, there was a worsening of anxiety and depression indices among racial minorities, especially blacks and hispanics, compared to whites (Thomeer et al., 2023).

However, the result of the present research partly resembles other studies that demonstrated that white individuals had higher psychological distress than blacks during the pandemic (LaMotte et al., 2022; Luo et al., 2022). This outcome is called the Black-White Mental Health Paradox and observes that black people have better mental health indices despite having worse physical health indicators (Keyes, 2009; LaMotte et al., 2022). Regardless, whites had greater access to mental health care services during the pandemic than other groups (Thomeer et al., 2023). Given these contradictory results, further investigations are necessary.

We found that increasing age was associated with lower scores on CMDs, which supported the hypothesis raised in this study. This finding is analogous to those observed with university professors from Jordan (Akour et al., 2020) and the United States (Evanoff et al., 2020), where younger teachers presented higher stress and anxiety, respectively. This result is similar to a Brazilian study that targeted a general population sample, where younger individuals were more prone to CMDs symptoms (Duarte et al., 2020).

In Canada, an investigation conducted with different age groups showed that the mean levels of anxiety, depression, and stress were higher for younger age groups during the pandemic (Nwachukwu et al., 2020). However, the results observed in this investigation go against those found in other studies in which older teachers had more significant mental health

---

impairments, according to investigations conducted in Brazil and China (Freitas et al., 2021; Fu et al., 2022). Thus, new research is necessary to elucidate the relationship between age and teacher mental health in light of the divergences.

Younger individuals have suffered a more significant impact of social isolation during the pandemic, given that they tend to have a more active social life. A study conducted with adults in the United States observed that, during the pandemic, younger participants showed higher levels of stress, life changes, social isolation, and worse perception of the quality of their relationships, and these variables were predictors of poor psychological well-being (Birditt et al., 2020). It can also be hypothesized that older people have greater resilience in the face of adverse situations (Fields et al., 2022; Na et al., 2022), which can explain the outcome found in this study.

We found that participants who experienced a decreased income during the pandemic presented higher means of CMDs, supporting the raised hypothesis. Such a result is similar to the one found in Brazil with a sample of high school teachers, where it was observed that the decrease in income was associated with physical health problems, sadness, anxiety, and sleep disorders (Lima et al., 2021). A study in 47 countries showed a decrease in family income in almost half of the households during the COVID-19 pandemic (Pinkovetskaia et al., 2022). One can assume that the negative impact on teachers' income may have caused concern about the lack of resources in the face of the public health crisis and reduced access to healthcare services and lifestyle changes, which may have repercussions for mental health.

This investigation also showed that teachers in the COVID-19 risk group presented higher means of CMDs, confirming the outlined hypothesis. Studies conducted with the general population have shown an association between being part of the risk group and mental health impairments (Duarte et al., 2020; Jia et al., 2020; Kim et al., 2020). The possibility of

---

contracting COVID-19 in its more severe form and a higher mortality rate among people vulnerable to the coronavirus may have implications for mental health.

Regarding the work context, we have shown that a worse perception of work organization was associated with higher scores of CMDs. Previous studies before the pandemic observed that university teachers who reported work overload, pressure for publication, high job demands (Campos et al., 2020), and fast-paced work (Neme & Limongi, 2019) were more likely to experience CMDs.

During the pandemic, teachers were subjected to a new organization of their activities (Pinho et al., 2021), which resulted, in many cases, in an increase in work hours and the overlap between work and private life (Akour et al., 2020; Mäkelä et al., 2022; Matias et al., 2023), which may have impacted the mental health of these professionals. A descriptive study in Brazil found that teachers with high domestic workloads and that feared losing their jobs had a higher prevalence of CMDs (Pinho et al., 2021). These factors are related to work organization, job type, and reproductive work, which may have been intensified during the pandemic and could have affected the times, rhythms, and ways of professional activities.

### **Strengths and Limitations**

This study has limitations. Convenience sampling and a sample restricted to one university preclude the generalization of the findings; The cross-sectional design does not allow causal inferencing. Albeit, in the study we used a specific scale to measure the work context of university teachers during the pandemic and provided evidence of its psychometric adequacy.

The emerging context of the COVID-19 pandemic may have influenced the TRWCAS's validity. Health concerns, the increasing number of cases and deaths, and the uncertainties brought about by the public health crisis may have impacted the process of responding to the

items. This scenario may have led teachers to evaluate the scale's statements more negatively. These factors could have affected the dimensionality of the measure and the factor loadings of the items.

Another limitation of the EACTDR relates to the nature of any self-report instrument: the inability to capture the procedural character of the evaluated phenomenon. Therefore, while the scale can be used as a strategic diagnostic tool to assess teachers' remote work context, it is important to emphasize that attributing specific causes to high or low scores on the scale cannot be done solely based on its use.

### **Recommendations for Future Research and Intervention**

The results of this investigation could act as a guideline for the design of future studies. New research may provide evidence of convergent and predictive validity between the dimensions of the TRWCAS and variables that measure related constructs. Additionally, the structure of the TRWCAS can be investigated through confirmatory factor analysis, and its invariance across different groups can be assessed. Further investigation is also needed to explore the relationship between mental health, race, and age, dimensions that have conflicting results when the present study is compared to other investigations.

The development of strategies to promote mental health and quality of life for teachers could be supported by screenings of CMDs and the analysis of their predictors. The results can help understand teachers' difficulties in returning to in person activities in the face of mental illness. The findings can also support actions to care for teachers' health in possible future pandemics. The adapted instrument can be used in further studies to measure the context of remote work for university teachers.

### **Funding**

This work was supported by Fundação Cearense de Apoio ao Desenvolvimento Científico e Tecnológico [grant number BP4-0172-00166.01.00/20].

### **Data Availability**

The datasets generated by the survey research during and/or analyzed during the current study are available in the figshare repository (Pinheiro et al., 2024).

---

## References

- Abilleira, M. P., Rodicio-García, M. L., Ríos-de-Deus, M. P., & Mosquera-Gonzalez, M. J. (2021). Technostress in Spanish university teachers during the COVID-19 pandemic. *Frontiers in Psychology, 12*, 1–11. <https://doi.org/10.3389/fpsyg.2021.617650>
- Akour, A., Ala'a, B., Barakat, M., Kanj, R., Fakhouri, H. N., Malkawi, A., & Musleh, G. (2020). The impact of the COVID-19 pandemic and emergency distance teaching on the psychological status of university teachers: A cross-sectional study in Jordan. *The American Journal of Tropical Medicine and Hygiene, 103*(6), 2391–2399. <https://doi.org/10.4269/ajtmh.20-0877>
- Almhdawi, K. A., Obeidat, D., Kanaan, S. F., Hajela, N., Bsoul, M., Arabiat, A., Alazrai, A., Jaber, H., & Alrabbaie, H. (2021). University professors' mental and physical well-being during the COVID-19 pandemic and distance teaching. *Work, 69*(4), 1153–1161. <https://doi.org/10.3233/WOR-205276>
- Birditt, K., Turkelson, A., Fingerman, K., Polenick, C., & Oya, A. (2020). Age differences in COVID-19 stress and social ties during the COVID-19 pandemic: Implications for well-being. *Innovation in Aging, 4*(Suppl 1), 963. <https://doi.org/10.1093/geroni/igaa057.3520>
- Brun, L. G., Monteiro, J. K., & Abs, D. (2021). Work and common mental disorders in private education teachers: a theoretical model. *Paidéia (Ribeirão Preto), 31*, 1–10. <https://doi.org/10.1590/1982-4327e3113>
- Caldas, L. R. R., Teles, M. C., Guimarães, A. L. R., & Sousa, J. F. G. (2022). Remote education during the COVID-19 pandemic: Teaching perception, quality of life and anxiety among university professors in Minas Gerais, Brazil. *Research, Society and Development, 11*(1), e37511125041. <https://doi.org/10.33448/rsd-v11i1.25041>

- 
- Campos, T. C., Vêras, R. M., & Araújo, T. M. D. (2020). Transtornos mentais comuns em docentes do ensino superior: Evidências de aspectos sociodemográficos e do trabalho. *Avaliação: Revista da Avaliação da Educação Superior (Campinas)*, 25(3), 745–768. <https://doi.org/10.1590/S1414-40772020000300012>
- Casacchia, M., Cifone, M. G., Giusti, L., Fabiani, L., Gatto, R., Lancia, L., Cinque, B., Petrucci, C., Giannoni, M., Ippoliti, R., Frattaroli, A. R., Macchiarelli, G., & Roncone, R. (2021). Distance education during COVID-19: An Italian survey on the university teachers' perspectives and their emotional conditions. *BMC Medical Education*, 21(335), 1–17. <https://doi.org/10.1186/s12909-021-02780-y>
- Casali, A., & Torres, D. (2021). Impacto del COVID-19 en docentes universitarios argentinos: Cambio de prácticas, dificultades y aumento del estrés. *Revista Iberoamericana de Tecnología en Educación y Educación en Tecnología*, 28, 423–431. <https://doi.org/10.24215/18509959.28.e53>
- Chen, H., Liu, F., Pang, L., Liu, F., Fang, T., Wen, Y., Chen, S., Xie, Z., Zhang, X., Zhao, Y., & Gu, X. (2020). Are you tired of working amid the pandemic? The role of professional identity and job satisfaction against job burnout. *International Journal of Environmental Research and Public Health*, 17(24), 1–14. <https://doi.org/10.3390/ijerph17249188>
- Cortés-Álvarez, N. Y., Garduño, A. S., Sánchez-Vidaña, D. I., Marmolejo-Murillo, L. G., & Vuelvas-Olmos, C. R. (2022). A longitudinal study of the psychological state of teachers before and during the COVID-19 outbreak in Mexico. *Psychological Reports*, 126(6), 1–32. <https://doi.org/10.1177/00332941221100458>

- 
- Cudeck, R. (2000). Exploratory factor analysis. In H. E. A. Tinsley & S. D. Brown (Eds.), *Handbook of applied multivariate statistics and mathematical modeling* (pp. 265–296). Academic Press.
- Cunha, E. S., Pinheiro, F. P. H. A., Grangeiro, A. S. de M., Falcão, J. T. R., Santos, W. S., Vasconcelos, F. H. L., Rodrigues, H. M. P., Viana, A. B. T., Pedrosa, V. M. F., & Silva, A. Q. (2024). Teachers' Remote Work Context Assessment Scale: Construction and validation. *Psico-USF*, 29, e272895. <https://doi.org/10.1590/1413-8271202429e272895>
- Damásio, B. F. (2012). Uso da análise fatorial exploratória em psicologia. *Avaliação Psicológica*, 11(2), 213–228. [http://pepsic.bvsalud.org/scielo.php?script=sci\\_arttext&pid=S1677-04712012000200007&lng=pt&tlng=pt](http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1677-04712012000200007&lng=pt&tlng=pt)
- Denisova, E., Ermakov, P., Skirtach, I., & Korkhova, V. (2020). Subjective discomfort and personality traits of university teachers during the COVID-19 pandemic. *E3S Web of Conferences*, 210, 1–11. <https://doi.org/10.1051/e3sconf/202021019021>
- Dong, E., Du, H., & Gardner, L. (2020). An interactive web-based dashboard to track COVID-19 in real time. *The Lancet Infectious Diseases*, 20(5), 533–534. [https://doi.org/10.1016/S1473-3099\(20\)30120-1](https://doi.org/10.1016/S1473-3099(20)30120-1)
- Duarte, M. D. Q., Santo, M. A. D. S., Lima, C. P., Giordani, J. P., & Trentini, C. M. (2020). COVID-19 e os impactos na saúde mental: Uma amostra do Rio Grande do Sul, Brasil. *Ciência & Saúde Coletiva*, 25(9), 3401–3411. <https://doi.org/10.1590/1413-81232020259.16472020>
- Evanoff, B. A., Strickland, J. R., Dale, A. M., Hayibor, L., Page, E., Duncan, J. G., Kannampallil, T., & Gray, D. L. (2020). Work-related and personal factors associated

- with mental well-being during the COVID-19 response: Survey of healthcare and other workers. *Journal of Medical Internet Research*, 22(8), 1–11. <https://doi.org/10.2196/21366>
- Fan, C., Fu, P., Li, X., Li, M., & Zhu, M. (2021). Trauma exposure and the PTSD symptoms of college teachers during the peak of the COVID-19 outbreak. *Stress and Health*, 37(5), 914–927. <https://doi.org/10.1002/smi.3049>
- Ferreira, M. C., & Mendes, A. M. (2008). Contexto de Trabalho. In M. M. M. Siqueira (Ed.), *Medidas do comportamento organizacional: Ferramentas de diagnóstico e gestão* (pp. 111–123). Artmed.
- Ferreira, R. C., Silveira, A. P., Sá, M. A. B., Feres, S. B. L., Souza, J. G. S., & Martins, A. M. E. B. L. (2015). Transtorno mental e estressores no trabalho entre professores universitários da área da saúde. *Trabalho, Educação e Saúde*, 13, 135–155. <https://doi.org/10.1590/1981-7746-sip00042>
- Fields, E. C., Kensinger, E. A., Garcia, S. M., Ford, J. H., & Cunningham, T. J. (2022). With age comes well-being: Older age associated with lower stress, negative affect, and depression throughout the COVID-19 pandemic. *Aging & Mental Health*, 26(10), 2071–2079. <https://doi.org/10.1080/13607863.2021.2010183>
- Freitas, R. F., Ramos, D. S., Freitas, T. F., Souza, G. R. D., Pereira, E. J., & Lessa, A. D. C. (2021). Prevalência e fatores associados aos sintomas de depressão, ansiedade e estresse em professores universitários durante a pandemia da COVID-19. *Jornal Brasileiro de Psiquiatria*, 70(4), 283–292. <https://doi.org/10.1590/0047-2085000000348>
- Fu, W., Han, X., Liu, Y., Zou, L., Wen, J., Yan, S., & Lv, C. (2022). Prevalence and related factors of anxiety among university teachers 1 year after the COVID-19 pandemic

- outbreak in China: A multicenter study. *Frontiers in Psychiatry*, 13, 1–7. <https://doi.org/10.3389/fpsyt.2022.823480>
- Gonçalves, D. M., Stein, A. T., & Kapczinski, F. P. (2008). Avaliação de desempenho do Self-Reporting Questionnaire como instrumento de rastreamento psiquiátrico: Um estudo comparativo com o structured clinical interview for DSM-IV-TR. *Cadernos de Saúde Pública*, 24(2), 380–390. [https://www.scielo.org/article/ssm/content/raw/?resource\\_ssm\\_path=/media/assets/csp/v24n2/16.pdf](https://www.scielo.org/article/ssm/content/raw/?resource_ssm_path=/media/assets/csp/v24n2/16.pdf)
- Hayton, J. C., Allen, D. G., & Scarpello, V. (2004). Decisões de retenção de fatores na análise fatorial exploratória: Um tutorial sobre análise paralela. *Métodos de Pesquisa Organizacional*, 7(2), 191–205. <https://doi.org/10.1177/1094428104263675>
- Jia, R., Ayling, K., Chalder, T., Massey, A., Broadbent, E., Coupland, C., & Vedhara, K. (2020). Mental health in the UK during the COVID-19 pandemic: Cross-sectional analyses from a community cohort study. *BMJ Open*, 10(9), 1–14. <https://doi.org/10.1136/bmjopen-2020-040620>
- Keyes, C. L. (2009). The black–white paradox in health: Flourishing in the face of social inequality and discrimination. *Journal of Personality*, 77(6), 1677–1706. <https://doi.org/10.1111/j.1467-6494.2009.00597.x>
- Kim, A., Nyengerai, T., & Mendenhall, E. (2020). Evaluating the mental health impacts of the COVID-19 pandemic: perceived risk of COVID-19 infection and childhood trauma predict adult depressive symptoms in urban South Africa. *Medicina Psicológica*, 52(8), 1–13. <https://doi.org/10.1017/S0033291720003414>

- 
- Kita, Y., Yasuda, S., & Gherghel, C. (2022). Online education and the mental health of faculty during the COVID-19 pandemic in Japan. *Scientific Reports*, *12*, 1-9. <https://doi.org/10.1038/s41598-022-12841-x>
- LaMotte, M. E., Elliott, M., & Mouzon, D. M. (2022). Revisiting the Black-White mental health paradox during the coronavirus pandemic. *Journal of Racial and Ethnic Health Disparities*, *10*, 1-14. <https://doi.org/10.1007/s40615-022-01457-6>
- Lima, C. D. A., Oliveira, A. J. S., Freitas, W. M. L. D., Lopes, H. H. S., Montes, G. A. D., Silva, P. G., Lima, C. A. G, Leite-Filho, G. A. L., Parrela, E. C. S., Haikal, D. S., Brito, M. F. S. F., & Silveira, M. F. (2021). Redução da renda familiar dos professores da educação básica de Minas Gerais na pandemia da Covid-19. *Trabalho, Educação e Saúde*, *19*(1), 1-14. <https://doi.org/10.1590/1981-7746-sol00329>
- Losa-Iglesias, M., Jimenez-Fernandez, R., Corral-Liria, I., Herraiz-Soria, E., Rodriguez-Vazquez, R., & Becerro-De-Bengoa-Vallejo, R. (2022). Stressors and difficulties perceived during the pandemic in the teaching activity of nursing professors. *Frontiers in Psychology*, *13*, 1-8. <https://doi.org/10.3389/fpsyg.2022.989279>
- Luo, Y., Li, Q., Jeong, H., & Cheatham, L. (2022). The association between social determinants of health and psychological distress during the COVID-19 pandemic: A secondary analysis among four racial/ethnic groups. *BMC Public Health*, *22*, 1-12. <https://doi.org/10.1186/s12889-022-14486-x>
- Mäkelä, T., Sikström, P., Jääskelä, P., Korkala, S., Kotkajuuri, J., Kaski, S., & Taalas, P. (2022). Factors constraining teachers' wellbeing and agency in a Finnish university: Lessons from the COVID-19 pandemic. *Education Sciences*, *12*(10), 1-16. <https://doi.org/10.3390/educsci12100722>

- 
- Matias, A. B., Falcão, M. T. C., Grosseman, S., Germani, A. C. C. G., & Silva, A. T. C. D. (2023). A pandemia da COVID-19 e o trabalho docente: Percepções de professores de uma universidade pública no estado de São Paulo, Brasil. *Ciência & Saúde Coletiva*, 28(2), 537-546. <https://doi.org/10.1590/1413-81232023282.11972022>
- Na, L., Yang, L., Mezo, P. G., & Liu, R. (2022). Age disparities in mental health during the COVID-19 pandemic: The roles of resilience and coping. *Social Science & Medicine*, 305, 1-14. <https://doi.org/10.1016/j.socscimed.2022.115031>
- Neme, G. G. S., & Limongi, J. E. (2019). Prevalência e fatores relacionados a transtornos mentais comuns entre professores universitários de uma Universidade Federal brasileira. *Hygeia - Revista Brasileira de Geografia Médica e da Saúde*, 15(32), 112-120. <https://doi.org/10.14393/Hygeia153249863>
- Nwachukwu, I., Nkire, N., Shalaby, R., Hrabok, M., Vuong, W., Gusnowski, A., Surood, S., Urichuk, L., Greenshaw, A. J., & Agyapong, V. I. O. (2020). COVID-19 Pandemic: Age-related differences in measures of stress, anxiety and depression in Canada. *International Journal of Environmental Research and Public Health*, 17(17), 6366. <https://doi.org/10.3390/ijerph17176366>
- Ozamiz-Etxebarria, N., Santxo, N. B., Mondragon, N. I., & Santamaría, M. D. (2021). The psychological state of teachers during the COVID-19 crisis: The challenge of returning to face-to-face teaching. *Frontiers in Psychology*, 11, 1-10. <https://doi.org/10.3389/fpsyg.2020.620718>
- Parlangeli, O., Palmitesta, P., Bracci, M., Marchigiani, E., Di Pomponio, I., & Guidi, S. (2022). University teachers during the first lockdown due to SARS-CoV-2 in Italy: Stress, issues and perceptions of misconduct. *Science and Engineering Ethics*, 28(1), 1-22. <https://doi.org/10.1007/s11948-022-00362-9>

- 
- Pinheiro, F. P. H. A., Aquino, C. A. B. de, Vieira, E. M., Marques, N. S., Vieira, C. A. L., Cunha, E. S., Aguiar, H. M. T., Feijão, A. R. C., Rodrigues, H. M. P. (2023). Efeitos da violência escolar e do contexto de trabalho na saúde de docentes. *Psico*, 54(1), e37756. <https://doi.org/10.15448/1980-8623.2023.1.37756>
- Pinheiro, F. P. H. A., Aguiar, T. P., Rodrigues, D. S., Lopes, F. M. F., Moreira, G. S., Sena, L. F., Sá Cunha, E., & Rodrigues, H. M. P. (2024). The impact of the work context on common mental disorders among university professors (Version 1). *figshare*. <https://doi.org/10.6084/m9.figshare.27850299>
- Pinho, P. S., Freitas, A. M. C., Cardoso, M. D. C. B., Silva, J. S. D., Reis, L. F., Muniz, C.F.D., & Araújo, T. M. D. (2021). Trabalho remoto docente e saúde: Repercussões das novas exigências em razão da pandemia da covid-19. *Trabalho, Educação e Saúde*, 19, 1-21. <https://doi.org/10.1590/1981-7746-sol00325>
- Pinkovetskaia, I., Campillo, D. A., & Bahamón, M. J. R. (2022). Ingresos de los hogares en 2021: influencia de la pandemia de Covid-19. *Revista Finanzas y Política Económica*, 14(2), 541-560. <https://doi.org/10.14718/revfinanzpolitecon.v14.n2.2022.9>
- Ribeiro, V. V., Silva, K., Guedes-Granzotti, R. B., César, C. P. H. A. R., Pinatti Moreira, P., Santos, N. M., & Dornelas, R. (2021). Stress and autonomic dysfunction symptoms related to voice in Brazilian university professors during the COVID-19 pandemic. *Logopedics Phoniatrics Vocology*, 47(4), 1-7. <https://doi.org/10.1080/14015439.2021.1939413>
- Santos, K. O. B., Araújo, T. M. D., & Oliveira, N. F. D. (2009). Estrutura fatorial e consistência interna do Self-Reporting Questionnaire (SRQ-20) em população urbana. *Cadernos de Saúde Pública*, 25(1), 214-222.

---

[https://www.scielo.org/article/ssm/content/raw/?resource\\_ssm\\_path=/media/assets/csp/v25n1/23.pdf](https://www.scielo.org/article/ssm/content/raw/?resource_ssm_path=/media/assets/csp/v25n1/23.pdf)

Santos, M. S., & Bellemo, A. I. S. (2022). Sofrimento psíquico de professores universitários durante a pandemia da Covid-19. *Revista Eletrônica Acervo Saúde*, 15(8), 1-10.

<https://doi.org/10.25248/reas.e10529.2022>

Silva, A. F., Estrela, F., Lima, N. S., & Abreu, C. T. D. A. (2020). Saúde mental de docentes universitários em tempos de pandemia. *Physis: Revista de Saúde Coletiva*, 30(2), 1-4.

<https://doi.org/10.1590/S0103-73312020300216>

Tavares, J. P., Beck, C. L. C., Magnago, T. S. B. S., Zanini, R. R., & Lautert, L. (2012). Distúrbios psíquicos menores em enfermeiros docentes de universidades. *Revista Latino-Americana de Enfermagem*, 20(1), 1-8.

<https://doi.org/10.1590/S0104-11692012000100023>

Thomeer, M. B., Moody, M. D., & Yahirun, J. (2023). Racial and ethnic disparities in mental health and mental health care during the COVID-19 pandemic. *Journal of Racial and Ethnic Health Disparities*, 10(2), 961–976.

<https://doi.org/10.1007/s40615-022-01284-9>

Urcos, W. H. C., Urcos, C. N. C., Ruales, E. A. B., & Urcos, J. F. C. (2020). Stress, anguish, anxiety and resilience of university teachers in the face of covid-19. *Utopía Y Praxis Latinoamericana*,

25(7), 453-464.  
<https://produccioncientificaluz.org/index.php/utopia/article/view/33747>

Velicer, W. F. (1976). Determining the number of components from the matrix of partial correlations. *Psychometrika*, 41(3), 321–327.

<https://doi.org/10.1007/bf02293557>  
Watkins, M. W. (2018). Exploratory factor analysis: A guide to best practice. *Journal of Black Psychology*, 44(3), 219-246. <https://doi.org/10.1177/0095798418771807>