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Factors associated with anxiety and depression in university professors during the COVID-19 Pandemic

Factores asociados con la ansiedad y la depresión en profesores universitarios durante la pandemia de la COVID-19

Fatores associados à ansiedade e depressão em professores universitários durante a pandemia da COVID-19

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ABSTRACT

Introduction: The COVID-19 pandemic may have exacerbated preexisting mental health conditions or triggered new psychological symptoms, even among individuals with no prior history. University professors were particularly affected by new professional demands, facing significant challenges within the academic context.

Objective: To analyze factors associated with sympt oms of anxiety and depression among university professors during the COVID-19 pandemic.

Method: This analytical cross-sectional study was conducted with 607 faculty members from public higher education institutions in the state of Mato Grosso, Brazil. Demographic, socioeconomic, lifestyle, professional, work-related organizational variables, and mental health symptoms were assessed through an online questionnaire. Bivariate analysis used the Chi-square test, and multivariate analysis was performed using Poisson regression with robust variance.

Results: The prevalence of self-reported anxiety symptoms was 83.2%, and of self-reported depression symptoms, 61.5%. Factors associated with both outcomes included working in the Biological Sciences field, stress, anger, and the perception that work negatively impacted mental health. Anxiety was associated with female gender, working in Exact and Earth Sciences, dissatisfaction with colleagues, and symptoms of mania. Depression was associated with working in Applied Social Sciences, dissatisfaction with students, lack of professional engagement, somatic symptoms, suicidal ideation, and impaired personality functioning. Being aged 50 to 59 years was identified as a protective factor.

Conclusion: High prevalence rates of mental distress were observed among university professors, associated with work conditions and interpersonal relationships during the pandemic context.

Key words: Anxiety; Depression; Faculty; Pandemic; COVID-19

RESUMEN

Introducción: La pandemia de la COVID-19 pudo haber exacerbado condiciones previas de salud mental o generado nuevos síntomas psicológicos, incluso en personas sin antecedentes. Los profesores universitarios se vieron particularmente afectados por las nuevas demandas laborales, enfrentando importantes desafíos en el contexto académico.

Objetivo: Analizar los factores asociados con los síntomas de ansiedad y depresión en profesores universitarios durante la pandemia de la COVID-19.

Método: Estudio analítico de corte transversal realizado con 607 docentes de instituciones públicas de educación superior de Mato Grosso. Se investigaron variables demográficas, socioeconómicas, de estilo de vida, profesionales, organizacionales del trabajo y síntomas de salud mental mediante un cuestionario en línea. El análisis bivariado utilizó la prueba de Chi-cuadrado, y el análisis múltiple se realizó mediante regresión de Poisson con varianza robusta.

Resultados: La prevalencia de síntomas de ansiedad fue del 83,2% y de depresión, del 61,5%. Los factores asociados con ambos desenlaces incluyeron la actuación en Ciencias Biológicas, el estrés, la ira y la percepción de que el trabajo afectaba la salud mental. La ansiedad estuvo asociada con el sexo femenino, la actuación en Ciencias Exactas y de la Tierra, la insatisfacción con los colegas y los síntomas de manía. La depresión se asoció con la actuación en Ciencias Sociales Aplicadas, la insatisfacción con los alumnos, la falta de compromiso laboral, los síntomas somáticos, la ideación suicida y el deterioro en el funcionamiento de la personalidad. El grupo de edad entre 50 y 59 años se mostró como un factor protector.

Conclusión: Se evidencian altas prevalencias de sufrimiento mental entre los docentes, asociadas con las condiciones laborales y las relaciones interpersonales en el contexto pandémico.

Palabras clave: Ansiedad; Depresión; Docentes; Pandemia; COVID-19

RESUMO

Introdução: A pandemia da COVID-19 pode ter agravado sofrimentos mentais preexistentes ou causado novos sintomas, mesmo em indivíduos sem histórico anterior. Os professores foram especialmente impactados pelas novas exigências no trabalho, enfrentando desafios significativos no contexto educacional.

Objetivo: Analisar fatores associados aos sintomas de ansiedade e depressão em professores universitários durante a pandemia da COVID-19.

Método: Estudo transversal analítico realizado com 607 docentes de instituições públicas de ensino superior do estado de Mato Grosso, Brasil. Variáveis demográficas, socioeconômicas, de estilo de vida, profissionais, organizacionais do trabalho e sintomas de saúde mental foram avaliados por meio de questionário on-line. A análise bivariada utilizou o teste do qui-quadrado, e a análise multivariada foi realizada por regressão de Poisson com variância robusta.

Resultados: A prevalência de sintomas de ansiedade foi de 83,2% e de sintomas de depressão, de 61,5%. Fatores associados a ambos os desfechos incluíram atuar na área de Ciências Biológicas, apresentar estresse, raiva e percepção de que o trabalho impactou negativamente a saúde mental. A ansiedade esteve associada ao sexo feminino, à atuação nas áreas de Ciências Exatas e da Terra, à insatisfação com colegas e a sintomas de mania. A depressão esteve associada à atuação nas Ciências Sociais Aplicadas, à insatisfação com estudantes, à falta de engajamento profissional, a sintomas somáticos, à ideação suicida e ao comprometimento do funcionamento da personalidade. Ter idade entre 50 e 59 anos foi identificado como fator protetor.

Conclusão: Foram observadas altas taxas de prevalência de sofrimento mental entre professores universitários, associadas às condições de trabalho e aos relacionamentos interpessoais no contexto da pandemia.

Palavras-chave: Ansiedade; Depressão; Docentes; Pandemia; COVID-19

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INTRODUCTION

Mental disorders rank among the leading causes of health-related disability and reduced quality of life worldwide. Among these, depression and anxiety stand out as the most prevalent conditions today[1]. The 2019 Global Burden of Diseases, Injuries, and Risk Factors Study highlighted these disorders among the top 25 causes of the global disease burden, affecting individuals across all age groups, genders, and geographic regions. As such, they represent one of the major public health challenges of the 21st century[2].

With the onset of the COVID-19 pandemic, many environments saw their mental health stressors exacerbated, raising additional concerns about the short- and long-term effects on mental health. Consequently, the World Health Organization characterized the global mental health scenario as a "growing crisis"[1]. A global study by the COVID-19 Mental Disorders Collaborators, covering 204 countries in 2020, estimated a 27.6% increase in the prevalence of major depressive disorders and a 25.6% increase in anxiety disorders due to the COVID-19 pandemic[3]. These conditions may occur separately or concurrently and are considered critical indicators of mental health. If not adequately managed, they can result in severe consequences for individuals, including increased risks of comorbidities and suicide[3].

Because of the COVID-19 pandemic, the university setting experienced abrupt and unexpected changes, including the shift from predominantly face-to-face education to remote or online modalities. This sudden transition accelerated digitalization in education and imposed a substantial burden on faculty members, who were required to rapidly (re)adapt to new teaching and learning methods within a short period, while also coping with the broader disruptions brought by the pandemic[4].

Studies conducted within academic communities after the onset of the pandemic have indicated that self-reported anxiety and self-reported depression symptoms are among the most prevalent in this context[5, 6]. However, there remains a scarcity of comprehensive data on the mental health of university faculty across various regions of the world, including Brazil. Thus, research on the mental health of university professors remains limited[7].

More recent evidence from the post-pandemic period continues to demonstrate elevated levels of anxiety, depression, and occupational distress among university faculty, suggesting that the psychological impact of the crisis may extend beyond the emergency phase[5, 7, 8]. These findings reinforce the need for context-specific investigations that consider regional, institutional, and sociocultural differences.

It is important to consider that university faculty frequently face unexpected challenges arising from changes in educational programs - whether due to political decisions, technological and pedagogical innovations, or funding discontinuities. Therefore, it is essential to conduct studies that examine the mental health of university professors during and after the COVID-19 pandemic, as well as the factors that influence it, to inform the development of effective and context-sensitive strategies. In this regard, analyzing the factors that affect mental health during periods of abrupt change helps identify key risks and enables the design of adequate and resilient support strategies[8].

These findings may help mitigate potential adverse effects on education, working conditions, and faculty mental health - especially considering that many of the adaptations prompted by the pandemic are likely to shape future teaching practices and are directly related to educational quality and students' psychological well-being[7]. Given the above, this study aims to analyze the factors associated with symptoms of anxiety and depression among university professors during the COVID-19 pandemic.

METHOD

This is an analytical cross-sectional study conducted in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines and guided by the Checklist for Reporting Results of Internet E-Surveys (CHERRIES).

The study was carried out across all public universities in the state of Mato Grosso, Brazil, between March and July 2022. The study population consisted of university professors from four higher education institutions – three federal (Federal University of Mato Grosso [UFMT], Federal University of Rondonópolis [UFR], and Federal Institute of Mato Grosso [IFMT]) and one state institution (State University of Mato Grosso [UNEMAT]). Eligible participants were those with at least 12 months of employment as higher education faculty members in undergraduate and/or graduate programs. Exclusion criteria included temporary leave, reassignment to non-teaching roles, or exclusive engagement in administrative or research activities.

At the time of data collection, there were 4.564 active faculty members across the participating institutions – 3.300 in federal institutions and 1.264 in the state institution. Recruitment and data collection were conducted online via email using the Google Forms® platform. A contact list was developed from publicly available information on institutional websites, in compliance with the Brazilian General Data Protection Law.

Invitations containing the survey link were sent via email on four occasions, with 20-day intervals between each round. Contacts for whom responses had already been recorded were excluded from subsequent mailings. Course coordinators and human resources offices were also asked to disseminate the invitation among faculty members. Additionally, the survey link was shared through the researchers' professional

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social media platforms, including WhatsApp, Facebook, and Instagram. Participation was voluntary.

The minimum required sample size was calculated prior to data collection based on the total population of faculty members (N = 4,564), assuming a 50% prevalence, a 5% margin of error, and a 95% confidence level. The estimated minimum sample size was 607 participants. Recruitment was continuously monitored during the online data collection period, and data collection was closed once the predetermined minimum sample size was achieved.

Although the minimum sample size was calculated using parameters typically applied to probabilistic designs, participant recruitment followed a non-probabilistic convenience strategy through voluntary online participation. This approach was adopted due to the exceptional circumstances of the COVID-19 pandemic, during which remote data collection represented the most feasible and ethically appropriate strategy to ensure participant safety and broad institutional reach. Therefore, the calculation was used to ensure an adequate number of observations for statistical analysis rather than to imply population representativeness.

To assess symptoms of anxiety and depression, we used items from the Level 1 Cross-Cutting Symptom Measure - Adult (DSM-5), a public domain, self-administered scale translated into Brazilian Portuguese and published in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition[9]. To collect information on potential predictor variables, we used a self-administered questionnaire developed by the study authors. This instrument included 30 questions covering demographic, socioeconomic, lifestyle, professional, and organizational characteristics related to the work environment during the COVID-19 pandemic. The DSM-5 Level 1 Cross-Cutting Symptom Measure was also used to assess psychiatric domains of general mental health[9].

This instrument comprises 23 items distributed across 13 psychiatric domains. Each item assesses the extent to which the respondent has been bothered by specific symptoms during the two weeks preceding the survey. Items are rated on a 5-point Likert scale (0 = none or not at all; 1 = slight or rare; 2 = mild or several days; 3 = moderate or more than half the days; 4 = severe or nearly every day). For the domains of substance use, suicidal ideation, and psychosis, scores of 1 (slight), 2 (mild), 3 (moderate), or 4 (severe) were recoded as positive ("yes"), while a score of 0 ("none") was considered negative ("no"). For the remaining domains, scores of 2, 3, or 4 were recorded as positive, while scores of 0 and 1 were considered negative[9].

It is important to emphasize that the DSM-5 Level 1 Cross-Cutting Symptom Measure is a screening instrument designed to identify self-reported psychiatric symptoms across multiple domains. It does not establish clinical diagnoses but rather indicates the presence and severity of symptoms experienced during the previous two weeks.

Participant recruitment and data collection were conducted online through email invitations and the Google Forms® platform. The study was widely disseminated using publicly available contact information from the universities' websites, ensuring compliance with the Brazilian General Data Protection Law. The invitation email was sent on four occasions at 20-day intervals, with responses tracked to exclude already participating individuals from subsequent rounds. Additionally, the survey link was shared on the researchers' social media accounts (WhatsApp, Facebook, and Instagram).

Data were analyzed using the Statistical Package for the Social Sciences (SPSS®), version 24.0. Anxiety and depression, as assessed by the DSM-5, were considered dependent outcomes. All demographic, socioeconomic, lifestyle, professional, organizational, and general mental health variables (DSM-5 domains) were treated as covariates. Only variables showing statistical significance in bivariate analysis and in the final model were included due to the large number of variables assessed.

Descriptive analysis involved calculating absolute and relative frequencies, as well as prevalence rates. For inferential analysis, crude prevalence ratios (PRc) and Pearson's chi-square test were used, with a significance level set at $p < 0.05$ and 95% confidence intervals.

For multivariate analysis, variables associated with p-values < 0.20 in the chi-square test were included in a multiple Poisson regression model with robust variance. Only independent variables with p-values < 0.05 remained in the final model. Model fit was assessed using the likelihood ratio test (anxiety $p = 0.001$; depression $p < 0.001$)[10].

This research is part of the broader project titled "Teaching, practices, and innovative technologies in health and education" and was approved by the Research Ethics Committee. The Informed Consent Form was provided online, and participants formally agreed to participate by selecting "yes" and providing a valid email address to prevent duplicate entries.

RESULTS

A total of 607 university professors from public higher education institutions in Mato Grosso participated in the study. All were active in teaching during the COVID-19 pandemic. The sample was predominantly female (56.18%), aged between 30 and 49 years (70%), with a partner (64.42%) and with children (61.94%). The prevalence of self-reported anxiety symptoms was 83.2% (n = 505), while self-reported depressive symptoms were observed in 61.5% (n = 373) of participants.

Among the demographic, socioeconomic, lifestyle, and occupational variables that showed a p-value < 0.20 in the bivariate analysis for at least one of the outcomes of

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interest, not having a partner and working in the broad field of Biological Sciences were significantly associated (p < 0.05) with both anxiety and depression symptoms. In contrast, being aged 60 years or older was a protective factor for both outcomes, while the 50–59 age group was protective only for depressive symptoms.

The prevalence of anxiety symptoms was also higher among female professors (p = 0.004) and those with postdoctoral degrees (p = 0.047). Self-reported depressive symptoms were more prevalent among professors with a family income of 2–4 minimum wages (p = 0.031) or 5–7 minimum wages (p = 0.016), those reporting insufficient physical activity (p = 0.013), those working in the broad field of Applied Social Sciences (p = 0.005), and those with teaching experience between 1–3 years (p = 0.011) or 10–12 years (p = 0.008), as shown in **Table 1**.

Table 1. Association between demographic, socioeconomic, lifestyle, and professional variables of university professors and the presence of anxiety and depression symptoms. Brazil, Mato Grosso, 2022 (n=607)

Variable	Total	ANXIETY					DEPRESSION				
		Yes	No	RP_b	95% CI	p-value	Yes	No	RP_b	95% CI	p-value
	n	n (%)	n (%)				n (%)	n (%)			
Sex											
Female	341	297 (87,10)	44 (12,90)	1,11	(1,03; 1,20)	0,004*	218 (63,93)	123 (36,07)	1,10	(1,00; 1,25)	0,155
Male	266	208 (78,20)	58 (21,80)	1,00	-	-	155 (58,27)	111 (41,73)	1,00	-	-
Age range (years)											
18 – 29	38	33 (86,84)	5 (13,16)	1,03	(0,90; 1,79)	0,716	28 (73,68)	10 (26,32)	1,15	(0,93; 1,42)	0,260
30 – 39	218	189 (86,70)	29 (13,30)	1,03	(0,95; 1,11)	0,526	147 (67,43)	71 (32,57)	1,05	(0,91; 1,20)	0,489
40 – 49	207	175 (84,54)	32 (15,46)	1,00	-	-	133 (64,25)	74 (35,75)	1,00	-	-
50 – 59	106	81 (76,42)	25 (23,58)	0,90	(0,80; 1,02)	0,078	51 (48,11)	55 (51,89)	0,75	(0,60; 0,93)	0,006*
≥60	38	27 (71,05)	11 (28,95)	0,84	(0,68; 1,04)	0,045*	14 (36,84)	24 (63,16)	0,57	(0,37; 0,88)	0,002*
Marital status											
Without partner	216	191 (88,43)	25 (11,57)	1,10	(1,03; 1,18)	0,010*	151 (69,91)	65 (30,09)	1,23	(1,10; 1,39)	0,001*
With partner	391	314 (80,31)	77 (19,69)	1,00	-	-	222 (56,78)	169 (43,22)	1,00	-	-
Religion											
No	134	117 (87,31)	17 (12,69)	1,06	(1,00; 1,15)	0,149	88 (65,67)	46 (34,33)	1,09	(0,94; 1,26)	0,255
Yes	473	388 (82,03)	85 (17,97)	1,00	-	-	285 (60,25)	188 (39,75)	1,00	-	-
Familiar income											
2–4 minimum wage	34	29 (85,29)	5 (14,71)	1,03	(0,89; 1,20)	0,678	26 (76,47)	8 (23,53)	1,33	(1,10; 1,63)	0,031*
5–7 minimum wage	156	132 (84,62)	24 (15,38)	1,03	(0,95; 1,11)	0,547	107 (68,59)	49 (31,41)	1,19	(1,04; 1,36)	0,016*
>8 minimum wage	417	344 (82,49)	73 (17,51)	1,00	-	-	240 (57,55)	177 (42,45)	1,00	-	-
Physical exercise											
Does not practice or <150 min	333	283 (84,98)	50 (15,02)	1,02	(0,95; 1,11)	0,528	221 (66,37)	112 (33,63)	1,20	(1,03; 1,39)	0,013*
150 to 300 min	193	160 (82,90)	33 (17,10)	1,00	-	-	107 (55,44)	86 (44,56)	1,00	-	-
>300 min	81	62 (76,54)	19 (23,46)	0,92	(0,80; 1,06)	0,221	45 (55,56)	36 (44,44)	1,00	(0,79; 1,26)	0,986
Major field of expertise											
Biological Sciences	41	40 (97,56)	1 (2,44)	1,22	(1,11; 1,33)	0,007*	33 (80,49)	8 (19,51)	1,52	(1,23; 1,87)	0,001*
Linguistics, Literature, and Arts	24	20 (83,33)	4 (16,67)	1,04	(0,85; 1,26)	1,000EF	14 (58,33)	10 (41,67)	1,10	(0,76; 1,59)	0,630
Applied Social Sciences	105	89 (84,76)	16 (15,24)	1,06	(0,94; 1,18)	0,348	74 (70,48)	31 (29,52)	1,33	(1,10; 1,61)	0,005*
Agricultural Sciences	73	59 (80,82)	14 (19,18)	1,01	(0,88; 1,15)	0,918	45 (61,64)	28 (38,36)	1,16	(0,92; 1,46)	0,222
Exact and Earth Sciences	76	66 (86,84)	10 (13,16)	1,08	(0,96; 1,21)	0,213	46 (60,53)	30 (39,47)	1,14	(0,90; 1,44)	0,282
Human Sciences	98	78 (79,59)	20 (20,41)	0,99	(0,87; 1,12)	0,898	57 (58,16)	41 (41,84)	1,10	(0,88; 1,37)	0,425
Engineering	20	16 (80,00)	4 (20,00)	1,00	(0,79; 1,26)	1,000EF	11 (55,00)	9 (45,00)	1,04	(0,68; 1,58)	0,871
Multidisciplinary	08	7 (87,50)	1 (12,50)	1,09	(0,83; 1,43)	1,000EF	7 (87,50)	1 (12,50)	1,65	(1,22; 2,22)	0,074EF
Health Sciences	162	130 (80,25)	32 (19,75)	1,00	-	-	86 (53,09)	76 (46,91)	1,00	-	-
Highest academic qualification											
Undergraduate degree	07	6 (85,71)	1 (14,29)	1,09	(0,80; 1,49)	1,000EF	4 (57,14)	3 (42,86)	0,91	(0,48; 1,75)	1,000EF
Specialization	37	30 (81,08)	7 (18,92)	1,03	(0,87; 1,23)	0,733	23 (62,16)	14 (37,84)	0,99	(0,75; 1,31)	0,957
Master's degree	182	143 (78,57)	39 (21,43)	1,00	-	-	114 (62,64)	68 (37,36)	1,00	-	-
Doctorate (PhD)	307	260 (84,69)	47 (15,31)	1,08	(1,00; 1,18)	0,086	184 (59,93)	123 (40,07)	0,96	(0,83; 1,11)	0,554
Postdoctoral degree	74	66 (89,19)	8 (10,81)	1,13	(1,02; 1,27)	0,047*	48 (64,86)	26 (35,14)	1,04	(0,85; 1,27)	0,737
More than one professional affiliation											
Yes	103	80 (77,67)	23 (22,33)	0,92	(0,82; 1,03)	0,100	57 (55,34)	46 (44,66)	0,88	(0,73; 1,06)	0,162
No	504	425 (84,33)	79 (15,67)	1,00	-	-	316 (62,70)	188 (37,30)	1,00	-	-
Time teaching in higher education											
1 - 3 years	98	80 (81,63)	18 (18,37)	1,01	(0,90; 1,13)	0,839	67 (68,37)	31 (31,63)	1,28	(1,07; 1,53)	0,011*
4 - 6 years	86	72 (83,72)	14 (16,28)	1,04	(0,93; 1,16)	0,533	56 (65,12)	30 (34,88)	1,22	(1,00; 1,48)	0,059
7 - 9 years	88	77 (87,50)	11 (12,50)	1,08	(1,00; 1,20)	0,150	56 (63,64)	32 (36,36)	1,19	(1,00; 1,45)	0,097
10 - 12 years	97	84 (86,60)	13 (13,40)	1,07	(0,97; 1,20)	0,197	67 (69,07)	30 (30,93)	1,29	(1,08; 1,55)	0,008*
>12 years	238	192 (80,67)	46 (19,33)	1,00	-	-	127 (53,36)	111 (46,64)	1,00	-	-

PR_b = Crude prevalence ratio; 95% CI = 95% confidence interval; p-value = Chi-square test; *p-value < 0.05 from Pearson's Chi-square test (χ^2); Fisher's exact test. Minimum wage = R$1,212 Brazilian Real in 2022 (1$ = 5,0) = R$ 242.4.

Regarding organizational and pandemic-related variables, the following factors were significantly associated (p < 0.001 for all) with both anxiety and depression symptoms: fear of COVID-19, stress symptoms, difficulty planning or managing classes, desire to leave the institution, changes in the quality of interpersonal relationships with students, coworkers, coordinators, and administrative staff, dissatisfaction with relationships with coworkers, lack of professional engagement, and the perception that work was negatively affecting mental health. Anxiety and depression symptoms were also associated with dissatisfaction in relationships with students (p = 0.001 and p < 0.001, respectively), while the lack of physical and material resources for work was associated only with anxiety symptoms (p < 0.001), as shown in **Table 2**.

Table 2. Association between organizational aspects and the effects of the COVID-19 pandemic among university professors and the presence of anxiety and depression symptoms. Brazil, Mato Grosso, 2022 (n=607)

Variable	Total	ANXIETY					DEPRESSION				
		Yes	No	RP_b	95% CI	p-value	Yes	No	RP_b	95% CI	p-value
	n	n (%)	n (%)				n (%)	n (%)			
Fear of COVID-19											
Yes	270	243 (90,00)	27 (10,10)	1,16	(1,08; 1,24)	<0,001*	189 (70,00)	81 (30,00)	1,28	(1,13; 1,45)	<0,001*
No	337	262 (77,74)	75 (22,26)	1,00	-	-	184 (54,60)	153 (45,40)	1,00	-	-
Stress symptoms											
Yes	389	372 (95,63)	17 (4,37)	1,57	(1,41; 1,75)	<0,001*	317 (81,49)	72 (18,51)	3,17	(2,52; 3,99)	<0,001*
No	218	133 (61,01)	85 (38,99)	1,00	-	-	56 (25,69)	162 (74,31)	1,00	-	-
Difficulty planning or managing classes											
Yes	271	251 (92,62)	20 (7,38)	1,22	(1,14; 1,31)	<0,001*	214 (78,97)	57 (21,03)	1,67	(1,47; 1,90)	<0,001*
No	336	254 (75,60)	82 (24,40)	1,00	-	-	159 (47,32)	177 (52,68)	1,00	-	-
Desire to leave the institution											
Yes	141	133 (94,33)	8 (5,67)	1,18	(1,11; 1,26)	<0,001*	117 (82,98)	24 (17,02)	1,51	(1,35; 1,69)	<0,001*
No	466	372 (79,83)	94 (20,17)	1,00	-	-	256 (54,94)	210 (45,06)	1,00	-	-
Change in quality of interpersonal relationship with students											
Yes	447	389 (87,02)	58 (12,98)	1,20	(1,08; 1,33)	<0,001*	300 (67,11)	147 (32,89)	1,47	(1,23; 1,76)	<0,001*
No	160	116 (72,50)	44 (27,50)	1,00	-	-	73 (45,62)	87 (54,37)	1,00	-	-
Change in quality of interpersonal relationship with coworkers											
Yes	432	385 (89,12)	47 (10,88)	1,30	(1,17; 1,44)	<0,001*	291 (67,36)	141 (32,64)	1,44	(1,21; 1,70)	<0,001*
No	175	120 (68,57)	55 (31,43)	1,00	-	-	82 (46,86)	93 (53,14)	1,00	-	-
Change in quality of interpersonal relationship with coordination and administrative staff											
Yes	388	344 (88,66)	44 (11,34)	1,21	(1,10; 1,32)	<0,001*	263 (67,78)	125 (32,22)	1,35	(1,16; 1,57)	<0,001*
No	219	161 (73,52)	58 (26,48)	1,00	-	-	110 (50,23)	109 (49,77)	1,00	-	-
Satisfaction with relationship with students											
No	300	265 (88,33)	35 (11,67)	1,13	(1,05; 1,21)	0,001*	222 (74,00)	78 (26,00)	1,50	(1,32; 1,72)	<0,001*
Yes	307	240 (78,18)	67 (21,82)	1,00	-	-	151 (49,19)	156 (50,81)	1,00	-	-
Satisfaction with relationship with coworkers											
No	307	282 (91,86)	25 (8,14)	1,24	(1,15; 1,33)	<0,001*	226 (73,62)	81 (26,38)	1,50	(1,31; 1,72)	<0,001*
Yes	300	223 (74,33)	77 (25,67)	1,00	-	-	147 (49,00)	153 (51,00)	1,00	-	-
Work engagement											
No	183	170 (92,90)	13 (7,10)	1,18	(1,10; 1,25)	<0,001*	160 (87,43)	23 (12,57)	1,74	(1,56; 1,94)	<0,001*
Yes	424	335 (79,01)	89 (20,99)	1,00	-	-	213 (50,24)	211 (49,76)	1,00	-	-
Lack of physical and material resources to perform work											
Yes	426	368 (86,38)	58 (13,62)	1,14	(1,04; 1,25)	0,001*	269 (63,15)	157 (36,85)	1,10	(0,95; 1,27)	0,188
No	181	137 (75,69)	44 (24,31)	1,00	-	-	104 (57,46)	77 (42,54)	1,00	-	-
Negative impact of work on mental health											
Yes	333	319 (95,80)	14 (4,20)	1,41	(1,30; 1,54)	<0,001*	278 (83,48)	55 (16,52)	2,41	(2,03; 2,85)	<0,001*
No	274	186 (67,88)	88 (32,12)	1,00	-	-	95 (34,67)	179 (65,33)	1,00	-	-

PR_b = Crude prevalence ratio; 95% CI = 95% confidence interval; p-value = Chi-square test; p-value < 0.05 from Pearson's Chi-square test (χ^2).

Table 3 presents the DSM-5 mental health domains, showing that anxiety and depression symptoms were significantly associated with all domains assessed. These symptoms were most prevalent among professors who also reported anger, somatic symptoms, sleep disturbances, impaired personality functioning, dissociation, memory changes, repetitive thoughts and behaviors, suicidal ideation, mania, and substance use (p < 0.001 for all), followed by psychosis (p = 0.019 and p = 0.002, respectively).

Multivariate analysis results for anxiety symptoms are presented in **Table 4**. The model indicates that female professors (adjusted PR = 1.11; p = 0.004), those working in the broad fields of Biological Sciences and Exact and Earth

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Sciences (adjusted PR = 1.11; p = 0.020 and adjusted PR = 1.12; p = 0.037, respectively), those experiencing stress (adjusted PR = 1.19; p = 0.001), dissatisfaction with coworker relationships (adjusted PR = 1.09; p = 0.009), the perception that work was negatively affecting their mental health (adjusted PR = 1.11; p = 0.004), and those reporting anger (adjusted PR = 1.28; p < 0.001) or mania (adjusted PR = 1.20; p < 0.001) were more likely to present anxiety symptoms.

Multivariate analysis results for self-reported depressive symptoms are presented in **Table 5**. Being aged 50–59 years was found to be protective (adjusted PR = 0.83; p = 0.020). Conversely, professors working in the fields of Biological Sciences (adjusted PR = 1.25; p = 0.015) and Applied Social Sciences (adjusted PR = 1.24; p = 0.003), those reporting stress (adjusted PR = 1.44; p = 0.003), dissatisfaction with student relationships (adjusted PR = 1.13; p = 0.017), lack of engagement at work (adjusted PR = 1.15; p = 0.002), and the perception that work was negatively affecting mental health (adjusted PR = 1.30; p = 0.001) showed a higher prevalence of depressive symptoms.

Professors who reported anger (adjusted PR = 2.00; p < 0.001), somatic symptoms (adjusted PR = 1.30; p = 0.004), suicidal ideation (adjusted PR = 1.10; p = 0.048), and impaired personality functioning (adjusted PR = 1.21; p = 0.003) were also more likely to present depressive symptoms.

Table 3. Association between DSM-5 mental health domains and the presence of anxiety and depression symptoms among university professors during the COVID-19 pandemic. Brazil, Mato Grosso, 2022 (n=607)

DSM-5 domain	Total	ANXIETY					DEPRESSION				
	n	Yes n (%)	No n (%)	RP_b	95% CI	p-value	Yes n (%)	No n (%)	RP_b	95% CI	p-value
Anger											
Yes	350	344 (98,29)	6 (1,71)	1,57	(1,43; 1,73)	<0,001*	308 (88,00)	42 (12,00)	3,48	(2,81; 4,31)	<0,001*
No	257	161 (62,65)	96 (37,35)	1-,00	-	-	65 (25,29)	192 (74,71)	1,00	-	-
Somatic symptoms											
Yes	371	352 (94,88)	19 (5,12)	1,46	(1,33; 1,61)	<0,001*	301 (81,13)	70 (18,87)	2,66	(2,18; 3,24)	<0,001*
No	236	153 (64,83)	83 (35,17)	1,00	-	-	72 (30,51)	164 (69,49)	1,00	-	-
Sleep disturbance											
Yes	307	301 (98,05)	6 (1,95)	1,44	(1,33; 1,56)	<0,001*	258 (84,04)	49 (15,96)	2,19	(1,88; 2,55)	<0,001*
No	300	204 (68,00)	96 (32,00)	1,00	-	-	115 (38,33)	185 (61,67)	1,00	-	-
Impaired personality functioning											
Yes	283	278 (98,23)	5 (1,77)	1,40	(1,30; 1,51)	<0,001*	245 (86,57)	38 (13,43)	2,19	(1,90; 2,53)	<0,001*
No	324	227 (70,06)	97 (29,94)	1,00		-	128 (39,51)	196 (60,49)	1,00	-	-
Dissociation											
Yes	193	191 (98,96)	2 (1,04)	1,30	(1,23; 1,38)	<0,001*	180 (93,26)	13 (6,74)	2,00	(1,79; 2,23)	<0,001*
No	414	314 (75,85)	100 (24,15)	1,00	-	-	193 (46,62)	221 (53,38)	1,00	-	-
Memory											
Yes	262	252 (96,18)	10 (3,82)	1,31	(1,22; 1,40)	<0,001*	217 (82,82)	45 (17,18)	1,83	(1,61; 2,08)	<0,001*
No	345	253 (73,33)	92 (26,67)	1,00	-	-	156 (45,22)	189 (54,78)	1,00	-	-
Repetitive thoughts and behaviors											
Yes	206	201 (97,57)	5 (2,43)	1,29	(1,21; 1,37)	<0,001*	181 (87,86)	25 (12,14)	1,83	(1,64; 2,06)	<0,001*
No	401	304 (75,81)	97 (24,19)	1,00	-	-	192 (47,88)	209 (52,12)	1,00	-	-
Suicidal ideation											
Yes	102	99 (97,06)	3 (2,94)	1,21	(1,14; 1,27)	<0,001*	94 (92,16)	8 (7,84)	1,67	(1,51; 1,84)	<0,001*
No	505	406 (80,40)	99 (19,60)	1,00	-	-	279 (55,25)	226 (44,75)	1,00	-	-
Mania											
Yes	430	389 (90,47)	41 (9,53)	1,38	(1,23; 1,54)	<0,001*	292 (67,91)	138 (32,09)	1,48	(1,2; 1,76)	<0,001*
No	177	116 (65,54)	61 (34,46)	1,00	-	-	81 (45,76)	96 (54,24)	1,00	-	-
Psychosis											
Yes	63	59 (93,65)	4 (6,35)	1,14	(1,06; 1,23)	0,019*	50 (79,37)	13 (20,63)	1,34	(1,16; 1,54)	0,002*
No	544	446 (81,99)	98 (18,01)	1,00	-	-	323 (59,38)	221 (40,62)	1,00	-	-
Substance use											
Yes	331	292 (88,22)	39 (11,78)	1,14	(1,06; 1,23)	<0,001*	227 (68,58)	104 (31,42)	1,30	(1,13; 1,48)	<0,001*
No	276	213 (77,17)	63 (22,83)	1,00	-	-	146 (52,90)	130 (47,10)	1,00	-	-

PR_b = Crude prevalence ratio; 95% CI = 95% confidence interval; p-value = Chi-square test; p-value < 0.05 from Pearson's Chi-square test (χ^2)

Table 4. Factors associated with the presence of anxiety symptoms in university professors during the COVID-19 pandemic. Brazil, Mato Grosso, 2022. (n=607)

Variable	Total	ANXIETY				
	n	Yes n (%)	No n (%)	RP_a	95% CI	p-value
Sex						
Female	341	297 (87,10)	44 (12,90)	1,11	(1,03; 1,18)	0,004*
Male	266	208 (78,20)	58 (21,80)	1,00	-	-
Major field of expertise						
Biological Sciences	41	40 (97,56)	1 (2,44)	1,11	(1,02; 1,22)	0,020*
Linguistics, Literature, and Arts	24	20 (83,33)	4 (16,67)	1,16	(0,97; 1,39)	0,098
Applied Social Sciences	105	89 (84,76)	16 (15,24)	1,03	(0,94; 1,13)	0,495
Agricultural Sciences	73	59 (80,82)	14 (19,18)	1,01	(0,90; 1,14)	0,818
Exact and Earth Sciences	76	66 (86,84)	10 (13,16)	1,12	(1,01; 1,25)	0,037*
Human Sciences	98	78 (79,59)	20 (20,41)	0,99	(0,89; 1,10)	0,827
Engineering	20	16 (80,00)	4 (20,00)	1,04	(0,83; 1,30)	0,724
Multidisciplinary	08	7 (87,50)	1 (12,50)	1,06	(0,88; 1,27)	0,540
Health Sciences	162	130 (80,25)	32 (19,75)	1,00	-	-
Stress symptoms						
Yes	389	372 (95,63)	17 (4,37)	1,19	(1,07; 1,32)	0,001*
No	218	133 (61,01)	85 (38,99)	1,00	-	-
Satisfaction with relationship with coworkers						
No	307	282 (91,86)	25 (8,14)	1,09	(1,02; 1,16)	0,009*
Yes	300	223 (74,33)	77 (25,67)	1,00	-	-
Negative impact of work on mental health						
Yes	333	319 (95,80)	14 (4,20)	1,11	(1,03; 1,19)	0,004*
No	274	186 (67,88)	88 (32,12)	1,00	-	-
Anger						
Yes	350	344 (98,29)	6 (1,71)	1,28	(1,17; 1,40)	<0,001*
No	257	161 (62,65)	96 (37,35)	1,00	-	-
Mania						
Yes	430	389 (90,47)	41 (9,53)	1,20	(1,09; 1,32)	<0,001*
No	177	116 (65,54)	61 (34,46)	1,00	-	-

PR_a = Adjusted prevalence ratio; 95% CI = 95% confidence interval; p-value = Chi-square test; p-value < 0.05 from Pearson's Chi-square test (χ^2).

Table 5. Factors associated with the presence of depression symptoms in university professors during the COVID-19 pandemic. Brazil, Mato Grosso, 2022. (n=607)

	Total	Yes	No	RP_a	95% CI	p-value
	n	n (%)	n (%)			
Age range (years)						
18 – 29	38	28 (73,68)	10 (26,32)	1,08	(0,92; 1,26)	0,340
30 – 39	218	147 (67,43)	71 (32,57)	0,98	(0,87; 1,09)	0,670
40 – 49	207	133 (64,25)	74 (35,75)	1,00	-	-
50 – 59	106	51 (48,11)	55 (51,89)	0,83	(0,71; 0,97)	0,020*
≥60	38	14 (36,84)	24 (63,16)	0,83	(0,62; 1,11)	0,207
Major field of expertise						
Biological Sciences	41	33 (80,49)	8 (19,51)	1,25	(1,04; 1,51)	0,015*
Linguistics, Literature, and Arts	24	14 (58,33)	10 (41,67)	1,36	(1,00; 1,85)	0,054
Applied Social Sciences	105	74 (70,48)	31 (29,52)	1,24	(1,08; 1,42)	0,003*
Agricultural Sciences	73	45 (61,64)	28 (38,36)	1,11	(0,94; 1,31)	0,208
Exact and Earth Sciences	76	46 (60,53)	30 (39,47)	1,05	(0,90; 1,23)	0,523
Human Sciences	98	57 (58,16)	41 (41,84)	1,15	(0,97; 1,36)	0,106
Engineering	20	11 (55,00)	9 (45,00)	0,97	(0,70; 1,34)	0,858
Multidisciplinary	08	7 (87,50)	1 (12,50)	1,45	(1,00; 2,12)	0,053
Health Sciences	162	86 (53,09)	76 (46,91)	1,00	-	-
Stress symptoms						
Yes	389	317 (81,49)	72 (18,51)	1,44	(1,13; 1,82)	0,003*
No	218	56 (25,69)	162 (74,31)	1,00	-	-
Satisfaction with relationship with students						
No	300	222 (74,00)	78 (26,00)	1,13	(1,02; 1,25)	0,017*
Yes	307	151 (49,19)	156 (50,81)	1,00	-	-
Work engagement						
No	183	160 (87,43)	23 (12,57)	1,15	(1,05; 1,26)	0,002*
Yes	424	213 (50,24)	211 (49,76)	1,00	-	-
Negative impact of work on mental health						
Yes	333	278 (83,48)	55 (16,52)	1,30	(1,12; 1,51)	0,001*
No	274	95 (34,67)	179 (65,33)	1,00	-	-
Anger						
Yes	350	308 (88,00)	42 (12,00)	2,00	(1,59; 2,52)	<0,001*
No	257	65 (25,29)	192 (74,71)	1,00	-	-
Somatic symptoms						
Yes	371	301 (81,13)	70 (18,87)	1,30	(1,09; 1,56)	0,004*
No	236	72 (30,51)	164 (69,49)	1,00	-	-
Suicidal ideation						
Yes	102	94 (92,16)	8 (7,84)	1,10	(1,00; 1,20)	0,048*
No	505	279 (55,25)	226 (44,75)	1,00	-	-
Impaired personality functioning						
Yes	283	245 (86,57)	38 (13,43)	1,21	(1,07; 1,37)	0,003*
No	324	128 (39,51)	196 (60,49)	1,00	-	-

PR_a = Adjusted prevalence ratio; 95% CI = 95% confidence interval; p-value = Chi-square test; p-value < 0.05 from Pearson's Chi-square test (χ^2).

DISCUSSION

In this study, the prevalence of self-reported anxiety (83.20%) and self-reported depressive symptoms (61.45%) among university professors was higher than that reported in studies conducted in various countries, both prior to the COVID-19

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pandemic[11] and after its onset[4-6, 12, 13].

It is important to note that most of these studies employed heterogeneous samples, often including not only university professors but also administrative staff, schoolteachers, and students. In addition, there is considerable global variability in the prevalence of these disorders, accompanied by growing interest in research focused on university faculty mental health in the post-pandemic era[5, 6]. However, gaps remain in research on mental health within higher education institutions in specific regions of Brazil and among distinct academic categories, with most national studies concentrated in the Southeast region[8].

In the United States, studies have reported anxiety prevalence rates among university professors ranging from 10%[12] to 12.1%[14], while depression rates range from 13.4%[14] to 15.9%[12]. In China, anxiety prevalence ranges from 12.9%[13] to 40%[15]. In Brazil, a study conducted at a private university in Minas Gerais found prevalence rates of 37.4% for anxiety and 50% for depression[4].

These findings suggest that, in the Brazilian context, university professors may experience substantially higher rates of anxiety and depression than their counterparts in other countries, such as the United States and China. It is essential to consider that mental health is a multifaceted issue shaped by sociocultural and economic determinants, access to mental health services, and the organization and conditions of work[1].

In the academic setting, university professors face a broad range of responsibilities beyond teaching, including conducting research, engaging in institutional service, and collaborating with peers. These demands are compounded by constant pressure to meet deadlines, often at the expense of work-life balance, innovation, and career development - all of which may negatively impact mental health and, consequently, the quality of education. This cascading effect can be felt throughout the academic community[7].

In Brazil, this scenario may be even more critical, as mental health is not yet prioritized in public policy agendas. Mental health services are often insufficiently organized and face accessibility challenges, exacerbated by regional and structural disparities. These issues undermine equity and the effectiveness of mental health promotion strategies[16].

Within academic institutions, this gap is also evident in the lack of structured policies and initiatives focused on psychological well-being. Such absence limits institutions' ability to adequately support the emotional and mental health needs of faculty, students, and other stakeholders, with adverse effects on well-being, productivity, and academic quality[8].

The protective effect of the 50–59 age group against self-reported depressive symptoms in the final model suggests greater psychological resilience during adverse situations. Resilience and social support are widely recognized as factors associated with better health outcomes throughout life and play a significant role in protecting against depression during aging. This may be attributed to a greater focus on meaningful experiences and the use of adaptive coping strategies[17, 18].

The literature also indicates that the early stages of an academic career are particularly stressful, often coinciding with crucial personal milestones such as family formation. In this context, professors must construct their professional identity while balancing career demands with personal responsibilities. These overlapping pressures can lead to a disconnect between idealized expectations of academic life and reality, resulting in mental health challenges - especially in the absence of institutional support[7, 19].

Early-career professors also tend to experience high levels of emotional exhaustion due to the pressure to meet academic demands within tight deadlines, often without consideration for personal circumstances. The pursuit of professional recognition, financial stability, and identity consolidation in their field increases emotional strain - particularly among women, who traditionally assume greater domestic and caregiving responsibilities. In mid-career stages, re-evaluation of professional goals and increasing institutional expectations may trigger identity crises and job dissatisfaction[7].

This stage is also marked by a desire for greater work flexibility, which may intensify feelings of burnout and demotivation. A survey of postdoctoral researchers revealed that 32% found their experience worse than expected, 56% had a negative perception of their career path, and less than half would recommend a scientific career to others, citing distress over workload, career prospects, and institutional culture[18].

The absence of institutional programs addressing the specific demands of academic faculty - such as support for administrative responsibilities - can exacerbate the negative effects on mental health and well-being. Institutional initiatives that acknowledge these needs and promote engagement and mental health among faculty are therefore essential[7].

Over time, professors may develop stronger resilience, more effective coping strategies, and greater professional stability, which can reduce the impact of earlier career pressures and improve psychological well-being[17].

There is also robust evidence supporting the positive impact of physical activity on reducing self-reported depressive symptoms by regulating neurotransmitters and lowering inflammation. Conversely, physical inactivity is associated with increased risk of mental disorders, reinforcing its importance for mental health[5].

The association between female sex and anxiety symptoms may reflect gender inequalities. Remote work often resulted in overlapping responsibilities, particularly for women, who historically assume most household and caregiving duties[20]. This burden was intensified by the need to navigate between professional and family demands without adequate time or space for concentration, exacerbating psychological distress

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and contributing to increased anxiety levels[21], such as panic, fear, tension, and worry[9].

This gender disparity underscores the need to address domestic labor as a shared responsibility and promote cultural change that values caregiving roles[22]. Simultaneously, institutions must foster work environments that recognize the central role of labor in shaping identity and mental health, while also addressing the potential for work to generate mental illness. Worker well-being depends on an organizational structure that values collective purpose, recognizes individual effort, and fosters peer cooperation[23].

The association between anxiety and depression symptoms and working in Biological Sciences - observed in the final model - may be related to the specific demands of this field, such as practical and experimental research, grant acquisition, laboratory work, and fieldwork, all of which require high levels of dedication[24]. These demands were intensified during the COVID-19 pandemic due to the disruption of in-person activities and the pressure to maintain productivity amid uncertainty.

The association between anxiety symptoms and working in Exact and Earth Sciences, and between self-reported depressive symptoms and working in Applied Social Sciences, may stem from lower recognition and funding of these fields in Brazil, particularly during the COVID-19 crisis. These areas are often excluded from priority funding lists due to the nature of their themes, which may not align with market-driven strategic demands. This exclusion hampers scientific development and fosters a sense of professional devaluation, which may negatively impact mental health in times of crisis[25].

The pandemic also abruptly increased work demands in an unprecedented context. University professors faced significant challenges transitioning to remote teaching, often without proper training or institutional support. This transformation required rapid adaptation to new technologies, revision of teaching methodologies, and redefinition of interpersonal relationships, all amid professional uncertainty. These new demands added to the emotional burden and stress experienced by many professors[26]. In this study, stress remained significantly associated with both self-reported anxiety and self-reported depressive symptoms in the final model ($p = 0.001$ and $p = 0.003$, respectively).

Lack of professional engagement, the perception that work negatively impacts mental health, and dissatisfaction in interpersonal relationships - with students, colleagues, coordinators, and/or administrative staff - were also significantly associated with both outcomes. These factors reflect the deterioration of academic labor conditions, which were amplified by the pandemic but have long been recognized as structural challenges, particularly regarding work-life balance[27].

According to Dejours[23], work plays a central role in personal development and may be a source of pleasure or, depending on the conditions under which it is performed, a source of suffering and illness. The COVID-19 pandemic itself represents a stressful event with major implications for workers' health. However, the perception that work harms mental health and the desire to leave the institution may reflect an organizational culture that fails to value recognition and collective purpose, especially in contexts with insufficient biopsychosocial support.

Professional disengagement, when associated with depressive symptoms, can be interpreted as a defensive strategy in response to harmful working conditions. Even in adverse circumstances such as the COVID-19 pandemic, workers may remain engaged if adequate social and institutional support is provided[23]. Yet, the abrupt shift to remote teaching introduced new platforms, tools, and assessment methods, making adaptation particularly difficult. The home office model exacerbated longstanding challenges related to work-life balance, further aggravating pre-existing issues[26].

The shift from collaborative to more solitary work environments, combined with weakened interpersonal relationships, increased isolation and psychological suffering. Peer recognition is essential for the positive reframing of work and the preservation of mental health in the workplace. The pandemic fostered an individualization of work and weakened solidarity and collective bonds, highlighting the need to rebuild these dynamics in the post-pandemic period to ensure well-being[28].

In this study, dissatisfaction with relationships with students and/or colleagues and perceiving work as detrimental to mental health reinforce the inseparability of work and human life. Interpersonal relationships in the workplace serve as both sources of pleasure and suffering[23, 29].

According to Dejours[23], suffering may be pathogenic or creative. It is pathogenic when the individual cannot reconcile work with their intrinsic desires, and when coping strategies fail to yield the desired outcomes, often serving only to meet productivity demands. In contrast, suffering is considered creative when the worker develops strategies to transform adversity into something meaningful to their identity, promoting health despite organizational pressures[29].

Anxiety, characterized by symptoms such as tension, excessive worry, and physical manifestations (e.g., elevated blood pressure), is often a precursor to other psychological and/or physical problems, including depression - frequently reported among professors[5]. Depression is defined by persistent low mood (e.g., sadness, hopelessness, emptiness) and loss of interest or pleasure in daily activities. It may also involve concentration difficulties, fatigue, sleep disturbances, guilt, psychomotor agitation or retardation, and recurrent thoughts of death[9].

Anger and mania symptoms remained strongly associated with

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anxiety, while anger, somatic symptoms, suicidal ideation, and impaired personality functioning were associated with depression. Notably, anger remained present in the final model for both outcomes, pointing to a significant degree of psychological distress. This may reflect attempts to deploy defensive strategies which, when insufficient, intensify suffering in the workplace and increase vulnerability to mental illness.

Moreover, these manifestations of psychological suffering are likely not limited to the pandemic context. They may have originated prior to the pandemic and could persist afterward. This underscores the need for continuous and long-term interventions that address both current demands and promote resilience and quality of life among faculty beyond crisis periods[28].

This study has limitations that should be acknowledged. The use of an online questionnaire may have restricted participation among faculty less familiar with digital technologies, potentially introducing selection bias. Participation was voluntary and recruitment relied on online dissemination strategies, which may have resulted in self-selection bias and limited generalizability. Additionally, individuals experiencing greater emotional distress may have been more likely to participate, possibly influencing the observed symptom frequencies. The use of a screening instrument with dichotomized symptom thresholds may also affect the estimation of symptom levels. Finally, due to the cross-sectional design, causal inferences cannot be established.

Nonetheless, the chosen method offers significant advantages by providing a comprehensive situational diagnosis of the mental health of this professional group. It provides information for creating institutional policies focused on mental health promotion in academic environments and outlines potential areas for future research. This is particularly important given that existing literature on university faculty mental health often suffers from sample heterogeneity, limiting in-depth and specific analysis of this professional category.

CONTRIBUTIONS TO INSTITUTIONAL ACADEMIC PRACTICES FOR MENTAL HEALTH PROMOTION

The findings of this study reveal a concerning mental health scenario among university professors, particularly regarding the two outcomes investigated: anxiety and depression - conditions frequently identified as precursors to other psychological disorders. These disorders were associated with aspects of work organization, which may have emerged or been exacerbated during the COVID-19 pandemic. These results underscore the urgent need for institutional interventions that address these factors and promote healthier working conditions in a post-pandemic context.

The first step in addressing this issue is to recognize and prioritize the mental health of the academic community as a fundamental strategy for strengthening higher education institutions. Drawing from the psychodynamics of work as proposed by Dejours[23], it is possible to develop strategies that transform psychological suffering into more meaningful and creative experiences. This transformation helps prevent the persistence of disorganizing features in the work environment - such as the fragility of solidarity and collective bonds - which were markedly evident during the pandemic.

In this regard, dialogical, cooperative, and transformative approaches that foster institutional spaces for open dialogue and active listening are essential to reframe experiences of suffering in academic environments and to promote healthier and more sustainable working conditions, thereby better preparing institutions for future crises[23, 28, 29].

In this context, the practice of collective reflection among workers - as suggested by Dejours - becomes a key tool for implementing transformative actions in work structures and relationships. Empowering workers to mobilize their own resources facilitates meaningful changes. Institutional spaces for regular and ongoing discussion, such as public deliberation forums, can support the transformation of work organization. Simultaneously, initiatives that provide support for both teaching and administrative responsibilities, as well as biopsychosocial assistance, can reduce isolation and strengthen professional connections, fostering a more collaborative and welcoming environment[23].

Furthermore, recognition, cooperation, and respect for individual expectations are intrinsically linked to identity and subjectivity - factors that contribute to psychological well-being. Institutional strategies should therefore acknowledge the diverse realities of faculty members and treat goals and deadlines not merely as technical impositions, but as components rooted in the lived experiences of individuals, aligned with institutional demands and human needs[23].

These actions may be further enhanced by mental health policies that include access to psychological counseling, regular evaluations of organizational conditions, and early identification of stressors. Such measures would not only address the challenges related to faculty distress but also foster a healthier, more resilient academic environment conducive to innovation, productivity, and collective well-being[23, 29].

CONCLUSION

A high prevalence of self-reported anxiety and depressive symptoms was identified among university professors working in public higher education institutions, with both similarities and differences observed in the factors associated with these outcomes.

Common factors associated with both anxiety and depression included working in the field of Biological Sciences, the perceived negative impact of work on mental health,

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stress, and anger. Female sex, working in Exact and Earth Sciences, dissatisfaction with relationships with colleagues, and symptoms of mania were associated exclusively with anxiety symptoms. In contrast, working in Applied Social Sciences, dissatisfaction with student relationships, lack of work engagement, somatic symptoms, suicidal ideation, and impaired personality functioning were associated only with depressive symptoms. Being aged 50 to 59 years was identified as a protective factor against depressive symptoms. Beyond summarizing the findings, the results highlight the need for institutional policies aimed at promoting mental health in higher education settings. Universities should consider implementing structured psychological support programs, fostering healthy work environments, and promoting organizational strategies that mitigate occupational stressors. Future research should explore longitudinal trajectories of anxiety and depressive symptoms among university faculty, as well as examine institutional interventions designed to reduce psychological distress and improve occupational well-being.

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