



## OPEN ACCESS

## EDITED BY

Nieves Gutiérrez Ángel,  
University of Almería, Spain

## REVIEWED BY

Raúl Sampieri-Cabrera,  
National Autonomous University of Mexico,  
Mexico  
Syed Sajid Husain Kazmi,  
Amity University, India  
Chien-Nan Chen,  
I-Shou University, Taiwan

## \*CORRESPONDENCE

María Joao Vidal-Alves  
✉ mjalves@med.up.pt  
Francisco José Moya-Faz  
✉ mayafaz@ucam.edu

RECEIVED 04 February 2025

ACCEPTED 19 May 2025

PUBLISHED 09 June 2025

## CITATION

Rodríguez-Fragoso J, José Moya-Faz F,  
Horyza A, Ruiz-Ruano García AM, Garcés de los  
Fayos-Ruiz EJ, López-López R, López  
Puga J and Vidal-Alves MJ (2025)  
Occupational health in the educational  
context: a descriptive and correlational study.  
*Front. Educ.* 10:1570973.  
doi: 10.3389/feduc.2025.1570973

## COPYRIGHT

© 2025 Rodríguez-Fragoso, José Moya-Faz,  
Horyza, Ruiz-Ruano García, Garcés de los  
Fayos-Ruiz, López-López, López Puga and  
Vidal-Alves. This is an open-access article  
distributed under the terms of the [Creative  
Commons Attribution License \(CC BY\)](#). The  
use, distribution or reproduction in other  
forums is permitted, provided the original  
author(s) and the copyright owner(s) are  
credited and that the original publication in  
this journal is cited, in accordance with  
accepted academic practice. No use,  
distribution or reproduction is permitted  
which does not comply with these terms.

# Occupational health in the educational context: a descriptive and correlational study

Javier Rodríguez-Fragoso<sup>1</sup>, Francisco José Moya-Faz<sup>2,3\*</sup>,  
Agata Horyza<sup>1</sup>, Ana María Ruiz-Ruano García<sup>4</sup>,  
Enrique Javier Garcés de los Fayos-Ruiz<sup>5</sup>, Reyes López-López<sup>6</sup>,  
Jorge López Puga<sup>7</sup> and María Joao Vidal-Alves<sup>8,9\*</sup>

<sup>1</sup>Health Sciences PhD Program, Catholic University of Murcia (UCAM), Murcia, Spain, <sup>2</sup>Faculty of Health Sciences, Catholic University of Murcia (UCAM), Murcia, Spain, <sup>3</sup>Chair of Psychogeriatrics, Faculty of Medicine, Catholic University of Murcia (UCAM), Murcia, Spain, <sup>4</sup>Department of Developmental and Educational Psychology, Faculty of Educational Sciences, University of Granada, Granada, Spain, <sup>5</sup>Department of Personality, Evaluation and Psychological Treatment, University of Murcia, Murcia, Spain, <sup>6</sup>Formation for Health Training and Research of the Region of Murcia, Murcia, Spain, <sup>7</sup>Department of Personality, Assessment and Psychological Treatment, Faculty of Psychology, University of Granada, Granada, Spain, <sup>8</sup>Department of Public Health and Forensic Sciences, and Medical Education, Faculty of Medicine, University of Porto, Porto, Portugal, <sup>9</sup>Epidemiology Unit (EPIUnit), Laboratory for Integrative and Translational Research in Population Health (ITR), Porto, Portugal

The school context represents a significant occupational risk factor for education professionals. Numerous studies highlight that these professionals often show anxiety, depression, stress or burnout, among other health-related issues. Although various sociodemographic variables have been examined for their influence on the development of these symptoms, there is no clear consensus, especially regarding the role of sex, age or type of teaching. The aim of the present study is to assess psychological well-being and personality traits in a sample of education professionals. The sample includes 257 professionals from public and private centers ( $M_{\text{age}} = 42.48$ ,  $SD_{\text{age}} = 9.8$ ; 72.4% women). The results show significantly higher scores in women in depression, anxiety, stress and psychological burnout. In addition, professionals under 30 years of age showed greater enthusiasm for their work, but also higher stress levels. Regarding the type of teaching, Primary Education professionals showed higher scores related to burnout, while Early Childhood Education professionals reported a significantly higher stress level. Differences in personality were only observed according to the type of teaching, with significantly higher pleasantness scores in the group composed of management and other professionals. These results underscore the vulnerability of education professionals and highlight the need for more extensive research into their occupational health. Evidence-based interventions targeting this population are also essential to address these challenges effectively.

## KEYWORDS

school, teacher, psychological distress, disorder, work

## 1 Introduction

Mental health problems are a growing concern worldwide. The World Health Organization (WHO) estimates that, globally, approximately 280 million people suffer from depression and more than 300 million live with anxiety disorders ([World Health Organization, 2017](#)). In Europe, mental health problems account for almost 20% of morbidity ([OECD & European Union, 2018](#)). In Spain, data from the National Health Survey indicate that 9 out of 10 adults

report symptoms of depression, and 6 out of 10 anxious symptomatology (Ministerio de Sanidad, 2024).

In the occupational sphere, education professionals are particularly vulnerable. Workload has been identified as one of the main causes of discomfort in the educational context (Agyapong et al., 2022). The literature highlights relevant factors, such as the number of hours invested daily, the expanded roles of teachers beyond simply educating, the number of students in the classroom, the type of teaching, student performance, the nature of the institution, the perceived resources, the number of tasks to be performed or the perceived lack of progress, among others (Creagh et al., 2023).

According to the latest data from the Subdirector General of Statistics and Studies of the Ministry of Education and Vocational Training (Ministerio de Educación, Formación Profesional y Deportes, 2024), Spain has an average of 783716.2 educational professionals working over the last 5 years. The workforce is predominantly female, with an average of 555,918.4 women compared to 227,797.8 men, and mainly comprises individuals between 40 and 60 years old (443,301.8 professionals on average). Among all professionals, 72.30% work in public schools. According to the type of education, the most frequent professionals are those who teach Early Childhood Education (24,354 professionals on average), followed by Primary Education (13880), Vocational Training (8589.4), Secondary Education (7443.4), Baccalaureate (4837.6) and Special Education (2338.8). The average number of students enrolled in the last 5 years is 8,247,126.5, which translates to a ratio ranging between 14.2 and 15 students per education professional, with higher ratios being observed in schools where different educational levels are taught simultaneously.

Workload has been associated with physical and psychological problems in teachers (Domagalska et al., 2021; Granados et al., 2019; Ozamiz Etxebarria et al., 2021; Suárez-Martel and Martín-Santana, 2019; Vizoso-Gómez, 2022). Work overload or job demands have been associated with increased symptoms of anxiety and depression (Battams et al., 2014; Peele and Wolf, 2020), although there seems to be no consensus in the literature as to its prevalence. On the one hand, Ma et al. (2022) conducted a meta-analysis of 54 studies concluding that anxiety is present in 36.3% of teachers and depression in 59.9%. On the other hand, Silva et al. (2021) in a similar study comprising 6 studies, reported anxiety prevalence between 10 and 49.4% and depression prevalence between 15.9 and 28.9%. Pohl et al. (2021) and Capone and Petrillo (2020) reported variable prevalences between 0.6 and 85.7%, with a median of 30.7%. This lack of consensus is also observed according to the associated sociodemographic variables. Some studies conclude that female teachers have a higher level of symptoms (e.g., Capone and Petrillo, 2020; Kidger et al., 2016) while others consider that the risk is higher in men (Johansson et al., 2022). Regarding age, some authors argue that younger teachers are at greater risk of suffering from anxiety and/or depression (Othman and Sivasubramaniam, 2019), while others consider that teachers with more years of experience are more at risk (Lee and Lai, 2020). Regarding the type of teaching, multiple studies have pointed out the importance of workload for the psychological health of both Primary and Secondary school teachers (Cao et al., 2023; Mahan et al., 2010; Aydin, 2021). This is a pattern that is also observed in other teaching functions (e.g., Diaz-Moreno and Besteiro, 2019; Srivastava and Sharma, 2017).

Work overload is inevitably associated with increased work demands, which can lead to increased stress (Agyapong et al., 2022).

In this regard, some studies affirm that 100% of teaching staff perceive work-related stress (Desouky and Allam, 2017), although other studies place these figures at around 50.6–62.6% (Ma et al., 2022; Silva et al., 2021). While stress is an adaptive response to disturbing or threatening events, chronic stress can become pathological, adversely affecting psychological well-being and contributing to the development of other symptoms (Seo et al., 2017). Generally, studies have found that work-related stress is more frequent among female teachers (e.g., Othman and Sivasubramaniam, 2019; Desouky and Allam, 2017). Higher indicators of stress have been observed in older teachers (Charbonneau et al., 2005) although other studies claim that age is not a relevant factor (Mohzana et al., 2023). In terms of the type of education, stress is observed both in Primary Education (e.g., Alegre and Labajo, 2023; Elomaa et al., 2023); and Compulsory Secondary Education (e.g., Nguyen and Kremer, 2022; Hasbullah and Mohamad Nasri, 2023; Liao et al., 2023) or Special Education (Antonioni et al., 2023; Hester et al., 2020; Rizvi Jafree et al., 2023).

Teachers also show a high prevalence of burnout (Alvites-Huamani, 2019; Chavarría et al., 2017; Ferradás et al., 2019). It is estimated to be present in approximately one out of three professionals (Clarà et al., 2022), especially when they are forced to adapt to new contexts or technologies (Antón-Sancho et al., 2022). Workload has also been identified as an influential factor in the occurrence of burnout (Alvites-Huamani, 2019; Skaalvik and Skaalvik, 2017). According to a meta-analysis, burnout is more common in women (Purvanova and Muros, 2010), even in the educational setting (Nova, 2020). In general, it is estimated that the probability of suffering burnout increases with age. For example, teachers over the age of 30 appear to be at higher risk (Granados et al., 2019), although some authors suggest that symptoms may decrease when middle age is reached (LaFaver et al., 2018). Although this variable has been studied and is very relevant in Primary Education (Jomoad et al., 2021; McCullough et al., 2022; Mota et al., 2021) and Compulsory Secondary Education teachers (Mota et al., 2021; Carroll et al., 2022), it has been hypothesized that other types of teachers, such as Special Education teachers, would be at greater risk of suffering burnout (Hemati and Moradi, 2021).

According to the Job Demands and Resources Model (JD-R) (Bakker and Demerouti, 2017), teachers' stress and emotional discomfort can be understood as the result of an imbalance between high job demands (such as work overload, emotional demands and role conflicts) and available resources (such as social support, job autonomy or resilience). Thus, when demands exceed resources, the risk of developing stress, burnout, anxiety and depression increases (Bakker et al., 2014; Lesner et al., 2019).

In addition, recent research has applied the JD-R model to the educational context, showing that factors such as lack of organizational support and emotional burden contribute significantly to burnout in teachers (Steiner et al., 2022; Philipp and Schüpbach, 2023). It has also been suggested that differences in gender, age and educational stage may modulate the impact of demands and resources, thus explaining variations in levels of psychological distress among different subgroups of teachers (Carroll et al., 2022).

Although resources for assessing and intervening in burnout, stress, anxiety and depression among teaching staff are on the rise (Agyapong et al., 2022), these issues remain one of the main health risks for this professional group (Rodríguez-García et al., 2017). Therefore, the main objective of the present study is to evaluate the

psychological well-being of a sample of male and female teachers. Specifically, we will explore the differences in anxiety, depression, and stress score regarding gender, age, and type of teaching.

Based on the literature and the JD-R model, we hypothesize that there will be significant gender differences in the indicators of psychological well-being, with women obtaining higher scores. In terms of age, the main hypothesis is that significantly higher scores will be obtained in younger teachers, given their greater exposure to emotional demands and lower coping resources, with consequent higher levels of anxiety, depression, stress and burnout. Likewise, the type of teaching (Early Childhood Education, Primary Education, Compulsory Secondary Education) is expected to influence the levels of perceived distress, given the different profile of work demands at each stage. It is expected that the highest scores are observed in professionals in Compulsory Secondary Education.

## 2 Materials and methods

### 2.1 Participants

This study involved 257 professionals from public and private schools in the Region of Murcia (Spain), who were part of a previous study (Ruiz-Ruano et al., 2025). Of these participants, 186 (72.4%) were women. The mean age was 42.58 years ( $SD = 9.8$ ) with a range between 24 and 64 years. Regarding marital status, 58% of the sample were married, 18.3% were single and 9.3% lived with their partner. Additionally, 39.3% had two children and 35.4% had one child. Regarding the type of teaching, 10.5% were teachers of Early Childhood Education, 36.2% of Primary Education, 27.6% of Compulsory Secondary Education and 25.7% were involved in other teaching-related tasks (such as management, Special Education or Vocational Training) (see Table 1). The inclusion criteria were: (a) being employed as an educational professional teacher at any educational level or special education professional in a public or private institution in the Region of Murcia, and (b) accepting informed consent and data processing for the present study. The exclusion criteria were: (a) incomplete responses (missing more than 5% of the survey), and (b) failure to respond within the established period.

### 2.2 Instruments

The assessment consisted of 109 items addressing sociodemographic variables, burnout, depression, anxiety and stress.

The sociodemographic variables included were gender (male/female), age, marital status (married/single/divorced/divorced in a different relationship/couple living together/non-cohabitating couple/widowed), number of children, level of education (Professional training/Diploma/Graduate/Bachelor's Degree/Master's degree/Doctorate) and type of education (Early Childhood Education / Primary Education/Compulsory Secondary Education/Other).

The Burnout Syndrome Screening Questionnaire (Gil-Monte, 2019; Gil-Monte et al., 2023).

The Burnout Syndrome Screening Questionnaire (CESQT) (Gil-Monte, 2019; Gil-Monte et al., 2023) evaluates cognition, emotions and attitudes related to the work experience. The instrument is composed of 20 items with a 5-category response

TABLE 1 Summary of the sociodemographic variables.

Variable	<i>n</i>	%
Sex		
Woman	186	72.4
Man	71	27.6
Age range		
24–30	30	11.7
31–40	88	34.2
41–50	72	28
51 or more	67	26.1
Marital status		
Married	149	58
Single	47	18.3
Divorced	11	4.3
Divorced in a different relationship	4	1.6
Couple living together	24	9.3
Non-cohabitating couple	20	7.8
Widowed	2	0.8
Number of kids		
0	91	35.4
1	35	13.6
2	101	39.3
3	26	10.1
4	3	1.2
5 or more	1	0.4
Level of education		
Professional training	2	0.8
Diploma	93	36.2
Degree	21	8.2
Bachelor's Degree	96	37.4
Master's degree	40	15.6
Doctorate	5	1.9
Type of education		
Early Childhood Education	27	10.5
Primary Education	91	35.4
Compulsory Secondary Education	71	27.6
Other	68	26.5

format ranging from 0 (never) to 4 (very frequently/every day). The items are grouped into 4 subscales. First, Enthusiasm for work (5 items) which assesses the desire to achieve work goals and personal fulfillment. Secondly, Psychological Strain (4 items), which assesses the presence of emotional and physical exhaustion because of work performance and the relationship with co-workers. In third place, Indolence (6 items), which evaluates indifference and cynicism towards clients (students). Lastly, Guilt (5 items), which evaluates feelings of guilt towards negative attitudes and behaviors towards

the people with whom they relate at work. Gil-Monte et al. (2023) carried out a validation of this instrument in 17 countries, including Spain, concluding that it has a high overall internal reliability ( $\alpha = 0.81$ , IC 95% [0.805–0.814]) and in each one of the subscales, these being  $\alpha = 0.87$  (IC 95% [0.870–0.876]) for Enthusiasm for work,  $\alpha = 0.86$  (IC del 95% [0.856–0.862]) for Psychological Strain,  $\alpha = 0.77$  (IC 95% [0.763–0.773]) for Indolence, and  $\alpha = 0.77$  (IC 95% [0.763–0.773]) for Guilt. In our sample, the internal reliability was  $\alpha = 0.726$  for the overall scale, 0.914 for Enthusiasm for Work, 0.872 for Psychological Strain, 0.762 for Indolence and 0.804 for Guilt.

The Depression, Anxiety and Stress Scale (DASS) (Lovibond and Lovibond, 1995).

The Depression, Anxiety and Stress Scale of Lovibond and Lovibond (1995) in its abbreviated 21-item version was applied. Specifically, we used the Spanish validation made by Bados et al. (2005). This instrument has four response categories referring to the experience of symptoms in the last week (0 = not applicable to me; 1 = somewhat applicable to me or during part of the time; 2 = quite applicable to me, or for a good part of the time; 3 = very applicable to me, or most of the time). These items are grouped into 3 subscales of 7 items each. First, the Depression subscale assesses hopelessness, sadness, anhedonia, devaluation of life, self-deprecation, lack of interest or involvement. The Anxiety subscale assesses psychophysiological activation and subjective experiences of anxiety. Finally, the Stress subscale assesses difficulties to relax, excitement, agitation, irritability and impatience. Recently, Martínez-Monteagudo et al. (2019) reported overall internal consistency of  $\alpha = 0.91$  for a similar population. For the Depression, Anxiety and Stress subscales, the consistency was 0.85, 0.83 and 0.73, respectively. In our sample, the overall internal consistency was 0.930, and 0.860 for Depression, 0.818 for Anxiety and 0.868 for Stress.

## 2.3 Procedure

The approval of the Ethics Committee was requested (Vice Rectorate for Research of the Catholic University of San Antonio, output 6,716, date 04/07/2017). Following approval, information on the objectives and methodology of the study was provided to the Regional Ministry of Education of the Region of Murcia. Once the authorization of this organization was obtained, the e-mail addresses of the professionals of each school were requested from the General Directorate of Educational Planning and Human Resources of the Regional Ministry of Education.

The official e-mails of the schools were used to inform the professionals of the study, sending a total of 502 messages to the schools. The date of the first mailing was February 07, 2019. A total of 3 reminder mailings were made. Only questionnaires obtained before 21 March 2019 were taken into account in this manuscript, being a total of 279 (22 were eliminated when applying the inclusion and exclusion criteria). In the e-mails sent, general information was provided on the objectives of the study, the anonymous nature of the study and a link that referred to an online survey where the first page was the informed consent, the second contained instructions for completing the questionnaires and the rest of the instruments. At the end of the questionnaire, participants were given a contact email for further information about the study or its results. Once the response

period ended, all questionnaires were anonymized by replacing any identifying information with a unique code.

## 2.4 Data analysis

Several strategies were used for data analysis. First, descriptive statistics such as frequency, percentage, mean and standard deviation were calculated. The assumptions of homogeneity of variance and normality of distribution were tested using the Levene and Shapiro–Wilk tests. Because the homogeneity of variance assumption was not met, the Mann Whitney *U* test was used for comparisons between two groups, and the Kruskal Wallis *H* test was used for comparisons among more than two groups. In addition, pairwise comparisons were conducted using the Dwass–Steel–Critchlow–Fligner test, and partial correlations were calculated according to gender, age and stage of education. Effect sizes were also calculated using *r* for the Mann–Whitney *U* tests and epsilon squared ( $\epsilon^2$ ) for the Kruskal–Wallis tests, following Cohen (1988) guidelines for interpretation (small  $\geq 0.10$ , medium  $\geq 0.30$ , large  $\geq 0.50$  for *r*; 0.01–< 0.06 small, 0.06–< 0.14 moderate and  $\geq 0.14$  large for  $\epsilon^2$ ).

## 3 Results

As shown in Table 2, significantly higher scores were observed in women in Psychic Burnout ( $U = 4974.5$ ;  $p = 0.002$ ;  $r = 0.192$ , small to medium effect size), Depression ( $U = 5542.5$ ;  $p = 0.041$ ;  $r = 0.127$ , small effect size), Anxiety ( $U = 4974.5$ ;  $p = 0.002$ ;  $r = 0.192$ , small to

TABLE 2 Comparison of means for burnout, anxiety, depression, stress and personality between men and women.

Variable	Total M (SD)	Men M (SD)	Women M (SD)	<i>U</i>	<i>p</i>	<i>r</i>
Burnout	17.70 (8.18)	17.07 (8.30)	17.95 (8.15)	6089.5	0.335	–
E.W.	16.19 (3.44)	15.55 (3.94)	16.44 (3.21)	5,804	0.130	–
P.S.	7.28 (3.43)	6.14 (2.90)	7.72 (3.52)	4974.5	0.002	0.192
Indolence	6.62 (3.71)	6.48 (3.78)	6.67 (3.69)	6308.5	0.579	–
Guilt	4.79 (2.81)	4.55 (2.61)	4.88 (2.88)	6,010	0.262	–
DASS	10.02 (9.19)	6.83 (6.26)	11.23 (9.83)	4,653	0.000	0.228
Depression	2.21 (3.00)	1.73 (2.54)	2.39 (3.15)	5542.5	0.041	0.127
Anxiety	2.60 (3.21)	1.50 (1.77)	3.01 (3.52)	4804.5	0.001	0.214
Stress	5.21 (4.05)	3.59 (2.95)	5.83 (4.25)	4505.5	0.000	0.247

E.W. = Enthusiasm for Work; P.S. = Psychological Strain.



medium effect size) and Stress ( $U = 4505.5$ ;  $p = 0.000$ ;  $r = 0.247$ , medium effect size).

Regarding age, Table 3 reveals that teachers under 30 years of age exhibited significantly higher levels of enthusiasm for work compared to those over 51 years ( $U = 8.10$ ;  $p = 0.04$ ;  $\epsilon^2 = 0.017$ , small effect size). In the total scores of the DASS scale, significantly higher scores are observed in the group under 30 compared to professionals between 41 and 50 years of age ( $h = 10.39$ ;  $p = 0.02$ ;  $\epsilon^2 = 0.026$ , small effect size). Specifically, in Stress, significantly higher scores are observed in people under 30 years of age compared to professionals over 51 years of age. In addition, the scores of people between 31 and 41 years of age are significantly higher in professionals aged 41 years or older ( $h = 15.39$ ;  $p = 0.00$ ;  $\epsilon^2 = 0.037$ , small effect size).

Depending on the type of teaching, significant differences were observed in the burnout variable, with higher scores in Compulsory Secondary Education professionals compared to those in Primary Education and Other positions ( $h = 14.47$ ;  $p = 0.02$ ;  $\epsilon^2 = 0.035$ , small effect size) (Table 4). In Enthusiasm for work, significantly higher scores were found in Early Childhood Education, Primary Education and Other groups compared to the Compulsory Secondary Education group ( $h = 16.97$ ;  $p = 0.02$ ;  $\epsilon^2 = 0.042$ , small effect size).

In the total scores of the DASS scale, a significantly higher score is observed in the Early Childhood Education group compared to Other ( $h = 8.51$ ;  $p = 0.04$ ;  $\epsilon^2 = 0.02$ , small effect size). The same pattern is observed in the Stress subscale scores ( $h = 12.86$ ;  $p = 0.01$ ;  $\epsilon^2 = 0.031$ , small effect size). In the variables related to personality, significantly higher scores in Agreeableness were observed in Other compared to the Early Childhood Education group ( $h = 13.60$ ;  $p = 0.01$ ).

As shown in Table 5, burnout correlated significantly and positively with Psychic Burnout, Indolence, Guilt, Depression, Anxiety, Stress, Neuroticism and Agreeableness ( $r$  range between 0.16 and 0.79). In turn, it correlated negatively and significantly with Enthusiasm for Work and Extraversion ( $r$  range between  $-0.15$  and  $-0.79$ ). In this regard, the correlations between Burnout, Depression ( $r = 0.52$ ,  $p > 0.00$ ), Anxiety ( $r = 0.41$ ,  $p > 0.00$ ) and Stress ( $r = 0.54$ ,  $p > 0.00$ ).

The total scores of the DASS scale correlated significantly and positively with Burnout, Psychic Burnout, Indolence and Guilt ( $r$  range between 0.13 and 0.91). Significantly and negatively correlates with Enthusiasm for Work ( $r = -0.36$ ,  $p > 0.00$ ).

## 4 Discussion

The present study is based on three main hypotheses. The first hypothesis states that significantly higher scores will be obtained in female teachers compared to male teachers for the indicators of psychological well-being. In this case, we can conclude that it is partially fulfilled since this pattern is observed for psychological burnout, depression, anxiety and burnout. The second hypothesis states that older professionals will have worse indicators of psychological wellbeing. We cannot affirm that this hypothesis is fulfilled, since, in general, no differences are observed according to age, except for the stress variable where scores are higher in younger groups (up to 40 years) and in the DASS variable where significantly higher scores are observed in teachers aged 31–40 years. Thirdly, it was hypothesized that the type of teaching influences psychological well-being, with worse indicators being obtained in Compulsory Secondary Education professionals and other types of teachers (such as Special Education), followed by Primary Education and Early Childhood Education. Again, we cannot affirm that this hypothesis is fulfilled since the Compulsory Secondary Education group obtained the highest scores in burnout while the group of other education professionals obtained systematically low scores in all variables. On the other hand, Primary Education and Early Childhood Education professionals obtained high scores in all variables.

Burnout in the teaching field can lead to excessive demands on the professionals themselves (Shukla and Trivedi, 2008), favoring emotional discomfort, stress or job dissatisfaction (Desouky and Allam, 2017; Charbonneau et al., 2005). Putwain and von der Embse (2019) claim that the perception of burnout can influence perceived work pressure. In this regard, our results show positive and significant correlations between burnout, anxiety, depression and stress. Similar results have been reported in other studies (Agyapong et al., 2022). Regarding gender, although female teachers have traditionally been identified as a high-risk group for experiencing burnout (Wu et al., 2016; Redondo-Flórez et al., 2020), our results revealed similar burnout scores between men and women. This should not be interpreted as inconsistency, but rather as a possible reflection of broader systemic changes within the educational landscape. Recent studies suggest that evolving teaching demands, the emotional burden of student behavioral problems, and increased bureaucratic

TABLE 3 Comparison of means for burnout, anxiety, depression, stress and personality regarding age.

Variable	G.1: <30 y/o M (SD)	G.2: 31–40 y/o M (SD)	G.3: 41– 50 y/o M (SD)	G.4: >51 y/o M (SD)	$h$	$p$	Post hoc	$\epsilon^2$
Burnout	15.90 (6.07)	17.41 (7.88)	18.57 (9.19)	17.99 (8.27)	1.868	0.60		0.004
E.W.	17.48 (2.83)	16.39 (3.12)	15.67 (4.00)	15.81 (3.35)	8.10	0.04	1 > 4	0.017
P.S.	6.94 (2.97)	7.75 (3.52)	7.25 (3.41)	6.94 (3.59)	2.65	0.45	-	0.008
Indolence	6.19 (3.34)	6.30 (3.82)	6.99 (3.87)	6.85 (3.59)	1.55	0.67	-	0.006
Guilt	4.62 (2.70)	4.58 (2.86)	5.28 (3.03)	4.61 (2.52)	2.72	0.44	-	0.007
DASS	10.56 (6.80)	12.07 (10.19)	8.60 (7.89)	8.75 (10.00)	10.39	0.02	2 > 4	0.026
Depression	1.78 (2.26)	2.54 (3.10)	1.90 (2.62)	2.36 (3.57)	1.57	0.67	-	0.006
Anxiety	2.57 (2.19)	3.32 (4.00)	2.28 (2.52)	2.07 (3.15)	6.02	0.11	-	0.014
Stress	6.21 (3.54)	6.21 (4.33)	4.42 (3.77)	4.31 (3.94)	15.39	0.00	1,2 > 4 > 3	0.037

E.W. = Enthusiasm for Work; P.S. = Psychological Strain.

TABLE 4 Comparison of means for burnout, anxiety, depression, stress and personality as a function of the type of teaching provided.

Variable	G.1: ECE M (SD)	G.2: PE M (SD)	G.3: CSE M (SD)	G.4: Others M (SD)	<i>h</i>	<i>p</i>	Post hoc	$\epsilon^2$
Burnout	14.81 (8.29)	17.90 (8.62)	20.15 (8.01)	16.04 (7.04)	14.47	0.00	3 > 1,4	0.035
E.W.	17.48 (3.04)	16.44 (3.51)	15.06 (3.26)	16.54 (3.44)	16.97	0.00	1,2,4 > 3	0.042
P.S	6.52 (3.77)	7.41 (3.57)	8.06 (3.23)	6.62 (3.18)	7.59	0.06	–	0.018
Indolence	5.78 (3.66)	6.93 (3.87)	7.15 (3.73)	5.97 (3.38)	6.78	0.08	–	0.016
Guilt	4.48 (2.74)	4.70 (2.74)	4.87 (3.04)	4.94 (2.71)	0.18	0.98	–	0.001
DASS	12.44 (13.49)	11.60 (9.74)	9.24 (7.59)	7.74 (7.25)	8.51	0.04	1 > 4	0.020
Depression	2.52 (4.09)	2.41 (3.37)	2.14 (2.39)	1.88 (2.55)	1.54	0.67	–	0.004
Anxiety	3.52 (5.11)	3.01 (3.36)	2.44 (2.62)	1.84 (2.37)	4.59	0.20	–	0.011
Stress	6.41 (4.83)	6.19 (4.28)	4.66 (3.60)	4.01 (3.44)	12.86	0.01	1 > 4	0.031

E.W. = Enthusiasm for Work; P.S. = Psychological Strain; E.C.E. = Early Childhood Education; P.E. = Primary Education; C.S.E. = Compulsory Secondary Education.

TABLE 5 Partial correlations by sex, age and type of teaching for burnout, anxiety, depression, stress and personality variables.

Variable	1	2	3	4	5	6	7	8	9
1. Burnout	1								
2. E.W	−0.76**	1							
3. P.S	0.78**	−0.41**	1						
4. Indolence	0.79**	−0.39**	0.43**	1					
5. Guilt	0.36**	−0.14*	0.31**	0.39**	1				
6. DASS	0.55**	−0.36**	0.56**	0.38**	0.27**	1			
7. Depression	0.52**	−0.40**	0.46**	0.35**	0.23**	0.87**	1		
8. Anxiety	0.41**	−0.24**	0.43**	0.30**	0.17**	0.90**	0.72**	1	
9. Stress	0.54**	−0.33**	0.59**	0.36**	0.29**	0.91**	0.66**	0.72**	1

E.W. = Enthusiasm for Work; P.S. = Psychological Strain. \*\**p* < 0.001.

responsibilities are now more evenly distributed between the genders (Beutel et al., 2023). Moreover, in contexts where gender roles are changing and professional responsibilities are becoming more equally distributed, the gap in burnout indicators between men and women appears to be narrowing (López-Núñez et al., 2022). These patterns underscore the relevance of considering structural and contextual transformations in education when interpreting psychological outcomes where, rather than diminishing the value of the data, these findings underscore the need for future research to examine how educational reforms, workload distribution, and institutional expectations contribute to these emerging dynamics.

Previous studies have reported the influence of teachers' age on the presence of burnout. For example, Granados et al. (2019) conclude that professionals between 30 and 49 years of age are the most at risk, while Diaz-Moreno and Besteiro (2019) consider those between 45 and 50 years old to be the most at risk. Burnout can be attributed to multiple factors, including the first internship work experience or the beginning of university training (Clarà et al., 2022; Valencia and Delgado, 2016). Some authors claim that the importance lies in the years of experience rather than the age of the teacher (Ptáček et al., 2019). It is also likely that more experienced professionals have better classroom management skills and the necessary tools to help them prevent and address burnout.

The type of teaching also contributes to burnout in teachers (Shukla and Trivedi, 2008). It is possible that Compulsory Secondary

Education teachers perceive a higher workload, partly due to the time needed for class preparation because of the difficulty of the subjects. Other studies point out that professionals in charge of students with special needs are at greater risk of suffering this type of consequences (Diaz-Moreno and Besteiro, 2019; Adera and Bullock, 2010). Based on our results, the type of teaching provided also seems to be an influential variable in the professionals' perception of burnout. Congruent with what has been suggested by other authors (Agyapong et al., 2022), the group that showed the highest risk were the professionals in Compulsory Secondary Education, followed by those in Primary Education. Although authors such as Diaz-Moreno and Besteiro (2019) and Adera and Bullock (2010) have reported Special Education professionals as a vulnerable group, our results do not show high scores in this professional group, although this could be because they were grouped with other professionals (e.g., managers) due to the small sample size available in our study.

Although our hypotheses were based on previous literature indicating that women, younger teachers, and special education professionals may be at higher risk for burnout, our results only partially support these hypotheses. This may be due in part to the development of individual coping strategies among teachers in response to job stressors (Sabaliauskas et al., 2023). In addition, recent institutional reforms and the implementation of mental health support programs in educational settings may have reduced disparities in psychological well-being among demographic groups (Liu et al.,

2023). The lack of significant differences may also be due to the relatively small sample sizes within some categories, which limits statistical power, necessitating a review of risk factors in teachers including individual, contextual, and institutional factors specific to this group.

There is a high comorbidity of depressive and anxious symptoms in teaching professionals. As also observed in our results and in other works (Rodríguez-Leonardo et al., 2018). Specific situations, such as the beginning of the school year, are associated with an increase in anxiety and perceived depression (Peele and Wolf, 2020), partly derived from work overload and demand, these being the main risk factors for this symptomatology (Battams et al., 2014). In turn, these symptoms can affect health, personal life or productivity, even affecting the emotional support and intellectual stimulation of students and in their academic results (Roberts et al., 2016; Whitaker et al., 2015).

Sociodemographic variables have been associated with the occurrence of anxiety and depression (Othman and Sivasubramaniam, 2019; Gluschkoff et al., 2016; Szigeti et al., 2017). Regarding gender, our results yield significantly higher scores in women for both variables. In a meta-analysis by Farhane-Medina et al. (2022) concludes that women generally show higher scores in depression and anxiety. In this regard, the results obtained support this hypothesis in the educational setting, consistent with what has been reported in previous studies (Ma et al., 2022). On the other hand, several results have been reported regarding the relationship between age and anxious-depressive symptomatology. Some studies conclude that there is a higher risk in young professionals (Othman and Sivasubramaniam, 2019) while others consider that the risk is higher in older professionals (Kinnunen et al., 1994). Our results seem to indicate that the professionals most at risk are those of intermediate age, between 31 and 40 years old. In the study by Lee and Lai (2020), an interaction between gender and age was observed, concluding that middle-aged women were at greater risk of suffering from these symptoms. A plausible explanation is the cohort effect, as professionals of this age have experienced the technological transition in the educational context, changes in the evaluation system and the impact on education of the economic crisis (2008–2014). These conditions could aggravate the perception of instability and job fatigue, especially when combined with temporary contracts or variable teaching loads. Therefore, in future research it is recommended to incorporate indicators of type of contract, length of service at the center and perception of institutional support to clarify these cohort effects.

Stress has been pointed out as the most relevant mental health indicator in teachers (Cohen, 1988; Guerrero Barona et al., 2018), being one of the professions with the highest levels (von der Embse et al., 2019). In this sense, in our results, high scores are observed for both sexes, although they are significantly higher in women. Regarding age, significantly higher scores were observed in younger teachers. This result agrees with that reported by Redín and Erro-Garcés (2020). For their part, it has been hypothesized that some academic cycles (Pre-school, Primary and Compulsory Secondary Education) could have a higher risk of job stress due to, among other variables, limited family collaboration or student discipline (Guerrero Barona et al., 2018). Our results would be partially in agreement with this hypothesis, as very high scores are observed in Early Childhood and Primary Education, but not in Compulsory Secondary Education.

Burnout, anxiety, depression or stress can lead to increased absenteeism or low commitment and effectiveness in the classroom, among other direct consequences for the quality of training of students and teachers (Castillo-Gualda et al., 2019; Jiménez et al., 2019). It can also facilitate physical or psychological withdrawal from the work environment (Watts and Short, 1990). For example, when stress reactions persist for a prolonged period, they cause permanent health problems that are difficult to reverse, such as chronic fatigue, musculoskeletal problems or cardiovascular disease, and professional burnout syndrome (Ahola et al., 2013). Along these lines, investment in resources that allow improving the occupational health of teachers could prevent other derived problems in educational centers and reduce costs for the administration (Wu et al., 2016; Liu et al., 2021).

The conclusions highlight the urgent need for changes in the educational system. It is necessary for educational centers to implement support programs, such as stress management and mental health promotion workshops. In this regard, stress management programs such as Mindfulness-Based Stress Reduction (MBSR) tailored to teachers have been shown to significantly reduce stress levels and improve teachers' overall well-being (Hidajat et al., 2023). Also, policy makers could consider reducing class sizes, improving teacher-student ratios, and funding school mental health services, as links have been seen between teacher distress and these variables (Hojo, 2021). In addition, awareness campaigns aimed at parents could foster empathy for teachers' well-being and reduce behavioral stressors in classrooms.

The present study has some limitations. In terms of design, cross-sectional survey studies do not allow us to explore causal relationships, so the results are limited to the description of scores and differences between groups. In addition, this study did not control variables such as type of contract, available institutional resources or school leadership styles, factors commonly reported as mediators of occupational health in the educational context. To overcome these limitations, studies with mixed longitudinal approaches combining semi-structured interviews or structural equation modeling are needed to capture the temporal evolution of emotional well-being variables and how they interact with organizational variables. Although a satisfactory sample size was obtained, it is a small percentage of the total population of professionals in the territory where the evaluation was carried out. This could lead to a bias in the results, and future studies are needed to explore causal relationships by means of longitudinal studies and, in addition, to increase the sample size. In addition, although special education professionals were grouped under "Other," future studies should analyze this group separately to capture specific stressors.

## 5 Conclusion

This study evaluates psychological well-being and personality traits in a sample of education professionals, showing significant levels of stress, anxiety and burnout in different sociodemographic groups. Female teachers and younger professionals showed higher levels of psychological distress, while burnout seemed to be more prevalent among teachers of Compulsory Secondary Education. Although not all hypotheses were fully confirmed, our results underline the relevance of gender, age and teaching stage in understanding the occupational well-being of this professional

group. Thus, this study underscores the need to prioritize the occupational health of education professionals. By understanding the specific risk factors of different teacher profiles and implementing preventive measures, it is possible to promote healthier educational environments.

## Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found below: <https://osf.io/4cbsz/>.

## Ethics statement

The studies involving humans were approved by Ethics Committee of Vice Rectorate for Research of the Catholic University of San Antonio, output 6716, date 04/07/2017. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

## Author contributions

JR-F: Conceptualization, Data curation, Resources, Writing – original draft. FJ-F: Conceptualization, Supervision, Writing – review & editing. AH: Data curation, Resources, Writing – review & editing. AR-R: Formal analysis, Resources, Supervision, Writing – review & editing. EG: Conceptualization, Methodology, Supervision, Writing – review & editing. RL-L: Funding acquisition, Resources, Writing – review & editing. JL-P: Formal Analysis, Methodology, Supervision,

Writing – review & editing. MV-A: Funding acquisition, Writing – review & editing.

## Funding

The author(s) declare that financial support was received for the research and/or publication of this article. This expense was supported by funds generated by the Faculty of Medicine of Porto University for scientific research and publication purposes.

## Conflict of interest

The author(s) declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## Generative AI statement

The authors declare that no Gen AI was used in the creation of this manuscript.

## Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

## References

- Adera, B. A., and Bullock, L. M. (2010). Job stressors and teacher job satisfaction in programs serving students with emotional and behavioral disorders. *Emot. Behav. Diffic.* 15, 5–14. doi: 10.1080/13632750903512365
- Agaypong, B., Obuobi-Donkor, G., Burbach, L., and Wei, Y. (2022). Stress, burnout, anxiety and depression among teachers: a scoping review. *Int. J. Environ. Res. Public Health* 19:10706. doi: 10.3390/ijerph191710706
- Ahola, K., Salminen, S., Toppinen-Tanner, S., Koskinen, A., and Väänänen, A. (2013). Occupational burnout and severe injuries: an eight-year prospective cohort study among Finnish forest industry workers. *J. Occup. Health* 55, 450–457. doi: 10.1539/joh.13-0021-OA
- Alegre, E. M., and Labajo, J. K. M. (2023). The impact of work stress on the psychological well-being of public elementary school teachers. *Int. J. Membr. Sci. Technol.* 10, 719–727. doi: 10.15379/ijmst.v10i2.1305
- Alvites-Huamani, C. G. (2019). Teacher stress and psychosocial factors in teachers from Latin America, North America and Europe. *J. Educ. Psychol.* 7, 141–178. doi: 10.20511/pyr2019.v7n3.393
- Antoniou, A. S., Efthymiou, V., Polychroni, F., and Kofa, O. (2023). Occupational stress in mainstream and special needs primary school teachers and its relationship with self-efficacy. *Educ. Stud.* 49, 200–217. doi: 10.1080/03055698.2020.1837080
- Antón-Sancho, Á., Vergara, D., Medina, E., and Sánchez-Calvo, M. (2022). Digital pandemic stress in higher education in Venezuela. *Eur. J. Investig. Health Psychol. Educ.* 12, 1878–1900. doi: 10.3390/ejihpe12120132
- Aydin, S. (2021). A systematic review of research on teaching anxiety. *Int. Online J. Educ. Sci.* 8, 730–761.
- Bados, A., Solanas, A., and Andrés, R. (2005). Psychometric properties of the Spanish version of depression, anxiety and stress scales (DASS). *Psicothema* 17, 679–683.
- Bakker, A. B., and Demerouti, E. (2017). Job demands–resources theory: taking stock and looking forward. *J. Occup. Health Psychol.* 22, 273–285. doi: 10.1037/ocp0000056
- Bakker, A. B., Demerouti, E., and Sanz-Vergel, A. I. (2014). Burnout and work engagement: the JD-R approach. *Annu. Rev. Organ. Psychol. Organ. Behav.* 1, 389–411. doi: 10.1146/annurev-orgpsych-031413-091235
- Battams, S., Roche, A. M., Fischer, J. A., Lee, N. K., Cameron, J., and Kostadinov, V. (2014). Workplace risk factors for anxiety and depression in male-dominated industries: a systematic review. *Health Psychol. Behav.* 2, 983–1008. doi: 10.1080/21642850.2014.954579
- Beutel, M. E., Koestner, N., Wild, P. S., Münzel, T., Beutel, M., Lackner, K. J., et al. (2023). Burnout, self-rated general health and life satisfaction among teachers and other academic occupational groups. *Front. Public Health* 11:1209995. doi: 10.3389/fpubh.2023.1209995
- Cao, C. H., Liao, X. L., Jiang, X. Y., Li, X. D., Chen, I. H., and Lin, C. Y. (2023). Psychometric evaluation of the depression, anxiety, and stress Scale-21 (DASS-21) among Chinese primary and middle school teachers. *BMC Psychol.* 11:209. doi: 10.1186/s40359-023-01242-y
- Capone, V., and Petrillo, G. (2020). Mental health in teachers: relationships with job satisfaction, efficacy beliefs, burnout and depression. *Curr. Psychol.* 39, 1757–1766. doi: 10.1007/s12144-018-9878-7
- Carroll, A., Forrest, K., Sanders-O'Connor, E., Flynn, L., Bower, J. M., Fynes-Clinton, S., et al. (2022). Teacher stress and burnout in Australia: examining the role of intrapersonal and environmental factors. *Soc. Psychol. Educ.* 25, 441–469. doi: 10.1007/s11218-022-09686-7
- Castillo-Gualda, R., Herrero, M., Rodríguez-Carvajal, R., Brackett, M. A., and Fernández-Berrocal, P. (2019). The role of emotional regulation ability, personality, and burnout among Spanish teachers. *Int. J. Stress. Manag.* 26, 146–158. doi: 10.1037/str0000098



- Charbonneau, A., Bruning, W., Titus-Howard, T., Ellerbeck, E., Whittle, J., Hall, S., et al. (2005). The community initiative on depression: report from a multiphase work site depression intervention. *J. Occup. Environ. Med.* 47, 60–67. doi: 10.1097/01.jom.0000147211.63924.87
- Chavarría, R., Colunga, F., Loria, J., and Peláez, K. (2017). Síndrome de burnout en médico docentes de un hospital de 2o nivel en México. *Ed. Med.* 18, 254–261. doi: 10.1016/j.edumed.2016.09.001
- Clarà, M., Vallés, A., Coiduras, J., Silva, P., Justiniano, B., López, T., et al. (2022). Unpacking the role of work demands in teacher burnout: cognitive demands as a protective factor. *Electron. J. Res. Educ. Psychol.* 20, 245–266. doi: 10.25115/ejrep.v20i57.4374
- Cohen, J. (1988). Statistical power analysis for the behavioral sciences. Hillsdale, NJ: Lawrence Erlbaum Associates, 567.
- Creagh, S., Thompson, G., Mockler, N., Stacey, M., and Hogan, A. (2023). Workload, work intensification and time poverty for teachers and school leaders: a systematic research synthesis. *Educ. Rev.* 77, 661–680. doi: 10.1080/00131911.2023.2196607
- Desouky, D., and Allam, H. (2017). Occupational stress, anxiety and depression among Egyptian teachers. *J. Epidemiol. Glob. Health* 7, 191–198. doi: 10.1016/j.jegh.2017.06.002
- Díaz-Moreno, M. D., and Besteiro, E. M. (2019). Análisis de los niveles de estrés en un grupo de maestros con alumnos diagnosticados con trastorno del espectro autista. *Rev. Esp. Discapac Red.* 7, 139–154. doi: 10.5569/2340-5104.07.02.08
- Domagalska, J., Rusin, M., Razzaghi, M., and Nowak, P. (2021). Personality type D, level of perceived stress, insomnia, and depression among high school teachers in Poland. *Front. Psychol.* 12:626945. doi: 10.3389/fpsyg.2021.626945
- Elomaa, M., Eskelä-Haapanen, S., Pakarinen, E., Halttunen, L., and Lerkkanen, M. K. (2023). Work-related stress of elementary school principals in Finland: coping strategies and support. *Educ. Manag. Adm. Leadersh.* 51, 868–888. doi: 10.1177/17411432211010137
- Farhane-Medina, N. Z., Luque, B., Tabernero, C., and Castillo-Mayén, R. (2022). Factors associated with gender and sex differences in anxiety prevalence and comorbidity: a systematic review. *Sci. Prog.* 105, 1–30. doi: 10.1177/00368504221135469
- Ferradás, M. D. M., Freire, C., García-Bértoa, A., Núñez, J. C., and Rodríguez, S. (2019). Teacher profiles of psychological capital and their relationship with burnout. *Sustain. For.* 11:5096. doi: 10.3390/su11185096
- Gil-Monte, P. R. (2019). CESQT. Cuestionario Para la Evaluación del Síndrome de Quemarse por el Trabajo [SBI: The Spanish burnout inventory]. 2nd Edn. Spain: TEA Ediciones.
- Gil-Monte, P. R., Espejo, B., Checa, I., Gil-LaOrden, P., Angeline, J. K., Carlotto, M. S., et al. (2023). Factor structure and measurement invariance of the Spanish burnout inventory among professionals across 17 countries and regions. *Appl. Res. Qual. Life* 18, 869–892. doi: 10.1007/s11482-022-10108-1
- Gluschkoff, K., Elovainio, M., Keltikangas-Järvinen, L., Hintsanen, M., Mullola, S., and Hints, T. (2016). Stressful psychosocial work environment, poor sleep, and depressive symptoms among primary school teachers. *Electron. J. Res. Educ. Psychol.* 14, 462–481. doi: 10.14204/ejrep.40.16067
- Granados, L., Aparisi, D., Inglés, C. J., Aparicio Flores, P., and Fernández-Sogorb, A. (2019). García-Fernández JM. ¿Predicen los factores de depresión, ansiedad y estrés la dimensión de la despersonalización y la baja realización personal en el profesorado? *Eur. J. Child Dev. Educ. Psychopathol.* 7, 83–92. doi: 10.30552/ejpad.v7i1.91
- Guerrero Barona, E., Gómez del Amo, R., Moreno Manso, J. M., and Guerrero, M. M. (2018). Factores de riesgo psicosocial, estrés percibido y salud mental en el profesorado. *Rev. Clin Contemp* 9, E2,1–E2,12. doi: 10.5093/cc2018a2
- Hasbullah, A. B., and Mohamad Nasri, N. B. (2023). Relationship between work pressure (stress) and time management teachers in learning process at National Secondary School. *Int. J. Acad. Res. Progress. Educ. Dev* 12, 1027–1037. doi: 10.6007/ijarped/v12-i4/18512
- Hemati, A. G., and Moradi, S. (2021). Job burnout in public and special school teachers. *Clin Psychol Spec Ed.* 10, 63–75. doi: 10.17759/cpse.2021100205
- Hester, O. R., Bridges, S. A., and Rollins, L. H. (2020). 'Overworked and underappreciated': special education teachers describe stress and attrition. *Teach. Dev.* 24, 348–365. doi: 10.1080/13664530.2020.1767189
- Hidajat, T. J., Edwards, E. J., Wood, R., and Campbell, M. (2023). Mindfulness-based interventions for stress and burnout in teachers: a systematic review. *Teach. Teach. Educ.* 134:104303. doi: 10.1016/j.tate.2023.104303
- Hojo, M. (2021). Association between student-teacher ratio and teachers' working hours and workload stress: evidence from a nationwide survey in Japan. *BMC Public Health* 21, 1–8. doi: 10.1186/s12889-021-11677-w
- Jiménez, A., Pérez de Albéniz, A., Molina, B., and Fonseca-Pedrero, E. (2019). El profesorado de la Universidad de La Rioja ¿resistente al burnout? *Contextos Educativos* 24, 163–180. doi: 10.18172/con.3590
- Johansson, E., Falkstedt, D., and Almroth, M. (2022). Depression among teachers: a Swedish register-based study. *BMC Public Health* 22:355. doi: 10.1186/s12889-022-12758-0
- Jomua, P. D., Antiquina, L. M. M., Cericos, E. U., Bacus, J. A., Vallejo, J. H., Dionio, B. B., et al. (2021). Teachers' workload in relation to burnout and work performance. *Int. J. Educ. Res. Rev.* 8, 48–53. doi: 10.15739/IJEP.21.007
- Kidger, J., Brockman, R., Tilling, K., Campbell, R., Ford, T., Araya, R., et al. (2016). Teachers' wellbeing and depressive symptoms, and associated risk factors: a large cross-sectional study in English secondary schools. *J. Affect. Disord.* 192, 76–82. doi: 10.1016/j.jad.2015.11.054
- Kinnunen, U., Parkatti, T., and Rasku, A. (1994). Occupational well-being among aging teachers in Finland. *Scand. J. Educ. Res.* 38, 315–332. doi: 10.1080/0031383940380312
- LaFaver, K., Miyasaki, J. M., Keran, C. M., Rheume, C., Gulya, L., Levin, K. H., et al. (2018). Age and sex differences in burnout, career satisfaction, and well-being in US neurologists. *Neurology* 91, e1928–e1941. doi: 10.1212/WNL.0000000000000649
- Lee, M. F., and Lai, C. S. (2020). Mental health level and happiness index among female teachers in Malaysia. *Ann. Trop. Med. Public Health* 23, 231–304. doi: 10.36295/ASRO.2020.231304
- Lesner, T., Guys, B., and Wolter, C. (2019). The job demands-resources model: a meta-analytic review of longitudinal studies. *Work Stress* 33, 76–103. doi: 10.1080/02678373.2018.1529065
- Liao, J., Wang, X. Q., and Wang, X. (2023). The effect of work stress on the well-being of primary and secondary school teachers in China. *Int. J. Environ. Res. Public Health* 20:1154. doi: 10.3390/ijerph20021154
- Liu, F., Chen, H., Xu, J., Wen, Y., and Fang, T. (2021). Exploring the relationships between resilience and turnover intention in Chinese high school teachers: considering the moderating role of job burnout. *Int. J. Environ. Res. Public Health* 18:6416. doi: 10.3390/ijerph18126418
- Liu, Y., Wang, X., and Zhang, J. (2023). Exploring teacher wellbeing in educational reforms: a cross-sectional study. *Front. Psychol.* 14:1265536. doi: 10.3389/fpsyg.2023.1265536
- López-Núñez, M. I., Díaz-Morales, J. F., Aparicio-García, M. E., and Romero-Medina, A. (2022). Coping strategies and perceived health in teachers: the role of age and gender in a stressful profession. *Front. Psychol.* 13:829333. doi: 10.3389/fpsyg.2022.829333
- Lovibond, P. F., and Lovibond, S. H. (1995). The structure of negative emotional states: comparison of the depression anxiety stress scales (DASS) with the Beck depression and anxiety inventories. *Behav. Res. Therapy* 33, 335–343. doi: 10.1016/0005-7967(94)00075-U
- Ma, K., Liang, L., Chutiyami, M., Nicoll, S., Khaerudin, T., and Ha, X. V. (2022). COVID-19 pandemic-related anxiety, stress, and depression among teachers: a systematic review and meta-analysis. *Work* 73, 3–27. doi: 10.3233/WOR-220062
- Mahan, P. L., Mahan, M. P., Park, N. J., Shelton, C., Brown, K. C., and Weaver, M. T. (2010). Work environment stressors, social support, anxiety, and depression among secondary school teachers. *AAOHN J.* 58, 197–205. doi: 10.1177/216507991005800504
- Martínez-Monteaigudo, M. C., Inglés, C. J., Granados, L., Aparisi, D., and García-Fernández, J. M. (2019). Trait emotional intelligence profiles, burnout, anxiety, depression, and stress in secondary education teachers. *Pers. Individ. Dif.* 142, 53–61. doi: 10.1016/j.paid.2019.01.036
- McCullough, S. N., Granger, K. L., Sutherland, K. S., Conroy, M. A., and Pandey, T. (2022). A preliminary study of BEST in CLASS—elementary on teacher self-efficacy, burnout, and attributions. *Behav. Disord.* 47, 84–94. doi: 10.1177/01987429211010672
- Ministerio de Educación, Formación Profesional y Deportes. Estadísticas del Ministerio de Educación, Formación Profesional y Deportes. Enseñanzas no universitarias. Available online at: <https://www.educacionfpydeportes.gob.es/servicios-al-ciudadano/estadisticas/no-universitaria.html> (Accessed March 15, 2024).
- Ministerio de Sanidad (2024). Informe anual del Sistema Nacional de Salud 2023. Available online at: <https://consaludmental.org/centro-documentacion/informe-anual-sistema-nacional-salud-2023/> (Accessed May 2, 2025)
- Mohzana, M., Tawil, M. R., Sakti, B. P., Ramli, A., and Lubis, F. M. (2023). The influence of workload, demographic factors and hardiness on teachers' work stress. *J. Educ.* 5, 15631–15636.
- Mota, A. I., Lopes, J., and Oliveira, C. (2021). Burnout in portuguese teachers: a systematic review. *Eur. J. Educ. Res.* 10, 693–703. doi: 10.12973/eu-jer.10.2.693
- Nguyen, T. D., and Kremer, K. P. (2022). Burned out and dissatisfied? The relationships between teacher dissatisfaction and burnout and their attrition behavior. *Elem. Sch. J.* 123, 203–227. doi: 10.1086/721772
- Nova, J. A. D. (2020). El síndrome de burnout y su prevalencia en las mujeres docentes. *Praxis Investig. ReDIE* 12, 14–31.
- OECD & European Union (2018). Health at a glance: Europe 2018 – State of health in the EU cycle. Paris: OECD Publishing.
- Othman, Z., and Sivasubramaniam, V. (2019). Depression, anxiety, and stress among secondary school teachers in Klang, Malaysia. *Int. Med. J.* 26, 71–74.
- Ozamiz Etxebarria, N., Santamaría, M. D., Mondragón, N. I., and Santxo, N. B. (2021). Estado emocional del profesorado de colegios y universidades en el norte de España ante la COVID19. *Rev. Esp. Salud Publica* 95:170.

- Peele, M., and Wolf, S. (2020). Predictors of anxiety and depressive symptoms among teachers in Ghana: evidence from a randomized controlled trial. *Soc. Sci. Med.* 253:112957. doi: 10.1016/j.socscimed.2020.112957
- Philipp, A., and Schüpbach, H. (2023). How job demands and resources affect stress and job satisfaction among teachers: a meta-analytic approach. *Teach. Teach. Educ.* 123:103938. doi: 10.1016/j.tate.2022.103938
- Pohl, M., Feher, G., Kapus, K., Feher, A., Nagy, G. D., Kiss, J., et al. (2021). The Association of Internet Addiction with burnout, depression, insomnia, and quality of life among Hungarian high school teachers. *Int. J. Environ. Res. Public Health* 19:438. doi: 10.3390/ijerph19010438
- Ptáček, R., Vnukova, M., Raboch, J., Smetackova, I., Sanders, E., Svandova, L., et al. (2019). Burnout syndrome and lifestyle among primary school teachers: a Czech representative study. *Med. Sci. Monit.* 25, 4974–4981. doi: 10.12659/MSM.914205
- Purvanova, R. K., and Muros, J. P. (2010). Gender differences in burnout: a meta-analysis. *J. Vocat. Behav.* 77, 168–185. doi: 10.1016/j.jvb.2010.04.006
- Putwain, D. W., and von der Embse, N. P. (2019). Teacher self-efficacy moderates the relations between imposed pressure from imposed curriculum changes and teacher stress. *Educ. Psychol.* 39, 51–64. doi: 10.1080/01443410.2018.1500681
- Redín, C. I., and Erro-Garcés, A. (2020). Stress in teaching professionals across Europe. *Int. J. Educ. Res.* 103:101623. doi: 10.1016/j.ijer.2020.101623
- Redondo-Flórez, L., Carballo, J. L., and Fariña, F. (2020). Gender differences in stress- and burnout-related factors of university professors. *Int. J. Environ. Res. Public Health* 17:104. doi: 10.3390/ijerph17010104
- Rizvi Jafree, S., Burhan, S. K., and Mahmood, Q. K. (2023). Predictors for stress in special education teachers: policy lessons for teacher support and special needs education development during the COVID pandemic and beyond. *J. Hum. Behav. Soc. Environ.* 33, 615–632. doi: 10.1080/10911359.2022.2077498
- Roberts, A., LoCasale-Crouch, J., Hamre, B., and DeCoster, J. (2016). Exploring teachers' depressive symptoms, interaction quality, and children's social-emotional development in head start. *Early Educ. Dev.* 27, 642–654. doi: 10.1080/10409289.2016.1127088
- Rodríguez-García, A. M., Sola-Martínez, T., and Fernández-Cruz, M. (2017). Impacto del burnout en el desarrollo profesional del profesorado universitario. Una revisión de la investigación [impact of burnout on university faculty professional development. A review of the research]. *Rev. Electron. Interuniv. Form. Profr.* 20, 161–178. doi: 10.6018/reifop.20.3.275121
- Rodríguez-Leonardo, N. M., Ahumada, J. H. T., and Martínez, M. R. (2018). Adaptación de una escala de depresión en profesores mexicanos universitarios: un estudio preliminar. *Psicol. Salud* 28, 131–138. doi: 10.25009/pys.v28i1.2537
- Ruiz-Ruano, A. M., Rodríguez-Fragoso, J., de los Fayos EJ, G., Muñoz, D., López, J., and Moya-Faz, F. J. (2025). Symptoms networks in teachers suffering from burnout. *Psychol. Soc. Educ.* 17, 15–25. doi: 10.21071/psy.v17i2.17810
- Sabalaiuskas, S., Baceviciene, M., and Jankauskiene, R. (2023). The relationship between teachers' emotional health and stress coping. *Front. Psychol.* 14:1276431. doi: 10.3389/fpsyg.2023.1276431
- Seo, J. S., Wei, J., Qin, L., Kim, Y., Yan, Z., and Greengard, P. (2017). Cellular and molecular basis for stress-induced depression. *Mol. Psychiatry* 22, 1440–1447. doi: 10.1038/mp.2016.118
- Shukla, A., and Trivedi, T. (2008). Burnout in Indian teachers. *Asia Pac. Educ. Rev.* 9, 320–334. doi: 10.1007/BF03026720
- Silva, D. F. O., Cobucci, R. N., Lima, S. C. V. C., and de Andrade, F. B. (2021). Prevalence of anxiety, depression, and stress among teachers during the COVID-19 pandemic: a PRISMA-compliant systematic review. *Medicine* 100:e27684. doi: 10.1097/MD.00000000000027684
- Skaalvik, E. M., and Skaalvik, S. (2017). Motivated for teaching? Associations with school goal structure, teacher self-efficacy, job satisfaction and emotional exhaustion. *Teach. Teach. Educ.* 67, 152–160. doi: 10.1016/j.tate.2017.06.006
- Srivastava, R., and Sharma, S. (2017). A comparative study of stress, anxiety and depression levels between general educators and special educators. *IOSR J. Human Soc. Sci.* 22, 25–31.
- Steiner, E. D., Doan, S., Woo, A., Gittens, A. D., Lawrence, R. A., Berdie, L., et al. (2022). Restoring teachers and principal well-being is an essential step for rebuilding schools. Santa Monica, US: Rand Corporation., 28.
- Suárez-Martel, M. J., and Martín-Santana, J. D. (2019). Influencia del perfil sociodemográfico del profesor universitario sobre la inteligencia emocional y el burnout. *Educación XXI* 22, 93–117.
- Szigeti, R., Balázs, N., Bikfalvi, R., and Urbán, R. (2017). Burnout and depressive symptoms in teachers: factor structure and construct validity of the Maslach burnout inventory-educators survey among elementary and secondary school teachers in Hungary. *Stress. Health* 33, 530–539. doi: 10.1002/smi.2737
- Valencia, G. C., and Delgado, S. J. R. (2016). Nivel de Síndrome de Burnout en enfermeras docentes de práctica que laboran en una Universidad Privada de Lima. *Rev. Científ. Ágora* 3, 329–336. doi: 10.21679/arc.v3i1.60
- Vizoso-Gómez, C. (2022). Teoría de las demandas y los recursos laborales en el profesorado: Una revisión sistemática. *Aula abierta* 51, 245–254. doi: 10.17811/rifie.51.3.2022.245-254
- von der Embse, N., Ryan, S. V., Gibbs, T., and Mankin, A. (2019). Teacher stress interventions: a systematic review. *Psychol. Sch.* 56, 1328–1343. doi: 10.1002/pits.22279
- Watts, W. D., and Short, A. P. (1990). Teacher drug use: a response to occupational stress. *J. Drug Educ.* 20, 47–65. doi: 10.2190/XWW0-7FBH-FXVB-2K3C
- Whitaker, R. C., Dearth-Wesley, T., and Gooze, R. A. (2015). Workplace stress and the quality of teacher–children relationships in head start. *Early Child Res. Q.* 30, 57–69. doi: 10.1016/j.ecresq.2014.08.008
- World Health Organization. (2017). Depression and other common mental disorders: Global health estimates. Available online at: <https://www.who.int/publications/i/item/depression-global-health-estimates> (Accessed May 2, 2025)
- Wu, S., Singh-Carlson, S., Odell, A., Reynolds, G., and Su, Y. (2016). Compassion fatigue, burnout, and compassion satisfaction among oncology nurses in the United States and Canada. *Oncol. Nurs. Forum* 43, E161–E169. doi: 10.1188/16.ONFE161-E169