



Burnout and coping strategies among Professors during COVID-19: Portugal-Brazil comparative study

Ana PINTO¹, Carla CARVALHO², Susana RODRIGUEZ³, Ana SIMÕES⁴, Carlos CARVALHAIS⁵, Fernando J. GONÇALVES⁶, Joana SANTOS⁷

¹Asst. Prof. Dra., University of Coimbra, Centre for Business and Economics Research (CEBER), Faculty of Sciences and Technology

Email: luisa.s.pinto@gmail.com

Orcid id: <https://orcid.org/0000-0002-8280-9887>

² Asst. Prof. Dra., University of Coimbra, Portugal, Faculty of Psychology and Educational Sciences

Email: ccarvalho@fpce.uc.pt

Orcid id: <https://orcid.org/0000-0003-3351-5003>

³ M.Sc., Master's Degree in Hygiene and Safety in Organizations, School of Health of Polytechnic Institute of Porto (ESS|P.Porto)

Email: rodriguezsus@gmail.com

Orcid id: <https://orcid.org/0009-0008-6579-9198>

⁴ Asst. Prof. Dra., INESC TEC, Centre for Enterprise Systems Engineering, Campus, FEUP, Porto

Email: ana.c.simoes@inesctec.pt

Orcid id: <https://orcid.org/0000-0001-7193-3615>

⁵ Asst. Prof. Dra., Center for Translational Health and Medical Biotechnology Research (TBIO), School of Health of Polytechnic Institute of Porto (ESS|P.Porto);

EPIUnit - Instituto de Saúde Pública, Universidade do Porto, Porto, Portugal; Laboratory for Integrative and Translational Research in Population Health (ITR)

Email: caa@ess.ipp.pt

Orcid id: <https://orcid.org/0000-0002-4352-4555>

⁶ Asst. Prof. Dra., Departamento Acadêmico de Metal Mecânica, Campus Florianópolis - Instituto Federal de Santa Catarina

Email: fernandojose@ifsc.edu.br

Orcid id: <https://orcid.org/0009-0001-6642-1989>

⁷ Asst. Prof. Dra., Center for Translational Health and Medical Biotechnology Research (TBIO), School of Health of Polytechnic Institute of Porto (ESS|P.Porto);

Associated Laboratory for Energy, Transports and Aeronautics (LAETA), Institute of Mechanical Engineering and Industrial Management (INEGI) – Biomechanics and Health Unit, University of Porto

Email: jds@ess.ipp.pt

Orcid id: <https://orcid.org/0000-0002-2777-3244>

Abstract

The global pandemic experienced in recent years led Higher Education Institutions (HEIs) to close their facilities to safeguard the health and safety of the academic community. This reality overloaded professors in terms of work, often leading them to the limit of exhaustion and impacting on their performance, quality of life and well-being, taking, in many cases, to burnout. This study aims to identify and characterize the frequency of burnout and strategies of coping in professors from HEIs of Portugal and Brazil. A sample of 132 professors answered to online self-administrated questionnaires: sociodemographic and telework conditions; Oldenburg-Burnout Inventory and Brief-COPE. The results suggest that: regarding burnout, the exhaustion dimension is higher among professors in Portugal; regarding coping strategies, professors in Brazil use more strategies designated as maladaptive. Appropriate coping strategies and resources made available to professors can contribute to their well-being at work and to their quality of life and happiness.

Keywords: Professors, burnout, strategies of coping, Portugal, Brazil

Introduction

Education is one of the fundamental pillars of any nation (Mónico et al., 2021; Ramalho et al., 2022). It is undeniable that higher education professors are fundamental for the promotion of knowledge and the development of research and innovation in Academia (Higher Education Institutions [HEIs]). In order to remain competitive, and attractive (whether in terms of professors and students, or in terms of external funding), HEIs seek to respond

effectively to the challenges and changes taking place in the surrounding environment and, essentially, to the needs, aspirations, and requirements of its stakeholders.

The art of teaching, although rewarding, can also be a source of stress, depending on the demands and working conditions that organizations make available to professors (Lipp, 2016). The COVID-19 Pandemic, culminated in the urgent need for an unplanned global change in the HEIs. This pandemic experience triggered, at a general level, profound, drastic, and rapid changes at work that generated, aggravated, and enhanced psychosocial risks, including burnout, which highlighted the importance of workers' health and well-being even more. HEIs, all over the world, were closing, to safeguard the health of professors, students, and education professionals had to change teaching methods, namely, remote teaching, involving changes and new technologies. Faced with unprecedented stress situations, professors, students, and families have employed various coping and resilience strategies throughout the confinement period (Ando, 2020; Morales-Rodríguez et al., 2021). This new reality of work brought more demands to professors in terms of work, often leading them to the limit of emotional and professional exhaustion and demanding new skills from them. However, in different countries and in different HEI's, the same conditions and resources did not exist for professors to help them continue to teach with quality. This aspect had a differentiated impact on their performance, quality of life, on well-being, on the stress and anxiety experienced which, in many cases, led to burnout situations, for professors.

The chronic stress can culminate in Burnout Syndrome due to emotional exhaustion, cynicism, and ineffectiveness (Maslach & Jackson, 1981; Maslach, Schaufeli, & Leiter, 2001; Tamayo & Tróccoli, 2002; Schuster & Dias, 2018). According to the World Health Organization (WHO, 2020), burnout is not a medical condition, but a work-related phenomenon. This syndrome has gained prevalence as a result of exposure to a poor psychosocial environment and the experience of excessive stress related to work (Carlotto, 2011; Leka, & Houdmont, 2010), having recently been made official by the WHO (2021) as a chronic syndrome. As a "work-related phenomenon", the WHO included burnout in the new International Classification of Diseases (ICD-11), which came into force on January 1, 2022. Burnout syndrome has been associated with mental health problems such as depression, anxiety, and stress. Given this fact, some professors implement various coping strategies for emotional control that are not always functional to mitigate such difficulties (Martínez et al., 2020).

Coping strategies are often associated with the need to combat a perceived threatening situation (Martínez & Morales, 2020; Martínez et al., 2020). To prevent burnout, at a stage when the professor is still able to recognize the need for strategies to do so, it is important to know the existence of coping and the possibility of its applicability (Aliante, & Abacar, 2018). Coping can be defined as it is defined as the effort to prevent or reduce the threat, harm and/or loss, or reduction of associated stress (Carver & Connor-Smith, 2010). In Psychology it is defined as "dealing with", "confronting", "adapting to". Coping corresponds to an adaptive capacity of the individual that contributes to their survival and to an adequate performance of activities in different aspects of their life. The way a person deals with stressful situations plays an important role in the relationship between stress and the health-disease process (Mazon et al., 2008).

There are several strategies used to deal with the internal and external demands of a stressful event. Considering that, at the time of the study, we were not aware of any investigation similar to ours that analyzed and compared the realities of Portugal and Brazil, at the levels of the problems set out in this introduction, our main objective was to identify and characterize the frequency of the dimensions of burnout and coping strategies, in higher education professors between Portugal and Brazil. Additionally, it was also described the resources used by professors during the COVID-19 Pandemic.

Method

Sample

The study population comprised higher education professors from the Universities and Polytechnics in Portugal and Brazil. Of the 132 responding participants, 62 were from Portugal and 70 from Brazil. The participants have an average age of 47.5 (± 9.9) years and 50.8% were female and 49.2% were male.

Procedure

This cross-sectional quantitative web-based study examined higher education professors in Portugal and Brazil. A survey was spread via email using a snowball technique and supported by HEIs. Data collection took place from June 30th, 2021 to September 11th, 2022. A questionnaire built in LimeSurvey platform was made available to participants via a link that was shared by the Communication Department of each HEI. Ethical procedures according to the Declaration of Helsinki were accomplished via analysis and approval of the study by the Ethics Committee of University of Coimbra (CEDI/FPCEUC:57/6 de 9/12/2021). All participants gave informed consent online in compliance with General Data Protection Regulation guidelines.

Questionnaires

Sociodemographic and telework conditions during the pandemic situation were collected using a self-administered questionnaire. The telework conditions were recorded using a 5-point Likert scale: "1" Strongly Disagree; "2" Disagree; "3" Undecided; "4" Agree; "5" Strongly Agree. Psychological variables were collected using the Oldenburg Burnout Inventory (OLBI) and Brief-COPE scale.

OLBI has two dimensions (exhaustion and disengagement from work) evaluated by 16 items: 8 items measure the exhaustion (e.g., "After my work, I usually feel worn out and weary"; "There are days when I feel tired before I arrive at work"), and 8 items measure disengagement from work (e.g., "Lately, I tend to think less at work and do my job almost Mechanically", "Over time, one can become disconnected from this type of work") Both dimensions were evaluated by four positively worded items and four negatively worded items. Items were scored by using a scale ranging from 1 to 4 (Strongly agree – Strongly disagree) (Sinval, et al., 2019).

The Brief-COPE (Marôco et al., 2014; Ribeiro & Rodrigues, 2004) consists of 28 items that measure 14 factors of 2 items each, which correspond to a Likert scale ranged from 0 = I have not been doing this at all to 3 = I have been doing this a lot. This study systematizes the items into two categories (Alharbi & Alshehry, 2019; Alosaimi et al., 2018; Moore et al., 2011): the adaptive coping category and the maladaptive coping category. The adaptive coping category contains 16 items and includes active coping, planning, positive reframing, acceptance, humour, religion, using emotional support and instrumental support subscales. Meanwhile, the maladaptive coping category contains 12 items and includes the self-distraction, denial, venting, substance use, behavioural disengagement and self-blame subscales.

Data analysis

Descriptive statistics (i.e., frequencies, means and standard deviations) were used to characterize the sample and their answers to the scales applied. For all data, differences between burnout dimensions and coping strategies by country were analyzed, using independent t-test. Values of $p \leq 0.05$ were considered significant.

OLBI presented a very good internal consistency through Cronbach's alpha for the total scale ($\alpha=0.95$). Regarding BriefCOPE, a good internal consistency was found ($\alpha=0.85$). Data were processed using the SPSS Statistics 28.0 software package.

Findings

Sample characteristics

The sample is composed of 132 valid responses and includes 62 higher education professors (47%) from Portugal and 70 (53%) from Brazil, with an average age of 47.5 (± 9.9) years old. Among the Portuguese participants, the average professional experience was 20.6 (± 11.1) years, and 17.3 (± 8.5) years for the Brazilian participants. Table 1 shows the socio-demographic characteristics of the sample under study. Among the Portuguese participants, 41 (66.1%) were female, and 21 (33.9%) were male. Regarding the Brazilian participants, 26 (37.1%) were female, and 44 (62.9%) were male. 40.3% of the Portuguese participants were single, divorced or widowed, and 59.7 were married or were cohabitants. Of the Brazilian participants, 32.9% were single, divorced or widowed and 63.6% were married or were cohabitants. 23 of the Portuguese participants declare to have children living with them, against 39 participants that declare live without children. For the Brazilian sample, these values are more distributed, 38 declare to live with children and 32 without.

Table 1. Sample socio-demographic characteristics (N=132)

| | Portugal | | Brazil | | Total | |
|--------------------------------|----------|-------|--------|-------|-------|--------|
| | n | % | n | % | n | % |
| Country | 62 | 47.0% | 70 | 53.0% | 132 | 100.0% |
| Gender | | | | | | |
| Female | 41 | 66.1% | 26 | 37.1% | 67 | 50.8% |
| Male | 21 | 33.9% | 44 | 62.9% | 65 | 49.2% |
| Marital status | | | | | | |
| Married/nonmarital partnership | 37 | 59.7% | 47 | 67.1% | 84 | 63.6% |
| Widowed | 2 | 3.2% | 1 | 1.4% | 3 | 2.3% |
| Divorced/Separated | 9 | 14.5% | 4 | 5.7% | 13 | 9.8% |
| Single | 14 | 22.6% | 18 | 25.7% | 32 | 24.2% |
| Dependent Children (<18) | | | | | | |
| Without child | 43 | 69.4% | 42 | 60.0% | 85 | 64.4% |
| With child | 19 | 30.6% | 28 | 40.0% | 47 | 35.6% |

Telework Conditions

Table 2 shows the reported telework conditions during the COVID-19 pandemic.

Table 2. Telework conditions during the pandemic (N=132).

| | Portugal | | Brazil | | Total | |
|---|------------------------|-------|----------------------|-------|--------------|--------|
| | n | % | n | % | n | % |
| Country | 62 | 47.0% | 70 | 53.0% | 132 | 100.0% |
| Gender | | | | | | |
| Female | 41 | 66.1% | 26 | 37.1% | 67 | 50.8% |
| Male | 21 | 33.9% | 44 | 62.9% | 65 | 49.2% |
| Marital status | | | | | | |
| Married/nonmarital partnership | 37 | 59.7% | 47 | 67.1% | 84 | 63.6% |
| Widowed | 2 | 3.2% | 1 | 1.4% | 3 | 2.3% |
| Divorced/Separated | 9 | 14.5% | 4 | 5.7% | 13 | 9.8% |
| Single | 14 | 22.6% | 18 | 25.7% | 32 | 24.2% |
| Dependent Children (<18) | | | | | | |
| Without child | 43 | 69.4% | 42 | 60.0% | 85 | 64.4% |
| With child | 19 | 30.6% | 28 | 40.0% | 47 | 35.6% |
| | Portugal (n=62) | | Brazil (n=70) | | P | |
| | M (SD) | | M (SD) | | | |
| 1. I have a physical space (e.g., natural light, heating, etc.) suitable just for me to teach classes and carry out my work as a teacher. | 3.93 (1.20) | | 3.53 (1.22) | | 0.487 | |
| 2. I have/had access at home in the conditions (speed and bandwidth) necessary to teach classes and carry out my work as a teacher. | 4.10 (1.21) | | 4.17 (0.99) | | 0.554 | |
| 3. It is/was difficult to reconcile my work as a teacher from home due to the responsibilities towards parents and descendants during periods of confinement. | 3.43 (\pm 0.09) | | 3.03 (1.43) | | 0.731 | |
| 4. Considering the subject area I teach, it is/was easy to work from home. | 3.33 (1.09) | | 3.03 (1.43) | | 0.012 | |

| | | | |
|--|-------------|-------------|--------------|
| 5. The organization where I teach during the various confinements is/was aware of teachers' difficulties in terms of resources, making them available to those who do/did not have them (e.g., computers). | 2.77 (1.10) | 2.60 (1.22) | 0.540 |
| 6. The organization where I teach during the various confinements listened/heard the suggestions and difficulties of the teachers. | 2.83 (1.02) | 3.13 (1.41) | 0.270 |
| 7. The organization where I teach during the various confinements is/was only interested in checking whether teachers fulfill/complete their duties. | 3.10 (1.27) | 3.47 (1.28) | 0.659 |
| 8. The organization where I teach during the various confinements creates/created a help desk that is always available to support teachers at various levels (material, technical, psychological, etc.). | 3.10 (1.21) | 2.47 (1.28) | 0.049 |
| 9. The organization where I teach during the various confinements creates/created conditions to reconcile, whenever possible, the needs of teachers and students. | 3.30 (0.95) | 3.07 (1.11) | 0.472 |

Before determining the two dimensions of burnout, participants were asked about their telework conditions. The results are quite similar for the two groups under analysis in most of the questions asked (no significant statistical differences). However, considering the two groups under study, Portuguese Professors considered that was easier work from home, than Brazilian Professors ($p=0.012$). Also, Portuguese professors felt more support from their employers than Brazilian colleagues ($p=0.049$). Those perceptions could be influenced by the period in which the questionnaires were completed, given that the evolution of the pandemic was different between the various Portuguese-speaking countries, as well as the measures adopted in terms of containment of the pandemic (Carvalhais & Santos, 2020).

The dimensions of Burnout

Table 3 shows the results obtained by the application of OLBI. The results are presented *per* dimension.

Table 3. Descriptive statistics for burnout dimensions (N=132).

| <i>Variables</i> | Portugal (n=62) M (SD) | Brazil (n=70) M (SD) | P |
|------------------|---|---------------------------------------|------------------|
| Disengagement | 2.69 (0.66) | 2.50 (0.60) | 0.692 |
| Exhaustion | 3.31 (0.50) | 3.21 (0.92) | <0.001 |
| Total | 3.02 (0.49) | 2.83 (0.70) | 0.210 |

Analyzing the Table 3, it is possible to conclude that, the exhaustion dimension is higher among professors in Portugal. It was found statistically significant differences between the two groups ($p<0.001$). The burnout results showed the same pattern than telework conditions results, since the two groups did not have the same conditions and resources to help them continue to teach with quality. This aspect had a differentiated impact on their performance, on their quality of life, on their well-being, on the stress and anxiety experienced which, in many cases, could lead to burnout situations, for professors (Ramos et al., 2023). In general, the Brazilian professors felt more need to relax after work and due to the feel more drained during work than the Portuguese. Cultural differences and different ways of facing life's difficulties may be at the root of these results.

According to a systematic literature review developed by Fernández-Suárez et al. (2021) in the period of 2005–2020, 37% of university professors were in a situation of suffering from Burnout. Additionally, this study found specific percentages of three dimensions that define this syndrome, namely: emotional exhaustion dimension (23%); depersonalization dimension (16%) and low personal fulfillment dimension (50%). Work overload, as techno-overload, has been described as a factor with a great impact on emotional exhaustion dimension of university professors (Gillespie et al., 2001; Padilha et al., 2017).

Coping strategies

Table 4 presents the individually obtained results regarding coping strategies for the 14 dimensions and 2 major dimensions (adaptive coping subscales and maladaptive coping subscales).

Table 4. Dimensions' characteristics of Brief COPE.

| <i>Dimension</i> | <i>Portugal (n=62)</i> | <i>Brazil (n=70)</i> | <i>p</i> |
|-------------------------------------|------------------------|----------------------|---------------|
| | M (SD) | M (SD) | |
| Adaptive coping Subscales | 2.30 (.57) | 2.46 (.58) | 0.110 |
| Active Coping (AC) | 2.79 (.72) | 2.84 (.76) | 0.725 |
| Planning (PL) | 2.87 (.73) | 3.19 (.70) | 0.013 |
| Instrumental Support (IS) | 2.07 (.76) | 2.49 (1.15) | 0.014* |
| Emotional Support (ES) | 2.19 (.91) | 2.43 (1.25) | 0.215* |
| Religion (RE) | 1.56 (1.20) | 1.91 (1.44) | 0.134 |
| Positive Reframing (PR) | 2.63 (.79) | 2.56 (.90) | 0.627 |
| Acceptance (AC) | 2.23 (.93) | 2.38 (.82) | 0.342 |
| Humor (HU) | 2.07 (.82) | 1.92 (.98) | 0.344 |
| Maladaptive coping Subscales | 1.41(.62) | 1.68 (.68) | 0.019 |
| Venting (VE) | 2.03 (.95) | 2.34 (1.01) | 0.078 |
| Denial (BE) | 1.16 (.10) | 1.33 (.97) | 0.330 |
| Self-Distraction (SD) | 2.02 (.91) | 2.00 (1.20) | 0.930* |
| Behavioral Disengagement (BD) | 0.76 (.90) | 0.99 (1.06) | 0.175 |
| Self-Blame (SB) | 2.06 (.91) | 2.54 (.87) | 0.002 |
| Substance Abuse (SA) | 0.45 (.86) | 0.89 (1.21) | 0.016* |

*Equal variances not assumed

In addition to analyzing the data obtained from each of the 14 coping strategies, which revealed consistently higher significant differences in Brazilian professors compared to Portuguese professors ($p \leq 0.05$, for planning, instrumental support, self-blame, and substance abuse), we used a previously-derived two-factor model for our analyses, in line with previous research (Alharbi & Alshehry, 2019; Alosaimi et al., 2018; Moore et al., 2011). There are significant differences between Portugal and Brazil in terms of maladaptive coping subscales ($p = .019$). Coping styles are thought to initiate, modulate, and maintain affective responses; therefore, maladaptive coping subscales are the least beneficial as they block the awareness that change is possible and perpetuate attempts to deal with problems/stressors in a more effective way. Brazil has higher values ($M=1.68$) compared to Portugal ($M=1.41$).

Taking into account sociodemographic and teleworking variables, we verified that cultural issues and different periods of confinement - in Brazil during the time of Covid, significant losses of labor and social security rights were observed, along with pre-existing social inequalities (Santos et al., 2020) - may be the origin of the results obtained. For example, the male population in Brazil is more represented, almost twice as much as in Portugal. According to national statistical data from both Portuguese and Brazilian sources [e.g., Valente et al., 2021; Observatório Europeu da Droga e da Toxicodependência (EMCDDA)], it is not surprising that the use of maladaptive strategies such as substance abuse is higher in Brazilian professors when compared to those in Portugal. Self-blame in Brazil may result from poor time management between work and family (e.g., married/nonmarital partnership, see Table 1). Portugal, despite having implemented lockdown measures earlier than Brazil, generally (Chambel & Farina, 2015; Meire et al., 2021) and in terms of remote work (see Table 2), has shown to have better resources than Brazil.

Results, Conclusions and Recommendations

Our findings suggest that, regarding burnout, the exhaustion dimension was the one that stood out in Portuguese professors. We believe that, due to the various confinements and demands of their work, namely the multiple demands of teleworking and the compatibility of work and family demands, this led to an overload of work with a technological tendency for which they were not yet prepared. With regard to coping strategies, the so-called maladaptive strategies were the ones most used by professors in Brazil during the period in question, meaning that these professionals resorted to strategies such as substance abuse and self-blame, despite also resorting to other strategies. adaptive strategies such as planning and instrumental support. The use of these strategies may, in our view, be related to cultural issues in the country and the perceived effectiveness of using them.

To that extent, and taking into account the results obtained from this study, it is suggested that Governments, HEIs, political and educational decision-makers consider creating and making available measures that provide more and better resources and support for professors to face more successfully the current challenges in terms of technological changes and modernization of teaching methods, in order to mitigate the adverse effects of the demands and complexity of the art of teaching. Indeed, teaching with motivation, dedication and passion without compromising health and well-being implies the full involvement of various stakeholders and the availability of adequate resources for quality teaching.

References

- Alharbi, H., & Alshehry, A. (2019). Perceived stress and coping strategies among ICU nurses in government tertiary hospitals in Saudi Arabia: a cross sectional study. *Annals of Saudi Medicine*, 39(1), 48–55. <https://doi.org/10.5144/0256-4947.2019.48>
- Aliante, G., & Abacar, M. (2018). Fontes de stress ocupacional em professores do ensino básico e médio em Moçambique, Brasil e Portugal: Uma revisão sistemática da literatura. *Revista Internacional em Língua Portuguesa, Ciências da Saúde e Tecnologia*, 33, 95-110. <https://doi.org/10.31492/2184-2043.RILP2018.33/pp.95-110>
- Alosaimi, F.D., Alawad, H.S., Alamri, A.K., Saeed, A.I., Aljuaydi, K.A., Alotaibi, A.S., Alotaibi, K. M. & Alfari, E.A. (2018) Stress and coping among consultant physicians working in Saudi Arabia. *Annals of Saudi Medicine*, 38(3), 214–224 <https://doi.org/10.5144/0256-4947.2018.214>
- Ando, S. (2020). University teaching and learning in a time of social distancing: a sociocultural perspective. *Journal of Human Behavior in the Social Environment*, 31(4), 435–448. <https://doi.org/10.1080/10911359.2020.1814928>
- Cachioni, M., Cipolli, G. C., Borim, F. S. A., Batistoni, S. S. T., Yassuda, M. S., Neri, A. L., & Paúl, C. (2021). Factors Associated With Positive Self-Rated Health: Comparing Older Adults in Brazil and in Portugal. *Frontiers in Public Health*, 9, 1-13. <https://doi.org/10.3389/fpubh.2021.650294>
- Carlotto, M. S. (2011). Síndrome de Burnout em professores: prevalência e fatores associados. *Psicologia: Teoria e Pesquisa*, 27(4), 403-410. <https://doi.org/10.1590/S0102-37722011000400003>
- Carvalho, C., & Santos, J. (2020). A Pandemia COVID-19 (Coronavírus): Políticas de Proteção dos Trabalhadores no Local de Trabalho Adotadas pelos Países Lusófonos. *Revista Científica da Rede Académica das Ciências da Saúde da Lusofonia, Suplemento 2*, 329. <https://doi.org/10.51126/revsalus.vi2>
- Carver, C. S., & Connor-Smith, J. (2010). Personality and coping. *Annual Review of Psychology*, 61, 679-704.
- Chambel, M. J., & Farina, A. (2015). HRM and temporary workers' well-being: a study in Portugal and Brazil, *Cross Cultural Management: An International Journal*, 22(3), 447-463. <https://doi.org/10.1108/CCM-07-2013-0105>
- Fernández-Suárez, I., García-González, M. A., Torrano, F., & García-González, G. (2021). Study of the Prevalence of Burnout in University Professors in the Period 2005–2020, *Education Research International*, 2021, 1-10 <https://doi.org/10.1155/2021/7810659>
- Leka, S., & Houdmont, J. (2010). *Occupational Health Psychology* (1st Ed.), Wiley-Blackwell.
- Lipp, M. E. N. (2016). O stress do professor frente ao mau comportamento do aluno. In D.C. Fava (Org), *A prática da psicologia na escola: introduzindo a abordagem cognitivo-comportamental* (pp. 351-372). Belo Horizonte. Ed. Artesã.
- Martínez, J. P., & Morales, F. M. (2020). What if violent behavior was a coping strategy? approaching a model based on artificial neural networks. *Sustainability*, 12(18), 7396. <https://doi.org/10.3390/su12187396>

- Martínez, J. P., Méndez, I., Ruiz-Esteban, C., & Fernández-Sogorb, A. (2020). Profiles of burnout, coping strategies and depressive symptomatology. *Frontiers in Psychology, 11*, 1-7. <https://doi.org/10.3389/fpsyg.2020.00591>
- Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior, 2*(2), 99-113. <https://doi.org/10.1002/job.4030020205>
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job Burnout. *Annual Review of Psychology, 52*(1), 397-422. <https://doi.org/10.1146/annurev.psych.52.1.397>
- Marôco, J., Campos, B., Bonafé, F. S., Vinagre, M. G., & Ribeiro, J. P. (2014). Transcultural adaptation Brazil-Portugal of the Brief Cope Scale for college students. *Psicologia, Saúde y Doenças 15*(2), 300-313. DOI: <http://dx.doi.org/10.15309/14psd150201>
- Ribeiro, J.L., & Rodrigues, A. (2004). Questões acerca do coping: a propósito da adaptação do Brief Cope. *Psicologia, Saúde e Doenças, 5*(1), 3-15.
- Mazon, V., Carlotto, M. S., & Câmara, S. (2008). Síndrome de Burnout e estratégias de enfrentamento em professores. *Arquivos Brasileiros de Psicologia, 60*(1), 55-60.
- Mónico, L. Carvalho, C. Nejati, S. Arraya, M., & Parreira, P. (2021). Entrepreneurship education and its influence on higher education students' entrepreneurial intentions and motivations in Portugal. *Brazilian Administration Review, 18*(3), e190088. <https://doi.org/10.1590/1807-7692bar2021190088>
- Moore, B.C., Biegel, D. E., & McMahon, T. J. (2011) Maladaptive coping as a mediator of family stress. *Journal of Social Work Practice in the Addictions, 11*(1),17-39. <https://doi.org/10.1080/1533256X.2011.544600>
- Morales-Rodríguez, F. M., Martínez-Ramón, J. P., Méndez, I., & Ruiz-Esteban, C. (2021). Stress, Coping, and Resilience before and after COVID-19: A predictive model based on Artificial Intelligence in the University environment. *Frontiers in Psychology, 12*. <http://doi.org/10.3389/fpsyg.2021.647964>
- Padilla, A. A. G., Bonivento, C. V.E., & Suarez, B. S. P. (2017). Síndrome de Burnout y sentimiento de autoeficacia en profesores universitarios. *Propósitos y Representaciones, 5*(2), 65-126. <https://doi.org/10.20511/pyr2017.v5n2>.
- Ramalho, J., Carvalho, C., Parreira, P., Leite, E., Mónico, L., & Salgueiro-Oliveira, A. (2022). Entrepreneurship in higher education: The key role of self-efficacy – A cross sectional study. *International Journal of Advanced Applied Sciences, 9*(2), 9-1. <https://doi.org/10.21833/ijaas.2022.02.002>
- Ramos, D. K., Anastácio, B. S., da Silva, G.A., Rosso, L. U., & Mattar, J. (2023). Burnout syndrome in different teaching levels during the covid-19 pandemic in Brazil. *BMC Public Health, 23*, 235. <https://doi.org/10.1186/s12889-023-15134-8>
- Santos, K. O. B., Fernandes, R. C. P., Almeida, M. M. C., Miranda, S. S., Mise, Y., F., & Lima, M. A. G. (2020). Trabalho, saúde e vulnerabilidade na pandemia de COVID 19. *Cadernos de Saúde Pública, 36*(12), 1-14. <https://doi.org/10.1590/0102-311X00178320>
- Schuster, M. S., & Dias, V. V. (2018). Oldenburg Burnout Inventory – Validação de uma nova ferramenta de mensurar Burnout no Brasil. *Temas Livres, Ciências da Saúde Coletiva, 23*(2). <https://doi.org/10.1590/1413-81232018232.27952015>
- Sinval, J. C., Queirós, Pasian, S., & Marôco, J. (2019). Transcultural adaptation of the Oldenburg Burnout Inventory (OLBI) for Brazil and Portugal. *Frontiers in Psychology, 10*, 338. <https://doi.org/10.3389/fpsyg.2019.00338>
- Tamayo, M. R., & Tróccoli, B. T. (2002). Exaustão emocional: relações com a percepção de suporte organizacional e com as estratégias de coping no trabalho. *Estudos de Psicologia, 7*(1), 37-46. <https://doi.org/10.1590/S1413-294X2002000100005>
- Valente, J. Y., Sohi, I., Garcia – Cerde, R., Monteiro, M.G., & Sanchez, Z.M. (2021). What is associated with the increased frequency of heavy episodic drinking during the COVID-19 pandemic? Data from the PAHO regional web-based survey. *Drug and Alcohol Dependence, 221*, 108621. <https://doi.org/10.1016/j.drugalcdep.2021.108621>
- World Health Organization [WHO]. (2020, March 11). *WHO Director-General's opening remarks at the media briefing on COVID-19 – 11 March 2020*. <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19>
- World Health Organization [WHO]. (2021). FIC Content Model Reference Guide, World Health Organization (WHO) <https://icd.who.int/browse11.Licensed>

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

