Analysis of the prevalence and impact of burnout in university professors

https://doi.org/10.56238/sevened2024.016-013

Maria Nascimento Cunha[1] and Sílvia Costa Pinto[2]

ABSTRACT

In order to explore the prevalence and factors associated with burnout in university professors and for a detailed assessment of the main and secondary symptoms of burnout, including exhaustion, mental distance, inability to control cognitive and emotional, psychological distress and psychosomatic complaints, we chose to use the BAT - Burnout Assessment Tool.

The results indicate a significant prevalence of burnout among teachers, with emotional exhaustion being the most affected dimension, also highlighting the influence of factors such as workload and intense emotional demands.

The findings underline the need for institutional interventions and management policies to mitigate burnout and promote well-being in the academic environment. This work contributes to the understanding of burnout in higher educational contexts, suggesting future directions for institutional research and practice.

Keywords: Burnout, University professors, BAT - Burnout Assessment Tool.

[1] Lusofona University, Intrepid Lab, Porto, Portugal
E-mail: maria14276@gmail.com
ORCID: 0000-0002-1291-231X
[2] Fernando Pessoa University
E-mail: 42833@ufp.edu.pt
ORCID: 0000-0002-0606-8255

INTRODUCTION

PROFESSIONAL BURNOUT

Burnout is a state of emotional, physical and mental exhaustion caused by prolonged stress or frustration. It is characterized by three main dimensions: emotional exhaustion, where individuals feel drained and unable to recharge their energies, depersonalization, which involves a cynical detachment from work responsibilities and a negative attitude towards colleagues, clients or students, and reduced personal fulfillment, where professionals perceive their contribution to work as insufficient, ineffective or not recognized (Milic et al., 2020). This condition not only affects the mental and physical health of the individual, but can also decrease effectiveness at work, leading to negative consequences for both workers and organizations. Burnout is particularly prevalent in professions with high emotional and interactional needs, such as teaching.

Recent research, such as that carried out by Milic et al. (2020), Pereira, Gonçalves and Assis (2021), Marrinhas et al. (2023), Angelini et al. (2021) and Teles et al. (2020), provide a comprehensive view on the prevalence and impacts of burnout on academics and teachers, underlining the urgent need to address this problem. These studies not only investigate the psychometric properties of instruments such as the Maslach Burnout Inventory or the Burnout Assessment Tool in specific contexts, but also explore the relationships between organizational self-efficacy, self-esteem and burnout, as well as the role of perceived stress and technostress in the well-being of teachers. The introduction of the Burnout Assessment Tool (BAT) by Angelini et al. (2021) and the investigation of the effects of technostress by Marrinhas et al. (2023) during the COVID-19 pandemic represent important advances in the assessment and understanding of this complex phenomenon.

MEANINGFUL INSIGHTS INTO SPECIFIC DYNAMICS

The research seeks to provide meaningful insights into the specific dynamics of burnout in the academic environment. In this sense, specific Research Questions were defined:

PI1. What is the prevalence of burnout among university professors in a given period?

PII. Are there significant differences in burnout levels between different demographic groups among university professors?

PIII. How do burnout symptoms relate to factors such as workload and organizational commitment among university professors?

INSTRUMENTS

In order to **explore the prevalence and factors associated with burnout in university professors** and for a detailed assessment of the main and secondary symptoms of burnout, including

exhaustion, mental distance, inability to control cognitive and emotional, psychological distress and psychosomatic complaints, we chose to use the BAT - Burnout Assessment Tool.

ETHICAL OPINION

The researchers opted for quantitative analysis through the application of a questionnaire survey implemented in digital format through the Google Forms platform. The questionnaire survey was submitted to the scrutiny In this way, having obtained the necessary institutional authorizations, we move on to data collection.

METHOD

The instrument used was the BAT - Burnout Assessment Tool. This instrument consists of 33 items and evaluates main and secondary symptoms of Burnout such as exhaustion, mental distance, inability to control cognitive and emotional, psychological distress and psychosomatic complaints. It was originally developed by Schaufeli et al. (2020) and has been translated and validated for the Portuguese population by Sinval et al. (2022).

The data was collected exclusively through the online questionnaire survey that was published on social media platforms and sent by email, during the period of February and March 2024. It was decided to use a convenience sample, complemented by the "snowball" technique, which represents an effective approach in the field of social and market research, allowing the collection of data in a structured way and the statistical analysis of the information collected.

DESCRIPTION OF SOCIODEMOGRAPHIC AND PROFESSIONAL CHARACTERISTICS

According to the analysis of Table 1: Gender, the gender distribution in the sample of 39 university teaching respondents shows 17 male respondents (corresponding to 43.6% of the participants) and 22 female respondents (corresponding to 56.4% of the total sample).

Table 1: Gender

		Frequency	Valid percentage	Cumulative percentage
Valid	male	17	43,6	43,6
	female	22	56,4	100,0
	Total	39	100,0	

Source: own

The table indicates that most participants are in the age groups of 40 to 49 years and 50 to 59 years, together representing 69.2% of the sample. The younger and older age groups (less than 20 years and 60 to 69 years) have similar proportions (both with 10.3% of the sample), demonstrating a distribution that is more concentrated in the middle ages.

Table 2: Age Groups

		Frequency	Valid percentage	Cumulative percentage
Valid	< 20 years	3	7,7	7,7
	20-29 years	4	10,3	17,9
	30-39 years	1	2,6	20,5
	40-49 years old	13	33,3	53,8
	50-59 years	14	35,9	89,7
	60-69 years old	4	10,3	100,0
	Total	39	100,0	

Source: own

With regard to the level of education, the percentage of participants with a bachelor's degree (48.7%) and a doctorate (30.8%) together represent 79.5% of the sample, with 20.5% of the participants having a master's degree, indicating a slightly higher proportion of individuals with post-graduate studies (master's and doctorate). These data underline the trend towards a high level of academic training.

Table 3: Education level

		Frequency	Valid percentage	Cumulative percentage
valid	Degree	19	48,7	51,3
	Masters	8	20,5	69,2
	Doctorate	12	30,8	100,0
	Total	39	100,0	

Source: own

Table 4: Marital Status, presents the distribution of marital status among the participants, broken down by "Single", "Married/de facto union", "Divorced/Separated", and "Widowed". In terms of frequency and valid percentage, it is possible to verify that:

1. Single: 11 participants are single, representing 28.2% of the sample.
2. Married/de facto union: 21 participants are married or in a de facto union, representing 53.8% of the sample.
3. Divorced/Separated: 6 participants are divorced or separated, representing 15.4% of the sample.

Widowed: 1 participant is widowed, representing 2.6% of the sample.

Table 4: Marital Status

		Frequency	Valid percentage	Cumulative percentage
Valid	Single	11	28,2	28,2
	Married/De facto partnership	21	53,8	82,1
	Divorced/Separated	6	15,4	97,4
	Widow(er)	1	2,6	100,0
	Total	39	100,0	

Source: own

Table 5 details the distribution of the type of employment contract among the participants of the sample of 39 university professors categorized as "Permanent contract / Effective", "Fixed-term contract / Fixed-term", and "Temporary contract / Green receipts". The table reveals that the vast majority of participants (79.5%) have open-ended contracts or are permanent, indicating job stability for most of the sample. Those with fixed-term or fixed-term contracts form a significant minority (17.9%), while temporary contracts or work with green receipts are very rare among participants (2.6%).

Table 5: Type of Contract

		Frequency	Valid percentage	Cumulative percentage
Valid	Contract of indefinite duration / Effective	31	79,5	79,5
	Fixed-term contract / Fixed-term	7	17,9	97,4
	Temporary Contract / Green Receipts	1	2,6	100,0
	Total	39	100,0	

Source: own

Table 6 shows the distribution with regard to the participants' employment sector, divided into "Public", "Private" and "Public-private". The table shows that the majority of participants work in the public sector (53.8%), followed by a significant proportion in the private sector (41.0%). The public-private category represents the smallest fraction (5.1%).

Table 6: Sector of activity

		Frequency	Valid percentage	Cumulative percentage
Valid	Public	21	53,8	53,8
	Toilet	16	41,0	94,9
	Public-private	2	5,1	100,0
	Total	39	100,0	

Source: own

PREVALENCE OF BURNOUT IN THE DIFFERENT DIMENSIONS OF BAT

A study of the means of the 4 dimensions that make up the BAT was carried out in order to understand the variables with the highest means. In this way, it was possible to verify that at the level of **Exhaustion,** the variables "At work, I feel mentally exhausted" and "At the end of a working day, I feel mentally exhausted and exhausted" have higher averages (both with an average of 3.33). On the other hand, with regard to the Mental Distance dimension **:** "At work I don't think much about what I'm doing and I work on autopilot" it has the highest average (2.36). **Cognitive Control Ability:** "Struggle to think clearly" has the highest average, suggesting significant difficulties in this area (2.41). And finally in **Ability in Emotional Control:** "I get irritable when things are not as I want" has the highest average, indicating important emotional difficulties (2.38).

Table 7: Global averages of each BAT dimension

	Average	Interpretation
Exhaustion	3,07	Considerable levels of exhaustion at work
Mental Distance	2,16	Some emotional and cognitive distance from work
Cognitive Control Skills	2,29	Moderate challenges in controlling cognitive processes during work
Ability in Emotional Control	2,13	Moderate challenges in controlling emotions while working

Source: own

As a way to better understand the situation regarding the Burnout of our sample, it also seemed important to interpret the global averages of each dimension, considering that the maximum score in each dimension is 5. Thus, an overall average of 3.07 on the Exhaustion subscale suggests that, on average, participants experience considerable levels of exhaustion at work. An overall average of 2.16 on the Mental Distance subscale indicates that participants, on average, experience a certain emotional and cognitive distance from work. On the other hand, an overall average of 2.29 on the Cognitive Control Ability subscale suggests that participants, on average, face moderate challenges in controlling their cognitive processes during work. An overall average of 2.13 on the Ability in Emotional Control subscale indicates that participants, on average, face moderate challenges in controlling their emotions during work. Based on the averages, it is possible to conclude that the participants have moderate levels of burnout and face considerable challenges in all four dimensions of burnout, with exhaustion being the one that reveals itself most strongly.

ANALYSIS OF GLOBAL AVERAGES WITH CUTOFF POINTS

According to Schaufeli et al. (2019), the cutoff points for the Burnout Assessment Tool (BAT) are organized into three categories, analogous to a traffic light, to indicate the risk of burnout: green (no risk), orange (at risk) and red (high risk). The Burnout Assessment Tool (BAT) uses specific cut-off points to differentiate between individuals at risk of burnout and those with severe burnout. These cut-off points were established based on ROC (Receiver Operational Characteristics) analyses that used samples of healthy employees and employees diagnosed with burnout from countries such as the Netherlands, Belgium, and Finland. The analyses showed good to excellent diagnostic accuracy for the various subscales of the BAT, except for mental distancing, which showed moderate accuracy. Country-specific cut-off values, as well as their specificity and sensitivity, were comparable to those in the all-country pooled sample (Sinval et al. 2022; Schaufeli et al. 2023). These cut-off points are tentative and should be validated by future studies before being applied more widely, especially in countries that were not directly included in the original studies. For Portugal and Brazil, despite having confirmed the original BAT structure and achieved measurement invariance, differentiated cutoff points are not specified directly in the available documents (Sinval et al. 2022; Schaufeli et al. 2023).

Table 8: Cutoff Points

Category	Exhaustion	Mental Distance	Emotional Commitment	Cognitive impairment
Green (Risk-Free)	1.00 – 3.05	1.00 – 2.49	1.00 – 2.09	1.00 – 2.69
Orange (at risk)	3.06 – 3.30	2.50 – 3.09	2.10 – 2.89	2.70 – 3.09
Red (High Risk)	3.31 – 5.00	3.10 – 5.00	2.90 – 5.00	3.10 – 5.00

Fonte: Schaufeli et al. (2019)

The cut-off points serve as a guide to interpret the results of the BAT, allowing to assess whether a user is at risk of burnout and to what degree. It should be reiterated that the interpretation of these results should always be carried out by a professional (Schaufeli et al. 2019). In the case of the sample under study, it is possible to verify that:

Exhaustion (Overall Average = 3.07): With an overall average of 3.07, this score suggests that, on average, participants are in the "**Orange**" (at risk) category for exhaustion, as it exceeds the upper limit of the green zone (no risk) and indicates moderate to high levels of exhaustion.

Mental Distance (Overall Average = 2.16): With an overall average of 2.16, this score suggests that, on average, participants are in the "**Green**" (no risk) category for mental distance, indicating a certain emotional and cognitive distance from work, but still within a range considered non-problematic.

Cognitive Control Ability (Overall Average = 2.29): With an overall average of 2.29, this score also falls into the "**Green**" category (no risk), suggesting moderate challenges in controlling cognitive processes while at work, but without indicating a significant risk of burnout.

Ability in Emotional Control (Overall Average = 2.13): With an overall average of 2.13, this score is also in the "**Green**" category (no risk), indicating moderate challenges in controlling emotions during work, but not at a level that suggests a high risk of burnout.

In this sense, it can be concluded that the study participants have a moderate level of burnout, with exhaustion being the most pronounced dimension. This suggests that exhaustion is the main area of concern and may necessitate intervention to prevent the development of more severe burnout.

INSAT - ASSESSMENT OF PSYCHOSOCIAL RISKS IN THE WORKPLACE

Bearing in mind the objective of this investigation, it was decided to submit the sample to the subscale Psychosocial risk factors at work, consisting of the following dimensions: pace and intensity of work; lack of autonomy; work relationships with co-workers; employment relationships with the organization; emotional demands; ethical and value conflicts. The scale is presented in a likert-like format with 6 response options (1- I am not exposed, 2- Exposed and no discomfort, 3- Exposed and with little discomfort, 4- Exposed and with discomfort, 5- Exposed and with a lot of discomfort, and 6- Exposed and with a lot of discomfort), allowing the participant to indicate the

degree of exposure and discomfort to each of the psychosocial risk factors in their work activity (Barros et al. 2017; Barros et al. 2022).

Table 9: INSAT Averages

Risk Factors Category	Average Values	Risk Level
Pace and Intensity of Work	3.0	medium
Working Times	2.625	medium
Autonomy and Initiative	2.33	medium
Labor Relations	2.54	medium
Employment Relations	**3.3**	**high**
Emotional Demands	2.86	medium
Ethical and Value Conflicts	3.0	medium

Source: own

Table 9 shows the means of the Psychosocial Risk Factors at Work subscale. In this sense, it is possible to verify that the categories that have averages equal to 3.0, such as "Pace and Intensity of Work" and "Ethical and Value Conflicts", are categorized as medium risk. The notable exception is "Employment Relations", which has a high average of 3.3. This suggests that, for this category, values slightly above 3.0 are already considered high risk, perhaps due to the critical nature of these factors in the context of workers' well-being. The variation in the means of the values suggests a scale of measurement that allows differentiating subtleties between different levels of exposure to risk factors.

ANALYSIS OF GLOBAL AVERAGES WITH CUTOFF POINTS

In Portugal, the cut-off points for the Psychosocial Risk Factors at Work subscale are defined by Technical Guide No. 3 of the Directorate-General for Health (Directorate-General for Health, 2021). This guide aims at monitoring the health of workers exposed to psychosocial risk factors in the workplace and provides important guidance for managing these risks. Cut-off points are essential to assess and intervene in the psychosocial aspects of the work environment, promoting the mental health of professionals in Portugal. With regard to the case in question, the cutoff points are usually:

Low (1st tertile from 0 to 2): Indicates less imbalance between needs and control.

Moderate (2nd tertile from 2.1 to 4): Represents an intermediate level of risk.

High (3rd tertile from 4.1 to 6): Signals greater imbalance and greater exposure to psychosocial risks.

In this way, it is possible to verify that all values fall in the second tertile, which suggests a "medium" risk level for each category. This may indicate that, although the average is in the second tertile, other qualitative or contextual aspects may require a higher risk assessment. Strict application

of tertiles would suggest reclassifying "Employment Relations" to "medium" unless specific justifications support the higher classification.

Table 10: Comparison between means and tertiles

Risk Factors Category	Average Values	Original Risk Level	Classification by Tertiles
Pace and Intensity of Work	3.0	medium	medium
Working Times	2.625	medium	medium
Autonomy and Initiative	2.33	medium	medium
Labor Relations	2.54	medium	medium
Employment Relations	**3.3**	**high**	**medium**
Emotional Demands	2.86	medium	medium
Ethical and Value Conflicts	3.0	medium	medium

Source: own

When evaluating Table 10, it is verified that all values were classified as "medium" according to the tertiles, including "Employment Relations", which was originally classified as "high". The reclassification to "medium" follows the strict application of tertiles based on the distribution of values, suggesting that the level of risk for "Employment Relations" could be considered medium, unless other contextual information justifies maintaining the original classification as high.

DISCUSSION OF THE RESULTS

Based on the results obtained, it is possible for us to answer the research questions of this research.

PI1. What is the prevalence of burnout among university professors in a given period? From the averages of the dimensions of the BAT (Burnout Assessment Tool), it is observed that the general average of exhaustion is 3.07, indicating considerable levels of exhaustion among teachers. This suggests a moderate to high prevalence of burnout, at least in the exhaustion dimension, among university professors. The means of the other dimensions, although smaller, also indicate the presence of burnout at varying levels.

PII. Are there significant differences in burnout levels between different demographic groups among university professors? While detailed demographic data on age, gender, marital status, and type of employment contract are known, direct analysis on significant differences requires specific statistical tests such as ANOVA. However, the gender distribution and the predominant age groups suggest that it may be useful to explore whether these variables influence burnout levels, considering that most teachers are in the older age groups, where an accumulation of stress and responsibilities can be assumed.

PIII. How do burnout symptoms relate to factors such as workload and organizational commitment among university professors? The results mention average responses to specific items

that reflect the perception of workload and emotional and cognitive control. For example, high averages in the dimension of exhaustion and cognitive impairment may indicate that a high workload is significantly associated with higher levels of burnout. The relationship between these symptoms and organizational commitment has not been sufficiently studied, but could be inferred through additional analyses that relate job satisfaction, organizational support, and burnout experiences.

CONCLUSION

This study provided an important insight into the prevalence of burnout among university professors, revealing considerable levels of exhaustion, moderate signs of mental detachment, emotional and cognitive impairment. The results point to the need to address psychosocial factors that may be contributing to these symptoms among teachers, especially considering the demographic structure and contractual conditions.

The research has some limitations, such as the sample of 39 respondents, which may not be representative of all university professors, limiting the generalization of the results. A larger sample could provide a more robust and representative analysis. The study also did not include advanced statistical tests that would allow us to analyze significant differences between groups or explore complex relationships between demographic and psychosocial variables and burnout symptoms.

It would therefore be interesting to include a larger and more diverse sample, covering different types of academic institutions and geographical regions to increase the generalizability of the results. It would also be interesting to conduct longitudinal studies to examine burnout trends over time and determine more precise causes and effects among the variables studied.

By addressing these limitations and implementing the suggestions, future studies could offer deeper insights and practical solutions to mitigate burnout among university teachers, thereby improving educational well-being and effectiveness in the academic environment.

REFERENCES

1. Angelini, G., Buonomo, I., Benevene, P., Consiglio, P., Romano, L., & Fiorilli, C. (2021). The Burnout Assessment Tool (BAT): A Contribution to Italian Validation with Teachers. *Sustainability, 13*(9065). https://doi.org/10.3390/su13169065

2. Barros, C., Cunha, L., Oliveira, A., Baylina, P., & Rocha, A. (2017). Development and validation of a health and work survey based on the rasch model among portuguese workers. *Journal of Medical Systems, 41*(79), 1-9. https://doi.org/10.1007/s10916-017-0727-2

3. Barros, C., Cunha, L., Lacomblez, M., & Baylina, P. (2022). *Riscos Psicossociais: Inquérito Saúde e Trabalho 2022*. Escola Superior de Saúde. INSAT.

4. Direção-Geral da Saúde. (2021). *Guia Técnico Nº 3: Vigilância da Saúde dos Trabalhadores Expostos a Fatores de Risco Psicossocial no Local de Trabalho - Versão Síntese*. Lisboa: Direção-Geral da Saúde.

5. Marrinhas, D., Santos, V., Salvado, C., Pedrosa, D., & Pereira, A. (2023). Burnout and technostress during the COVID-19 pandemic: the perception of higher education teachers and researchers. *Frontiers in Education, 8*, 1144220. https://doi.org/10.3389/feduc.2023.1144220

6. Milic, N., Vukmirovic, M., Rajovic, N., Pavlovic, V., Masic, S., Mirkovic, M., Tasic, R., Randjelovic, S., Mostic, D., Velickovic, I., Nestorovic, E., Milcanovic, P., & Stanisavljevic, D. (2020). The Burnout Syndrome in Medical Academia: Psychometric Properties of the Serbian Version of the Maslach Burnout Inventory—Educators Survey. *International Journal of Environmental Research and Public Health, 17*(16), 5658. https://doi.org/10.3390/ijerph17165658

7. Pereira, H., Gonçalves, V. O., & Assis, R. M. (2021). Burnout, Organizational Self-Efficacy and Self-Esteem among Brazilian Teachers during the COVID-19 Pandemic. *European Journal of Investigation in Health, Psychology and Education, 11*, 795–803. https://doi.org/10.3390/ejihpe11030057

8. Sinval, J., Vazquez, A. C. S., Hutz, C. S., Schaufeli, W. B., & Silva, S. (2022). Burnout Assessment Tool (BAT): Validity Evidence from Brazil and Portugal. *International Journal of Environmental Research and Public Health, 19*(3), 1344. https://doi.org/10.3390/ijerph19031344

9. Schaufeli, W. B., De Witte, H., Hakanen, J. J., Kaltiainen, J., & Kok, R. (2023). How to assess severe burnout? Cutoff points for the Burnout Assessment Tool (BAT) based on three European samples. *Scandinavian Journal of Work, Environment & Health*. https://read.qxmd.com/read/37042446/how-to-assess-severe-burnout-cutoff-points-for-the-burnout-assessment-tool-bat-based-on-three-european-samples

10. Schaufeli, W. B., De Witte, H., & Desart, S. (2019). *User manual – Burnout Assessment Tool (BAT) – Version 2.0*. KU Leuven, Belgium: Internal report.

11. Teles, R., Valle, A., Rodríguez, S., Piñeiro, I., & Regueiro, B. (2020). Perceived Stress and Indicators of Burnout in Teachers at Portuguese Higher Education Institutions (HEI). *International Journal of Environmental Research and Public Health, 17*(9), 3248. https://doi.org/10.3390/ijerph17093248