

## Teachers in the pandemic: factors and conditions associated with Burnout Syndrome <sup>1 2 3 4</sup>

### *Professores na pandemia: fatores e condições associadas à Síndrome de Burnout*

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## Abstract

This article analyzes the Burnout Syndrome indicators in teaching activities during the pandemic to identify factors and conditions that can be associated with its dimensions. The study conducted with 438 Brazilian teachers used convergent mixed methods. We collected data through online questionnaires and the adaptation of a standardized instrument to assess Burnout Syndrome. Among the main results, we found that factors such as gender, age, level of performance, and digital competence can be associated with indicators of psychological distress, life quality, and health.

**Keywords:** Digital Competence, Pandemic, Teachers, Burnout syndrome

## Resumo

*Este artigo tem o objetivo de analisar os indicadores da Síndrome de Burnout na atuação docente durante a pandemia a fim de identificar fatores e condições associadas a suas dimensões. O estudo caracteriza-se como uma pesquisa mista de design convergente, envolvendo 438 professores brasileiros. A coleta de dados foi realizada por meio da aplicação de um questionário on-line e a adaptação de um instrumento padronizado para a avaliação da Síndrome de Burnout. Entre os principais resultados, destaca-se que alguns fatores (como sexo, idade, nível de atuação e competência digital) podem ser relacionados aos indicadores de sofrimento psíquico e de qualidade de vida e saúde.*

**Palavras-chave:** Competência Digital, Pandemia, Professores, Síndrome de Burnout

## 1. Introduction

This study aims to identify factors and conditions in teachers' work during the pandemic that can be associated with Burnout Syndrome indicators. This syndrome is connected with professional activity, including depletion, emotional exhaustion, chronic stress, and dehumanization (Maslach & Jackson, 1981; Moreno-Jimenez et al., 2002).

The theme involves work affected by the pandemic, reinforcing the challenge and importance of understanding work relations and their impacts on teachers' lives. The pandemic changed work dynamic to prevent the coronavirus spread. Social distancing was one of the

measures to avoid contamination, which reverberated in a series of transversal impacts (Senhoras, 2020). Due to this measure, public and private systems closed their schools, following the global tendency of remote teaching as an alternative to continue the learning-teaching processes. In this emergency context, the use of digital information and communication technologies (DICTs) became the predominant path to follow the work developed in schools (Senhoras & Paz, 2019).

In Brazil, the Ministry of Education (MEC), through Decree n° 343, from March 17, 2020, allowed the substitution of in-person classes in Brazilian education institutions for those using digital technologies (Barbosa et al., 2020). Thus, the fast and complex demand for change was challenging. There were difficulties in adapting to remote teaching, as the consistent use of technologies was quite timid in some education systems and levels (Todos pela Educação, 2020).

The changes boosted new models of educational communication and teaching-learning scenarios mediated through the Internet. The obligation of carrying out teaching-learning processes "remotely" demanded specific competencies from the teachers, which were not developed by many in their pre-service and/or continuous training. According to Silva et al. (2020), the challenges of dealing with DICTs, seeking to stimulate students to seek knowledge and guarantee the continuation of the school year, revealed teachers' unpreparedness to include these technologies in their practices.

Due to this unpreparedness and the urgency of changes, education migrated to online systems, transposing pedagogical methodologies and practices typical of physical learning territories, risking becoming a transmissible and instrumental teaching (Moreira et al., 2020). The virtual aspect represented challenges for teachers and institutions, leading to anguish, mistrust, and uncertainty for both parties (Almeida, 2020; Silva et al., 2020; Araújo et al., 2020). In this study, we seek to check which factors and conditions can be associated with the Burnout Syndrome symptoms and the life quality and indicators of teachers working in the pandemic.

## 1.1 The Burnout Syndrome and teachers' work during the pandemic.

The term burnout refers to something that no longer works due to the lack of energy. Burnout Syndrome is characterized by a process developed in the interaction between work environment and personal characteristics. It mainly occurs in professionals working in care and service activities, in which there are often emotional situations (Borges et al., 2002).

Studies about job dissatisfaction and the transformations in their relationships and nature show indicators that contributed to its development: high expectations at work, problems dealing with frustrations, and a stronger pressure to deliver results (Carlotto & Câmara, 2008). Considering the increasing number of workers with the syndrome, it started to be considered a health problem, registered in the ICD-10 (International Statistical Classification of Diseases and Related Health Problems) and Brazilian work laws. The World Health Organization (WHO) considers burnout one of North Americans and Europeans' main diseases, alongside cardiovascular diseases and diabetes.

The understanding of this syndrome's particularities can start from its disconnection (despite its correlation) with depression or anxiety. Burnout is exclusively related to the stress caused by an occupational environment, involving emotional exhaustion, depersonalization of activities, and decreased personal achievement in work (Maslach & Jackson, 1981). Dejours (1992) commented on the psychological implications caused by work, as its relationships often ignore factors like life history and workers' family bonds. The isolation and measures that led to remote work approximated personal and professional life, often making it impossible to "simply" separate them. These conditions made us question how to deal with a context in which all life scenarios meet, coexist, and merge from the experience of all professionals during the COVID-19 pandemic.

Even before the pandemic context, Silva et al. (2018) indicated high Burnout rates among teachers from different educational levels, public or private, reinforcing that teaching was one of the professional categories most affected by the syndrome. During the pandemic, teachers were one of the most affected by the impacts of the changes and measures adopted. Studies held about the impacts of the pandemic context on education have shown that the alterations in normal work conditions during the remote-teaching period can negatively affect teachers' psychosocial aspects and health, with a higher incidence of Burnout Syndrome (Flack et al., 2020; Sokal et al., 2020; Prado-Gascó et al., 2020; Pressley, 2021; Li et al., 2020).

The incompatibility between work demands and available resources can lead to teachers' stress and weariness (Sokal et al., 2020a). Prado-Gascó et al. (2020) reinforce these aspects in a study conducted with Spanish and Mexican teachers, where the available resources and information were considered insufficient. Another qualitative study described by Adarkwah (2021) held with university professors and students identified that among the barriers faced were

inadequate infrastructure, the rejection of online education, and the lack of digital competence and access to a high-quality internet connection.

Despite this, some factors can contribute to preventing and minimizing the syndrome's effects. Leiter (2015) highlights the sense of belonging and work recognition to help decrease burnout occurrences. For the author, some work conditions are also necessary, such as psychological security, appropriate work furniture and equipment, transparency in decision-making, rewards proportional to the work done, and tasks that match workers' values.

In the pandemic context, Pereira et al. (2020) point out that the quarantine and work intensification caused by remote activities made workers use strategies to cope with the demands, stress, and anxiety they suffered. In this sense, some studies held with teachers working during the pandemic pointed out some coping strategies and factors that helped teachers face the challenges, such as social support offers (Prado-Gascó et al., 2020), providing compatible resources with the work demands (Sokal et al., 2020a), a greater familiarity with online teaching (Shlenskaya et al., 2020), and mastering digital technologies (Sokal et al., 2020b).

In a longitudinal study with 1,626 Canadian teachers, Sokal et al. (2020b) identified that teachers' attitudes can help or hinder when their beliefs accept and do not deny the use possibilities of these resources, added to positive feelings, such as hope, empathy, and pleasure, which tend to facilitate change and bring less suffering and hardships for adaptation. In another study with Canadian teachers, Sokal et al. (2020a) show that exercise, healthy diet, and emotional self-care negatively correlate with Burnout Syndrome.

Certainly, the disease symptoms and other conditions associated with professional exhaustion impact the educational system and students' learning quality, as well as physical, emotional, and social problems. Hence, knowing teachers' personal and work challenges during the pandemic can help provide better conditions and establish strategies to minimize psychological suffering at work. Therefore, understanding and recognizing this reality can contribute to pointing out the variables able to prevent Burnout Syndrome.

## 2. Methodology

This is a mixed study of converging design, combining quantitative and qualitative methods to collect and analyze data to combine results (Creswell & Plano Clark, 2018).

In the quantitative phase of the research, we obtained the measures by collecting and analyzing numerical data and applying statistical tests (Collis & Hussey, 2005). The qualitative phase followed Bogdan and Biklen's (1994) perspective to understand in detail the context from the subjects' perspective. In this sense, the open questions in the questionnaire sought to validate and better understand the quantitative results (Creswell & Clark, 2018).

### 2.1 Characterization of research participants

We have a convenience sample assembled by disseminating the research in social networks and by broad contact with education professionals and institutions to reach the highest number of answers through an online questionnaire. We collected information from 438 teachers living in 17 Brazilian states in the country's five regions.

Among the participants, 75.3% (n=330) were women, and 24.6% (n=108) were men. Their ages varied from 23 to 70; the average age was 42.93, and the standard deviation was 9.66. Regarding marital status, 69.4% (n=304) declared themselves married or in a stable union, 22.3% (n=98) single, 7.7% (n=34) divorced, and 0.4% (n=2) widow/widower.

Regarding the schooling level, 13% (n=57) had a doctorate, 22.6% (n=98) held a master's degree, and 47% (n=206) had a specialization diploma. Concerning their undergraduate level, 17.5% (n=77) had finished their degree, 1.14% (n=5) had an incomplete degree, and 0.4% (n=2) only high school.

Amidst the participants, 78.7% (n=345) work in the public system, 18.9% (n=83) in the private system, and 2.2% (n=10) in both. Participants' work areas also vary within the school context, as seen in Figure 1.

**Figure 1**

*Participants' work areas (2001)*

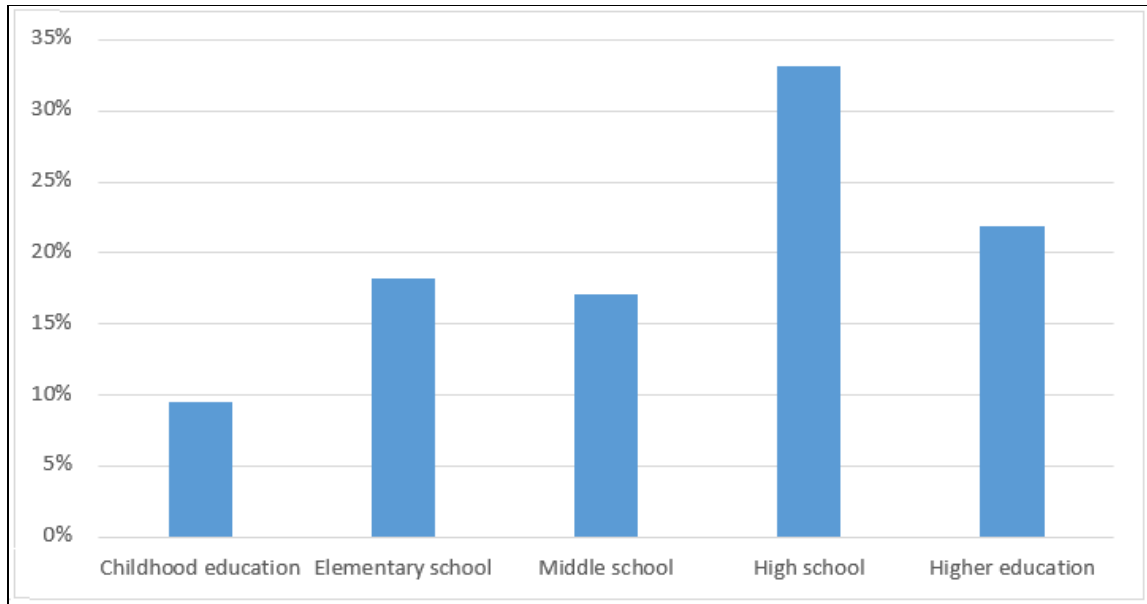
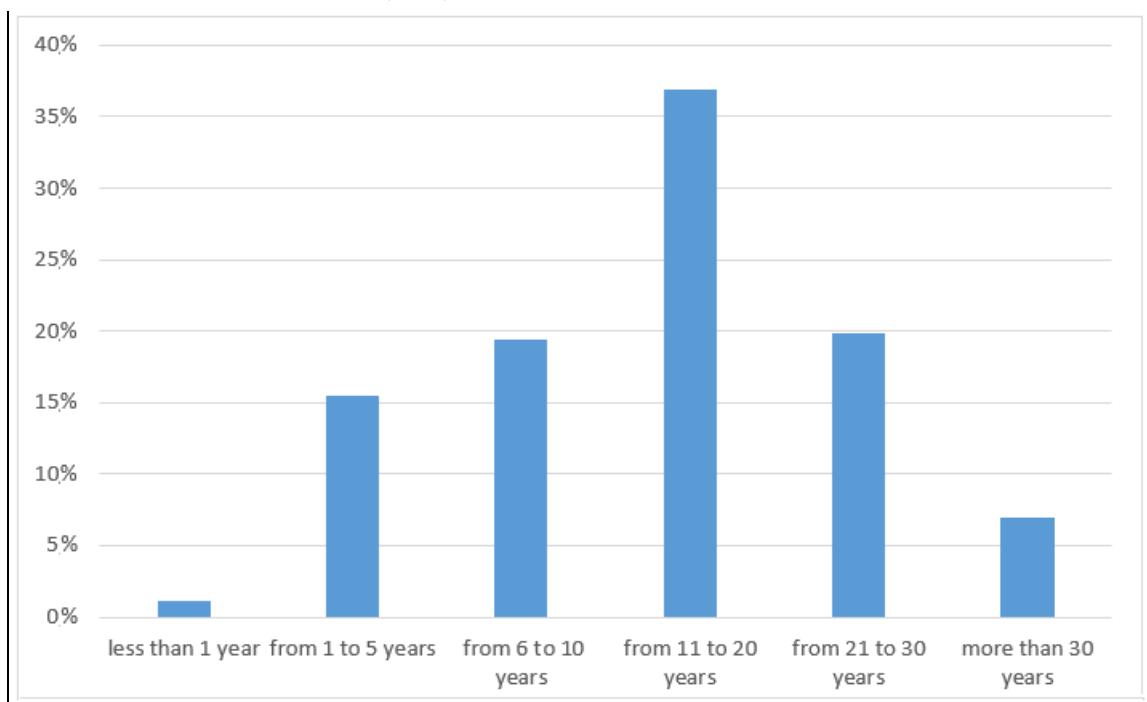


Figure 2 refers to participant's work experience.

**Figure 2**

*Participants' work experience (2021)*



Regarding their time working as teachers, they vary between less than a year of experience to 30 years: 1.1% (n=5) worked for less than one year, 15.5% (n=68) between 1 to 5 years, 19.4% (n=85) between 6 to 10 years, 36.9% (n=162) between 11 to 20 years, 19.8% (n=87) between 21 and 30 years, and 7% (n=31) had more than 30 years of experience.

## 2.2 Data collection instruments and procedures

Data collection was based on an online questionnaire composed of a set of objective questions and an open one applied at the end of 2020. The questions sought to collect data about the profile, work, support received, technology familiarity, and "mental health" history, including questions adapted from an inventory to evaluate Burnout Syndrome. The first category of questions collected information about participants' personal and professional profiles, such as name, sex, age, schooling level, modality of professional work, and workload. Regarding digital competencies, the respondents' profile sought to clarify previous experiences of digital technology use in their pedagogical practices, access to digital technologies or devices, and their conditions to access technologies.

Teachers' digital competencies were analyzed by counting the answers regarding the mastery of technological resources applied to teaching activities. The alternatives included, for example, the use of email, instant messengers (ex., WhatsApp), and web conference platforms, in which the teachers indicated if they had never used it, started using it during the pandemic, or had already used it. The scores were generated by adding the corresponding points of each answer (0 – never used; 1 – had never used and started to use in the pandemic; and 2 – already used).

Regarding work support during the pandemic, we systematized 11 statements through a *Likert* scale of 5 points (from completely disagree to completely agree). Examples of statements were "I have the support of those living with me" and "My work colleagues help me in the remote-teaching activities."

On the indicator of life quality and health of respondents, we organized nine indicators, such as diet quality, anxiety, and humor, from which the teachers should respond to each item expressing their health conditions and well-being, selecting one of the options: "worsened with the pandemic," "no changes" and "improved."



The inventory proposed results from the translation and adaptation of the *Maslach Burnout Inventory – General Survey* (MBI). The adaptation reduced from 22 to 20 statements and sought to contextualize the professional work during the pandemic. The answer alternatives used the *Likert* scale related to the frequency the respondents had the feeling or perception described, expressed into five frequency points (never, yearly, monthly, weekly, daily). We sought to understand, for example, if teachers "feel emotionally exhausted with work" and that "work in remote teaching was draining." The resulting test data was taken as a total score (numerical variable) without making the level correspondences on the three dimensions approached. Thus, the test result was analyzed as a syndrome indicator, not aiming to classify or diagnose the participants.

We also proposed two questions with "yes" or "no" answers to check if the respondents had friends and/or close people who got COVID-19 during the pandemic and if they had lost any friend or close person due to it. The last question, an open-ended one, sought to provide a space for respondents to write their remarks about their work as teachers during the pandemic, and add opinions and information not asked in the questionnaire.

To validate the questionnaire's form and content, we relied on the contributions of three university professors, PhD specialists with research experience. They validated the instrument through synchronic meetings. During the one-hour meetings, they first answered the research instrument, then their answers were opened, and finally, the questions were discussed. After each meeting with the specialists, the adequations were incorporated.

## 2.3 Data analysis

The questions sought to create scores of dependent and independent research variables from the scales used. We understand that a dependent variable is to be discovered or explained because it is influenced, determined, or affected by an independent variable.

When crossing the dependent variables with independent ones, we identified which factors and conditions associated with teachers' work during the pandemic were able to influence the factors related to Burnout Syndrome. We can see the variables used in this study in Table 1.

**Table 1**

***Variables used in the study (2021)***

<b><i>Independent variables (factors)</i></b>
<ul style="list-style-type: none"> <li>• Age</li> <li>• Sex</li> <li>• Workload</li> <li>• Knowledge area</li> <li>• Educational level taught</li> <li>• Access conditions to devices</li> <li>• Digital competence</li> <li>• Number of resources learned during the pandemic</li> <li>• Work conditions</li> <li>• Contact with COVID-19 (infection and losses)</li> </ul>
<b><i>Dependent variable</i></b>
<ul style="list-style-type: none"> <li>• Scores in the indicators of life quality and health</li> <li>• Score in the inventory survey for the Burnout syndrome (MBI)</li> </ul>

We used the software SPSS (*Statistical Package for the Social Sciences*) version 24 to analyze the quantitative data. We checked the normalcy of data through the tests *Kolmogorov* and *Shapiro Wilk* and the values of *Skewness* and *Kurtosis*. We held statistic tests to compare groups and conditions from *the Students' t-Test*, the Analysis of Variance (Anova) for the parametric data, and *Mann-Whitney* and *Kruskal-Wallis* for non-parametric ones. We also conducted association tests, such as Pearson correlation, using as a reference the following coefficient values: from 0.1 to 0.3 indicates a weak correlation; from 0.4 to 0.6 average; from 0.7 to 0.9 a high, and 1 a perfect correlation (Mattar & Ramos, 2021).

We analyzed the qualitative data using systematic procedures and objectives of content description based on inference (Bardin, 2009). We organized the categories and subcategories using Saldaña's (2016) methodology and the software NVIVO to reach the highest efficacy in treating results, inferences, and interpretations.

## 3. Results

Considering the quantitative results, we analyzed factors related to work conditions, previous and developed digital competencies due to remote teaching, life quality and health indicators, and the Maslach Burnout Inventory (MBI) result. The qualitative results were measured from the non-obligatory open question, aiming to register teachers' considerations about their work during the pandemic. In this question, 210 teachers described their experience teaching during this time; from these answers, we created 25 subcategories distributed into 7 analytical categories.

We analyzed the most frequent categories in the answers: classes, work overload, and emotions. Within the category "classes," the subcategories "teacher learning," "miss in-person contact," and "lack of interest and participation" were more frequent in the answers. In "work overload," the content analysis's subcategory "excess" was frequent. Finally, in the category "emotions," the most common was "frustration." Such grouping was done based on the content expressed in each answer and organized as in Table 2.

**Table 2**

*Categories and subcategories regarding teachers' perceptions of their work during the pandemic (2021)*

<i>Categories</i>	<i>Subcategories</i>	<i>Freq.</i>	<i>Examples</i>
Classes	Teacher learning	35	<i>"The pandemic stimulated me to learn about new technologies."</i>
	Challenging aspect	9	<i>"Challenging, it made me understand education through another perspective."</i>
	Lack of feedback	12	<i>"My greatest difficulty is having feedback from the student on my daily work proposal."</i>
	Lack of interest and participation	23	<i>"Students' participation is much lower than in-person."</i>
	Miss in-person contact	25	<i>"I miss the in-person classes with my students."</i>

	Adaptation	14	<i>"It was good, but the adaptation had to be very fast. In the beginning, it was more difficult, and in the end, I've been feeling more tired."</i>
Challenge	Difficulty	11	<i>"It was difficult to contact the students with no access to technologies and keep them motivated."</i>
	Planning	7	<i>"I divided the content into more sections so the students could understand better."</i>
Teacher's devaluing	Lack of support and information	18	<i>"I feel unsupported regarding school. I have no aid, information, or support. The position of the school was like, "you make do."</i>
	Resources	17	<i>"I made a large investment in a new notebook and a high-quality internet, and I have no adequate place in my house to work."</i>
Diseases	Poor health	9	<i>"Work in the pandemic made me sick, and I had to deal with the costs of medication and, though sick, I kept working."</i>
	Empathy	14	<i>"It was a moment of empathy but, at the same time, insecurity."</i>
	Frustration	23	<i>"The experience during the pandemic was frustrating from a pedagogical perspective."</i>
	Impotence and failure	9	<i>"I felt like a failure, incompetent."</i>
Emotions	Insecurity	11	<i>"Insecurity about the future of education and, consequently, our future as teachers, which increased in the pandemic."</i>
	Emotional problems	13	<i>"I had many emotional problems during the work days."</i>
	Revolt	8	<i>"For me, the remote teaching was just a make-believe."</i>
Positive experience	Good relationship	6	<i>"I discovered the importance of a good relationship with my students."</i>
	Overcoming	11	<i>"Work demanded overcoming"</i>
	Calmness	10	<i>"It's been calm, but I prefer in-person classes."</i>

	Exhaustion	16	<i>"I feel tired and overworked. I have much more work than before."</i>
	Excess	32	<i>"The work overload increased."</i>
Work overload	Lack of limits	14	<i>"Much pressure of people, with no day or time limits."</i>
	Drastic change	6	<i>"It was difficult because I had to change overnight the way of working."</i>
	Pressure and demand	10	<i>"Demand from the school"</i> <i>"Much pressure of people, with no day or time limits."</i>

In Table 3, we observe some descriptive statistics, which reveal that the workload perceived by teachers is much higher than what they were effectively hired for. The scale average was over 3.6 (corresponding to the range between 21 to 30 hours per week) to 4.19 (corresponding to the range between 41 to 50 hours per week). The excess of work can also be seen when teachers say they exceeded their working hours, including during the weekends, showing the difficulty of imposing limits and schedules to work remotely from their houses. If, on the one hand, using social networks and platforms to contact students and the intuition was perceived as positive and a learning experience, such interactions can also lead to work overload. This excess was shown in testimonies, such as:

*"The position of the school was like "you make do". I'm very very tired, mainly because I provided parents with my personal contact (I could not even choose if I wanted to make it available or not), and since March I received messages, calls, emails, during the weekend, the holidays, resting time. But I'm paid to work only during the morning shift" (Teacher 5).*

Regarding the number of devices, teachers had on average 2.61 devices, 1.89 devices connected to the Internet. Considering the access conditions and the devices in an accumulated score from 0 to 10. In Table 3, we see that the average of this indicator is 7.99,

**Table 3**  
*Descriptive statistics of the analyzed variables (2021)*

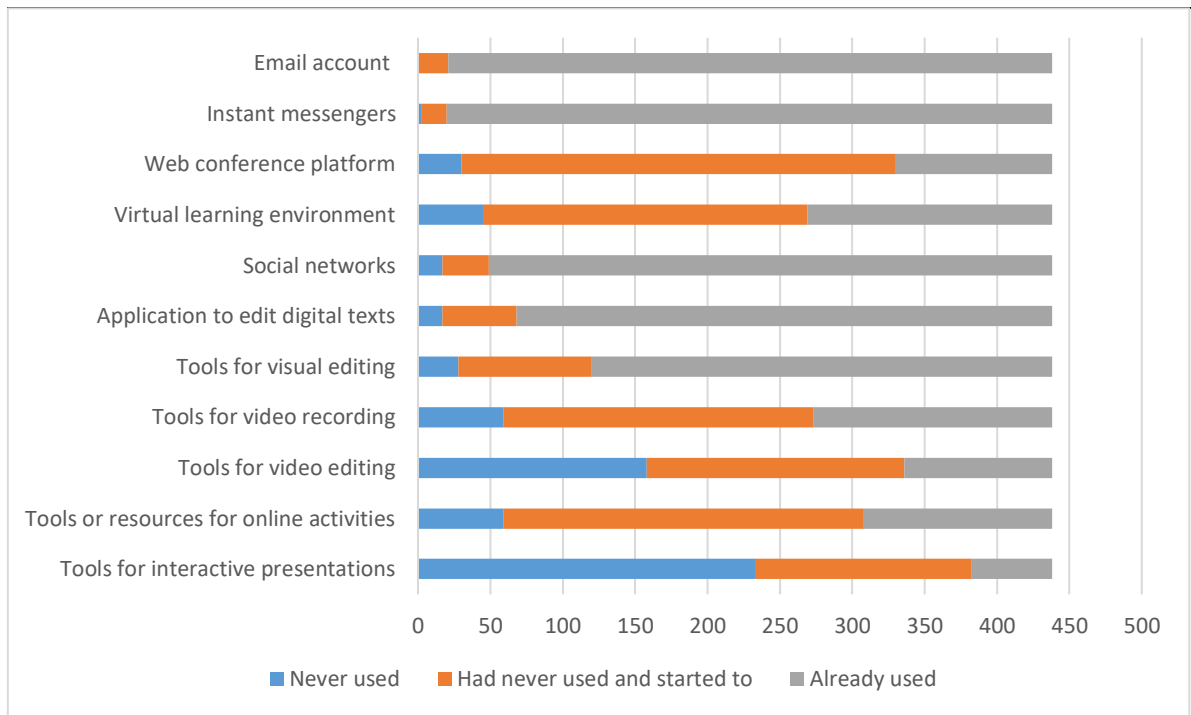
	<i>N</i>	<i>Minimum value</i>	<i>Maximum value</i>	<i>Average</i>	<i>Standard deviation</i>
Hired workload	438	1	6	3.60	1.07
Dedicated workload	438	1	6	4.19	1.49
Number of devices available	438	1	4	2.61	0.73
Number of devices connected to the Internet	438	0	2	1.89	0.32
Conditions to access the devices	438	2	10	7.99	1.78
Digital competence	438	3	22	15.55	3.52
Number of new digital resources learned	438	0	11	3.49	2.24
Work conditions	438	25	63	47.40	6.48
Life quality and health	438	-9	9	-4.98	3.27
MBI	438	6	72	42.44	13.08

Digital competencies were measured from a set of digital devices and resources teachers already used or started using. This indicator could vary between 0 to 22, with an average of 15.55, as shown in Table 3.

In Figure 3, we see the tools already used by teachers and those they started using during the pandemic. Before the pandemic, most teachers already used an email account. Only 21 teachers started to use this resource later. Online messengers, like WhatsApp and Telegram, were also widely used. Later, we can see that teachers already used social networks (n=389), tools to edit texts (n=370), and visual editing (n=318).

**Figure 3**

*Use of digital tools and resources before and during the pandemic (2021)*



Regarding the people who started using the technologies during the pandemic, in Figure 3, we highlight the web-conference platforms ( $n=300$ ), followed by tools or resources for online activities ( $n=249$ ) and record videos ( $n=214$ ). Still, in Figure 3, the counting of the average number of tools and resources teachers started using during the pandemic revealed a score of 3.49; that is, teachers learned to use more than 3 new tools or resources.

The development of digital competencies was perceived, at first, with some trepidation and insecurity but understood later as a different and enriching experience for their professional development. This is highlighted in the answers: "I learned in a light process and offered myself to help some colleagues so that they could also lose their fear of technologies" (Teacher 58) or yet "In the pandemic there were several possibilities to learn, to use technology, to deepen my knowledge, to be closer to my students through the WhatsApp, groups, the platforms Teams and Zoom. I did courses, learned more, to improve" (Teacher 3).

The qualitative analysis shows that teachers' learning during the emergency education period impacted the necessities of many, who had to learn how to use new technologies and ways of teaching and working. Maybe because of this, "Teacher learning" was the most frequent

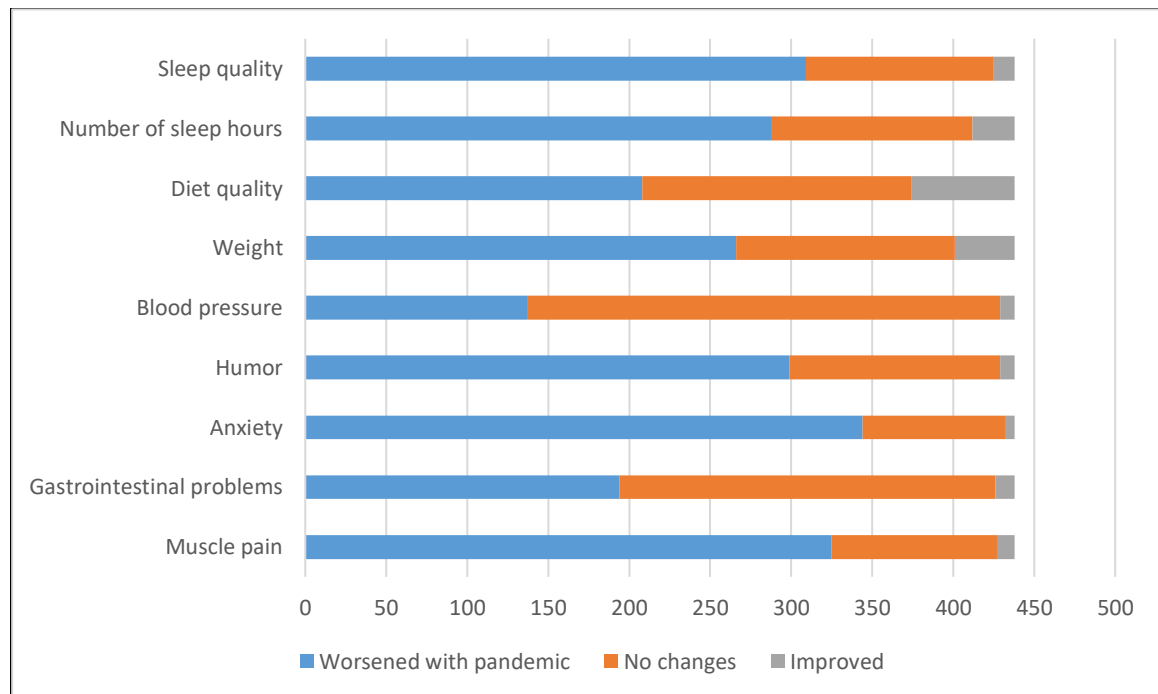
subcategory in the testimonies, adding up to 35 references, exemplified by “Work in the pandemic has been a challenge for me because it goes beyond my comfort zone and I learned many new things, mainly regarding the use of technologies” (Teacher 27).

Another aspect addressed work conditions, including interpersonal, institutional, technical, and pedagogical approaches to developing remote teaching activities. Table 3 shows that this indicator was, on average, 47.40 from a total that could reach 65 points.

Factors related to life quality and health showed teachers’ perception of physical and mental health indicators (if there was a decrease, kept the same, or improved). In Figure 4, we highlight anxiety (n=344), muscular pain (n=325), and humor (n=299) as the aspects that worsened the most on teachers’ perception. Few teachers indicated improvement, mostly diet quality (n=64) and weight (n=37).

**Figure 4**

**Factors related to teachers’ life quality and health (2021)**



The last aspect of Table 3 refers to the average score in the MBI inventory; the higher the score, the more evidence of symptoms related to the Burnout Syndrome. Teachers scored 42.44 points on average, within a maximum score of 80.



The analysis of MBI associations shows a significant difference when comparing male and female teachers, indicating that women scored higher on the inventory, as seen in Table 4. Another aspect indicates that knowing someone close who had COVID-19 or losing them to the disease was not significantly associated with the MBI score.

In Table 4, the variable life quality and health significantly differed regarding sex, showing that women also had a worse indicator. We also see that knowing or losing someone close to COVID-19 also impacted teachers' life quality and health.

**Table 4**  
*Independent t-test of the MBI variables and the indicator of life quality and health (2021)*

	<i>MBI</i>				<i>Life quality and health</i>					
	N	Average	Standard Deviation	T	P	Average	Standard deviation	t	p	
<b>Sex</b>										
Women	330	43.44	12.01	2.82	0.005	-5.27	3.08	-3.34	0.001	
Men	108	39.38	15.55			-4.08	3.62			
<b>Close people with covid</b>										
Yes	384	42.80	13.04	1.56	0.118	-5.24	3.19	-4.54	0.000	
No	54	39.83	13.12			-3.12	3.2			
<b>Lost someone to COVID</b>										
Yes	169	42.60	13.07	0.21	0.831	-5.42	3.4	-2.22	0.027	
No	269	42.33	13.09			-4.71	3.15			

The analysis of the MBI variable regarding teachers' area of knowledge through ANOVA does not show a significant difference. However, there is a difference regarding work levels. Higher scores were presented by teachers working in middle and elementary schools: 46.40 and 45.47, respectively. Higher education teachers scored the lowest.

The analysis of life quality and health also showed significant differences depending on work levels, with a higher negative indicator of worsening from teachers working in the middle (-5,98) and elementary (-5,64) schools, and a lower score for teachers working in Higher Education, as shown in Table 5.

**Table 5**

*Analysis of the MBI variable regarding teachers' knowledge area, using Anova (2021)*

	MBI					Life quality and health			
	N	Average	Standard deviation	Z	p	Average	Standard deviation	Z	p
<b>Knowledge area</b>									
Human sciences	162	42.39	1.50			-4.76	0.27		
Biological and Health sciences	47	43.36	1.72			-5.48	0.42		
Linguistics, Languages, and Arts	107	44.23	1.09	1.04	0.393	-5.34	0.30	1.54	0.174
Exact and Earth Sciences	76	40.68	1.68			-5.21	0.37		
Engineering degrees	21	41.80	3.13			-4.23	0.69		
Applied Social Sciences	25	39.20	2.83			-3.84	0.59		
<b>Work levels</b>									
Childhood Education	42	40.52	1.44			-5.16	0.42		
Elementary School	80	45.47	1.28			-5.98	0.28		
Middle School	75	46.40	1.37	7.54	0.000	-5.64	0.26	5.09	0.001
Vocational and high school	142	42.83	1.14			-4.63	0.30		
Higher Education	96	37.06	1.40			-4.08	0.34		

Data analysis sought to identify the correlation between the evaluated factors to check the associations. In Table 6, we can observe Pearson's correlation coefficients related to the association between the factors.

Age has weak negative correlations with digital competence, indicating that the higher the age, the lower the indicative score of this competence. The association of age with MBI shows that the younger the teacher, the lower the score related to Burnout Syndrome.

Table 6 demonstrates that the conditions to access technological devices have weak positive correlations with all factors, indicating that as the value of one factor increases, the other also increases, except the result of the MBI inventory, which presented a weak negative correlation. Digital competence demonstrated a weak positive correlation with life quality and health and a weak negative with the amount of resources learned during the pandemic and the MBI. The amount of resources learned reached a weak positive correlation with work conditions

and a weak negative one with the quality of life and health. Finally, in Table 7, the negative average correlation between life quality and health and MBI stands out, indicating that the better this factor, the lower the inventory scores.

**Table 6**

*Pearson correlation coefficient of the analyzed factors (2021)*

	1	2	3	4	5	6	7
1. Age		0.05	-0.17**	-0.20	0.27	0.64	-0.16**
2. Conditions to access devices			0.34**	-0.11*	0.15**	0.24**	-0.35**
3. Digital competence				-0.34**	-0.05	0.19**	-0.22**
4. Number of resources learned					0.17**	-0.11**	0.09
5. Work conditions						-0.06	-0.02
6. Life quality and health							-0.54**
7. MBI							

Connecting the elements of life quality and health with the qualitative analysis, we checked that, within the Emotion categories, the subcategory “Frustration” was the most cited, with 23 references, highlighting elements such as: “*While I tried to teach, I was forced to learn how to deal with technological supports that I didn't know and it was quite complicated. I couldn't devote myself as I should, not one nor the other. And that made me really frustrated*” (Teacher 105).

This frustration, shown in teachers' testimonies, expressed concerns with infrastructure and students' learning. Teachers also pointed out the mismatch between the expectations raised by those who reformed their teaching plans and different tools and the reality, due to the lack of organization structure, lack of students' interest, and support from parents and managers, reflected in the statement:

*“The institutions in-person, with no structure and support for remote work, associated to corporatism, and power dispute in the academic field and top-down pressures and documents, with no dialogue with the professionals caused frustrations and impacted even more people's illness that, as I, were already sick and suffering psychologically because of organization practices that hindered our mental health”* (Teacher 89).

Another highly frequent subcategory in teachers' answers was "Lack of interest and participation" in the category "Classes" with 23 references. Teachers' expectations of students' participation were recurrent. They perceived decreased interaction and a lack of student interest, noticeable at all educational levels. However, some teachers believe this resulted from what was

already happening in the classrooms but became more evident in remote teaching: "*Very difficult, a lack of interest from parents/students. They always raise some barriers to the activities. The teacher always needs to contact families about the importance of doing the activities*" (Teacher 166).

## 4. Discussion

The pandemic urgency created a fast, complex, and challenging alteration in the learning-teaching processes. As a consequence of this lack of preparation and urgency of changes (Moreira et al., 2020), there were countless difficulties in adapting to the remote teaching model (Todos pela educação, 2020), showing teachers' unpreparedness to include technologies in their practices (Silva et al., 2020) and teachers' high level of emotional stress (Araújo et al., 2020; Cipriano & Almeida, 2020; International Labour Organization, 2020; Souza et al., 2021).

This study pointed out that teachers' perceived workload is higher than the effectively hired, indicating a greater dedication and demand when working in remote teaching, related to the subcategory work overload in the testimonies. We can also see the need to learn new digital resources that started to be incorporated into the pedagogical practices during the pandemic, which also demands time and dedication to master. This technological learning is highlighted in the research developed by Rocha et al. (2020), which interviewed 123 teachers between 23 and 61 years old, showing an increase in the appropriation and use of digital technologies in education, pointing out a greater familiarity with digital resources and identification of use possibilities in education.

Besides this, teachers' testimonies show a direct relation with the Burnout Syndrome by bringing elements related to physical and emotional stress (such as frustration, broadly cited by teachers) and showing characteristic symptoms, such as extreme fatigue, emotional exhaustion, chronic stress, and depersonalization, factors pointed out in Trigo, Teng and Hallak (2007) study.

The results found regarding life quality and health in the t-test analysis show that knowing someone close who had COVID-19 or losing someone to it impacted teachers' life quality and health. However, there were no repercussions in the MIB, which is more closely

related to the professional aspect, because, according to Maslach and Jackson (1981), Burnout Syndrome is exclusively related to the stress created by the occupational environment.

According to Maslach and Jackson (1981), interpersonal contact influences the development of this disorder and, as pointed out by Carlotto and Câmara (2008), indicators such as high expectations at work and more significant pressure to deliver results can also contribute to its development. Regarding this, we can affirm that, due to COVID-19, there was a considerable change in the interactions that took place remotely, presenting the "lack of in-person contact" as an element of teachers' work, as well as in work conditions and expectations.

The analysis of differences found in the relation between MIB and life quality and health indicators showed that Elementary and Middle school teachers suffered more when compared to other educational levels. Considering pedagogical aspects and remote student interaction, we can suppose there were greater needs to adapt at those levels. Teachers in higher education had the lowest MBI and life quality and health scores, indicating less suffering. This result can indicate that, in higher education, the technological resources, such as learning virtual environments, were already used before the pandemic. For example, we highlight many initiatives offering online courses using digital technologies. From another perspective, adult students have greater autonomy to organize their studies, contrary to children who need the direct support of an adult.

This result reinforces what other researchers also pointed out, as observed by Flack et al.'s (2020) study with 3,500 people in Australian and New Zealand schools. It identified that primary teachers were significantly more prone to high-stress levels. According to the authors, this is influenced by the communication difficulties with the students due to their limited capacity to communicate through technology and the need for parental support. Thus, the younger the students, the greater the demand for interventions.

Studies prior to the COVID-19 pandemic, such as Diehl and Marin (2016), already indicated that elementary and middle school teachers were more prone to Burnout Syndrome as they were more exposed to conflict environments and a high level of work demands, such as the number of extra class tasks, meeting, additional activities, time pressure, besides dealing with frequent inadequate behaviors from students. Thus, we can suppose that the pandemic context aggravated these factors at this educational level.

Besides this, as the DICTs establish themselves as essential tools to implement several work activities, the access to them and how teachers had to appropriate themselves of new resources could be influential factors in burnout development. Thus, the challenge of using new resources to lead the teaching processes and the need to solve new problems is added to the equation. Trigo et al. (2007) point out that people with the syndrome show less interest in innovative actions because of the added stress of creativity and work commitment.

The lack of competencies to deal with digital technology creatively and innovatively can reflect on teachers' work. In this perspective, Carrillo Béjar (2020) indicates that the excess and the lack of enough technology to implement work can contribute to the emergency or worsening of the syndrome.

This study also showed that the better teachers' life quality and health, the lower the indicator of Burnout Syndrome, i.e., the lower the MBI score. Another related factor is that as teachers' access level to technological devices increases, so do the rates of digital competencies, number of resources learned, work conditions, and life quality and health.

From our findings, we also highlight that, during the pandemic, teachers were extremely pressured to deal with unknown people, technologies, and teaching methods, face additional preparation demands, and consider the losses caused by the lack of social contact with students and colleagues. Furthermore, there was a concern about students' education and psychological well-being, mainly those in elementary and middle school (Flack et al., 2020).

Another factor associated with higher suffering indicators during the pandemic was gender. Women had higher scores in MBI and worse life quality and health indicators. Previous studies conducted with teachers showed that women had higher levels of Burnout Syndrome dimensions when compared to men (Molero et al., 2020; Caamaño, 2016; Martínez, 2015). Similarly, the result obtained when applying MBI in this study identified a significant difference when comparing male and female teachers, indicating that women had a higher score in the inventory. There were also significant differences in the variable life quality and health, showing that women had a lower indicator in this issue. Therefore, the results reinforce that, during the pandemic, female teachers suffered more work pressure. Besides work activities, they continued to care for the children and the home, daily solving unpredicted problems (Rocha, 2021).

In this perspective, when analyzing working women narratives, Aldossari & Chaudhry's (2021) study highlighted the increase in work and household responsibilities due to the

pandemic. Women had to implement several coping mechanisms, such as disengagement, denial, and energy preservation. Women's psychological manifestations of stress and burnout intensified as an answer to the increasing household demands during the pandemic and confinement. The study also highlights that women needed coping mechanisms on two fronts – work and home. Furthermore, because of gender inequality, there can be a burnout increase, leading to creativity loss, deterioration of work performance, and productivity loss. According to Aldossari & Chaudhry (2021), the pandemic portrayed gender inequality as, in many homes, women needed to conciliate their full-time work as teachers with childcare and household chores. We also stress that one of the psychosocial factors associated with work, likely to affect teachers' mental health, is the binomial work-family (Varela et al., 2020). Even though personal life might have been restricted during the pandemic, the family side of the 'work-life' equation broadened, and the high level of work-life integration disoriented the location and time of the roles played regarding work and family. Authors such as Schieman et al. (2021) affirm that these patterns do not significantly change by sex but were broadened among individuals with high levels of integration work-home and circumscribed by the presence of younger children at home.

Age showed weak negative correlations with digital competencies, indicating that the older the person, the lower the indicative score of this competence, and with MBI, showing that the younger the person, the lower the score related to the Burnout Syndrome. In a way, this statement agrees with Molero et al. (2020) studies that point out that teachers with less experience in a certain work context tend to manifest severe burnout. These levels tend to decrease when work experience increases, hence adding abilities of work management and emotion regulation. Adapting the authors' findings to the context of this study, we understand that implementing remote activities with digital technologies demanded multiple competencies from teachers in different situations, creating a strong sensation of stress. Nonetheless, we can infer that younger teachers, though with less work experience, were more familiar with technology and felt more confident to apply it in their remote pedagogical practices when compared to older ones. This factor influenced the higher levels of Burnout Syndrome in the latter group.

About this factor, Cruz's (2021) study stands out. It compares the narratives of two teachers raising issues related to the use of technologies during the pandemic: a younger teacher is much more involved with technologies, excited with the effective arrival of technologies, and

dismisses the problems arising from remote teaching. The other teacher, more experienced, with little knowledge of new technologies, perceives this movement with certain strangeness and rejection, frustrated with technology at work. The author considers the first teacher a classic example of a young teacher born in the 1990s, belonging to the Y generation and knowledgeable of new technologies (Cruz, 2021).

Another broader and more recent study about teachers' stress in Portugal (Varela et al., 2020) involved around 16,000 teachers. It identified that more than 60% suffered from emotional exhaustion, meaning a profound malaise in the profession. The authors highlight that the teachers were aging and worked for a long time, a significant number between 20 to 40 years of work, and were more vulnerable to burnout.

Verdasca's (2021) study reinforces that most teachers had no experience nor technology to implement online teaching-learning experiences, affirming that the unexpected pandemic reality forced adaptations that the professionals were not ready for, such as changes in work methods, evaluation, and practices.

Hence, the conditions previous to the pandemic related to teacher training, integration of digital technologies in their pedagogical practices, material and institutional work conditions, and social and cultural conditions, which also reflect issues of gender and age, were broadened and aggravated during the pandemic, leading to the decrease of teachers' life quality and health, experiencing greater psychological suffering.

## 5. Final remarks

Our study pointed out that teachers' perceived workload was more significant than the one they were effectively hired, indicating that remote teaching required more dedication and was more demanding. We also observed a high level of teachers' learning how to use new digital resources that started to be incorporated into the pedagogical practices during the pandemic.

The access to digital resources is directly related to digital competence rate, number of resources learned, work conditions, and life quality and health. Furthermore, the disparity analysis found on the factors regarding MIB and life quality and health indicated that Elementary and Middle school teachers suffered more in their work activities and the related indicators.



We identified that the better life quality and health, the lower the Burnout Syndrome indicator. This study showed that women have higher Burnout Syndrome levels when compared to men, as well as a lower indicator of life quality and health.

Another finding indicates that the younger teachers adapted better to the use of DICTs when compared to older ones. Hence, this learning scenario marked by challenges, sicknesses, emotions, positive experiences, and work overload demonstrated the impacts of teaching transformations in that period.

Further studies could follow the same group of teachers who continued working remotely to check if the factors related to the Burnout Syndrome increased or decreased with time, considering some elements, such as teachers' digital competencies and experience in remote teaching.

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