

## **Manifestation of stress in education professionals in the port region of Baixada Santista, SP, Brazil, during the COVID-19 pandemic**

**Manifestação do estresse em profissionais da educação na região portuária da Baixada Santista, SP, Brasil, durante a pandemia do COVID-19**

**Manifestación del estrés en profesionales de la educación en la región portuaria de Baixada Santista, SP, Brasil, durante la pandemia del COVID-19**

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### **Abstract**

**Objective:** The objective of this research was to evaluate stress in teachers in the five areas of Education (Early Childhood Education, Elementary School I and II, High School and University). **Methods:** A total of 125 teachers from Baixada Santista, SP, Brazil, were included. Physical and psychological stress in their lives were evaluated, using the Marilda Lipp Stress Symptom Inventory (ISSI) test. Symptoms were assessed in the first 24 hours, 1 week and after 1 month. It was applied remotely, in a single application, from April to June 2021. **Results:** Out of the total of 125 teachers, 92 had stress and 33 had no stress. Out of the 111 female participants, 84 had stress and 27 had no stress, whereas out of the 14 male participants, 8 had stress and 6 had no stress. Of the 92 participants that showed stress, 5 participants were in the Alert Phase, 49 participants were in the Resistance Phase and 38 participants were in the Exhaustion Phase. 39 participants had Physical symptoms, 5 participants had Psychological symptoms and 48 participants had both symptoms. **Conclusion:** It is important to reflect on the importance of stress prevention within educational institutions, aiming to provide a better quality of life for teachers.

**Keywords:** Stress; Burnout syndrome; Education professionals; Teaching; COVID-19.

### Resumo

**Objetivo:** O objetivo desta pesquisa foi avaliar o estresse em professores das cinco áreas da Educação (Educação Infantil, Ensino Fundamental I e II, Ensino Médio e Universitário). **Metodologia:** Foram incluídos 125 professores da Baixada Santista, SP, Brasil. Foram avaliados o estresse físico e psicológico em suas vidas, por meio do teste Marilda Lipp Stress Symptom Inventory (ISSI). Os sintomas foram avaliados nas primeiras 24 horas, 1 semana e após 1 mês. Foi aplicado remotamente, em uma única aplicação, de abril a junho de 2021. **Resultados:** Do total de 125 professores, 92 apresentavam estresse e 33 não apresentavam estresse. Dos 111 participantes do sexo feminino, 84 apresentavam estresse e 27 não apresentavam estresse, enquanto dos 14 participantes do sexo masculino, 8 apresentavam estresse e 6 não apresentavam estresse. Dos 92 participantes que apresentaram estresse, 5 participantes estavam na Fase de Alerta, 49 participantes na Fase de Resistência e 38 participantes na Fase de Exaustão. 39 participantes apresentaram sintomas físicos, 5 participantes apresentaram sintomas psicológicos e 48 participantes apresentaram ambos os sintomas. **Conclusão:** É importante refletir sobre a importância da prevenção do estresse dentro das instituições de ensino, visando proporcionar uma melhor qualidade de vida aos professores.

**Palavras-chave:** Estresse; Síndrome de Burnout; Profissionais da educação; Ensino; COVID-19.

### Resumen

**Objetivo:** El objetivo de esta investigación fue evaluar el estrés en docentes de las cinco áreas de la Educación (Educación Infantil, Básica I y II, Bachillerato y Universidad). **Métodos:** Se incluyeron un total de 125 profesores de Baixada Santista, SP, Brasil. Se evaluó el estrés físico y psicológico en sus vidas, mediante el test Inventario de Síntomas de Estrés de Marilda Lipp (ISSI). Los síntomas se evaluaron en las primeras 24 horas, 1 semana y después de 1 mes. Se aplicó de forma remota, en una sola aplicación, de abril a junio de 2021. **Resultados:** Del total de 125 docentes, 92 tenían estrés y 33 no tenían estrés. De las 111 mujeres participantes, 84 tenían estrés y 27 no tenían estrés, mientras que de los 14 hombres participantes, 8 tenían estrés y 6 no tenían estrés. De los 92 participantes que mostraron estrés, 5 participantes estaban en la Fase de Alerta, 49 participantes estaban en la Fase de Resistencia y 38 participantes estaban en la Fase de Agotamiento. 39 participantes tenían síntomas físicos, 5 participantes tenían síntomas psicológicos y 48 participantes tenían ambos síntomas. **Conclusión:** Es importante reflexionar sobre la importancia de la prevención del estrés dentro de las instituciones educativas, con el objetivo de brindar una mejor calidad de vida a los docentes.

**Palabras clave:** Estrés; Síndrome de Burnout; Profesionales de la educación; Enseñanza; COVID-19.

## 1. Introduction

Teachers and professors are exposed to stress on a daily basis. Their occupational stress may consist of some aspects, such as pupil misbehavior, time and resource difficulties and management, professional recognition needs, long working hours and poor relationships (Matsushita & Yamamura, 2022). These factors are already present in normal situations, but, in addition to them, the COVID-19 pandemic brought chaos, uncertainties, confusion and panic to every sector, including education (Wong et al. 2021). It caused nationwide school closures (Misirli & Ergulec, 2021) and, to avoid the quick spread of the virus, while continuing the academic year, educational institutions started to cancel face-to-face classes and began the switch to remote classes (Oliveira et al., 2021). Teaching centers have had to assist faculty, staff, and students to make the shift to emergency remote teaching (Schlesselman et al., 2020) and teachers were held responsible for moving education to the virtual space, even if they had no previous experience in distance education (Jakubowski & Sitko-Dominik, 2021), and with little time given for preparation (Jelińska & Paradowski, 2021). Converting an in-person course to an online format requires time to consider delivery methods, develop alternative student assessments, and learn how to engage in online pedagogy (Walsh et al., 2021), and teachers have had to do it in an emergent and scary situation. Consequently, the pandemic led to even higher levels of stress, a condition that is associated with poor health outcomes, including psychological distress and burnout (Ozoemena et al., 2021).

Burnout is defined as a psychological syndrome resulting from poorly managed chronic workplace stress. It is characterized by three dimensions: feelings of exhaustion or energy depletion; increased mental distance from one's job, or feelings of cynicism or negativism related to one's job; and reduced professional efficiency (WHO, 2020; Alsalhe et al., 2021). High demands, work injustice, low job control, role conflicts, high workload, low reward, lack of support, and job insecurity are possible risk factors for this syndrome (Arvidsson et al., 2019; Seibt and Kreuzfeld, 2021). Compared to other

professionals, teachers are more affected by work stress, anxiety, fatigue and sleep problems. Teacher burnout has been identified as a worldwide problem and its prevalence can fluctuate between 0 and 71% (Seibt & Kreuzfeld, 2021). This high prevalence implies that psychological distress and burnout among teachers should be given urgent attention (Ozoemena et al., 2021).

With the aim of identifying and combating the high levels of stress in the lives of these professionals, the Lipp Stress Symptom Inventory (LSSI) test meets the identification of stress in the lives of professionals who deal directly with the public. LSSI is an easy-to-apply test that aims to objectively identify the symptoms in people, their typology (somatic or psychological) and the stage they are in. As it is a simple test and quick to apply, it can be applied in about ten minutes. It is composed of three charts analyzing the four phases of stress that the subject may experience at some point in life (Lipp, 2002). In the test, the number of physical symptoms appears in greater quantity than the number of psychological symptoms, with a total of 37 questions of Somatic background and 19 of Psychological background. Some symptoms are repeated, differing only in intensity. It presents a total of 53 questions about the affected symptoms (Lipp, 2002). The test was validated in 1994 by Marilda Lipp and Guevara, and is widely used today in clinical research in the area of stress, in Brazil.

The present study aimed to evaluate the levels of stress in a sample of teachers, from public and private schools, in the five aspects of Education (Early Child Education, Elementary School I and II, High School and University) in Baixada Santista, SP, Brazil. The specific objective was to verify the Physical and Psychological stress is in their lives, through the Lipp Stress Symptom Inventory (LSSI), aiming at the prevention and identification of stress.

## 2. Methodology

After a narrative literature review on the topic, decisions regarding the questionnaire and population were carefully made, to design this observational study (Koche, 2011; Ludke & Andre, 2013; Yin, 2015; Severino, 2018; Pereira et al., 2018; Estrela, 2018). The data for this study were collected through the ISSL test in a sample of 125 teachers from Baixada Santista, from Early Childhood Education, Elementary School I and II, High School and University Education, to verify the level of stress of teachers in the middle of a pandemic acting remotely in their classes.

The project was approved by the Research Ethics Committee of *Universidade Metropolitana de Santos*, under process number 46951821.6.0000.5509. All participants signed the Free and Informed Consent Term, which contained information about the research, however, all participant individual data remained anonymous and were only disclosed collectively, respecting Resolution 466/2012 of the National Council of Health.

The study had as inclusion criteria teachers of the five pillars of Education of both sexes, who were teaching remotely or hybridly during the pandemic period, since the beginning of the school year. If the participants were withdrawn from their functions, they would be excluded from the research as an exclusion criterion.

The ISSL assessment questionnaire consists of 53 questions. Out of these 53, 15 refer to stressful symptoms that they have experienced in the last 24 hours, 15 are about symptoms that they have experienced in the last week, and the last 23 questions are about the symptoms experienced in the last month. The participants answer by marking an "X" when they felt the symptom at the given time.

The test was applied remotely, sent to the e-mail of the participants that were previously selected by the researcher. A meeting via the Zoom platform was offered, in case it was necessary to clarify any questions about the research.

For the statistical analysis of the research, a software responsible for the statistical information of the collected data was used. Data entry and processing took place through Word, Excel, Power-Point and Graphpad Instat V. 3.06.

### 3. Results

Between April and June of 2021, 125 teachers took part in the research. Among the participants, 88.8% (111) were female and 11.2% (14) were male; 37.6% (47) were aged between 20 and 40 years; 55.2% (69) were between 41 and 61 years old and over 62 years old corresponded to 7.2% (9) of the participants.

Regarding the areas occupied by the participants, 20.8% (26) worked in Early Childhood Education, 41.6% (52) in Elementary School I, 38.4% (48) in Elementary School II, 20.8% (26) in High School and 16.8% (21) are University professors. Some teachers worked in more than one aspect of education.

In Table 1, the symptoms experienced by the participants in the last 24 hours, before answering the questionnaire, are listed by percentage of positive answers. Table 2 shows the symptoms experienced in the last week and Table 3 displays the symptoms in the last month before answering the questionnaire.

**Table 1** - Symptoms experienced by participants in the last 24 hours before answering the questionnaire.

Symptoms in the last 24 hours	%
Cold feet and hands	12%
Dry mouth	26,4%
Knot in the stomach	29,6%
Increase in Sweating	23,2%
Muscle tension	64,8%
Jaw clenching	42,4%
Transient diarrhea	16%
Insomnia	51,2%
Tachycardia	30,4%
Hypertension	19,2%
Sudden Arterial Hypertension	9,6%
Appetite change	36%
Sudden increase in motivation	20%
Sudden enthusiasm	12,8%
<b>Sudden urge to start new projects</b>	<b>20,8%</b>

Source: Personal archive.

**Table 2** - Symptoms experienced in the last week before answering the questionnaire.

Symptoms experienced in the last week	%
Problem with memory	60,8%
General malaise, with no specific cause	47,2%
Tingling of the Extremities	24,8%
Feeling of Physical Wear	76%
Change of Appetite	36%
Appearance of skin problems	26,4%
Arterial hypertension	12%
Constant tiredness	69,6%
Appearance of ulcer	2,4%
Dizziness/Feeling of floating	31,2%
Excessive emotional sensitivity	49,6%
Doubts about yourself	32,8%
Constantly thinking about one thing	36%
Excessive irritability	58,4%
<b>Decreased libido</b>	<b>39,2%</b>

Source: Personal archive.

**Table 3** - Symptoms experienced in the last month before answering the questionnaire.

Symptoms in the last month	%
Frequent diarrhea	10,4%
Sexual difficulties	23,2%
Insomnia	54,4%
Nausea	17,6%
Tics	8%
Continued arterial hypertension	13,6%
Prolonged skin problems	20%
Extreme change in appetite	18,4%
Excess gases	28%
Frequent dizziness	24,8%
Ulcer	3,2%
Infarction	1,6%
Inability to Work	6,4%
Nightmares	21,6%
Feeling of Incompetence	35,2%
Will to run away from everything	57,6%
Apathy, depression or prolonged anger	31,2%
Excessive tiredness	73,6%
Constantly thinking/talking about one subject	32,8%
Irritability with no apparent cause	51,2%
Daily anguish/anxiety	57,6%
Emotional hypersensitivity	40,8%
<b>Loss of Sense of Humor</b>	<b>32%</b>

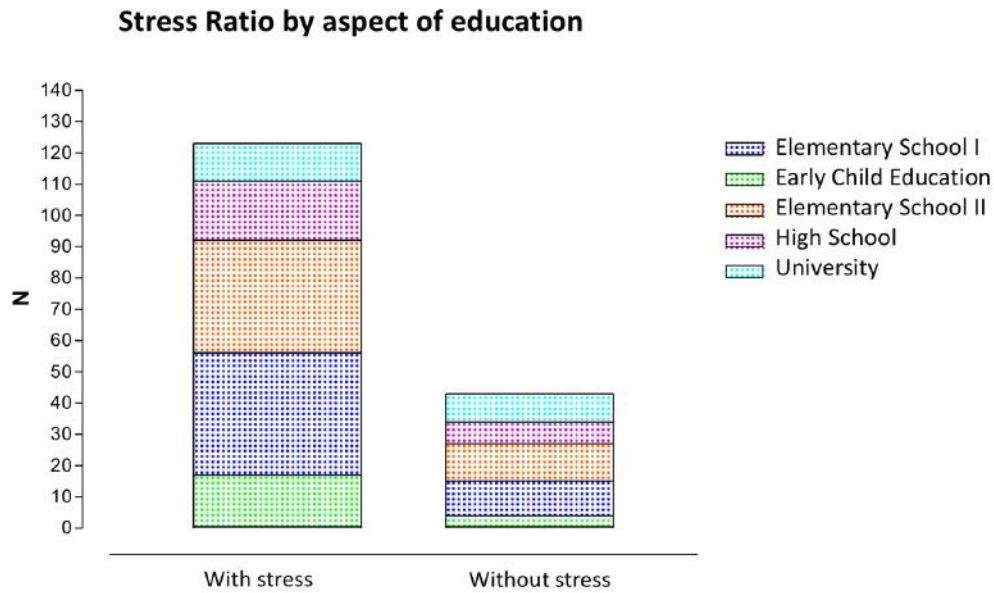
Source: Personal archive.

According to the data collected, out of the 11.2% of the participants who were male, 57.14% had symptoms of stress (8 participants) and 6 participants (42.85%) had no symptoms of stress. Regarding the female participants, who included a total of 88.8% (111), 75.67% (84) had symptoms of stress and 24.32% (27) had no symptoms.

According to the ages of the participating teachers, from 20 to 40 years old (37.6% “47”): 35 (74.46%) had symptoms and 12 (25.53%) did not. From 41 to 61 years (55.2% “69”): 51 (73.91%) with symptoms and 18 (26.08%) without symptoms; and over 62 years (7.2% “9”): 6 (66.66%) had symptoms of stress and 3 (33.33%) did not.

Regarding the distribution in the aspects of Education: Early Childhood Education teachers totaled 20.8% (26) of the participants, 65.38% (17) had symptoms of stress, and 5.38% (4) had no symptoms. Out of the total of 40% (50) teachers of Elementary School I, 39 (78%) had symptoms and 11 (22%) did not. In Elementary II, out of the total of 38.4% (48) of the participants, 36 (75%) had symptoms and 12 (25%) did not. In high school (20.8% “26”), 19 (73.07%) had symptoms and 07 (26.92%) had no symptoms of stress. Regarding the 16.8% (21) of University Professors, 12 (57.14%) had symptoms and 9 (42.85%) had no symptoms. Those percentages are illustrated in Figure 1.

**Figure 1** – Correlation of stress by aspect of education.

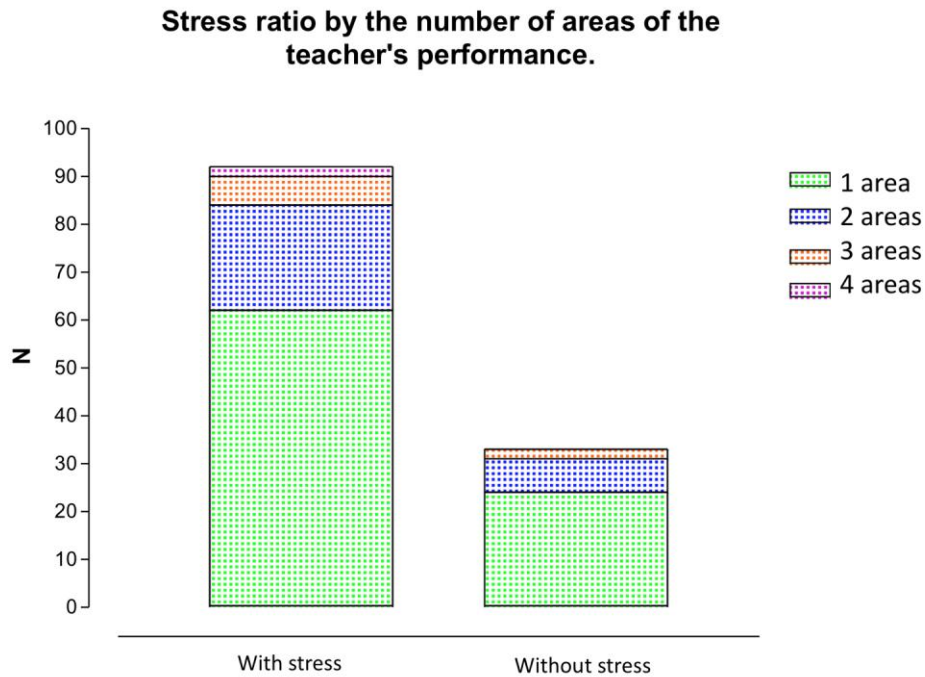


Source: Personal archive.

Regarding the relationship of stress by the number of strands of teaching activity (areas of education) (Figure 2): 68.8% (86) work in one strand and the data showed that 62 (72.09%) had symptoms and 24 (27.09%) did not. 23.2% (29) who were active in 2 aspects totaled 22 (75.86%) with symptoms and 7 (24.13%) without symptoms. 6.4% (8) were active in 3 areas, with symptoms of stress in 6 (75%) and without symptoms of stress in 2 (25%). 1.6% (2) teachers were active in the 4 areas and all of them had symptoms of stress.



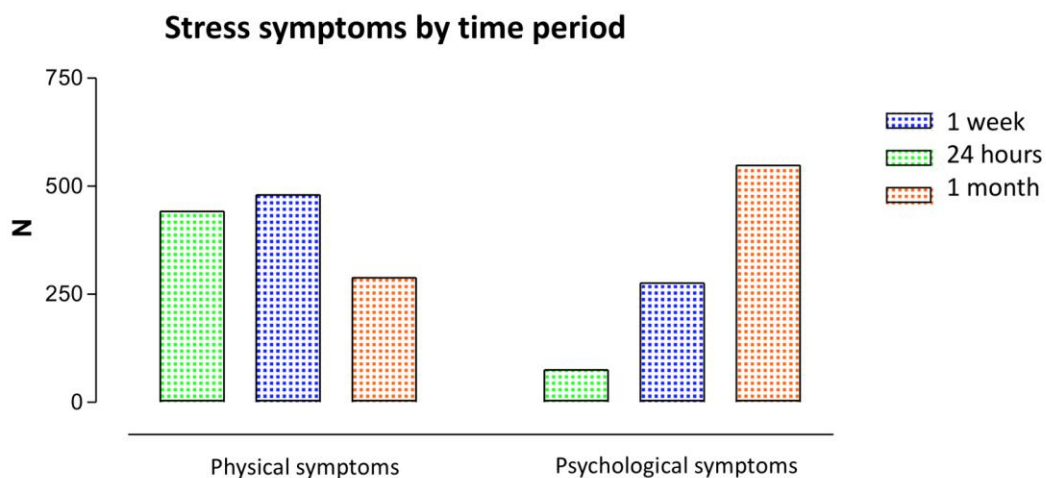
**Figure 2** – Stress ratio by the number of areas of the teacher's performance.



Source: Personal archive.

According to the data obtained in the survey of the questions presented, of the 125 participants of the 12 physical symptoms, 439/1500 were mentioned; and 76/375 scored on the 3 psychological symptoms in the last 24 hours, 480/1,250 scored on the 10 physical symptoms and 276/625 participants scored on the 5 psychological symptoms in the last week. Already 287/1,500 scored for the 12 physical symptoms and 548/1,375 scored for the 11 psychological symptoms in the last month, according to the data collected. Figure 3 displays the stress ratio by time period.

**Figure 3** – Stress symptoms by time period.



Source: Personal archive.

#### 4. Discussion

The results of our study show a high level of stress among educators in Baixada Santista, São Paulo, Brazil, linked to the COVID-19 pandemic period. It is important to emphasize how much the teachers influences their classes, the healthier they are, the better the class will be taught, but if ill, this condition can affect the quality of the classes, greatly influencing students' learning and academic performance.

Another factor that was verified with the results was the fact that the physical symptoms appeared in greater prominence at the beginning, when compared to the psychological symptoms. Over time, physical symptoms showed a decline after persistence. On the other hand, psychological symptoms appeared with less intensity at the beginning, having a significant increase over time.

The pandemic period was also considered, and we evaluated the difference between the results we obtained and studies prior to the pandemic, in the Brazilian population. Making a relative comparison of the results obtained in this research and the study by Freitas et al. 2018, before the pandemic, there was an 11.6% increase in stress among teachers. Junior and Lipp 2018 research, on the stress of Elementary School I teachers resulted in a decrease in the stress of teachers of this area during the pandemic period (15%). The comparison carried out with university professors (Bezerra et al., 2020) shows that there was a decrease in the stress of educators in this teaching area, during the pandemic period.

Comparisons between our paper and worldwide results regarding the pandemic were also made. In a study conducted in New York City, in 2021, time-use diaries showed high demands and long work hours associated with concerning lack of self-care and attention to mental health in early childhood teachers. This corroborates with our findings in this population, that showed 65.38% of participants with stress symptoms. This study also points out the need to attend to the well-being of early childhood teachers during and after COVID-19 recovery (Souto-Manning and Melvin, 2022). In 2020, an article evaluated motivation and continuance intention towards on-line instruction among teachers during the COVID-19 pandemic (Panisoara et al., 2020). Their results highlight that intrinsic motivation influences, with a strong positive intensity, the intention to continue online teaching and, with a strong negative intensity, burnout and technostress. They also stress that teachers who perceive themselves to be effective will find the psychological resources to continue an online class or activity. With the aid of psychological intervention in the symptoms, such as the ones found in our study, teachers will find adaptation and adjustment mechanisms more easily and will cope more quickly with psychological phenomena, such as burnout and technostress (Panisoara et al., 2020). A study by Hong et al., 2021, also showed that work overload negatively influenced pre-school teachers' work attitudes, thus resulting in a decrease in job satisfaction during the pandemic. Wong et al. 2021, found that the teachers' psychological factors in stress, anxiety and depressed are moderate, the teachers' competencies in e-teaching is moderate as well as teachers' working motivations is also the moderate level. However, the highest mean value was found among the variables, this is revealed that despite the challenges during the COVID-19 outbreak, teachers showed positive and strong motivation in conducting e-teaching (Wong et al., 2021). A study conducted in Poland investigated the relation between distance education and teachers' well-being during the first two waves of the COVID-19. In agreement with our study, they found that the teachers experienced at least mild levels of stress, anxiety and depression, both during the first, as well as the second waves of the pandemic (Jakubowski & Sitko-Dominik, 2021).

The number of areas of education in which teachers work also showed us an important fact, because the greater the number of areas, the greater the chances of presenting the symptoms of stress and, with time, they tend to worsen, until they become the so dreaded Burnout Syndrome. Nowadays, there are teachers working in up to 4 areas of education at the same time.

In a related topic, long working hours, a paper showed that Japanese junior high school teachers work long hours, and this was associated with stress responses (Matsushita & Yamamura, 2022). That is compatible with our findings, in which



73.07% of high school teachers showed stress.

Some of the obtained data during the study periods should be highlighted. The comparison between the ages of the teachers showed that teachers between 41 and 61 years old (55.43%) had more symptoms compared to other ages. Regarding the symptoms reported in the last 24 hours, the three biggest symptoms presented by the participants were muscle tension (64.8%), insomnia (51.2%) and jaw clenching (42.4%). Regarding the symptoms reported in the last week, 76% of the participants showed physical exhaustion, 69.6% had constant tiredness and 60.8% had memory problems. The symptoms reported in the last month were: excessive tiredness (73.6%), insomnia (54.4%) and daily anguish/anxiety (57.6%).

Burnout due to these symptoms of stress and tiredness should be discussed, as well. In a study in Nigeria (Ozoemena et al., 2021), questionnaires on psychological distress, burnout, coping strategies, and demographic profile were conducted. The prevalence of psychological distress and burnout was 69.9% (176/253) and 36.0% (91/253), results that are very similar to ours, in which 73.6% of the participants showed symptoms of stress. They stress teachers' training should include developing interpersonal skills, stress management abilities, resilience, and mental health promotion interventions (Ozoemena et al., 2021). Regarding part-time and full-time, journeys, a survey showed that 47% of the teachers reported burnout symptoms and 3% had an indication of burnout. Full-time and part-time teachers did not differ in their risk of burnout, but effort-reward imbalance, overcommitment, and inability to recover were identified as predictors of burnout risk (Seibt and Kreuzfeld, 2021). Another study pointed out low self-efficacy and high job demands as important factors, related to burnout (Arvidsson et al., 2019). A systematic review on burnout among teachers showed that the burden is relevant, even though highly variable and heterogeneous among the included studies, and that tailored interventions could be designed to mitigate it (Alsalhe et al., 2021).

This study presents limitations. Firstly, only the questionnaires were applied, in order to keep social distancing. Secondly, the sample could be greater. Finally, further research could explore the psychological aspects of teachers more deeply, with interviews and more evaluations.

## 5. Conclusion

The results of this research showed that teachers presented physical and psychological symptoms of stress in the pandemic period. Teachers are showing a high level of stress, which starts with physical symptoms and, over time, the physical symptoms give way to psychological symptoms, leading the professional to a more significant illness. Thus, it is important to reflect on the care and prevention of the physical and psychological health of educators, as they are the basis for the formation of any profession. More studies, on the diagnosis and treatment of stress in educational professionals should be conducted, in order to preserve this population.

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