

Teachers' mindset on stress: strategies to deal with the challenges of public education

A mentalidade de professores sobre o estresse: estratégias para lidar com os desafios da educação pública

La mentalidad de los profesores sobre el estrés: estrategias para enfrentar los desafíos de la educación pública

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ABSTRACT

This study assessed teachers' mindset towards stress and identified factors associated with it, through a survey with 75 public school teachers from Curitiba and metropolitan region. Results indicated that the majority of teachers had a negative mindset towards stress (83.5%), which may limit performance and have consequences for teachers' health and quality of education. Mindset about stress is associated with the nature of the teaching profession and perceived stress. Gender is the main component influencing the biopsychosocial factors associated with occupational stress. It is concluded that specific interventions are needed to change the mindset and help teachers deal with stress, as well as strategies to improve institutional support and promote a healthier and collaborative work environment. The study provides information for public policies focused on teachers' mental health and serves as a basis for future research on teacher stress.

Keywords: Teachers. Stress. Mindset. Mental Health.

RESUMO

Este estudo avaliou a mentalidade dos professores com relação ao estresse e identificou fatores associados a ele, por meio de uma pesquisa com 75 professores da rede pública de ensino de Curitiba e região metropolitana. Os resultados mostraram que a maioria dos professores apresentou uma mentalidade negativa com relação ao estresse (83,5%), o que pode limitar o desempenho e trazer consequências para a saúde dos professores e qualidade do ensino. A mentalidade sobre o estresse está associada à natureza do trabalho de professor e ao estresse percebido. O gênero é o principal componente que influencia os fatores biopsicossociais associados ao estresse laboral. Conclui-se que intervenções e estratégias devem ser implementadas para ajudar os professores a lidar com o

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estresse, melhorar o suporte institucional e promover um ambiente de trabalho saudável. O estudo contribui para políticas públicas de saúde mental dos professores e serve como base para futuras pesquisas sobre o estresse docente.

Palavras-chave: Docentes. Estresse. Mentalidade. Saúde Mental.

RESUMEN

Este estudio evaluó la mentalidad de los profesores con relación al estrés e identificó los factores asociados mediante una investigación realizada con 75 profesores de la red pública de educación de Curitiba y su área metropolitana. Los resultados indicaron que la mayoría de los profesores tenía una mentalidad negativa hacia el estrés (83,5%), lo que puede limitar el rendimiento y afectar la salud de los profesores y la calidad de la enseñanza. La mentalidad sobre el estrés está asociada a la naturaleza del trabajo del profesor y al estrés percibido. El género es el componente principal que influye en los factores biopsicosociales asociados al estrés laboral. Se concluye que se deben implementar intervenciones y estrategias para ayudar a los profesores a lidiar con el estrés, mejorar el apoyo institucional y promover un entorno de trabajo saludable. El estudio contribuye a las políticas públicas de salud mental y sirve como base para investigaciones futuras sobre el estrés docente.

Palabras clave: Docentes. Estrés. Mentalidad. Salud Mental.

INTRODUCTION

Improving education indicators in Brazil is a complex challenge since there are several factors that impact the quality of teaching. One of the most significant challenges is the stress faced by teachers in public education, a factor which has a negative impact on their mental health, well-being, and work capacity, and may have been exacerbated in post-pandemic periods, as pointed out by Silva *et al.* (2021).

In order to meet the demands of the educational process, Kerkhoff and Cloud (2020) state that teachers need to develop new skills. In addition to the pedagogical demands, they also need to organize a healthy and intellectually challenging environment for learning to take place in a transformative way. This includes adapting to new technologies, using active methodologies, and teaching modalities such as hybrid and remote teaching. However, these changes in teaching can also be challenging and stressful for teachers. The multiple psychosocial demands in addition to numerous other stressors can lead teachers to burnout syndrome, a psychological condition characterized by emotional exhaustion, depersonalization, and low professional achievement, as emphasized by Ramos *et al.* (2023). This condition is a prevalent problem in the teaching profession and can have negative consequences both for the teachers themselves and for the quality of the educational process. Burnout can lead to a decrease in motivation and engagement at work, as well as mental and physical health imbalances. In order to prevent burnout and promote the educators' health and well-being, it is essential that schools and communities identify and address mechanisms to cope with stressors.

When analyzing the teaching profession, the literature presented by Cezar-Vaz *et al.* (2015), Zhao *et al.* (2022), and Zheng (2022) shows that teaching is one of the professions that causes the most emotional strain and stress. In fact, many studies have been carried out on the relationship between stress and teacher performance in public education, but there is still little understanding of the beliefs and strategies that teachers use to cope with stress.

The systematic review by Wischitzki *et al.* (2020) highlights the importance of ensuring the health and well-being of teachers, especially in view of the psychosocial risks they face in their profession. The authors emphasize the need to identify and manage these risks in order to avoid negative consequences for these workers' physical and mental health. It is therefore essential to incorporate effective methodological approaches and validated assessment tools for goal-oriented risk management.

Occupational stress studies typically describe a set of responses to negative emotions, usually accompanied by potentially pathogenic physiological and biochemical changes, arising from work situations and mediated by the perception that professional demands constitute a threat to their self-esteem or well-being. For this reason, recent research has shown interest in actions to improve organizational and individual working conditions. Current studies are based on the need to find ways to equip teachers so they can express behaviors that are more conducive to quality of life, reducing stress and anxiety symptoms in the face of aversive stimuli (Freitas, Calais and Cardoso, 2018).

Within this theme, there is an interest in researching stress states due to their significant impact on health, especially in public school teachers. These professionals typically find themselves in precarious working conditions, with a grueling workload, and are exposed to episodes of violence, especially in the public school system (Ji, Wang and Riedl, 2021; Simões and Cardoso, 2022).

Given this situation, it is believed that there is a need for interventions to improve stress among teachers. The study carried out by Mazon and Leite (2013) on the impact of actions to improve stress in the workplace tends to approach the issue in a predominantly negative way. In other words, the approach to stress is generally debilitating, and the reason for this is the very construction of the concept of stress.

Among the various theories on stress, the homeostasis theory is based on the ability of living beings to maintain the constancy and balance of their organism despite external conditions. This theory served as the basis for the first studies carried out by Hans Selye (1975) in 1925, who defined stress as a physiological defensive reaction of the organism in three phases: alertness, resistance and exhaustion. If the stressor persists, the exhaustion phase begins, in which illness and even death can result (Lipp, 1994).

The studies on the physiology of stress by McEwen and Wingfield (2003; 2010) proposed the theory of allostasis, stating that organisms can function under different conditions of adjustment, as long as these new conditions allow them to better adapt to the environment. These studies brought the contribution of neuroendocrine repercussions, using mainly physical-chemical stressors. However, from a broader perspective, it is necessary to take psychological stressors into account, since they depend on the individual's interpretation of an event. This idea had already been discussed by Lazarus and Folkman (1984), who proposed what became known as the interactionist model, considering interaction with the environment, person, or group as fundamental in the stress response process.

Unlike the previous models, the theory proposed by Crum *et al.* (2017) is known as the Stress Mindset Theory (SMT). According to this proposal, it is possible to observe reactions to stress by analyzing the mindset to the stress stimulus and identifying whether the reaction to this stimulus is enhancing or is debilitating. Considering that mindset is a mental configuration and psychological predisposition that determines an individual's thinking and behavior pattern, it is made up of a mental model that can be enhancing or debilitating. In the enhancing mindset, stress is not a limiting condition in the face of stressors and seeks to transform the negative stimulus into an opportunity for improvement or motivation to deal with stress. In the debilitating mindset, negative reactions to stress factors predominate, such as difficulty adapting, lack of coping strategies aimed at finding solutions and an emphasis on failure, demonstrating a rigidity of thought, behavior, and more severe physiological reactions.

The difference between the SMT and previous models is that the mindset one has about stress does not focus on the amount of stress the individual is experiencing. Instead, it looks at the mindset one has about stress, focusing on the nature of stress itself. That is, whether stress is an enhancing or debilitating stimulus (Crum *et al.*, 2017; Smith, Young and Crum, 2019).

In the studies by Levy and Myers (2004) and Dweck (2008), there is growing evidence that mindset not only affects outcomes in the domains of intelligence and aging but also shapes the physiological response to stress. For Crum, Salovey, and Achor (2013), the mindset an individual has about stress suggests that these constructs are related to perceived health and life satisfaction beyond those measured by questionnaires and physiological parameters. Furthermore, individuals who have an enhancing mindset exhibit more adaptive physiological responses and more targeted behavioral responses to stress.

An enhancing mindset in relation to stress was also related to a better response to stress, when cortisol was measured by Crum *et al.* (2017) under acute stress. For individuals with an enhancing mindset, stress reduced the cortisol response while a debilitating mindset increased the response of this hormone. This supports the hypothesis that the mindset one has about stress is related to different physiological responses. Although the typical approach to stress is to reduce arousal and “stay calm” under stress, studies by Crum, Salovey, and Achor (2013), from Stanford University, suggest that mindset related to the cortisol hormone support the hypothesis that mindset about stress influences the cortisol response in a more attenuated way. This supports the notion that an enhancing mindset is associated with a lower concentration of cortisol, within a moderate level of arousal.

By studying the theory on the mentality that is held about stress, especially among public school teachers — for whom, according to Lipp (2006) and Souza and Leite (2011), research indicates a high degree of stress — new possibilities for coping with stress can be seen. By getting to know the mentalities about stress and acting intentionally, it is hoped that the literature will advance in studying the effects of stress and contribute to physical and psychological health. Thus, more broadly, we hope to contribute to the knowledge base by exploring teachers’ mindsets about stress and proposing a change through an intervention, which points to a possible solution when it comes to thinking about work relationships and stress.

The way people respond to stressors is a determining factor in health and well-being. This theoretical model aims to optimize the stress response by identifying, selecting and applying regulation techniques that serve to achieve underlying values rather than just reducing people’s experienced stress. We hope that this integrated theory, inspired by independent but increasingly aligned research traditions, will help explain how Selye (1975) was able to stay healthy and happy by converting distress into a beneficial form of stress he called “eustress”, and thereby equip others to do the same (Jamieson *et al.*, 2018; Crum, Handley-Miner and Smith, 2020).

As a first step, it was necessary to consider whether a new model of action is really needed to deal with teacher stress. In this article we seek to answer two questions:

- What is the mindset of teachers (debilitating or enhancing)?
- What are the main factors that can be associated with stress and correlated with the measured mindset?

By surveying the teachers’ mindsets, especially in the public school system, we advance the existing literature and pave the way for research that will make it possible to apply new ways of dealing with the stress faced by thousands of teachers. The integration of science and behavior leads to an assertive discussion about stress and is the relevant point of this study. The goal is to understand the mental and behavioral model of teachers in stressful situations, without necessarily changing the conditions of the environment.

Thus, the purpose of this study was to understand teachers' mentality and coping strategies in the face of stress, a fundamental step in developing effective interventions that improve their mental health and contribute to improving the quality of public education in Brazil. This understanding becomes even more relevant when we consider the challenges faced in public education, which require continuous attention and investment in order to support teachers and enhance teaching conditions.

METHODOLOGY

Beginning with the problematization, that is, the guiding point of this study, which was to understand the mindset or mentality of teachers in relation to the primary stressors associated with work stress, we conducted an integrative evaluation of behavior and science in exploring the physiology of stress. In order to carry out this study, permission from the Paraná State Department of Education — SEED/PR and approval from the Research Ethics Council of the Federal University of Paraná (protocol number 5.711.930) were obtained. Public school teachers from the greater Curitiba were then invited to take part. With an informal selection process, the criterion for exclusion was the desire not to participate in the research. In accordance with the law, the online Free and Informed Consent Form (FICF) was used with the interviewees' agreement. The FICF clearly states the title, objectives and justification for the study, as well as the responsible researcher's identification and the interviewee's acceptance to participate in the research.

In this survey, participants answered an online form on the Google Forms platform. It is a questionnaire that uses the Stress Mindset Measure (SMM) scale and a biopsychosocial questionnaire, which determines the degree of each stress factor, measuring the level of emotions according to an evaluative scale, and mapping stress categories and predominant behaviors in the face of stress. In addition to the SMM, the second part of the form contains information on the profile of those being assessed and data on teachers' working conditions, such as: working hours, length of employment, length of time teaching, other professional activities, and questions on mental health that assess the positive and negative impacts of the teacher's work.

The SMM scale is a self-report instrument using a Likert scale that evaluates the psychometric and single-factor properties of the desirable levels of accuracy of Cronbach's coefficients between 0.80 and 0.86.

The applied biopsychosocial model consisted of a multidisciplinary approach comprising the biological, psychological, and social dimensions. The investigation covered biological issues such as current state of health and use of medication; psychological issues related to mental health; and social issues related to performance in the professional context. From a biopsychosocial perspective, the individual's analysis was understood as the result not only of the interaction of their organism's biological factors, but also of their environment and social relationships.

The data, collected over a one-week period, were recorded and double-checked. With the data checked, exploratory analyses were carried out on the biopsychosocial questionnaire and the results of the SMM. The biopsychosocial data were correlated by variance analysis (ANOVA) and significant results were verified ($p < 0.05$). JAMOV software (2022 version 2.3) was used to process the statistical data.

The information collected formed the basis for the research study and favored an analysis of the results with behavioral questioning, to understand stress in the teachers' occupational relationship, highlighting the factors that trigger stress, with the goal of identifying the participating teachers' mindset, the biopsychosocial understanding and the impact on teachers' mental health.

RESULTS AND DISCUSSION

BIOPSYCHOSOCIAL DATA

School teachers (n = 75) from the Paraná State Education Network took part in the study, most of whom were women (76%, Table 1). Table 1 shows the gender frequencies of the participants analyzed in the study. The table is made up of: 'Gender', 'Counts', 'Total %' and 'Cumulative %'. The "Gender" column indicates the two genders considered in the analysis, which are "Female" and "Male". The "Counts" column represents the number of participants in each gender category; in this case, 57 female participants and 18 male participants. The "Total %" column shows the percentage that each gender category represents in relation to the total number of participants. For the female gender, the percentage is 76%, indicating that women represent the majority of participants, while, for the male gender, the percentage is 24%, indicating a smaller proportion in relation to the total. The "Cumulative %" column indicates the cumulative percentage of participants up to the category in question. In the case of females, the cumulative percentage is also 76%, as this is the only category listed. For males, the cumulative percentage is 100%, as it represents all the remaining participants after females. This table provides information on the gender frequencies of the study participants, allowing an understanding of the distribution of these categories in the sample analyzed.

Table 1 – Gender Frequencies.

Gender	Counts	Total %	Cumulative %
Female	57	76	76
Male	18	24	100

Source: Elaborated by the authors.

The teachers were generally over 41 years of age and, when broken down by gender, the data shows that 60% were women over 41, characterizing the sample. Most of the teachers who took part were permanent teachers (74.7%) and only a third of the teachers had a temporary employment contract (24.3%). Most teachers work between 20 and 40 hours a week, representing 94.7% of the sample (Table 2).

Table 2 – Workload frequencies separated by employment relationship.

Workload	Relationship	Counts	Total %	Cumulative %
20 hours	Temporary	6	8	8
	Permanent	12	16	24
40 hours	Temporary	12	16	40
	Permanent	41	54.7	94.7
60 hours	Temporary	1	1.3	96
	Permanent	3	4	100

Source: Elaborated by the authors.

Still with regard to Table 1, more detailed and relevant observations could be made based on the data provided: the 40-hour workload and the permanent employment contract. This combination has the highest number of participants, with 41 individuals, representing 54.7% of the total number of participants. This shows that most of the teachers analyzed have a contract and work 40 hours a week. As for the 20-hour workload: both temporary and permanent teachers have participants in this workload, with six

and 12 individuals, respectively. These figures represent 8 and 16% of the total number of participants. This indicates that a significant proportion of teachers work 20 hours a week, regardless of the type of contract. Regarding the 60-hour workload: this workload has the lowest number of participants, with only one individual working on a temporary basis (1.3% of the total) and three working on a permanent basis (4% of the total). This suggests that a minority of the teachers work a 60-hour week. In the last column, the "Cumulative %" column indicates the cumulative percentage of participants in each category. As the table progresses, the cumulative percentage increases, reaching 100% for the 60-hour workload and the permanent contract. This means that all participants are accounted for up to that point.

Regarding the data from the biopsychosocial questionnaire, most of the teachers do not engage in any other professional activities and are fully dedicated to their work.

This analysis of Table 2, in short, allows us to identify the working hour distribution and the participating teachers' employment relationships. The results indicate a predominance of 40-hour workloads and contracts, as well as the presence of a considerable number of teachers with 20-hour workloads. This information may be relevant to understanding the characteristics of the group studied and helping to draw up policies and interventions aimed at the teachers' working environment and quality of life.

Most of the teachers surveyed have teaching experience, with 54.7% having been in the classroom for more than 15 years (Table 3). This table provides information on the distribution of the study participants' teaching experience. It can be noted that most participants have more than 20 years of teaching, representing 34.7% of the total. In addition, the 11-to-15 years and 16-to-20 years brackets also have a significant representation, with 22.7 and 20% of the total, respectively. The zero to five and 6-to-10-year groups, on the other hand, have a lower number of participants, corresponding to 16 and 6.7% of the total, respectively. The data in Table 3 allow us to understand the distribution of the participants' length of time teaching and are useful for identifying different levels of experience within the group studied.

Table 3 – Frequencies of length of time teaching.

Teaching Time (years)	Counts	Total %	Cumulative %
From 0 to 5	12	16	16.0
6 to 10	5	6.7	22.7
11 to 15	17	22.7	45.3
16 to 20	15	20	65.3
Over 20	26	34.7	100

Source: Elaborated by the authors.

Table 4 shows the frequencies of the study participants' self-reported illnesses. The column "Do you report an illness?" indicates whether the participants reported having any illnesses. There are two categories in this column: "No" and "Yes". The column "Do you have any illnesses?" specifies the type of illness reported by the participants who declare having any illnesses. There are two categories in this column: "Physical" and "Mental". The "Counts" column shows the number of participants in each category. For example, 31 participants do not report having any illnesses. The "Total %" column indicates the percentage that each category represents in relation to the total number of participants. For example, 43.1% of participants do not report having any illnesses. The "Cumulative %" column indicates the cumulative percentage of participants up to the category in question. For example, the cumulative percentage for the "Yes — Physical" category is 65.3%, while the cumulative percentage for the "Yes — Mental" category is 100%.

Table 4 – Frequencies of self-reported illnesses.

Do you report an illness?	Do you have any illnesses?	Counts	Total %	Accumulated %
No	-----	31	43.1	43.1
Yes	Physical	16	22.2	65.3
	Mental	25	34.7	100

Source: Elaborated by the authors.

Thus, when teachers were asked about a diagnosis of illness, 56.9% of them claimed to have some kind of illness, 34.7% of which were mental, which may be associated with work-related stress (Table 4). The reasons for absence due to illness amounted to 55.80%. Most diagnoses are focused on mental and emotional health. The illnesses diagnosed and being treated include anxiety, depression, hypertension, and diabetes, and most teachers are taking medication. During the COVID-19 pandemic, the greatest difficulties were related to adapting to educational context changes (69.7%) and social confinement (47.4%).

Table 4 provides information on the self-declaration of illnesses by the study participants. It can be observed that only 43.1% of the participants did not declare to have any illnesses. On the other hand, 22.2% of participants reported having physical illnesses, and 34.7% reported having mental illnesses. It is important to note that the results are based on participants' self-reporting and have not been verified by health professionals. Nevertheless, this information provides relevant insights into teachers' health and the need to implement support policies and strategies for teachers.

The data presented in the survey (Tables 1 to 4) shows that most Paraná school teachers are women over 41 years old, with teaching experience, working on a permanent basis for 20 to 40 hours a week. The majority do not have any other professional activities, and more than half of the teachers reported having some kind of illness, most of which are mental health conditions.

Studies on teacher absence due to illness can be caused by a wide range of conditions, including physical, mental, and emotional. These studies tend to point to the impact of teacher sick leave on the quality of education, the teachers' health and well-being, and the effectiveness of the education system (Coledam *et al.*, 2020; Salvagioni *et al.*, 2022; Medeiros *et al.*, 2023).

Studies on teacher absenteeism due to physical illness usually assess the prevalence of conditions such as chronic diseases, injuries, and accidents at work. On the other hand, studies on teacher absenteeism due to mental and emotional illness usually investigate the incidence of problems such as anxiety, depression, stress, burnout, and more serious mental disorders.

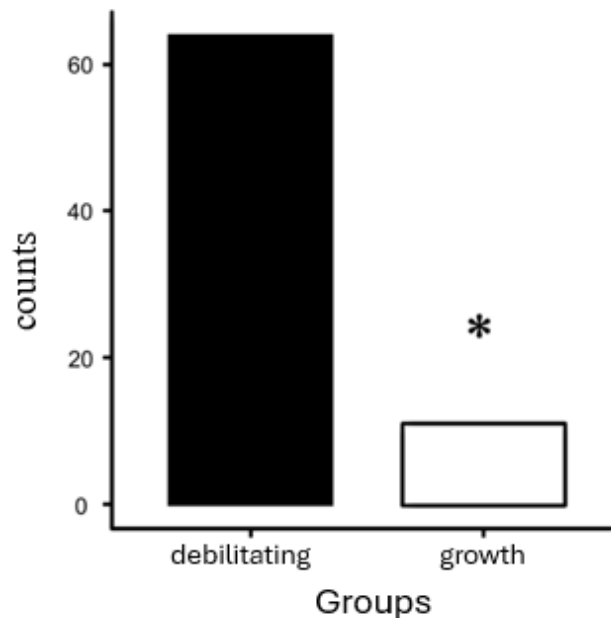
A study published by McIntyre, McIntyre, and Francis (2017) evaluated the relationship between stress and medical leave among teachers in the United States. The results showed that teachers who reported higher levels of stress were more likely to have health-related absences. Another study published by Cheng, Huang and Chan (2019) investigated the prevalence of burnout among high school teachers in China. The results showed that more than a third of teachers reported symptoms of burnout and that the presence of burnout was associated with a higher risk of health leave.

Taken together, these data point to factors that can directly interfere with teachers' stress, since their job involves different factors. In addition, most teachers work on a full-time basis, which can lead to greater emotional strain. The presence of illnesses, especially of a mental nature, can aggravate stress, as these conditions can be associated with symptoms such as anxiety and depression. Thus, the data presented corroborates studies in this area and justifies the target audience chosen for the research and the impacts of one's mentality in an environment known for its stress factors.

To check the mindset of the teachers ($n = 75$), the SMM was applied. When the scale was applied, a score was obtained which made it possible to find two groups relating to stress mentality. The data showed that 85.3% of the teachers surveyed have a debilitating mentality, which views

stress as something negative, and 14.7% have an enhancing mentality (Figure 1). There is a significant difference between the groups ($p < 0.05$), and the Shapiro-Wilk normality test indicates no violation of the normality assumption. This supports the distinction between the groups and suggests that changing one's mentality is possible.

Figure 1 – Mentality of public-school teachers in the state of Paraná, divided into two groups: debilitating and enhancing mentality. The data was submitted to the Shapiro-Wilk normality test and then analyzed using an ANOVA with a significance level set at $*p < 0.05$.



Source: Elaborated by the authors.

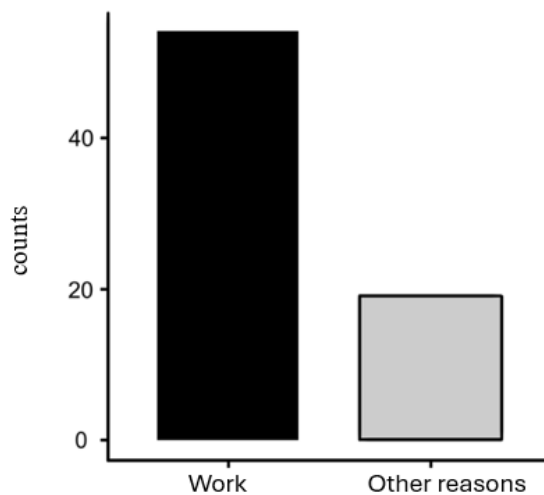
Figure 1 represents the response distribution in relation to the enhancing or debilitating mindset, with the X axis representing these mindsets and the Y axis showing the response counts. Of the 75 participants included in the study, more than 60% showed a debilitating mindset, while the rest showed an enhancing mindset. To assess the normality of the data, the Shapiro-Wilk normality test was performed. This test is commonly used to check whether a sample follows a normal distribution. After confirming the normality of the data, an ANOVA was carried out. A statistically significant difference was found between the groups (Figure 1).

The view that stress is exclusively negative, disseminated by the media and common sense, is characterized by a debilitating mindset. Crum *et al.* (2017) argue that this debilitating mindset can have a negative impact on health, increasing the likelihood of chronic diseases such as diabetes, cardiovascular disease, and cancer. On the other hand, an enhancing mindset can improve health and resilience by promoting a healthy lifestyle and increasing the ability to cope with stress and challenges. In addition, it has also been suggested that mindset can influence academic and professional performance. A debilitating mindset can limit the capacity for learning and development while an enhancing mindset can stimulate creativity and innovation.

Figure 2 shows the self-reported source of stress in the two different groups. The columns represent the different sources of stress, whether work or other reasons. The Y axis shows the number of participants who reported each response. This figure allows us to visualize the distribution of participants in relation to the sources of stress mentioned. We can see how many participants indicated work as a source of stress and how many indicated other reasons as causing stress. This graphic representation helps us to understand the relative importance of these different sources of stress for the study participants. We can analyze the frequency of responses in each

category and identify possible patterns or differences between the groups. Thus, after observing the predominant mentality among teachers in public schools, they were asked to name the main stress factors (Figure 2). The results were analyzed and divided into two categories: work-related stress (74%) and other factors (26%). Of the 75 participants, only two said they had no stress at all.

Figure 2 – Self-reported source of stress in different groups. The columns represent work or other reasons as a source of stress. The Y axis is represented by the count of participants for a given answer.

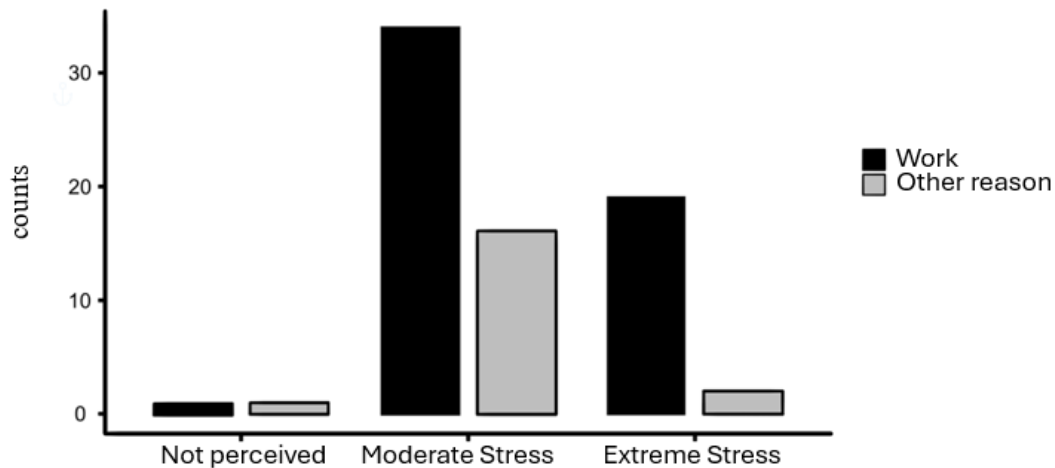


Source: Elaborated by the authors.

Figure 3 illustrates the distribution of stress intensity. The Y-axis represents the number of participants who gave each response in relation to the intensity of stress. The X axis represents the categories of stress intensity, which are “Not perceived”, “Moderate stress” and “Extreme stress”. The columns represent the distribution of stress intensity by source. The black column represents stress from work, while the gray column represents other sources of stress. This figure allows us to visualize how the intensity of stress is distributed between the different sources (work or other reasons) mentioned by the participants. We can see how many participants reported each level of stress intensity for work and for other sources of stress. Thus, the third question described the amount of stress felt by the teacher, which could be no stress, a moderate amount or an extreme amount. Among the participants, 1.3% reported having no stress at all, 61.3% perceived their stress as moderate, and 37.3% perceived it as extremely high. Figure 3 divides the groups and illustrates that, both for those reporting moderate and for those reporting extreme stress, work is the primary cause.

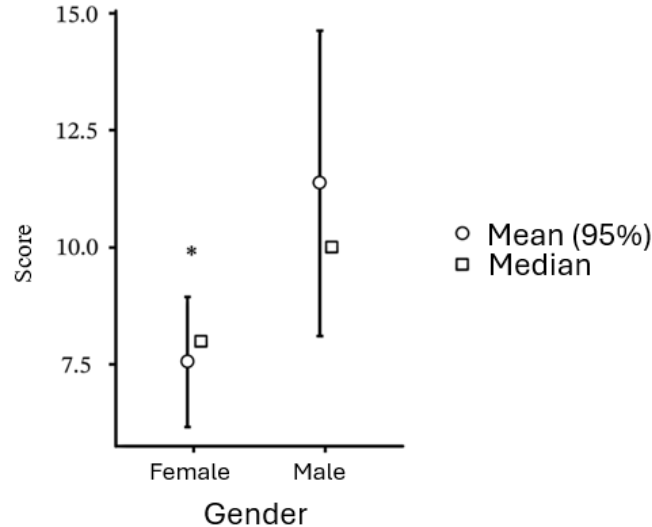
Figure 4 shows the score obtained in the stress test in relation to the participants’ gender. The X axis represents the two gender categories: “Male” and “Female”. The Y axis represents the score obtained in the stress test. The circles represent the mean score for each gender category, while the squares represent the median. These measures summarize the central value of the scores for each group. The presence of an asterisk accompanied by the note “*p < 0.01” indicates the level of statistical significance found in the comparative analysis of the groups. This means that there is a statistically significant difference between the stress scores of the male and female participants. This figure allows us to visually compare the average stress scores between the gender groups and identify whether there are statistically significant differences between them. We can see if there is a disparity in the perception of stress between men and women. Finally, the scale scores were correlated with various biopsychosocial aspects such as gender, age, length of time teaching, workload and other health aspects. The significant correlations pointed to stress as being related to the nature of a teacher’s work. Gender was the only correlated factor in the mentality scale on stress, with a significant difference between men and women (p < 0.01).

Figure 3 – Distribution of stress intensity by source. The graph shows the frequency of participants who reported each level of stress (not perceived, moderate and extreme), categorized by source of stress (work and other sources). The black columns represent the frequency of participants who indicated work as the main source of stress, while the gray columns represent other sources.



Source: Elaborated by the authors.

Figure 4 – Mean and median stress test scores by gender. The scores obtained in the stress test were compared between men and women. The mean and median scores for each gender are represented by circles and squares, respectively. The asterisk (* $p < 0.01$) indicates a statistically significant difference between the groups, as determined in the comparative analysis.



Source: Elaborated by the authors.

Although work-related stress is an individual experience and can be influenced by various factors, scientific evidence indicates that women may be more susceptible to experiencing work-related stress than men in some professions, including teaching.

The data in this article corroborates a study conducted by Medeiros *et al.* (2023) which analyzed the stress levels of primary and secondary school teachers in relation to different variables, including gender. The results revealed that women reported higher levels of stress than men in relation to some factors, such as the conflict between work and family and work overload. Another study, carried out by Carlotto *et al.* (2014) and Redondo-Flórez *et al.* (2020), explored gender differences

among teachers and found that women experienced higher levels of stress than men, particularly due to factors like overwork and work-life conflict, reinforcing the findings of this survey.

Next, one-way ANOVA tests were carried out comparing teachers' mentality with the main source of stress and the extent to which this stress is perceived. There were correlations between the MMS and work-related stress, which confirmed teacher work (routines and demands) as the main factor ($p < 0.05$). The scale was also correlated with perceived stress and once again the correlation was significant ($p < 0.01$), indicating that stress is linked to the teaching profession.

Analysis of the other elements of the biopsychosocial questionnaire, such as age, marital status, education, type of work, professional relationship, workload, and length of time teaching did not reveal any significant correlations, concentrating stress as inherent in the wear and tear of the teaching profession.

Given this situation, it is believed that actions are needed to address workplace stress, as it is usually perceived negatively (Mazon and Leite, 2013). In other words, the approach to stress is generally debilitating because of the very construction of the concept of stress, and it is necessary to develop new forms of more positive and constructive responses to deal with stress.

FINAL CONSIDERATIONS

Based on the evidence presented in this study, it is possible to conclude that a significant proportion of the teachers analyzed, especially female teachers working in the public school system, exhibit a debilitating mindset. This form of negative thinking can lead to a sense of impotence and helplessness, resulting in a lack of action to improve their personal and professional lives, including their teaching practices, which ultimately affect student learning in a negative way.

To change the debilitating mindset, it is crucial that teachers begin to alter their thought patterns to something more positive and encouraging. This can be achieved by focusing on teachers' strengths and abilities, rather than their weaknesses and failures. In addition, it is essential that public education policies consider the health and motivation of teachers, setting challenging but realistic and achievable goals. It should be noted, however, that teaching work and relationships in the school environment are naturally stressful. It is therefore essential that the physical and psychological health of professionals be considered. By acting intentionally to change their mindsets in relation to stress, teachers can achieve significant beneficial effects on their health and well-being.

In summary, the strengths of this study are significant and important for understanding teachers' debilitating mindsets in relation to stress and their impact on the quality of teaching. The study focused specifically on the following:

- Teachers' debilitating mindsets, providing an in-depth understanding of the negative thoughts that can lead to feelings of impotence and helplessness. This is essential for identifying the challenges faced by teachers and finding appropriate solutions;
- The importance of closely examining the experience of female teachers in the public school system. By highlighting this specific group, the study contributed to a more comprehensive understanding of the challenges they face, which may differ from those faced by their male colleagues;
- Recommendations for combating the debilitating mentality of teachers, directing the focus towards their strengths and abilities, and emphasizing the importance of public education policies that consider the teachers' health and motivation.

These suggestions could have a significant impact on improving working conditions and, consequently, the quality of teaching.

While it is important to recognize that no study is without its critical points, the strengths highlighted above are key and provide a solid basis for understanding the problem at hand. These significant contributions can guide future research, practical interventions, and more effective educational policies, with the goal of improving teachers' quality of life and, consequently, student learning.

This study contributes to the knowledge base by examining teachers' mindsets towards stress and proposing future interventions to improve work relationships and reduce stress, ultimately enhancing the quality of teaching. The findings provide valuable insights for implementing strategies and policies that foster a healthy, positive work environment, benefiting both teachers and students.

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