





Estrés laboral en docentes ecuatorianos: Factores, síntomas y estrategias de mitigación

Job Stress in Ecuadorian Teachers: Factors, Symptoms and Mitigation Strategies

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Palabras

claves: estrés laboral, docencia, factores de estrés, síntomas de estrés, estrategias, antiestrés.

Keywords:

occupational stress, teaching, stress factors, stress symptoms, strategies, anti-stress.

Resumen

Introducción: El estrés laboral es un problema significativo que afecta negativamente la salud y el desempeño profesional de los docentes, quienes son especialmente vulnerables debido a sus numerosas responsabilidades. **Metodología:** Este estudio, basado en un análisis bibliográfico previo, utiliza dos encuestas exhaustivas para investigar tanto los factores y síntomas del estrés laboral como las estrategias de mitigación empleadas por docentes con amplia experiencia. **Desarrollo:** Los datos, analizados mediante métodos estadísticos avanzados con IBM SPSS, revelan patrones significativos y ofrecen una comprensión profunda del fenómeno. **Resultados:** Los resultados, interpretados en el contexto educativo ecuatoriano, buscan contribuir a la formulación de políticas que mejoren la salud y el bienestar de los docentes, promoviendo un entorno laboral más saludable y productivo. **Conclusiones:** Las áreas críticas de estrés laboral para los docentes son la sobrecarga de trabajo, las condiciones del aula y la relación con los padres de familia. Los resultados muestran que los docentes frecuentemente experimentan estrés en estas áreas, aunque con variaciones significativas entre individuos. Las estrategias para mitigar el estrés incluyen apoyo emocional, ejercicio físico regular y mejoras en la comunicación y políticas administrativas dentro de la institución. **Área de estudio general:** Educación, **Área de estudio específica:** Estrés laboral.

Abstract

Introduction: Occupational stress is a significant issue that negatively affects the health and professional performance of teachers, who are particularly vulnerable due to their numerous responsibilities. **Methodology:** This study, based on a prior bibliographic analysis, uses two comprehensive surveys to investigate both the factors and symptoms of occupational stress as well as the mitigation strategies employed by experienced teachers. **Development:** The data, analyzed using advanced statistical methods with IBM SPSS, reveal significant patterns and provide a deep understanding of the phenomenon. **Results:** The results, interpreted within the Ecuadorian educational context, aim to contribute to the formulation of policies that improve teachers' health and well-being, promoting a healthier and more productive work environment. **Conclusions:** The critical areas of occupational stress for teachers are

workload, classroom conditions, and relationships with parents. The results show that teachers frequently experience stress in these areas, although there are significant variations between individuals. Strategies to mitigate stress include emotional support, regular physical exercise, and improvements in communication and administrative policies within the institution.

Introduction

Work-related stress is a widely studied phenomenon due to its adverse effects on the physical and mental health of workers, as well as on their professional performance. In the educational context, teachers constitute a group particularly vulnerable to this type of stress, given the multiple responsibilities and pressures inherent to their work. This study is based on a previous bibliographic analysis on topics related to work-related stress in teachers and mitigation strategies, with the aim of contributing to the understanding and management of this problem in the educational field.

To address this issue, two comprehensive surveys were conducted. The first survey was designed to gain insight into the impact of job stressors and associated symptoms on teachers. The second survey focused on analyzing the strategies employed by teachers with 10, 20, or more years of experience to mitigate job stress. These strategies are of particular interest due to their potential to provide practical and effective solutions based on accumulated experience.

The analysis of the data collected through both surveys was carried out using advanced statistical methods, using IBM SPSS software. Descriptive, inferential and qualitative statistical techniques were used to achieve a comprehensive understanding of the phenomenon of work stress in teachers. The combination of these approaches allowed not only a detailed description of the variables studied, but also the identification of significant patterns and relationships.

In the first survey, means, standard deviations, and Likert scale responses were analyzed to assess levels of work-related stress and its symptoms. This was accomplished using the Descriptive Statistics options in SPSS. In the second survey, a frequency analysis was performed to assess the prevalence of different stress mitigation strategies, strategies were compared using cross-tabs, and a one-way analysis of variance (ANOVA) was conducted to examine the effectiveness of these strategies in relation to reported stress levels.

The results of these surveys were interpreted in the context of Ecuadorian education and legislation, providing a detailed view of how work stress affects teachers and the impact

of using specific strategies to reduce it. This study not only identifies the factors that influence work stress and the symptoms that affected teachers present, but also offers a critical evaluation of the mitigation strategies used by more experienced teachers. These scientifically proven strategies are essential to reduce the effects of work stress both inside and outside the educational institution.

This research aims to contribute to the development of educational policies and practices that improve the health and well-being of teachers, promoting a healthier and more productive work environment. In the following sections, the results obtained and their analysis will be presented in detail, providing a solid basis for future research and practical applications in the field of education.

Methodology

This study uses a mixed methodology based on previous research on work stress in teachers and the use of artificial intelligence in education, using two specific surveys. The data were analyzed with IBM SPSS using descriptive, inferential and qualitative analysis for a comprehensive understanding of the phenomenon.

It is based on previous research on the factors and symptoms of work stress in teachers and possible solution strategies. To address these issues, two different surveys have been designed and applied. The first survey is focused on collecting information on factors and symptoms of work stress in teachers and was administered to a randomly selected group from different educational institutions. The second survey, on the other hand, focuses on predicting solutions to this problem, so the selected sample is specifically teachers who have managed to overcome these adversities and have 10, 20 or more years of experience in this profession, with the aim of revealing the impact of these strategies on reducing work stress.

Table 1

Study Design

Survey	Aim
Survey 1	Obtain information about work stress in teachers from the personal perspective of educators
Survey 2	To reveal strategies from the teaching perspective to mitigate work stress during the working day

After collecting data from participating teachers, it is highlighted that these data reflect the work reality of Ecuador in various educational institutions located in the central part of the country, including Aloasi, Sigchos, El Tingo La Esperanza de Pujilí and Latacunga.

The inclusion criteria for the sample of survey 1 is based on the availability and willingness of teachers from the various educational institutions present in the cities mentioned. However, the inclusion criteria for the sample of survey 2 are teachers who have around 10, 20 or more years of experience.

The work stress factors evaluated in the survey arise as a result of exhaustive previous research, with the most relevant ones being work overload, administrative demands, classroom conditions, interaction with students, relationships with parents, and time in extracurricular activities (Bottiani et al., 2019); (Aloe et al., 2014). In addition, symptoms such as insomnia, chronic fatigue, depression, frequent physical ailments, and irritability are common among teachers affected by stress (Santamaría et al., 2021); (Abu-Rmaileh, 2020);(Núñez & Muñoz, 2024).

The second survey is based on open questions that attempt to gather as much information as possible from experience about the management of work stress in the institution, as well as outside of it. In addition, the knowledge of teachers in Ecuadorian legislation on occupational health and safety in the teaching work environment was intentionally asked.

The results obtained from survey one and survey two were statistically analyzed using IBM SPSS, as this allowed a systematic and rigorous analysis of the data from the two surveys. The combination of descriptive, inferential, and qualitative analysis provided a deep understanding of how work stress affects teachers and the impact of using AI in reducing such stress. The interpretation of results will be based on statistical analysis in the Ecuadorian educational and legislative context, which will be presented in the results and analysis section.

Development

Workplace stress factors

The following table describes in more detail the work stress factors found by other researchers in previous works, due to which these factors were selected to be evaluated by teachers in the present study.

Table 2

Workplace stress factors according to bibliography

Factor	Description	Previous research according to
Overwork	Managing large workloads and additional responsibilities leads to increased stress and burnout in	(Abu-Rmaileh, 2020) (Bottiani et al., 2019) (Núñez & Muñoz, 2024)

	teachers and healthcare professionals.	
Administrative claims	The imposition of complying with administrative requirements and regulations generates an additional burden of stress, and is one of the main consequences of exposure to unfavorable psychosocial conditions.	(Abu-Rmaileh, 2020) (Bottiani et al., 2019) (Ergonomics and Applied Psychosociology, 2024).
Classroom conditions	Factors such as class size, availability of resources and physical environment can negatively affect teacher well-being.	(Bottiani et al., 2019) (Núñez & Muñoz, 2024)
Interaction with students	It is one of the most important variables in work stress, the need to maintain discipline and support students emotionally and academically can be a constant source of pressure.	(Aloe et al., 2014) (Núñez & Muñoz, 2024)
Relationship with parents	Communication and the need to meet parents' demands can be challenging for teachers.	(Abu-Rmaileh, 2020) (Carroll et al., 2014)
Time spent on extracurricular activities	Although beneficial in some cases, it can increase workload and stress by requiring extra time and energy from teachers.	(Abu-Rmaileh, 2020) (Musson & Loomis 2024) (Núñez & Muñoz, 2024)

Symptoms

Work stress in teaching is closely related to health problems, according to several studies highlighting symptoms such as insomnia, chronic fatigue, depression and frequent physical ailments. Insomnia is a common symptom, where teachers have difficulty disconnecting from work and resting properly (Santamaría et al., 2021)., [The same authors and Henry, (2019) suggest that chronic fatigue results from the accumulation of work demands and lack of adequate rest.

On the other hand, depression is another effect of prolonged stress, negatively affecting the mental health of educators (Rodríguez et al., 2020). In addition, work stress can manifest itself in frequent physical conditions, such as headaches and gastrointestinal problems (Trávez Osorio et al., 2024) (Bottiani et al., 2019). Finally, irritability is also

common among teachers under stress, affecting both their professional and personal lives (Santamaría et al., 2021); (Trávez Osorio et al., 2024) ;(Cárdenas, 2022).

Solution strategies

According to recent studies, scientifically proven strategies to reduce teacher work stress include activities such as those mentioned below.

Strategies	Scientific research according to
Mindfulness-Based Interventions	(Agyaponget al., 2023) (The American Institute of Stress, 2024)
Physical Exercise Based, Sports	(Kim & Gurvitch, 2020) (Singleton, 2016) (Agyaponget al., 2023)
Stress Management and Resilience Training (SMART)	(Agyaponget al., 2023) (Yang, 2019) (Scheuchet al., 2021)
Models of Emotional Intelligence	(Moledo et al., 2019) (Pozo Rico & Sandoval, 2020) (Gillar Corbi et al., 2019) (Agyaponget al., 2023)

Analysis

For the open questions in surveys 1 and 2, an analysis was carried out using coding within a specialized instrument. From these questions, variables corresponding to each question were extracted, allowing for a detailed analysis. Each question was analyzed according to its nature and coded in the SPSS program as follows:

- Responses were categorized into nominal, ordinal, or scale variables as appropriate.
- Closed questions were entered into the program and means and standard deviations were calculated to assess the frequency and variability of responses.
- Open questions were coded into thematic categories to facilitate qualitative analysis.
- Data coding and analysis was performed in SPSS to ensure systematic and rigorous treatment of information, allowing descriptive, inferential and qualitative analysis.

Survey Analysis 1

It was carried out with the IBM SPSS Statistics software, which is a tool for advanced statistical analysis, and the collected data could be studied, obtaining actionable knowledge for this scientific article. SPSS Statistics offers statistical procedures and modeling techniques to optimize organizational strategies, predict behaviors, forecast trends, and detect fraud, making this research reliable and accurate (IBM, 2024).

Descriptive Analysis

This type of analysis was used to obtain an overview of the data collected, providing relevant information that describes the main characteristics of your sample. Through which it was obtained **percentages and graphs**, pfor categorical variables of gender and years of experience.

Table 3

Gender of teachers participating in survey 1

Participants		Percentage
Valid	Male	60.0
	Female	40.0
	Total	100.0
Total		100.0

Table 4

Years of teaching experience

Years of experience	Percentage
1 to 5	30.0
6 to 10	20.0
Valid 11 to 20	50.0
Total	100.0
Total	100.0

Means, Standard Deviations and Likert scale

Each question presented in the following table was analyzed, obtaining the mean in order to study the scale variables such as stress levels measured on a Likert scale. The Descriptive Statistics option in SPSS was used.

Table 5

Questions analyzed with descriptive statistics in SPSS

Variable for SPSS	Question analyzed
ST	How often do you feel overloaded or pressured at work? [Work overload]
STDA	How often do you feel overloaded or pressured at work? [Administrative demands]
STCA	How often do you feel overloaded or pressured at work? [Classroom conditions]
STIE	How often do you feel overloaded or pressured at work? [Interaction with students]
STRPF	How often do you feel overwhelmed or pressured at work? [Relationship with parents]
STAE	How often do you feel overloaded or pressured at work? [Time spent on extracurricular activities]
Insomnia	How often do you experience the following symptoms due to work stress? [Insomnia]
Fatigue	How often do you experience the following symptoms due to work stress? [Chronic fatigue]
ELD	How often do you experience the following symptoms due to work stress? [Depression]
ELAFF	How often do you experience the following symptoms due to work stress? [Common physical ailments]
ELI	How often do you experience the following symptoms due to work stress? [Irritability]

Table 6

Result of Means, Standard Deviations and Likert scale of the teacher work stress survey according to SPSS

	Minimum	Maximum	Average	Standard deviation	Variance
Overwork	2.00	5.00	3,7000	1,25167	1,567
Administrative claims	1.00	5.00	3,0000	1,24722	1,556
Classroom conditions	2.00	5.00	3,7000	1,25167	1,567
Interaction with students	2.00	5.00	3,6000	1,17379	1,378

Relationship with parents	2.00	5.00	3,8000	1,22927	1,511
Time spent on extracurricular activities	2.00	5.00	3,6000	1,42984	2,044
Insomnia	1.00	5.00	2,9000	1,37032	1,878
Chronic fatigue	1.00	5.00	2,4000	1,34990	1,822
Depression	1.00	5.00	2,8000	1,22927	1,511
Common physical ailments	1.00	5.00	3,2000	1,47573	2,178
Irritability	2.00	5.00	3,1000	1,19722	1,433

Survey Analysis 2

Due to the nature of the data, the data were first coded into the appropriate format for analysis in SPSS for the questions corresponding to the work stress mitigation strategies within and outside the institution.

Frequency Analysis, Comparison of Strategies and Analysis of Variance

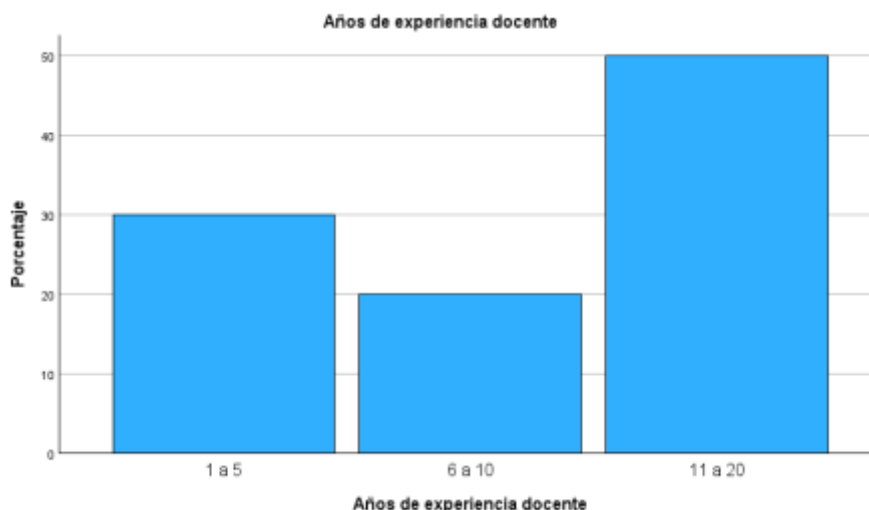
A descriptive analysis was used to obtain the frequency of each recommendation in SPSS, the Analyze - Descriptive Statistics - Frequencies option was used, and the results were obtained. To compare recommendations in this analysis, the crosstabs option was used to verify strategies used by teachers inside and outside the institution, for which the Analyze - Descriptive Statistics - Crosstabs tool was used, the recommendations were correctly placed in rows and columns, after which the Statistics and Chi-square options were used to obtain the results in this section. Finally, the one-way ANOVA variance analysis was used with the Analyze - Compare Means - One-Way ANOVA buttons, using the strategies as factors and the response variable was stress level using the Dependent List option, Post Hoc was chosen and the comparison method was Tukey.

Results and analysis

Around 50% of the respondents have 11 to 20 years of experience, 30% of them have 1 to 5 years of experience and 20% have 6 to 10 years of experience. It should be noted that 60% of the respondents are women and 40% of them are men. The wide range of teachers participating in this study and their career in this work area will allow us to reflect the best results in terms of categories, symptoms and solutions to work stress in teaching.

Figure 1

Years of teaching experience



Means, Standard Deviations and Likert scale

According to the data in Table 5, the results according to the Likert scale for teacher work stress are presented in the following results table:

Table 7

Results according to the Likert scale for work stress factors

Workplace stress factors	Average	Result
Overwork	3.7	Respondents tend to agree that there is an overload of work

Table 7

Results according to the Likert scale for work stress factors (continued)

Workplace stress factors	Average	Result
Administrative claims	3	Teachers feel administrative demands moderately
Classroom conditions	3.7	Classroom conditions are often a source of stress for teachers
Interaction with students	3.6	For teachers, interaction with students is often a source of stress.

Relationship with parents	3.8	Teachers say the relationship with parents is often a source of stress
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Table 8

Results according to the Likert scale for work stress symptoms

Symptoms of work stress	Average	Result
Insomnia	2.9	There are teachers who suffer from them and others who do not, the values for the dstandard deviation show considerable variation in responses. In addition, the variance reflects significant dispersion in the data
Chronic fatigue	2.4	
Depression	2.8	
Common physical ailments	3.2	
Irritability	3.1	

Workplace stress factors

Overwork

The mean value is 3.7, indicating that respondents generally tend to agree that work overload exists. The standard deviation of 1.25 suggests that there is some variability in the responses, but most are concentrated around the mean value. The variance (1.57) also indicates significant dispersion in the data.

Administrative claims

The mean value is 3.0, which indicates a neutral or indifferent opinion about administrative demands. The standard deviation of 1.25 shows that there is more dispersion in the responses. The Variance (1.56) indicates dispersion in the perceptions about administrative demands.

Classroom conditions

The average value of 3.7 indicates that respondents tend to agree that classroom conditions are often a source of stress, with a standard deviation of 1.25 reflecting some variability in perceptions. The variance of 1.57 reflects significant dispersion in the data.

Interaction with students

The average of 3.6 indicates that in general the respondents mention that is often a source of stress, with a standard deviation of 1.17 suggesting more homogeneous responses. The variance of 1.38 indicates a moderate dispersion in responses.

Relationship with parents

The average value of 3.8 shows that respondents tend to be Teachers feel that the relationship with parents is often a source of stress with a standard deviation of 1.23 reflecting some diversity in opinions. The variance of 1.51 reflects significant dispersion in the data.

Time spent on extracurricular activities

On average, teachers feel that time spent on extracurricular activities is often a source of stress. With a Standard Deviation of 1.43 this category has one of the largest variations in responses. The Variance of 2.04 suggests a significant spread in responses.

Symptoms of work stress

In the analysis of the symptoms of work stress in the teachers surveyed, insomnia, chronic fatigue, depression, frequent physical ailments and irritability were assessed. The result is that, on average, teachers sometimes experience insomnia due to work stress, with a mean of 2.9. The standard deviation of 1.37 and a variance of 1.88 indicate a considerable variation in the responses, reflecting a significant dispersion of the data. In the case of chronic fatigue, the mean is 2.4, suggesting that teachers also sometimes experience this symptom. The standard deviation of 1.35 and the variance of 1.82 reinforce the existence of a notable variability in the responses.

Teachers also report experiencing depression occasionally, with a mean of 2.8. The standard deviation is 1.23, and the variance is 1.51, indicating considerable variation in individual experiences. For frequent physical complaints, the mean is 3.2, indicating that this is a common symptom among teachers. This category has a standard deviation of 1.48 and a variance of 2.18, which are the highest in this group of symptoms, indicating a high dispersion in responses.

Finally, irritability has a mean of 3.1, suggesting that teachers sometimes feel irritable due to job stress. The standard deviation of 1.20 and variance of 1.43 indicate considerable variation in responses.

Workplace stress mitigation strategies

The highest frequency was “Sports Activities”, corresponding to Sports-Based Physical Exercise, most teachers mention this activity inside and outside the institution, as a crucial strategy for stress management.

The cross tables show a significant relationship between improving communication within the institution and being more empathetic outside the institution, this indicates that communication and empathy are interdependent in reducing stress, this corresponds to

Emotional Intelligence Models. According to the analysis of variance, the mean stress level varies significantly depending on the implementation of different recommendations, this suggests that certain strategies are more effective than others, among which are resilience training and stress management (smart) and mindfulness-based interventions.

Conclusions

- The categories with the highest means are work overload, classroom conditions, and relationship with parents, which indicate critical areas where stress is most prevalent. Stress Frequency In general, teachers report feeling overloaded and experiencing stress often in a variety of areas such as work overload, classroom conditions, and relationship with parents. However, there is considerable variation in how different teachers perceive stress, as indicated by the relatively high standard deviations and variances across all categories.
- Taken together, the results reveal that symptoms of work-related stress are a common and varied reality among teachers, highlighting the need for strategies to mitigate the impact of stress on their well-being.
- Workplace stress reduction strategies suggest that both inside and outside the institution, faculty seek a combination of emotional support, physical activities, and administrative improvements to manage workplace stress. The most prominent strategies include regular physical exercise, improvements in institutional communication, and the implementation of more flexible administrative policies.

Conflict of interest

There is no conflict of interest in relation to the submitted article.

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