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## Stress and predictive psychosocial variables in Ecuadorian university teachers

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### ABSTRACT

University professors are exposed to high levels of stress as a result of the multiple activities involved in their profession. The objective of this research is to explain how a sequence of psychosocial variables directly and indirectly influences stress. Method: A non-probabilistic and non-clinical sample of 480 professors from different Ecuadorian universities was surveyed online, and participation was anonymous. Sequential Canonical Analysis was used (SEQCA). This paper examined the following multivariate sequence: (1) resilience; (2) psychological inflexibility; (3) loneliness; (4) life engagement; and (5) stress. The model also considered the indirect influences of work-related variables including occupation, work-hours, and likelihood of losing a job. Results: The overall SEQCA was statistically significant ( $p < .0001$ ) and accounted for 36% of the variance. Conclusions: Psychosocial variables predict stress more than work-related variables. The results will provide information for designing effective stress prevention programs.

### Resumen



Los profesores universitarios están expuestos a altos niveles de estrés como consecuencia de las múltiples actividades que conlleva su profesión. El objetivo de esta investigación es explicar cómo una secuencia de variables psicosociales influye directa e indirectamente en el estrés. Se encuestó en línea a 480 profesores de diferentes universidades ecuatorianas, se utilizó el Análisis Canónico Secuencial (SEQCA). En este trabajo se examinó la siguiente secuencia multivariada (1) resiliencia; (2) inflexibilidad psicológica; (3) soledad; (4) compromiso vital; y (5) estrés. El modelo también tuvo en cuenta las influencias indirectas de variables relacionadas con el trabajo, como la ocupación, horas de trabajo y la probabilidad de perder el empleo. Resultados: El SEQCA global fue estadísticamente significativo ( $p < .0001$ ) y explicó el 36% de la varianza. Conclusiones: Las variables psicosociales predicen el estrés más que las variables relacionadas con el trabajo. Los resultados proporcionarán información para diseñar programas eficaces de prevención del estrés.

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## Introduction

During the past Covid-19 pandemic, people's lives were significantly affected, including in their workplace (Fernández-Millán and Bretones 2020). Many professions had to make adaptations that have subsequently remained. A specific case has been that of academic staff, who have had to adapt to new technologies and online learning platforms to teach their classes quickly, and that has entailed not only a change in the teaching-learning model but also in the teaching role (Domínguez-Vergara and Dominguez-Perez 2021; Ortega-Jiménez et al. 2023). This has caused an increase in time and work overload, which has led to an increase in stress, with negative effects on physical and mental health (Alvarado, Aragón, and Bretones 2020; Andrade-Vargas et al. 2021) as well as feelings of uncertainty and loneliness that influence their performance (Lei 2022).

In this regard, Lazarus and Folkman (1986) consider stress as a dynamic process that develops from the unique relationship between the subjects and the challenging environment in comparison with the available resources. Stress must be therefore conceived as a subjective process of cognitive imbalance that occurs when people perceive threats or demands that they cannot control and that cause negative consequences. If the person perceives that this threatening situation exceeds their defenses, they will experience stress (Tacca and Tacca 2019).

Obviously, given the psychological, social and cultural nature of the phenomenon, there are different perspectives and explanatory models of it. From the field of psychosociology, a classic approach has been developed by Robert Karasek et al. (1979) and his Demand-Control theory that includes social and emotional aspects in its explanatory development. The model establishes that stress is the consequence of the imbalance between the levels of demand and control that workers have over their work activity. Here, demand is understood as the social and intellectual requirements that the organization imposes on the worker, while control refers to the degree of autonomy, initiative and decision that the worker has regarding their work.

It has been argued that teaching at all levels of education is one of the most stressful professions with the highest levels of professional burnout (Embse et al. 2019; Fernández-Suárez et al. 2021; Méndez et al. 2020). This is due to the need to face an emotionally challenging work environment that demands high levels of mental flexibility, emotional management skills, sustained attention and resilience (Roeser et al. 2013). Therefore, work stress has become a common psychopathology among this group (Besser, Lotem, and Zeigler-Hill 2022). Satisfying the expectations of students and other agents involved (society, companies, public administrations) significantly increases the pressure on the higher education system (Fernández-Suárez et al. 2021). In addition, teaching is a complex process that requires a greater demand for flexibility and creativity, due to the management and research activities that university teachers must carry out (Reitan, Waage, and Habib 2022; Riivari et al. 2020). All this makes them face high job demands, increasing the perception of stress (Dramanu, Milledzi, and Asamani 2020).

However, along with these demands, the increase in managerialism in our universities must also be considered, since it has an effect on their academic staff by influencing more the need to obtain tangible production results (scientific, transfer, etc.) than the quality of the process of teaching or research. Thus, universities run the risk of becoming corporate

publication factories, in which quantity is confused with quality and competitive pressure is increasingly on the rise, deviating from their function and social orientation (Houtum and van Uden 2022).

In this way, academic staffs go through the distressing feeling that, due to continuous competitive pressure and permanent evaluation, one could always or should do more, which translates into a high percentage of self-exploitation, symptoms of stress and exhaustion among academics (Erickson, Hanna, and Walker 2020). In Latin America, negative conditions such as limited access to technology, longer working hours, lack of interactions, job insecurity, anxiety and negative emotions contribute to a high level of stress in teachers (Ramos et al. 2023; Rojas et al. 2024; Sánchez-Oñate et al. 2023). In Ecuador, the following causes of stress in university teachers have been identified: unfavorable working conditions, a negative professional environment, excessive workload, aggressive situations, lack of recognition and performance evaluation (Vázquez-Cano and Holgueras-González 2019). Additionally, the high load of interactions and emotional demands that Ecuadorian teachers face are causing their work performance to decrease, sometimes even generating effects on what and how they teach (Pazmiño et al. 2023).

With the aforementioned background, studying which psychological variables are associated with stress, as well as coping and adaptation strategies in university teachers, will be very useful for developing training activities in order to provide professors with various protective tools.

From previous literature, it is known that some psychological variables associated with stress have been resilience, psychological inflexibility, loneliness or life engagement, which can act as triggering or protective factors. This has been evidenced in both teachers from Ecuador and Israel through cross-sectional studies. In the first case, a mediating effect of psychological inflexibility and life engagement between stress and loneliness was found in 902 university teachers; while in the second, a direct effect of loneliness on psychological stress and resilience was found in 208 university teachers (Ortega-Jiménez et al. 2019; Shinan-Altman and Levkovich 2022). In the following sections, each of these variables will be conceptualized and described.

## **Resilience**

Resilience is understood as the capacity for positive and continuous adaptation in the face of challenging circumstances (Han 2022; Yang and Shu 2021). This capacity can be conceptualized through three categories: the capacity to (1) resist stressors, (2) recover from them, and (3) grow from them. The first category is defined as the resistance to change and the maintenance of a healthy state despite being under stressful factors; the second refers to the return to a previous state after a stressor, and the third to the ability to adapt functionally in response to a stressor (Den Hartigh and Hill 2022).

In educators, this term is concretized as the capacity they have to recover quickly, understand the need for change, adapt and maintain an adequate performance in their work despite the challenges of the profession (Wei, Shujuan, and Qibo 2011). Resilience in educators is known to be a key variable for the promotion of psychological health because those with high resilience have high energy levels, while low resilience will contribute to a stressful response (Chen et al. 2022; Padmanabhanunni, Pretorius, and Khamisa 2023). Likewise, other authors maintain that resilience is inversely related to stress, minimizing

exhaustion, in addition to improving job satisfaction and well-being (Richards et al. 2016; Weidlich and Kalz 2021). Additionally, there are several studies that have shown the association between resilience and work commitment (Valosek et al. 2021; Papazis, Avramidis, and Bacopoulou 2022). In short, resilience has become a variable that promotes instructor well-being, helping to reduce stress and relieving exhaustion.

### ***Psychological inflexibility (PI)***

It is characterized by a person's tendency to avoid or minimize psychological reactions to unpleasant, unwanted, or painful private eventful experiences in the form of thoughts, emotions, memories, or bodily sensations (Galhardo et al. 2020). Thus, PI acts as a transdiagnostic variable, that is, it has the ability to interact with some psychological variables and their behavioral effects (Ruisoto et al. 2017; Sánchez-Puertas et al. 2022). In the short term, PI offers relief and acts as a non-threatening strategy that regulates emotional manifestation. However, by becoming a rigid pattern, it can cause a maladaptive process that favors the development, maintenance and exacerbation of a wide range of problems such as lower resilience, so that those who are more inflexible are less resilient (Tavakoli et al. 2019).

In the case of educators, Joyce et al. (2018) verified the negative relationship between psychological inflexibility and resilience in academic staff. In addition, levels of psychological flexibility are related to better mental health, better performance and greater ability to learn work skills, becoming a solid psychological resilience factor in the face of mental health problems (McCracken et al. 2021).

For their part, Dramanu, Milledzi, and Asamani (2020) found that psychological flexibility becomes a predictor of work commitment in professors. Similarly, authors such as Kern et al. (2020) confirm that psychological flexibility, resilience and a sense of purpose in life predict the educator's intention to continue teaching.

Therefore, greater psychological inflexibility generates higher levels of stress in professors, which can increase the risk of pathologies (Madison 2021). Conversely, responding flexibly mobilizes necessary physiological resources to the perceived threat. However, there are few studies that investigate psychological inflexibility and stress in university teachers.

### ***Loneliness***

Regarding perceived loneliness in the work environment, it is defined as the anguish generated by the perception of a lack of quality interpersonal relationships among workers (Wright, Burt, and Strongman 2006). It is also known that loneliness is linked to worse physical and mental health and that levels of loneliness are higher in the teaching population than in the general public (Beutel et al. 2017).

In the case of educators, loneliness causes withdrawal from different activities and poor performance (Sezen-Gultekin, Bayrakçı, and Limon 2021), increasing the perception of feeling emotionally isolated (Uğurlu and Kaplan 2021). It has also been associated with negative psychological and organizational outcomes, such as poor performance, and lower quality of work, motivation, and commitment. In addition, it negatively affects the interaction with the environment and causes social isolation instead of establishing close relationships (Çevik-Durmaz, Yalçinkaya-Önder, and Timur 2021; Telyani, Farmanesh, and Zargar 2021).

Also, it has been found that the support and help perceived by supervisors and colleagues can help reduce stress and improve personal fulfillment among instructors (Pressley 2021), which is why it is considered an essential aspect for the health of this population (Ju et al. 2015). In the context of teaching, feeling loneliness directly conditions teacher performance and commitment (Cortés-Álvarez et al. 2022).

Regarding the relationship of loneliness with stress and other psychological variables in university teachers, Smith et al. (2021) mention that the rates of exhaustion and loneliness continue to be higher in academic faculty than in the general population and established resilience as a protective factor against mental health problems.

For their part, Shinan-Altman and Levkovich (2022) found significant associations between loneliness and perceived stress, such that professors with high levels of stress have a higher perception of loneliness. Thus, those who experience symptoms of stress are less effective in organizing their classrooms, which is why they are inefficient in guaranteeing teaching and student achievement as well as not having the ability to provide adequate emotional support to them (Mazzetti et al. 2022). Stressors increase when teachers lack communication skills and feel alone in their work environment. In this context, perceived loneliness has a negative effect on their psychological well-being, reducing their performance and motivation levels (Çankaya, Karakuş, and Demirtaş 2009).

## Life engagement

Finally, life engagement is defined in terms of the extent to which a person engages in activities that are valued personally (Scheier et al. 2006). Some authors have found that commitment to life is related to greater job satisfaction, which is why it tends to protect psychological health (Klussman, Lee Nichols, and Langer 2021).

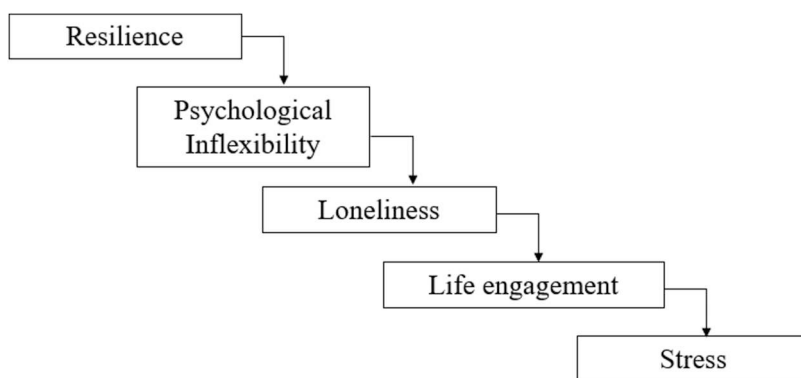
In the case of university faculty, a positive relationship has been found between satisfaction with life and work commitment (Znidaršič and Marič 2021). In turn, levels of work commitment are related to educators' attitudes towards their work, which has key implications in educational settings (Ellison 2022; Perera et al. 2018). Maintaining adequate levels of commitment is generally considered a desirable attribute as it is associated with a sense of professionalism (Shu 2022). It is also known that maintaining high life satisfaction is negatively associated with stress (Upadyaya, Vartiainen, and Salmela-Aro 2016), and having a sense of purpose in life was significantly associated with less loneliness, which is why it is considered a protective factor against the development of new incidents of loneliness (Sutin et al. 2022).

After conceptualizing the psychological variables associated with stress, the objective of our study was to determine the relationship and, above all, the sequence of the variables resilience, psychological inflexibility, loneliness and life engagement in university faculty and their relationship with stress, [Figure 1](#).

## Materials and methods

### Participants

To achieve this objective, we carried out a study with a sample of 480 Ecuadorian university teachers belonging to 7 universities in the Coastal and Sierra regions, of which



**Figure 1.** Conceptual framework: predictors of stress.

58.12% were men (279) and 41.88% women (201). The mean age was 40.89 years ( $SD = 10.14$ ), the number of daily work hours was  $M = 10.39$  ( $SD = 2.33$ ) and the mean probability of losing a job was  $M = 4.28$  ( $SD = 2.79$ ). Participants responded to an online survey with a median response rate of 47.8%.

The inclusion criteria to participate in the study were: to be in an active employment situation as a professor, to have at least one year of teaching experience, and to agree to participate in the research through informed consent.

## Measures

From this perspective, the methodology used will be quantitative in nature, through the use of various standardized self-report scales. In addition, other sociodemographic variables (gender, age, and work-related variables occupation and likelihood of losing their current job) were added.

Regarding the standardized scales used, these were:

*Brief Resilience Scale (BRS)* (Smith et al. 2008). It consists of 6 items aimed at evaluating the degree of resilience or ability of people to adapt to stress and adverse situations. The following instructions are used to administer the scale: 'Please indicate the extent to which you agree with each of the following statements by using the following scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree'. Cronbach's alpha coefficient was 0.80.

*Avoidance and Action Questionnaire (AAQ-7)* (Bond, Lloyd, and Guenole 2013). This scale assesses the psychological inflexibility that a person possesses. Psychological inflexibility refers to the control of emotional rigidity or unpleasant internal events. It is made up of 7 questions that participants must answer on a seven-point Likert-type scale, in which 1 = 'never' and 7 = 'always'. Scores range from 7 to 49, with higher ratings indicate greater psychological inflexibility; this scale has been validated in the Ecuadorian population (Paladines-Costa et al. 2021). In this study, Cronbach's alpha coefficient was 0.91.

*Perceived Stress Scale (PSS-14)*. (Cohen et al. 1983). This scale comprises 14 items that allow evaluating the degree to which an individual perceives a lack of control in their daily life. The participants respond to a five-point Likert-type scale ranging from 0 (never) to 4 (very often), and scores range from 0 to 56 points, with higher ratings



indicate higher levels of stress; this scale has been validated in the Ecuadorian population (Ruisoto et al. 2020). In this study, Cronbach's alpha coefficient was 0.82.

*University of California Los Angeles: Loneliness Scale Revised – Short (UCLA-3)* (Hughes et al. 2004). It is a short scale of 3 items that allow evaluating the subjective feeling of loneliness, which is understood as the individual's perception of having less social support than desired. The participants respond based on 3 options: 1 = 'never', 2 = 'sometimes' and 3 = 'often'. Scores range from 0 to 9 points, and higher ratings indicate a greater perception of loneliness. In this study, Cronbach's alpha coefficient was 0.86.

*Life Engagement Test (ELT)* (Scheier et al. 2006). Consists of a 6-item scale that measures vital commitment or degree to which the person is engaged in activities that are meaningful to them. Scores range from 6 to 30. Higher scores indicate a greater value of life engagement. Participants respond in a five-point Likert type scale, where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. In this study, Cronbach's alpha coefficient was 0.79.

### **Design and procedure**

A cross-sectional descriptive study was carried out, in which 480 Ecuadorian university teachers participated through an online survey that included sociodemographic and standardized scales. In total, 950 questionnaires were sent, with 480 being valid (50.53%). The average duration of the application was 30 min. Participation was completely anonymous, informed consent was obtained from all subjects involved in the study.

The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Ethics Committee for Research in Human Beings (Comité de Ética de Investigación en Seres Humanos, CEISH) of the Ministry of Public Health of the Republic of Ecuador.

### **Statistical analyses**

For the current purposes, a Sequential Canonical Analysis (SEQCA) was conducted with the collected data. A SEQCA is calculated as a sequence of variables that directly and indirectly influence other variables based on a theoretically pre-established order (Figueredo et al. 2017). This multivariate model entails several steps integrating multiple criteria following a hypothesized pathway. The parameter estimates are calculated as part of a hierarchical system of equations. A SEQCA is computed as follows: a variable entered into the model as a criterion is subsequently incorporated as a predictor in the next sequence of the analysis, and thus, generating the hierarchical mathematical organization. Due to these statistical properties, the SEQCA is capable of computing indirect influence of the various predictors on the models' criteria. Consequently, this model examines the direct impact of a predictor upon a criterion variable above and beyond the effects of other variables. The present study examined the following multivariate sequence: (1) resilience; (2) psychological inflexibility; (3) loneliness; (4) life engagement; and (5); stress. The model also considered the indirect influences of work-related variables (occupation, work-hours, and likelihood of losing a job). All analyses were conducted in UniMult 2.0 (Gorsuch 2016).



## Results

Table 1 offers a summary of descriptive statistics estimated for the various instruments examined in the current study. None of the variables feature unusual levels of either skewness or kurtosis. Participants' mean of Perceived Stress (PSS), and Psychological Inflexibility (AAQ) were relatively low. In contrast, the mean of Loneliness (UCLA) value was slightly larger. In a similar vein, both the Resilience (BRS) and Life Engagement (ELT) mean values were on the high end of the spectrum.

Table 2 below summarized the results of various measurement models evaluating the psychometric proprieties of the scales used in this study. The analysis for Perceived Stress indicated the instrument had a large internal consistency value, with a general latent dimension explaining a 72% proportion of variance. The scale's factor loadings ranged from .34 to .78. The loneliness questionnaire (UCLA) also displayed a large internal consistency value, and the psychometric analyses supported the presence of a general latent dimension that explained over 95% of the variance.

The questionnaire's factor loadings ranged from .78 to .85. A similar pattern emerged for the AAQ, whereby the instrument displayed a large internal consistency value. The model revealed the presence of a general latent dimension that explained 88% of the variance. The AAQ had factor loadings ranging from .75 to .82. The Life Engagement Test had a slightly smaller, yet still adequate, internal consistency value. Psychometric analyses suggested the existence of a general latent dimension that accounted for 82% of the variance. Factor loadings for this scale ranged from .58 to .69. Lastly the Brief Resilience Scale also displayed an adequate level of internal consistency. The analyses revealed the presence of a general latent dimension that explained 85% of the variance. This scale's factor loadings ranged from .52 to .77.

### Sequential canonical analysis

The overall SEQCA was statistically significant ( $p < .0001$ ) and accounted for 36% of the variance. The results of this analysis are featured in Table 3.

The model indicated that participants' *psychological inflexibility* (PI) was negatively and significantly predicted by their resilience. Neither the participants' occupation nor their work hours had any significant contribution to this step of this model. Alternatively, the likelihood of losing their job positively influenced the psychological inflexibility scores.

The *loneliness* scores (LN) were positively predicted by the participants' psychological inflexibility level. In contrast, resilience scores (RS) reduced the individuals' loneliness. Neither the occupation nor the likelihood of losing their job predicted this criterion

**Table 1.** Means, standard deviations, skewness, and kurtosis estimated for the variables examined in the present study.

Instrument	Mean	Standard Deviation	Skewness/Kurtosis
PSS	1.41	0.62	.27/ -.26
UCLA	1.81	0.73	.63/ -.48
AAQ	2.10	1.10	1.30/ 1.59
ELT	4.58	0.56	-1.54/1.92
BRS	3.79	0.80	-32/-34

**Table 2.** Psychometric proprieties of the various questionnaires used in the present study.

Instrument	Cronbach's $\alpha$	Eigenvalue	Proportion variance	Min loading	Max loading
PSS	0.870	5.124	0.715	0.338	0.780
UCLA	0.859	2.098	0.956	0.780	0.850
AAQ	0.915	4.301	0.883	0.754	0.815
ELT	0.762	2.421	0.823	0.579	0.692
BRS	0.782	2.547	0.852	0.517	0.771

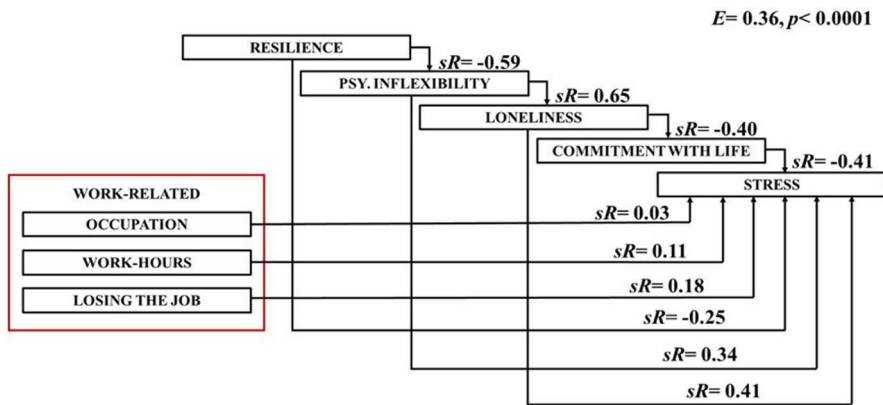
variable. After controlling for the aforementioned variables, work hours positively and significantly influenced loneliness.

The *life engagement* scores were negatively and significantly predicted by participants' loneliness and psychological inflexibility scores. In contrast, resilience positively predicted this criterion variable. However, occupation had no significant contribution to the model, while work hours and the likelihood of losing the job positively and negatively, respectively, influenced participants' life engagement.

In the last step of the model, stress was negatively and significantly predicted by participants' life engagement. In contrast, loneliness and psychological inflexibility positively

**Table 3.** Sequential canonical analysis evaluating the influence of work conditions and individual differences upon participants' mental health outcomes.

Variables	Effect size	90%C. I.	F Ratio	df1 / df2	<i>p</i> -value
Overall ( $V = .530$ )	$E = .36$	.27,.45	18.14	16/1900	<.0001
Y variable: Psychological inflexibility					
Resilience	-0.59	-.65, -.53	259.99	1/475	<.0001
Occupation	0.03	-.06,0.12	0.71	1/475	0.4
Work-hours	-0.03	-.12,0.06	0.87	1/475	0.35
Likelihood of losing job	0.08	-.01,0.17	4.97	1/475	0.03
Set 1 Results:	0.09	.00,0.14	2.18	3/475	0.09
Multiple (Xs only)	0.60	.58,0.62	66.63	4/475	<.0001
Y variable: Loneliness					
Psychological inflexibility	0.65	.60,0.7	366.16	1/474	<.0001
Resilience	-0.11	-.20, -.02	10.3	1/474	0.001
Occupation	-0.04	-.13,0.05	1.58	1/474	0.21
Work-hours	0.08	-.01,0.17	6.16	1/474	0.01
Likelihood of losing job	0.01	-.08,0.1	0.03	1/474	0.85
Set 1 Results:	0.10	.00,0.15	2.59	3/474	0.05
Multiple (Xs only)	0.15	.09,0.19	4.52	4/474	0.001
Y variable: life engagement					
Loneliness	-0.40	-.47, -.32	101.93	1/473	<.0001
Psychological inflexibility	-0.27	-.35, -.18	47.09	1/473	<.0001
Resilience	0.15	.06,0.24	14.63	1/473	0.0001
Occupation	-0.01	-.10,0.08	0.03	1/473	0.85
Work-hours	0.12	.03,0.2	8.8	1/473	0.003
Likelihood of losing job	-0.08	-.17,0.01	4.04	1/473	0.04
Set 1 Results:	0.14	.08,0.18	4.29	3/473	0.005
Multiple (Xs only)	0.21	.16,0.25	6.88	4/473	<.0001
Y variable: Stress					
Life engagement	-0.41	-.48, -.33	178.38	1/472	<.0001
Loneliness	0.41	.33,0.48	178.04	1/472	<.0001
Psychological inflexibility	0.34	.25,0.41	119.35	1/472	<.0001
Resilience	-0.25	-.33, -.17	67.68	1/472	<.0001
Occupation	0.03	-.06,0.12	0.93	1/472	0.34
Work-hours	0.11	.02,0.19	11.82	1/472	0.0006
Likelihood of losing job	0.18	.09,0.26	33.3	1/472	<.0001
Set 1 Results:	0.21	.18,0.23	15.35	3/472	<.0001
Multiple (Xs only)	0.33	.31,0.35	28.43	4/472	<.0001



**Figure 2.** Sequential canonical analysis examining the influence of work-related and different individual variables upon participant's stress.

and significantly predicted this criterion variable. The model also indicated that resilience negatively and significantly influenced stress. Lastly, work hours and the likelihood of losing the job positively and significantly predicted participants' stress.

With the Sequential Canonical Analysis, the relationship between various psychological variables and, in turn, their relationship with stress is evidenced. For this reason, it has been verified that there is a statistically significant level of prediction of work-related variables (occupation, working hours and probability of losing a job) towards stress, in line with the results of Matsushita and Yamamura (2022). However, the magnitude of the effect of the work-related variables in this study is small, unlike the magnitude of the psychosocial variables that contribute with greater prediction (see Figure 2). Possibly, this is due to the fact that the latter are the result of the interaction of the individual characteristics with their environment.

## Discussion and conclusions

Stress is one of the serious problems of today's organizations, including higher education organizations. In the case of education, its implications are important since it not only affects the health of university teachers but also the quality of the educational process in which they participate. It is evident that the pressures and working conditions to which academic staffs are subjected are one of the main sources of stress generation, which is why higher education institutions have the responsibility of evaluating the working conditions that influence the performance of the faculty in order to prevent stress at work.

In relation to the cognitive variables that were analyzed in this research, it is evident that psychological inflexibility was negatively and significantly predicted by resilience with a large effect size, these results being consistent with what was found by Joyce et al. (2018). When a university professor experiences psychological inflexibility, they may be more prone to experiencing stress (Ortega-Jiménez et al. 2021). This could be explained by psychological inflexibility, as well as by other individual factors that when interacting with difficult contextual conditions, such as an intense workload,

preparing classes, grading exams, participating in research projects, writing scientific articles, among other responsibilities of the university work environment produce stress.

Therefore, resilience could be developed to better manage work challenges, and psychological flexibility contributes to recovering from setbacks and adapting to changes by taking on new roles, tasks or responsibilities.

Regarding the variable perception and feeling of loneliness, it has been found that it was positively predicted by psychological inflexibility and negatively by resilience, as well as a positive and high association between stress and loneliness. For their part, Mäkineniemi, Oksanen, and Mäkikangas (2021), reported that resilience moderated the relationship between loneliness, stress, and burnout in university teachers. The tendency to think, feel or act inflexibly can increase the perception of loneliness, decreasing the ability to adapt or recover from obstacles, and present more difficulties for educators to connect with others and maintain satisfactory social relationships (Tindle and Mustafa 2021). Other authors (Guerra-Balic et al. 2023) have pointed out that the perception of loneliness has a negative impact on mental and physical health.

With regard to the variable of life engagement, it was shown that the perception of loneliness and psychological inflexibility predicted this negatively and significantly with a medium effect size. Likewise, LE was also positively predicted by resilience, although with a small effect size. These results are in agreement with those found by Ortega-Jiménez et al. (2021), who carried out a study on Ecuadorian university teachers belonging to 12 public and private institutions in which loneliness negatively and significantly predicted life engagement. Similarly, Shinan-Altman and Levkovich (2022) found in their study carried out on public school teachers in Israel a direct effect of loneliness on psychological stress and resilience.

The aforementioned would explain why the relationship between satisfaction with life, loneliness and stress can vary according to the differences and personal resources of each educator, who will have unequal reactions to the increasing number of demands of higher education institutions and the low resources that these provide. Under these circumstances of high demands and low resources, university teachers will use various strategies and personal and cognitive resources that the environment does not provide to them, and with which to face these shortcomings.

It is evident that stress in university teachers can have several negative implications for the quality of teaching and learning, among which are fatigue and exhaustion. This affects their capacity for dedication and attention to the individual needs of students. It can also be included the loss of interest and enthusiasm, which can influence the quality of interactions in the classroom and the preparation of educational resources, as well as the decrease in motivation and creativity, which can affect the ability of university teachers to adapt to different learning styles and keep students engaged (Reitan, Waage, and Habib 2022). In summary, stress in university teachers not only affects their personal well-being, but also has direct consequences on the quality of teaching and learning (Domínguez-Vergara and Dominguez-Perez 2021; Embse et al. 2019; Méndez et al. 2020).

The results of this study show the need to create interventions to help educators reduce the negative consequences of loneliness and strengthen support networks between colleagues and supervisors, in such a way as to contribute to improving their emotional toil. However, our study has been able to verify that we must also take into

account other personal cognitive variables (resilience, life engagement) together with work-related factors such as the number of hours or probability of losing a job.

Working hours and the probability of job loss are related to worker stress, therefore, it is crucial to conduct periodic psychosocial risk assessments and monitor these variables as potential sources of stress. In addition, it is recommended to implement policies of flexible hours, remote work or other part-time work options, so as to improve the balance between work and personal life.

Universities should consider continuing education to develop skills such as time management, resilience, effective communication, conflict resolution, and stress management. This will help improve the psychological flexibility of professors, allowing them to adapt more effectively to changing situations, strengthen their well-being, provide high-quality education to their students, and improve their research and management standards.

Likewise, universities must work on strategies to strengthen resilience and reduce psychological inflexibility in order to prevent or reduce the perception of loneliness. It is important that educators communicate effectively and seek support from other colleagues, participate in activities outside of work, and consult specialized professionals if necessary to prevent stress and improve their emotional well-being.

The results of this research highlight the need for universities to generally improve and strengthen the employment conditions of their academic staff through the implementation of intervention programs. These programs should promote mental health to guarantee stable, safe and fair employment, in turn being reflected in better quality in the teaching of students.

The findings of this study have implications for interventions and support the need to implement stress management programs in educational settings and public policies that promote a healthy work and life environment for faculty.

Finally, we want to emphasize some limitations of our study, as well as recommendations for future research. Firstly, referring to the study method, although the use of standardized self-report instruments is widely used and accepted in social science research, they may have some limitations due to potential problems of memory bias, social desirability or acquiescent responses. Therefore, we suggest carrying out other studies of a qualitative nature that help provide greater understanding about the study of stress and coping strategies in university teachers.

On the other hand, our study has focused on university teachers in Ecuador, so it would be advisable to carry out other studies in other samples with academic staff from other countries in the region that would provide us with a more complete understanding of the reality that university teachers experience in different cultural and socio-economic environments. Also, it would be advisable to carry out studies that include other cultural variables of ethnic minorities or migrant academics.

Finally, although our study was carried out in a cross-sectional manner, it would be advisable to carry out longitudinal studies that allow us to obtain information on how these psychosocial variables evolve and how they affect stress levels in the long-term.

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