Revista Iberoamericana para la Investigación y el Desarrollo Educativo
ISSN 2007 - 7467

https://doi.org/10.23913/ride.v13i25.1238

Artículos científicos

El estrés académico causante de la procrastinación en la educación virtual. Una revisión sistemática

Academic Stress-Causing Procrastination in Virtual Education. A Systematic Review

Estresse acadêmico causando procrastinação na educação virtual. Uma revisão sistemática

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Resumen

El estrés académico es un malestar que se suscita por actividades y eventos académicos. El objetivo de este trabajo fue identificar, seleccionar y evaluar investigaciones del año 2016 hasta el 2021 para localizar información de calidad, válida y confiable sobre los principales factores del estrés académico, en específico aquella que considera la transición de la educación presencial a la virtual y los estilos de afrontamiento en estudiantes adolescentes. Se llevó a cabo una revisión documental de artículos a través del procedimiento Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Prisma). Para ello, se recurrió a las principales plataformas de investigación científica: Redalyc, SciELO, PubMed y Lilacs. Como resultado, se seleccionaron 10 artículos para su revisión, de los cuales ocho presentaron calidad metodológica. En las conclusiones se destaca que el estrés está relacionado con la sobrecarga de trabajo, que los estudiantes presentan principalmente

reacciones físicas al estrés y a la reevaluación positiva como estrategia de afrontamiento. Asimismo, se encontró una alta correlación entre el estrés académico y la procrastinación académica. Finalmente, la procrastinación de actividades se relaciona con la incertidumbre y con síntomas físicos, mientras que la regulación académica con estrategias de afrontamiento.

Palabras clave: educación virtual, educación presencial, estresores académicos, estilos de afrontamiento, procrastinación académica.

Abstract

Academic stress is a discomfort that is caused by academic activities and events. The objective of this work was to identify, select and evaluate research from 2016 to 2021 to locate quality, valid and reliable information on the main factors of academic stress, specifically that which considers the transition from face-to-face to virtual education and coping styles in adolescent students. A documentary review of articles was carried out through the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) procedure. For this, the main scientific research platforms were used: Redalyc, SciELO, PubMed and LILACS. As a result, 10 articles were selected for review, of which eight presented methodological quality. The conclusions highlight that stress is related to work overload, that students mainly present physical reactions to stress and positive revaluation as a coping strategy. Likewise, a high correlation was found between academic stress and academic procrastination. Finally, activity procrastination is related to uncertainty and physical symptoms, while academic regulation is related to coping strategies.

Keywords: virtual education, face-to-face education, academic stressors, coping styles, academic procrastination.

Resumo

O estresse acadêmico é um desconforto causado por atividades e eventos acadêmicos. O objetivo deste trabalho foi identificar, selecionar e avaliar pesquisas de 2016 a 2021 para localizar informações de qualidade, válidas e confiáveis sobre os principais fatores de estresse acadêmico, especificamente aquela que considera a transição da educação presencial para a virtual e o enfrentamento estilos em estudantes adolescentes. A revisão documental dos artigos foi realizada por meio do procedimento Preferred Reporting Items for Systematic

Reviews and Meta-Analyses (Prisma). Para isso, foram utilizadas as principais plataformas de pesquisa científica: Redalyc, SciELO, PubMed e Lilacs. Como resultado, foram selecionados 10 artigos para revisão, dos quais oito apresentaram qualidade metodológica. As conclusões destacam que o estresse está relacionado à sobrecarga de trabalho, que os alunos apresentam principalmente reações físicas ao estresse e reavaliação positiva como estratégia de enfrentamento. Da mesma forma, foi encontrada uma alta correlação entre estresse acadêmico e procrastinação acadêmica. Por fim, a procrastinação da atividade está relacionada à incerteza e sintomas físicos, enquanto a regulação acadêmica está relacionada às estratégias de enfrentamento.

Palavras-chave: educação virtual, educação presencial, estressores acadêmicos, estilos de enfrentamento, procrastinação acadêmica.

Fecha Recepción: Enero 2022 **Fecha Aceptación:** Julio 2022

Introduction

Berrío and Mazo (2011) define academic stress as a physiological, emotional, behavioral and cognitive reaction to academic stimuli and events. It is a discomfort that can occur at different school stages. Generally, it manifests itself through anxiety, frustration, anger, apathy, isolation, conflicts, thoughts of incapacity and difficulty in resolving situations (Campos, May 31, 2021).

The academic environment implies certain demands and activities on the part of the student that can cause stress. And without a doubt, these situations that trigger stress are triggered by events such as the 2019 coronavirus disease (covid-19) pandemic, which came to destabilize all areas of social life, including, of course, education. For almost two years, to reduce the risk of contagion, education had to be moved from classrooms to homes and delivered through digital media. In this regard, Lovón and Cisneros (2020) describe virtual education as an innovative learning system based on the Internet that has broken with the time and space gaps that face-to-face education entails.

In recent years, even before the arrival of the type 2 coronavirus that causes severe acute respiratory syndrome (SARS-CoV-2), learning stress has increased exponentially due to lack of time to carry out educational activities, little or no understanding of the content of the study program in virtual media, as well as the relationships between peers (Barker, et al., 2018; Baptista, et al., 2020). Academic stress can also develop from poor nutrition and

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insufficient rest. It is a problem that affects the learning and well-being of students (González and Landero, 2006).

The objective of this systematic review has arisen from the need to collect, analyze and synthesize the knowledge of previous research in relation to the main factors of academic stress in the transition and change to various educational modalities and academic procrastination.

The systematic review of scientific documents in the area of psychology and health allows identifying, evaluating and comparing results to contribute to the solution of current and complex problems. The review of the scientific literature for updating purposes is not a random process; It is a systematic process that allows the construction of new structured and current knowledge based on previous isolated knowledge. (Page *et al.*, 2020).

Method

The systematic review of the scientific literature was carried out based on the methodology statement Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Prisma) (Page *et al.*, 2020).

Procedure for the identification of studies

The search for studies was carried out in the Redalyc, SciELO, PubMed and Lilacs databases from 2016 to 2021 (Table 1).

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Tabla 1. Estrategia de búsqueda por base de datos

Redalyc	*1)* Estrés académico y estudiantes de media superior *2)* Estrés académico por covid-19 *3)* Educación virtual antes de la pandemia
SciELO	*1)* (Estrés académico) and (Media superior) *2)* Estrés académico *3)* (Estrés académico) and (covid-19) *4)* (Estrés académico) and (SARS-CoV-2) *5)* (Educación virtual) and (Pandemia**)**
PubMed	*1)* Estrés académico *2)* Academic stress from covid 19 *3)* Academic stress in high school students *4)* Virtual education before the pandemic *5)* Virtual education and pandemic
Lilacs	*1)* Estrés académico AND (full text: AND db.:(“Lilacs”) AND mj:(“Estudiantes”) AND la:(“es” OR “en”)) AND (year_cluster:[2016 TO 2021]) *2)* Educación virtual AND (fulltext:(“1” OR “1” OR “1” OR “1” OR “1” OR “1” OR “1”) AND db.:(“Lilacs”) AND mj:(“Estudiantes”) AND la:(“es” OR “en”)) AND (year_cluster:[2016 TO 2021]) *3)* Educación virtual y pandemia AND (fulltext:(“1” OR “1” OR “1” OR “1”) AND db.:(“Lilacs”) AND mj:(“Pandemias” OR “Educación a distancia” OR “covid-19") AND la:(“es” OR “pt”)) AND (year_cluster:[2016 TO 2021])

Fuente: Elaboración propia

Eligibility Criteria

1) Inclusion criteria: articles in Spanish and English, in the disciplines of psychology, education and health sciences, ages 13-18, in full text, students, cross-sectional or correlational studies were considered.

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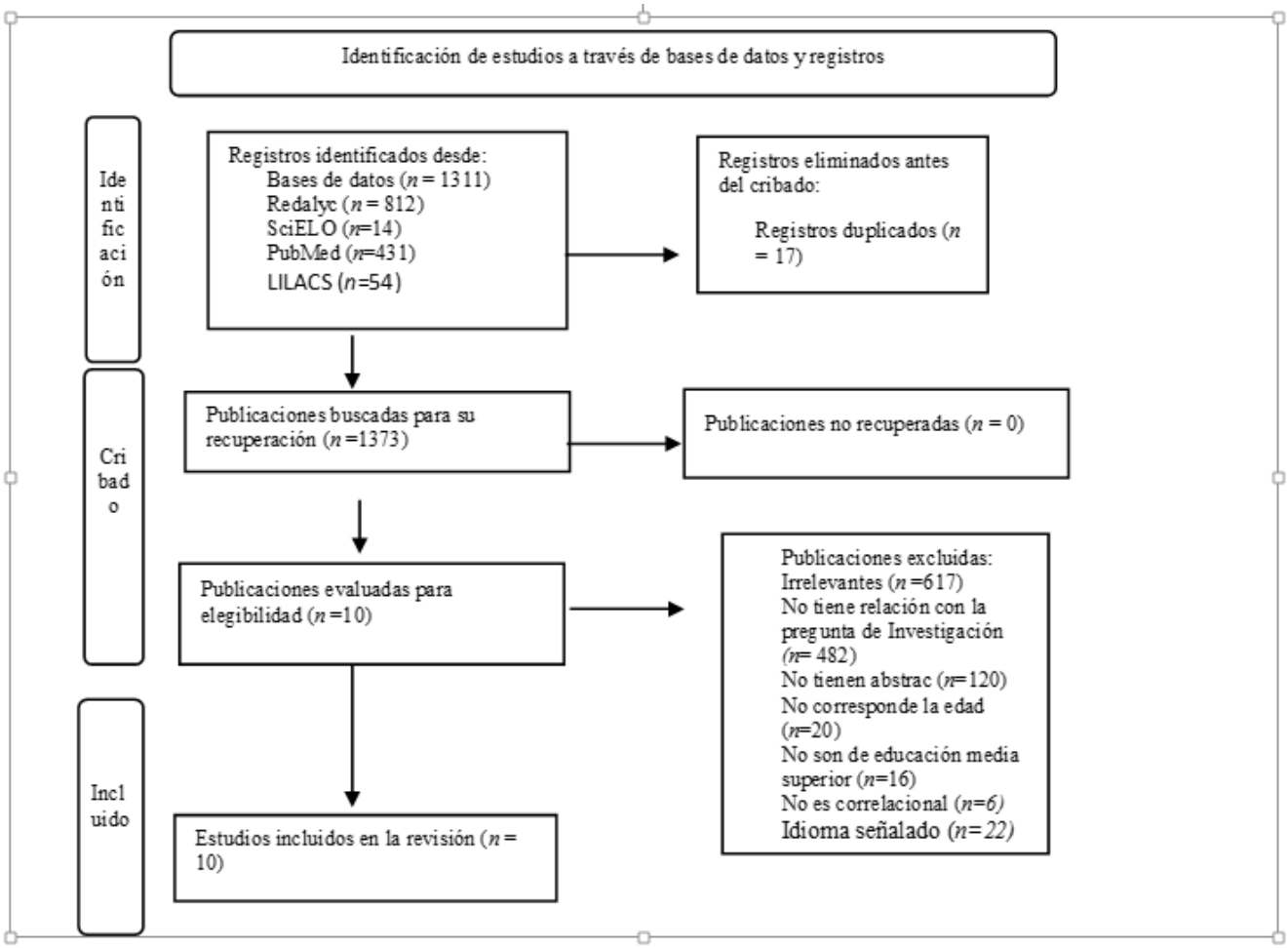
2) The exclusion criteria: scientific texts that were written in another language, disciplines other than those selected, are not full text or do not have an abstract, that the studies are not cross-sectional or correlational (figure 1).

Figura 1. Selección de estudios con diagrama de flujo Prisma 2020



Fuente: Page *et al*. (2021)

Results

Table 1 shows the evaluation of the methodological quality of the selected articles, the AXIS critical evaluation tool was used (Downes, et. al., 2016). AXIS evaluates the following points: 1) the objectives and goals of the study are clear, 2) the study design is adequate for the objectives set out in the research, 3) the size of the population is adequate, 4) the target population is clearly defined, 5) the sample is drawn from an appropriate population base, 6) the participant selection process is representative of the target population, 7) steps are taken

to address or categorize those participants who do not they respond, 8) they are measured correctly with instruments that have been previously piloted or published, 9) if the method is sufficiently described to allow its repetition and 10) the results must be adequately described, as well as their internal consistency and representation. In relation to the discussion, it is evaluated that the results are justified by the results obtained and that the limitations of the studies are described.

Of the selected articles, eight of them have a percentage of 70% to 95%, therefore, they do not present a risk of bias; instead, two of them obtained percentages of 25% and 45%, therefore, they were eliminated due to presenting a high risk of bias.

Data extraction process

The process of extracting results was carried out independently and can be seen in Figure 1. Data such as author(s), country, population, sample, sampling, instruments, objective, main results and limitations, as well as the relationship with the research question.

The selected articles on academic stress were three (n = 3). The first article indicates that the objective of their study was to determine academic stress, the second article investigated coping strategies and, finally, the third article investigated the relationship between procrastination and academic stress among students. The average age of the population of these investigations ranged between 14 and 21 years. All the selected studies (n = 7) worked with populations of men and women.

The countries where research on academic stress was carried out were Chile, Santiago (n = 1), and Mexico, one of them in the state of Durango and the other in Xalapa, Veracruz. The population was composed of high school students. Validation of the instruments used was carried out in both countries. The way of obtaining the sample for Santiago de Chile was of the stratified probabilistic type. In the case of Mexico, the type of selection of the participants was non-probabilistic, intentional and determined by their accessibility, giving informed consent.

It is very important to mention that the instruments chosen to assess academic stress, academic coping and procrastination were the following: Modified Academic Stress Inventory (IEA), Academic Stress Coping Scale (A-CEA), Academic Stress Questionnaire in Secondary Education (QASSE), the Academic Procrastination Scale (EPA), the Systemic Cognitive Inventory for the Study of Academic Stress (Sisco) and the Emotional Quotients

Inventory in its version for adolescents. It is significant to mention some characteristics of the tests selected by the authors, since the characteristics that compose them provide us with quality references for the investigations, as well as for the results. The EPA consists of 12 items and five response options (never, rarely, sometimes, almost always, and always). The scale has a two-factor structure: academic self-regulation and postponement of activities. The reliability is 0.77 in Cronbach's alpha. The Sisco inventory has 21 items; the items are answered through a Likert-type scale of five values (never, rarely, sometimes, almost always and always), and it presents a reliability of 0.91 in Cronbach's alpha, which is adequate to apply in the population pointed out.

Amador, Guízar, Briceño, Rodríguez and Villegas (2020) mention in their article that women have a higher grade point average and academic performance but less stress and mood management than men. The participants were men (n = 44) and women (n = 75) with higher secondary education.

Rodríguez, Maury and Troncoso (2020) used a stratified probabilistic sampling with a sample of women (n = 236) and men (n = 162) with a mean age of 21 years. These authors state that it is particularly important to know the socioeconomic level of students when researching academic stress due to the existing correlation between conditions of inequality and economic segregation. The participating students, for their part, reported that during the course of the academic year they presented moments of concern and nervousness. Regarding the perceived stress-generating situations that presented a significant difference, “Work overload” stands out; No significant differences were found between the dimensions "Competition among peers" and "Limited time". The students mainly presented physical reactions to stress and reported positive reappraisal as a coping strategy.

Discussion

The structured knowledge collected on academic stress and aspects of academic procrastination showed that delaying activities was correlated with stress and symptoms, while school regulation was correlated with coping strategies. Academic procrastination, according to Ferrari, Johnson and MacCown (1995, cited in García and Silva, 2019), can begin in the first years of school, continue at university and even settle for the rest of the individual's life. This is how academic procrastination is largely related to unfavorable conditions for education, delays success and causes failure.

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For their part, Delgado and Martínez (2016) mention that psychological stress has effects that are reflected in daily performance and affect various areas of the lives of individuals (students). Within these referrals, there are symptoms such as sadness, anguish, mental block, forgetfulness, restlessness. Del Hoyo (2004, cited in Delgado and Martínez, 2016) points out that the effects of stress can cause an alteration in the nervous system that can affect the brain, so any alteration at the physiological level in it will produce alterations at the behavioral level. , since the brain is the superior organ that leads the individual; however, if these effects are sustained, they can cause psychological disorders such as personality, eating, and sleeping disorders.

Barraza and Barraza (2018) point out that after the application and evaluation of the Sisco inventory of academic stress to 300 high school students, men (n = 135) and women (n = 165) with an average age of 16 years, they found the following highest stressors: a) they are overwhelmed with homework and schoolwork they have to do every day, b) they don't have enough time to do the work the teacher assigns me, and c) taking a test. Symptoms of stress, in descending order of frequency, are as follows: a) sleepiness or increased need for sleep, b) insomnia (inability to relax and calm down), c) difficulty concentrating, d) digestive problems, upset stomach, or diarrhea , e) feeling depressed or sad (depression) and f) increasing or decreasing food consumption.

The results obtained on coping strategies, ordered from higher to lower frequency, are: a) listening to music or being distracted by watching television, b) concentrating on solving the situation that worries me, c) going for a walk or playing sports, d) religiosity (pray or attend mass), e) search for information about the situation that worries me and f) ventilation and confidences (verbalization or talk about the situation that worries me).

The descriptive data of the academic procrastination variable, from the highest to the lowest, are presented below: a) I usually prepare in advance for exams, b) I spend the necessary time studying even when the subject is boring, c) I I take the time to review my homework before handing it in, d) I regularly attend classes, e) I try to complete assigned work as soon as possible, and f) I constantly try to improve my study habits, results that agree with Garcia's findings, Perez, and Tomas (2018).

The limitation that the author found in his research is that the participants were students from a single academic institution. To replicate his study, the author mentions that

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it would be important to use an instrument that only focuses its attention on procrastinating behavior (Albalá and Guido 2020).

In the implementation of virtual classes, Rodríguez, Pérez and Torres (2018) investigated the design of virtual environments as teaching tools to strengthen the teaching-learning process using various educational platforms. These educational platforms were a flexible and user-oriented teaching tool for the management of educational content; thus, the needs of the entity's teaching-learning process were met. On the other hand, Marino, Harman and Alvarado (2020) evidenced the complexity of distance education through systemic thinking. There, they explain that distance education has short- and long-term consequences that can become growth limits. Therefore, schools have to balance between what they want to do and know how to do it. The participation of all the participating agents, that is, directors, teachers and students, is essential to achieve this goal. (Chávez y Morales, 2018).

Berridi and Martínez (2017) developed in their research regulated learning strategies and analyzed the relationship with the school performance of students in virtual learning environments. The problem focused on understanding what factors determine the success or failure of students in a learning environment with computer support. In this regard, they mention that it is not only about having self-regulation strategies, but more elements such as a cognitive structure.

Regarding the relationship between covid-19 and virtual education, Vialart (2020) described the activities that Mexican teachers carried out to continue the academic year, to present teaching strategies intervened by information and communication technologies. (ICT) and for the virtualization of the teaching process. The foregoing through the application of the National Survey of Teachers before COVID-19 (END-covid-19), which was answered online by 2,253 teachers from public schools from basic to higher level. The activities carried out to provide continuity were: conducting conferences transmitted synchronously or asynchronously, PowerPoint slides, the use of sounds and other applications that were prepared for students to support their learning. Similarly, it highlights that it is necessary to know the technological resources that students have to maintain communication with them, as well as implement teaching strategies that captivate attention and stimulate research, dynamic participation and creativity.

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Conclusion

Academic stress continues to be a problem that affects not only the academic context, but also the extracurricular sphere that surrounds students. Without a doubt, it is necessary to reiterate that the physical condition of the campus also influences the stress levels in which the students find themselves, in addition to increasing the load in the classroom, an aspect related to this problem.

However, the overload of work and school tasks and the time they dedicate to these, which they perceive as limited, are the main factors that generate academic stress. Stress, by generating a general discomfort, leads them to procrastinate activities, that is, they delay activities or situations that must be resolved by those activities considered pleasant due to the uncertainty generated by the change in educational modality.

On the other hand, the most common strategies to deal with stress are: listening to music or distracting yourself by watching television, going for a walk or playing sports, taking refuge in religiosity, that is, going to mass or belonging to spiritual groups; in other cases, they focus on the situation that worries them to find a solution, they also look for information that helps to solve the situation that generates academic stress, and in many other cases, they verbalize, that is, they express the situation that worries them .

In terms of gender, women have a higher academic performance but a lower ability to manage stress and mood compared to men. These findings are useful to guide and advise programs in this population to improve gender-specific emotional skills. In this sense, it is proposed to take actions aimed at the academically stressed population at this level (high school), as well as appropriate coping strategies that allow them to achieve academic results, best practices and improve their family and personal environment.

At the same time, the analysis of the main factors that cause academic stress in the implementation of virtual education is essential, since teachers of the various socio-educational levels both in Mexico and in other countries designed virtual environments, used educational platforms, and it is here where the difficulty of distance education is evident, since virtualization must be seen as an opportunity to close the educational gap, enrich the teaching and learning process and allow the curriculum to evolve naturally, without having to pause classes , because the materials and activities are in constant progress. It should also be mentioned that it is accessible and demonstrates students' attitudes towards managing their

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knowledge, strengthens relationships and establishes cooperation between all parties, that is, educational authorities, teachers and students.

It should be noted that the information on the populations studied and their sociodemographic data is very important, since there is a strong correlation between the economic status of the students, which determines whether or not they have access to technology, and the stress due to the uncertainty caused. due to the change in educational modality.

Finally, in methodological terms, it is suggested as a necessary process to describe the limitations of the research, clearly and concisely, as this gives more credibility and coherence to the research that is being developed. Skipping this section can result in repeated errors. Conducting valid and reliable research that allows analysis of research methods and results will help reduce this educational symptom.

Contributions to future lines of research

The systematic review served to synthesize the advances that exist in the subject of academic stress, which provides the basis for applying strategies that reduce this discomfort. It can be seen that the educational process should not focus on learning ability, but should include a comprehensive process of self-improvement that includes all aspects of the human being and is aimed at achieving a quality of life.

Future research must create strategies for each educational modality and reduce the factors that generate academic stress, because each of these has its pros and cons, visualizing the factors and understanding the specific form of coping, as specified in this study, It will contribute to carrying out programs that mitigate the difficulties of changing or establishing educational modalities, whether virtual, face-to-face or hybrid.

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