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Scientific articles

**Beneficio de la aplicación de las pausas activas para la
disminución de estrés académico en estudiantes de Fisioterapia**

***Benefit of the application of active breaks to reduce academic stress in
Physiotherapy students***

***Benefício da aplicação de pausas ativas para redução do estresse
acadêmico em estudantes de Fisioterapia***

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Resumen

El estrés académico es el efecto colateral generado debido a diversas exigencias y demandas a las que los estudiantes universitarios se enfrentan. Por eso, el objetivo general del estudio fue conocer y explicar el beneficio de la implementación de un programa de pausas activas para la disminución del estrés académico en los estudiantes de la licenciatura en Fisioterapia durante el periodo escolar de enero a diciembre del 2022. La investigación fue mixta y se aplicó el inventario SISCO-VS 21, así como un programa de pausas activas. La muestra estuvo conformada por 107 estudiantes, mientras que el muestreo fue no probabilístico a conveniencia. El estudio estuvo apegado a los códigos y lineamientos deontológicos de investigación, por lo que se requirió el consentimiento informado.

Los resultados demuestran que el 70.1 % de los participantes son del género femenino y el 29.9 % masculino, con una media de 24.3 años de edad. Además, el 99 % presentaron estrés académico, con una media de 3.5 de una escala de uno al cinco. En cuanto a los estresores, predominan la sobrecarga de tareas y trabajos escolares (38.8 %), así como el nivel de exigencia de los profesores/as (38.3 %). En lo relacionado con las manifestaciones, predomina el desgano por realizar las labores escolares (32.7 %) y la somnolencia o mayor necesidad de dormir (29.9 %), mientras que las estrategias de afrontamiento son escuchar música o ver televisión (32.7 %). La aplicación del programa de pausas activas tuvo el 95.66 % de disminución de estrés y ansiedad, así como un aumento de la concentración. La actividad propuesta fue calificada como agradable (30.4 %), muy agradable (26 %) y excelente (39.1 %).

Palabras clave: estrés, estudiante universitario, fisioterapeuta, pausas activas, programa de la sesión.

Abstract

Academic stress is the side effect of various demands and demands that college students face. The general objective of the study was to know and explain the benefit of implementing a program of active breaks to reduce academic stress in students of the Bachelor of Physiotherapy during the school period from January to December 2022, identifying the academic stressors. The investigation was mixed, the SISCO-VS 21 Inventory and a program of active breaks were applied; the sample consisted of 107 students, the sampling was non-

probabilistic at convenience; the study was attached to the codes and deontological guidelines of Research, informed consent was applied.

It was found that 70.1% are female and 29.9% male, with a mean of 24.3 years of age; 99% presented academic stress, with an average of 3.5 on a scale of one to five; the stressors predominate the overload of homework and school work (38.8%) and level of demand from my teachers (38.3%); the manifestations predominate reluctance to do school work (32.7%) and drowsiness or greater need to sleep (29.9%); coping strategies, listening to music or watching television (32.7%). The application of the active breaks program had a 95.66% decrease in stress and anxiety, increased concentration; rating it pleasant (30.4%), very pleasant (26%), excellent (39.1%). A high percentage of academic stress due to overload and demand from teachers was evidenced, the implementation of active breaks obtained acceptance and positive benefits.

Keywords: stress, college student, physiotherapist, active breaks, session program.

Resumo

O estresse acadêmico é o efeito colateral de várias demandas e demandas que os estudantes universitários enfrentam. O objetivo geral do estudo foi conhecer e explicar o benefício da implementação de um programa de pausas ativas para redução do estresse acadêmico em alunos do Bacharelado em Fisioterapia durante o período letivo de janeiro a dezembro de 2022, identificando os estressores acadêmicos. A investigação foi mista, foi aplicado o Inventário SISCO-VS 21 e um programa de pausas ativas; a amostra foi composta por 107 alunos, a amostragem foi não probabilística por conveniência; o estudo foi anexado aos códigos e diretrizes deontológicas de Pesquisa, foi aplicado o consentimento informado.

Verificou-se que 70,1% são do sexo feminino e 29,9% do sexo masculino, com idade média de 24,3 anos; 99% apresentaram estresse acadêmico, com média de 3,5 em uma escala de um a cinco; os estressores predominam a sobrecarga de tarefas e trabalhos escolares (38,8%) e nível de exigência dos meus professores (38,3%); nas manifestações predominam a relutância em fazer trabalhos escolares (32,7%) e sonolência ou maior necessidade de dormir (29,9%); estratégias de coping, ouvir música ou ver televisão (32,7%). A aplicação do programa de pausas ativas teve redução de 95,66% no estresse e na ansiedade, aumento da concentração; avaliando agradável (30,4%), muito agradável (26%), excelente (39,1%).

Evidenciou-se alto percentual de estresse acadêmico por sobrecarga e exigência dos professores, a implementação de pausas ativas obteve aceitação e benefícios positivos.

Palavras-chave: estresse, estudante universitário, fisioterapeuta, pausas ativas, programa da sessão.

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Introduction

The daily life of a university student is usually filled with significant challenges on a personal and social level, since entering that educational level implies a transition to a different culture that the student gradually gets to know and assimilate. According to Elías and Daza (2016), “entering university involves changes that require adaptation and transformation, personal, family and social reorganization” (p. 33).

In fact, in the context of students in the area of health sciences, especially those in the educational program of the degree in Physiotherapy, Zárate- Depraect *et al.* (2018) highlight that their academic career involves activities that demand considerable physical and mental effort due to the particularities of the curricular mesh of the study plan, which results in an increase in stress both in the classroom and in their personal life. . For the World Health Organization (WHO) (2020), academic stress is conceived as “a reaction of physiological, emotional, cognitive and behavioral activation to academic stimuli and events” (p. 08). According to the WHO, Mexico has the highest rate of stress, and of the 75,000 heart attacks recorded annually, 25% are related to this condition, according to a report from the University of Sussex in England, highlighting the prevalence of high levels of this disease in the country.

In today's society, according to Martín-Monzón (2007), the term *stress* is part of the everyday vocabulary; However, the concept of *academic stress* is relatively new and marginalized in the academic and research field. Although for Alban-Gómez (2018) stress can be normal and beneficial, at certain levels, due to the activation it generates in response to the demands and demands of the environment, over time the body and mind can enter a stage of burnout, which can dramatically reduce individual performance.

According to Estrada-Araoz *et al.* (2020), academic stress manifests itself in three phases until it reaches a chronic stage. Firstly, the university student faces academic loads and requirements that he perceives as stressors. In a second phase, these academic stressors lead to contexts and situations that increase stress, which causes physical, psychological and

social symptoms and manifestations. In the last stage, derived from the instability of the student's health, coping strategies are sought to find harmony and balance and reduce stress.

Castillo-Navarrete *et al.* (2020) define academic stress as the adverse reaction to various demands and demands that university students face, such as knowledge tests, exams, assignments, and presentations. Although it can motivate students towards goals and objectives, when the quantity or complexity of these activities exceeds the limits of physical capacity or knowledge, it can cause high levels of frustration and demotivation that can end in a state called *student stress*.

To mitigate the impact on decreased academic performance, it is essential to regulate the time exposed to high levels of demand—a phase known as *resistance* in the stress evolution curve—but which eventually culminates in an “exhaustion phase” (Fernández, 2019).). Therefore, it is crucial to highlight that, if a period of rest is not allowed during this phase of exhaustion, through breaks to recover energy, the body can be compromised and enter a chronic phase of the manifestations of stress exhaustion.

The classification of academic stressors includes two types of demands. Firstly, internal ones, which manifest themselves when there is a high level of self-demand, high expectations of achievement or a strong need to maintain control, which often results in overexertion. Secondly, external ones, related to the environment, highlight activities such as delivering assignments, taking tests and exams in a short period of time. In this sense, Pulido *et al.* (2011) highlight the importance of understanding academic stress in university students, since it is closely linked to psychological and chronic degenerative diseases, associated with factors that affect health, which mainly increases the consumption of psychotropic substances.

For these reasons, the present proposal of this study consists of a program of active breaks such as short breaks, designed to prevent disorders and diseases associated with school activities, such as prolonged postures, overexertion activities and stress. These active breaks aim to improve school performance during long days through short exercise routines within school hours. Therefore, the following question arises: what are the benefits of applying an active breaks program to support the reduction of academic stress in students of the educational program of the degree in Physiotherapy of a university in the Mexican southeast?

Aim

Know and explain the benefit of implementing a program of active breaks to reduce academic stress in students of the degree in Physiotherapy of the Faculty of Health Sciences of the Autonomous University of Carmen in the school period from January to December of the year. 2022. To this end, an attempt has been made to identify stressors through the SISCO SV-21 inventory (systemic cognitive inventory for the study of academic stress).

The specific objectives are the following:

- Analyze the results of the application of the SISCO-V21 questionnaire to the students of the educational program of the degree in Physiotherapy to know the level of academic stress in the January-July 2022 school period.
- Identify the academic stressors presented by students of the educational program of the degree in Physiotherapy.
- Implement a program of active breaks for students of the Physiotherapy degree.
- Know and explain the results of the application of the active breaks program in the students of the educational program of the degree in Physiotherapy in the January-July 2022 school period.

Background

Within previous research, studies have been carried out on the application of active breaks in university students with the aim of reducing academic stress. For example, a notable study conducted by Ravines -Bautista (2021) investigated the effect of active breaks on students in the Physiotherapy program at the Cayetano Heredia Chiclayo Institute. This study evaluated postural control and alterations, as well as the creation of an environment conducive to academic activities. The results revealed a significant relationship between the implementation of active breaks and the reduction of muscle pain in the spine, which highlights the importance of physical and psychological activity as beneficial to address these alterations.

Another study, carried out by Bryan- Estalin (2021), focused on the implementation and effect of virtual active breaks during isolation due to the covid-19 pandemic with the purpose of improving learning in university students. The protocol provided tools to teachers to optimize their classes and capture students' attention, reducing stress. Active breaks were applied that included muscle stretching, joint mobility activities, breathing and brain

gymnastics. The results showed a positive impact of 80.6% in reducing stress and improving academic performance in virtual classes.

In the Mexican context, Rodríguez-Terán *et al.* (2022) explored the relationship between academic stress and resilience in new university students. To do this, they used the Academic Stress Inventory (SISCO SV-21) and the Mexican Resilience Scale (RESI-M). The results showed that 67.9% experienced moderate to severe academic stress, while 70.2% showed resilience. Although this study did not include the implementation of a specific program to address stress in university students, it provides a national view on the study variable.

These previous investigations serve as background to raise new problems and seek evidence on the importance of implementing active breaks, especially in university students at the state and national level.

Problem Statement

After examining the antecedents and factors related to academic stress, it can be observed that these trigger various physical and mental disorders in students. Causes such as sedentary lifestyle, hours of study, level of concentration, diet, type of teachers, study methods, school ergonomics, physical activity, hours of sleep, among others, contribute to different measures to the appearance of academic stress.

In the case of Physiotherapy students at the Autonomous University of Carmen, they face practical and theoretical academic loads to pass the required credits and reach the graduation profile, which involves performing tasks both inside and outside the classroom. In other words, and from an observational perspective, it can be noted that students in this discipline experience an excessive load depending on the requirements of each subject.

Methodology

The research had a mixed approach and a cross-sectional explanatory type, since it was carried out during the January-July and August-December 2022 school year without manipulation of the variables. The mixed method—according to Hernández-Sampieri and Mendoza-Torres (2018)—is a “set of systematic, empirical and critical research processes and involves the collection and analysis of quantitative and qualitative data, as well as its integration and discussion. joint, to make inferences resulting from all the information

collected (metainferences)” (p. 610). This approach is used to understand the phenomenon under study ; In addition, when using it, numerical and textual data are obtained.

Explanatory designs “go beyond the description of concepts or phenomena or the establishment of relationships between concepts; That is, they are aimed at responding to the causes of physical or social events and phenomena” (Sánchez-Carlessi and Reyes-Meza, 2015) . This type of design serves to explain why a phenomenon occurs and the related causes between two or more variables. Likewise, the design was transversal because the phenomenon is measured at the same time (Rodríguez and Mendivelso, 2018) .

The population was made up of 146 students enrolled in the degree in Physiotherapy of the Faculty of Health Sciences, which belongs to campus III of the Autonomous University of Carmen. The sampling was selected from the total of regular students from the period of January-July 2022, with a confidence level of 95%, and a margin of error of 5%, which is equivalent to 107 of the students surveyed to make the study feasible. Sampling was non-probabilistic for convenience. For the qualitative approach sample, a program of active breaks was developed in the August-December 2022 school period. Small groups of 5 to 7 students were carried out, with a total of 23 participants, selected according to the analysis of the results of the instrument. To determine the characteristics of the groups with the highest failure rate and with the greatest academic load, an observation guide was applied with notes by the researcher and a perspective survey on the application of active breaks self-administered by the participant.

The researcher extended the invitation to students of the educational program who wished to voluntarily participate in the study. The following inclusion criteria were taken into account for the study subjects: being enrolled in the current school period, voluntary participation, and indistinct sex and age. Those who did not wish to participate in the research were excluded.

In the second phase, the researcher selected the 23 participants based on the characteristics collected in the SISCO-SV21 inventory. To do this, the inclusion criteria were taken into consideration, that is, academic stressors, workload and failure rate. Then, the analysis of the school trajectory was carried out. Subsequently, the teachers in charge of each subject from different semesters were asked for a 10-minute space to apply the active breaks program, made up of 32 previously scheduled sessions in the school year.

The study adhered to the ethical research codes and guidelines, with prior informed consent where they were informed of the objective of the study. Likewise, permission was

requested from the corresponding university authorities for the execution of the research protocol.

Instruments

Two instruments were used to collect data: one for the quantitative approach (the SISCO SV-21 inventory) and one for the qualitative approach, in which the program of active breaks evaluated by an observation guide and a semi-structure survey was implemented. of perspective. Finally, for the analysis of numerical data, they were concentrated in an Excel sheet and exported to SPSS (version 24) through descriptive statistics. While in the qualitative analysis an observation guide and the researcher's analysis of the results of the perspective survey were used.

The SISCO SV-21 inventory is a self-administered instrument for use in the cognitive context of the study of academic stress. "It contains 21 Likert-type response items with six response alternatives, from never = 0 to always = 5, distributed in three factors: stressors (items 1-7), symptoms (items 8-14) and coping strategies (items 15). -21, written in reverse)" (Olivas-Ugarte *et al.* , 2021 , p. 647).

Barraza-Macías *et al.* (2020) demonstrated the reliability of the instrument with a Cronbach's alpha of .85 for the entire instrument. According to its dimensions, using Cronbach's alpha statistics: .83 for the *stressors dimension*, .87 for the *symptoms dimension* and .85 for the *coping strategies dimension* . The information was collected using a Google form with the SISCO SV-21 inventory, which served to collect data from 107 students of the Physiotherapy degree. This was administered by the participant.

Taking into account the data obtained from the first stage, a program of active breaks was carried out according to the objective established in the research. Subsequently, a letter was prepared for the teachers of the educational program where they were asked for space in their classes to apply active breaks, distributed in small groups of 5 to 7, selected according to the inclusion criteria. Eight sessions were organized over four weeks with a total of 32 in the school year, lasting 10 minutes each. To do this, the subjects with the highest failure rate were taken into account. The active breaks program consisted of muscle contraction, flexibility, balance and brain gymnastics activities, previously organized by the researcher according to the mechanics of movement of the human body. At the end of the program, the semi-structured perspective questionnaire was applied, the purpose of which was to

understand and rate the active breaks program and to analyze the response of this program through observation.

Results

To analyze the results of the research, we began with the quantitative part, with the students who were enrolled in the January-July 2022 school period. It was found that 70.1% are female and 29.9% belong to the male gender, with a average age of 24.3 years.

SISCO SV-21 Inventory Analysis

In relation to the data analyzed from the SISCO SV-21 inventory (table 1), the following results were found:

Table 1. Stress level										
Variable	Bit		Considerable		Intermediat e		Quite		A lot	
	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%
Stress level on a scale of 1 to 5.	2	1.9	10	9.3	40	37.4	3.4	31.8	18	16.8

Note: *f* = frequency, % = percentage, *n* = 107

Table 1 predominantly shows that 37.4% present an intermediate level of stress, followed by 31.8% with a fairly high level of stress, 16.8% with a high level of stress , while the considerable level of stress is represented by 9.3%, and little got 1.9%.

Table 2. Stressors

Variable	Never		Seldom		Sometimes		Almost always		Always	
	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%
The competition with my group mates.	twenty-one	19.6	27	25.2	8	7.5	25	23.4	18	16.8
The overload of homework and schoolwork that I have to do every day.	0	0	5	4.7	10	9.3	41	38.3	33	30.8
The personality and character of the teachers who teach me.	12	11.2	twenty-one	19.6	26	24.3	23	21.5	twenty	18.7
The form of evaluation of my teachers (through essays, research papers, internet searches, etc.).	8	7.5	fifteen	14.0	23	21.5	33	30.8	18	16.8
The level of demand of my teachers.	4	3.7	fifteen	14.0	22	20.6	41	38.3	14	13.1
The type of work that teachers ask me for (consultation on topics, worksheets, essays, concept maps, etc.)	3	2.8	twenty	18.7	twenty	18.7	37	34.6	18	16.8
That I get very theoretical teachers.	10	9.3	14	13.1	fifteen	14.0	30	28.0	25	23.4
My participation in class (answer questions, make comments, etc.)	eleven	10.3	19	17.8	twenty	18.7	31	29.0	fifteen	14.0
Having limited time to do the work that the teachers give me.	4	3.7	5	4.7	fifteen	14.0	31	29.0	26	24.3
Carrying out an exam.	4	3.7	4	3.7	10	9.3	twenty-one	19.6	26	24.3

Presentation of a topic before the classmates of my group.	5	4.7	14	13.1	18	16.8	26	24.3	16	15.0
The little clarity I have about what the teachers want.	6	5.6	9	8.4	24	22.4	31	29.0	25	23.4
That my teachers are poorly prepared.	twenty	18.7	twenty	18.7	14	13.1	31	29.0	12	11.2
Attend boring or monotonous classes.	12	11.2	twenty	18.7	16	15.0	26	24.3	17	15.9
Not understanding the topics covered in class.	5	4.7	eleven	10.3	twenty-one	19.6	29	27.1	23	21.5

Note: f = frequency, % = percentage, $n = 107$

Table 2 shows the results of the stressors, where 38.8% classify it as *almost always* with the variables “level of demand from my teachers” and “the overload of homework and schoolwork that I have to do every day.”; 30.8% rated it as *always* and related it to the variable of “overload of homework and schoolwork that I have to do every day”; 25.2% rated “competition with my classmates” as *rarely*, followed by the variable “the personality and character of the teachers who teach me” which they rated as *sometimes* with 24.3%. and finally 11.2% corresponded to *never* with the variable “attending boring or monotonous classes.”

Table 3. Symptoms

Variable	Never		Seldom		Sometimes		Almost always		Always	
	F	%	F	%	F	%	F	%	F	%
Sleep disorders (insomnia or nightmares).	10	9.3	6	5.6	13	12.1	29	27.1	30	28.0
Chronic fatigue (permanent tiredness).	7	6.5	12	11.2	13	12.1	3.4	31.8	28	26.2
Headaches or migraine.	2	1.9	19	17.8	13	12.1	30	28.0	27	25.2
Digestion problems, abdominal pain or diarrhea.	14	13.1	18	16.8	22	20.6	22	20.6	17	15.9
Scratching, nail biting, rubbing, etc.	4	3.7	fifteen	14.0	13	12.1	27	25.2	twenty-one	19.6
Drowsiness or increased need to sleep.	4	3.7	9	8.4	19	17.8	25	23.4	32	29.9
Restlessness (inability to relax and be calm).	4	3.7	5	4.7	10	9.3	30	28.0	29	27.1
Feelings of depression and sadness (downcast).	10	9.3	fifteen	14.0	12	11.2	22	20.6	28	26.2
Anxiety, anguish or despair.	3	2.8	eleven	10.3	12	11.2	twenty-one	19.6	31	29.0
Concentration problems.	5	4.7	8	7.5	eleven	10.3	28	26.2	twenty-one	19.6
Feeling of aggression or increased irritability.	19	17.8	12	11.2	17	15.9	27	25.2	18	16.8
Conflicts or tendency to argue or argue.	24	22.4	19	17.8	19	17.8	24	22.4	10	9.3
Isolation from others.	17	15.9	17	15.9	fifteen	14.0	27	25.2	13	12.1
Reluctance to do schoolwork.	8	7.5	12	11.2	fifteen	14.0	35	32.7	twenty-one	19.6
Increase or decrease in food consumption.	13	12.1	9	8.4	19	17.8	29	27.1	17	15.9

Note: f = frequency, % = percentage, n = 107

Table 3 shows the results of symptomatology. It was found that 32.7% present "reluctance to do schoolwork", which was classified in the *almost always section* , while 29.9% *always* feel "drowsy or a greater need to sleep"; 20.6% rated the variable "digestion problems, abdominal pain or diarrhea" *sometimes* , 17.8% rated the variables "headaches or migraine" and "conflicts or tendency to argue or argue" with the rating *rarely* . both, and 22.4% with *never* in the variable "conflicts or tendency to argue or argue."

Table 4. Coping

Variable	Never		Seldom		Sometimes		Almost always		Always	
	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%
Assertive ability (defending our preferences, ideas or feelings without harming others).	8	7.5	fifteen	14.0	17	15.9	26	24.3	23	21.5
Listen to music or distract myself by watching television.	4	3.7	2	1.9	13	12.1	27	25.2	35	32.7
Focus on resolving the situation that worries me.	4	3.7	3	2.8	eleven	10.3	44	41.1	twenty-one	19.6
Praise my way of acting to face the situation that worries me (cheer me up).	14	13.1	19	17.8	16	15.0	24	22.4	twenty-one	19.6
Religiosity (praying or attending mass).	43	40.2	16	15.0	eleven	10.3	18	16.8	eleven	10.3
Search for information about the situation that worries me.	14	13.1	14	13.1	17	15.9	31	29.0	14	13.1
Request support from my family or friends.	27	25.2	24	22.4	19	17.8	16	15.0	fifteen	14.0
Ventilation and confidences (verbalize or talk about the situation that worries you).	18	16.8	23	21.5	24	22.4	24	22.4	12	11.2
Establish concrete solutions to resolve the situation that worries me.	9	8.4	12	11.2	27	25.2	27	25.2	23	21.5
Analyze the positive and negative of the solutions designed to solve the situation that worries me.	6	5.6	7	6.5	26	24.3	29	27.1	17	15.9

Maintain control over my emotions so that what stresses me does not affect me.	7	6.5	eleven	10.3	28	26.2	31	29.0	17	15.9
Remember similar situations that occurred before and think about how I solve them.	6	5.6	eleven	10.3	23	21.5	22	20.6	twenty	18.7
Go for a walk or do some sport.	22	20.6	fifteen	14.0	13	12.1	twenty-one	19.6	12	11.2
Developing a plan to deal with what stresses me and executing its tasks.	fifteen	14.0	19	17.8	22	20.6	25	23.4	12	11.2
Focus on or try to obtain the positive from the situation that worries you.	12	11.2	6	5.6	22	20.6	30	28.0	twenty-one	19.6

Note: f = frequency, % = percentage, n = 107

Table 4 presents the results related to coping strategies. It stands out that 32.7% indicated that they always resort to “listening to music or distracting myself by watching television”; 41.1% rated the option *almost always* for the strategy of “focusing on resolving the situation that worries me”; 26.2% selected *sometimes* for the action of “maintaining control over my emotions so that what stresses me does not affect me”; 22.4% rated the option of “requesting support from your family or friends” as *rarely*, and 40.2% indicated *they never* resorted to the “religiosity (saying prayers or attending mass)” strategy.

It is important to highlight that 99% of young people reported feeling worried or nervous during the semester, with an average of 3.5 on a scale of 1 to 5. Among the most frequent stressors are the overload of homework and school work that everyone must do. the days (38.8%) and the level of demand of their teachers (38.3%). Regarding the manifestations of stress, reluctance to do schoolwork predominates (32.7%) and, on a scale of always, drowsiness or greater need to sleep (29.9%). In relation to coping strategies, they indicated that they always resort to listening to music or distracting themselves by watching television (32.7%).

Observation

The observation guide was carried out during the school period from August to December 2022, during the implementation of the active breaks program. This program was carried out in groups of maximum 5 to 7 students, in accordance with the inclusion criteria. After analyzing the results obtained from the SISCO SV-21 inventory, annotations were made in the guide regarding the benefits experienced by the participants at the conclusion of each session in the classroom.

In the observation phase, significant data from the participants were identified. Upon completion, improvements in standing posture, a more positive attitude in interactions with peers, changes in mood, and greater concentration in class were observed. Likewise, the students expressed feeling happy at the end of each session of active breaks and expressed greater motivation to continue with the class schedule. They also reported a decrease in muscle discomfort, especially in the cervical and lumbar areas. In addition, they highlighted an improvement in concentration and comprehension in independent reading of specific topics of the discipline, as well as a constant integration in the classroom.

In relation to the classroom infrastructure, it was found that it had good lighting, ample space between the corridors, isolation from external sound and sufficient teaching material, such as blackboards and a projector. This contributed significantly to the smooth execution of the active breaks program and to achieving the objectives set for each intervention session. The development of the program included a total of eight sessions per month, which added up to a total of 32 sessions in the school year from August to December 2022.

Analysis of the semi-structured perspective survey

The semi-structured survey around the application of the active breaks program was applied at the end of this program, that is, in the month of December 2022. This served to analyze the satisfaction and improvement variables (table 5). The following data was found.

Table 5. Perception survey of active breaks

How would you rate active pauses?	No. of students	
	<i>F</i>	%
Very unpleasant (1)	0	0
Nasty (2)	0	0
Very bad (3)	0	0
Bad (4)	0	0
Tolerable (5)	0	0
Good (6)	1	4.34
Very good (7)	0	0
Nice (8)	7	30.43
Very nice (9)	6	26.08
Excellent (10)	9	39.13
Grand Total	23	100
Did it help you reduce stress/anxiety/improve concentration? the application of active breaks in class?	<i>F</i>	%
No	1	4.34
Yeah	22	95.66
Grand Total	23	100
Did you feel any change when taking active breaks?	<i>F</i>	%
No	0	0
Yeah	23	100
Grand Total	23	100

Note: *f*=frequency, % =percentage, *n* = 23. 1= very unpleasant, 2= unpleasant, 3= very bad, 4= bad, 5= tolerable 6= good, 7= very good, 8= pleasant 9= very pleasant, 10= excellent.

Table 5 presents the evaluation of the application of the active breaks program, using a weighted scale from 1 to 10, where one represents the minimum score and ten the maximum score. The results indicate that 39.13% rate it as excellent, 30.43% as pleasant and 26.08% as very pleasant. Additionally, 95.66% reported a decrease in stress and anxiety levels, as well as an increase in concentration. 100% reported having experienced a significant change after the implementation of active breaks.

Discussion

The research results highlight that 99% of young people experienced worry or nervousness during the semester, with an average score of 3.5 on a scale of one to five. These findings roughly coincide with the study conducted by Silva-Ramos *et al.* (2020), where 86.3% of the participants showed a moderate level of stress. Likewise, independence was determined between the level of stress and the gender of the participants ($p = .298$), and a significant association was found with the study program ($p = .005$).

In contrast, the study by Rodríguez-Terán and Cotonieto -Martínez (2022) indicates conclusive data on academic stress and resilience in Mexican students new to a private university, since it was found that 67.9% of the students present moderate academic stress. to severe.

When analyzing these studies, it is observed that university students have experienced levels of academic stress above average during their university years, which suggests a trend towards moderate to severe results in the present research.

In relation to the stressors, it was identified that the overload of daily homework and schoolwork (38.8%) and the level of demand from teachers (38.3%) prevail. Regarding the manifestations of stress, the reluctance to do schoolwork (32.7%) and drowsiness or greater need to sleep (29.9%) stand out. Regarding coping strategies, participants indicated that they frequently resort to listening to music or distracting themselves by watching television (32.7%).

In comparison with the study carried out by Talavera-Salas *et al.* (2021), it is observed that the level of academic stress in the stressors dimension was moderate, the most frequent being competitiveness among classmates (32.9%), overload of tasks and work (33.9%), level of teacher demands (33.8%). %), forms of teacher evaluation (32.3%), type of work requested (27.1%) and very theoretical teachers (27.3%), as well as limited time to do work (27.9%) and attendance at boring or monotonous classes (21.1%).

Regarding the symptom dimension, the level of academic stress was moderate, highlighting sleep disorders (25.8%), stomach pain (24.6%), headache (26.4%), nail biting (22.0%), major need to sleep (26.1%) and anguish or despair (26.1%).

Regarding the dimension of coping strategies, the level of academic stress was moderate, with the most used strategies being assertive ability (34.4%), listening to music or watching television (33.2%), concentrating on resolving the situation (35.6%), praise the way they act (31.1%), establish concrete solutions (32.9%) and do physical exercise (31.5%).

These results coincide in similar percentages with the findings of the present research, which indicates a moderate level of risk of academic stress through the application of the academic stress measurement instrument.

On the other hand, the results indicate that 95.66% experienced a reduction in stress, anxiety and an increase in concentration. Regarding the perception of the program, 30.4% rated it as pleasant, 26% as very pleasant and 39.1% as excellent. Furthermore, 100% expressed their willingness to participate again.

In the observation phase, the participants reported feeling happy, more motivated to continue with the class schedule, with less muscle discomfort in the cervical and lumbar area, greater concentration and understanding in independent reading of specific topics of the discipline, and a constant integration into the classroom.

Comparatively, a study conducted by Gutiérrez-Quevedo (2020), titled *Take a break and activate your class*, addressed the importance of active breaks during classes, as improvements in students' concentration were found, as well as a reduction in fatigue. . In another context, Pallares-Herrera (2022) implemented a program of active breaks aimed at health personnel, with results that indicated a better work environment, stress reduction and increased productivity, which contributed to a better quality of life for the employees.

The results obtained in this study highlight the benefits of the active breaks program in university students of health sciences, especially in Physiotherapy, which shows a positive change in motivation, concentration, integration and a decrease in body discomfort. However, although these indicators are significant, the need to raise awareness among the university population, especially new entrants, about the mechanics of movement and the importance of physical activity to prevent chronic degenerative diseases in the medium and long term is highlighted.

Conclusions

According to the results obtained in the research, which addressed the variables of academic stress and the benefits of active breaks, a high level of stress was evident among university students in the Physiotherapy degree program. This phenomenon affects women with a higher incidence, which is why they are considered the population at greatest risk.

Likewise, academic stressors, evaluated on a scale of one to five with an average of 3.5, highlight the overload of homework and schoolwork, as well as the demands of teachers.

These factors significantly impact the academic career and anticipate possible alterations and manifestations in future health.

Regarding the research question "What are the benefits of applying an active breaks program to reduce academic stress in students of the Physiotherapy degree at a university in the southeast of Mexico?", the results were obtained in two phases. : The first consisted of applying, analyzing and identifying academic stressors using the SISCO-V21 inventory, and the second consisted of understanding and explaining the benefits of implementing an active breaks program in the classroom.

The results highlight a decrease in academic stress among students of the degree in Physiotherapy at the Autonomous University of Carmen. Likewise, the objectives of the research were able to identify the key stressors, such as the overload of daily tasks and work, as well as the level of demand of the teachers, while the most prevalent manifestations were the reluctance to do schoolwork and the drowsiness or increased need to sleep.

It is concluded, therefore, that the application of the active breaks program in the classroom generated a positive relationship with the physiotherapy students, since the results include a decrease in stress and anxiety, an increase in concentration, and the participants expressed feeling happy, motivated and with greater concentration, in addition to experiencing a reduction in muscle discomfort.

The evidence, therefore, supports the suggestion of implementing comprehensive health programs and actions that highlight physical activity during school periods throughout the educational career, which implies creating awareness about good study habits and the importance of doing physical activity after prolonged periods of inactivity.

Finally, regarding the limitations of the study, it was found that the transition to the staggered return to classrooms made the orderly application of surveys difficult, since the students were not present in the faculty due to maintenance work on the facilities. At the beginning of the active breaks program, the students of the Physiotherapy degree expressed concerns about its implementation, despite having communicated the purpose and objective of the research. However, as the sessions progressed, a positive change in motivation and participation was observed.

Future lines of research

According to the research carried out, it is suggested that future studies be applied in a population with similar characteristics of university students of the educational program of the degree in Physiotherapy, which would allow comparable results to be obtained and the behavior of the participants to be analyzed in different scenarios. In addition, the use of instruments is proposed to evaluate the resilience of students against academic stress, the analysis of school trajectories by generation to understand the strengths and weaknesses of the current study plan, and the evaluation of postural and gait alterations. The information obtained would facilitate the comparison of the causes and effects of academic stressors in various contexts of the school career of the students of the degree in Physiotherapy at the Autonomous University of Carmen.

In another line of future research, the implementation of comprehensive education and health programs in a population with characteristics similar to those of the study carried out is recommended. This would be done with the objective of measuring the impact on the prevention and intervention of risk factors associated with academic stress. To strengthen the study, it is suggested to consider all students of the Faculty of Health Sciences who share the same particularities.

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