

Conflict of interest: The authors declare no conflict of interest.

Funding: CAPES - Finance Code 001.

Ethics committee approval: Not applicable.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101521>

259

THE EFFECT OF DIFFERENT BIOFEEDBACK TECHNIQUES ON THE LEVEL OF MUSCLE ACTIVATION AND POSTURAL BALANCE IN YOUNG ADULTS

Wellington Costa Reis de Andrade,
Joao Eduardo Machado da Costa Antunes,
Estéphan Ramos de Souza Penna, Arthur de Sá Ferreira,
Thiago Lemos de Carvalho, Fabio Vieira dos Anjos
*Programa de Pós-graduação em Ciências da Reabilitação, Centro
Universitário Augusto Motta (UNISUAM), Rio de Janeiro, RJ, Brazil*

Background: Visual biofeedback of postural sway has been shown to optimize postural balance by reducing postural sway during quiet standing. However, it is not yet fully known whether the reduction of postural sway from biofeedback is associated with the increase of postural muscle effort during standing balance.

Objectives: To investigate the effect of different types of visual biofeedback of postural sway on muscle activity and postural balance during standing balance in young adults.

Methods: Twenty-two participants (14 women and 8 men; mean $\pm$ standard deviation: 30.44 ± 6.76 years; body mass: 77.56 ± 19.47 kg; height: 1.70 ± 0.11 m; BMI: 26.42 ± 4.94 kg/m²) participated in this cross-sectional study and performed four postural tasks on the force platform for 60 seconds: 1) No biofeedback (control); 2) Centre of pressure (CoP) Biofeedback; 3) Biofeedback by portable laser, controlled by both wrist movement and body movement. The root mean square (RMS) amplitude of the surface electromyogram (EMG) collected from the right medial gastrocnemius and anterior tibialis muscles, and the standard deviation of the CoP displacement in the anteroposterior (AP) and mediolateral (ML) directions were analyzed. The Friedman test (Shapiro-Wilk, $P < 0.05$) was applied to assess the main effect of the biofeedback on RMS amplitude and CoP standard deviation, followed by the Wilcoxon test for pairwise comparisons (significance level of 5%).

Results: The RMS amplitude (median; interquartile range) of the tibialis anterior was greater in the wrist laser (46.0; 30.0 μ V) and posturography biofeedback (44.0; 25.0 μ V) tasks, when compared with the condition without biofeedback (39.0; 13.0 μ V) ($P < 0.05$). For the medial gastrocnemius, no main effect of task was found for the RMS amplitude ($P = 0.837$). When compared to without biofeedback (7.071; 2.693 mm), the standard deviation of CoP displacement in the AP direction was greater in the body laser (9.585; 6.097 mm) and wrist laser (8.272; 3.307 mm) and, lower in CoP biofeedback (5.858; 2.248 mm). In the ML direction, no differences in the standard deviation of CoP displacement were found between the tasks ($P = 0.169$).

Conclusion: Different types of biofeedback appear to lead to increased muscular effort at the ankle in the orthostatic position.

Implications: Balance rehabilitation and training strategies should consider the specific training objectives and the neuromuscular responsiveness of individuals when choosing the biofeedback to be used.

Keywords: Biofeedback, Electromyography, Postural Control

Conflict of interest: The authors declare no conflict of interest.

Funding: CAPES - Finance Code 001 and 88881.708719/2022-01 and 88887.708718/2022-00, and FAPERJ - E26/211.104/2021.

Ethics committee approval: No. 5.007.430.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101522>

260

ANXIETY AND LIFESTYLE: A CROSS-SECTIONAL STUDY OF BRAZILIAN UNIVERSITY STUDENTS

Viviane Rocha Celedonio, Lucas Saboya Amora, Laís Queiroz Vieira,
Lívia Maria Holanda Araújo, Felipe Barreto Schuch,
Andrea Camaz Deslandes, Fabianna Resende De Jesus Moraleida
Universidade Federal do Ceará (UFC), Fortaleza, CE, Brazil

Background: Anxiety is a common mental disorder, with a prevalence of 301.4 million cases worldwide and 18.6 million cases in Brazil. Lifestyle factors are associated with mental disorders and are considered both risk factors and potential interventions. Understanding the lifestyle of those with anxiety symptoms, particularly young people, can guide the development of proper screening and approaches in this area.

Objectives: Describe lifestyle characteristics of university students with anxiety symptoms and compare whether these characteristics differ between those with and without symptoms.

Methods: This cross-sectional study is part of the UNILIFE-M cohort investigating the associations between university students' lifestyle behaviors and mental health symptoms. We used baseline data from participants from 13 federal universities in Brazil (2023 to 2024). Screening for anxiety symptoms was conducted with the Generalized Anxiety Disorder Questionnaire (GAD-7) (7-item, 0-21), where scores = 10 indicate the presence of symptoms. Lifestyle was measured using the Short Multidimensional Inventory Lifestyle Evaluation for University Students (U-SMILE) (24-item, 7-96), where higher scores indicate a healthier lifestyle across the seven domains (diet, substance use, physical activity, stress management, sleep, social support, and environmental exposures). Means and standard deviations were reported. We used different tests to compare the overall lifestyle and its domains between individuals with and without anxiety symptoms according to Levene's test. The Mann-Whitney U test was used for substance use, social support, and environmental exposure domains and the Student's t-test was used for the remaining domains.

Results: We included 6371 undergraduate students (60.5% were female, mean age of 19.9 (± 3.19) years). From total valid responses, 2834 individuals (49.9%) were screened positive for anxiety symptoms, with a total lifestyle score of 62.3 (± 7.39). The highest-scoring domains were substance use, with a mean score of 15.2 (± 1.38) out of 16 (95%), social support with 16.1 (± 3.02) out of 20 (80.5%), and diet with 7.7 (± 1.61) out of 12 (64.7%). In contrast, the lowest-scoring domains were stress management with 4.0 (± 1.57) out of 8 (50%), environmental exposures with 8.7 (± 2.17) out of 16 (54.3%), physical activity with 7.6 (± 2.51) out of 12 (63.8%) and sleep with 7.6 (± 1.99) out of 12 (63.8%). Students with anxiety symptoms presented a less healthy lifestyle compared to those without it (67.0; ± 7.47). The mean difference in total lifestyle score was statistically significant (4.74; $p < .001$; 95%CI 4.34 to 5.13) with a moderate effect size (Cohen's $d = 0.638$; 95%CI 0.58 to 0.69). Separately, significant differences were found in all domains except for stress management.

Conclusion: Students with anxiety symptoms had low lifestyle scores in the stress management, environmental exposures, physical activity, and sleep domains. Overall, their lifestyle was less healthy compared to individuals without anxiety symptoms.

Implications: Understanding the lifestyle characteristics of university students with anxiety symptoms in this sample may support the implementation of more targeted intervention strategies in the future.

Keywords: Anxiety, Students, Life Style

Conflict of interest: The authors declare no conflict of interest.

Funding: CNPq - grant 444435/2023-9 and CAPES - Finance Code 001.

Ethics committee approval: CAAE: 63025822.8.1001.5346.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101523>

261

PREVALENCE OF PAIN CATASTROPHIZING IN BRAZILIANS WITH SYSTEMIC LUPUS ERYTHEMATOSUS: A DESCRIPTIVE CROSS-SECTIONAL STUDY

Luma Camilly dos Santos Barroso, Isaias Lopes, Areolino Pena Matos, Natália Iosimuta

Curso de Fisioterapia, Universidade Federal do Amapá (UNIFAP), Macapá, AP, Brazil

Background: Systemic Lupus Erythematosus (SLE) is a chronic multi-system disease. Its etiology is not yet fully defined, but it is known to be associated with genetic and environmental factors. This context results in a variety of symptoms that can manifest. However, pain has been one of the most frequent reasons for seeking health services, mainly due to tissue damage due to the presence of auto-antibodies and release of neuropeptides. The combination of neuro-physiological changes provided by the chronicity of SLE can lead to a state of catastrophizing, recognized as a maladaptive change in the perception of threats and the severity of the pain sensation. The pain generated by SLE and its catastrophizing represent a significant impact on social interactions, task execution and quality of life of those affected. Previous studies on the association between SLE and pain catastrophizing are limited in sample size, age and ethnic diversity, in addition to being geographically restricted to the USA, therefore, they may not be generalizable to adults from other countries, such as Brazil.

Objectives: To identify the prevalence of pain catastrophizing in Brazilians with SLE, in addition to characterizing their sociodemographic and clinical profile.

Methods: This is a cross-sectional, descriptive, observational study, approved by the Research Ethics Committee of the Federal University of Amapá (n° 6.606.644). Individuals aged 18 years or older, of both sexes, diagnosed with SLE and pain for at least 3 months were included, while those with other types of lupus were excluded. All participants signed the Free and Informed Consent Form. An online questionnaire was used to collect sociodemographic and clinical data, as well as the Pain Catastrophizing Scale.

Results: A total of 64 individuals were included, of which only one participant was male, with a mean age of 36.3 ± 12.5 years and a mean disease duration of 8.53 ± 7.34 years. Most participants were single, brown-skinned, and employed in paid work. Furthermore, their highest concentration was in the Northeast region (31.25%) of Brazil. Regarding the Pain Catastrophizing Scale, the mean score was 31.4 ± 12.2 , suggesting that most patients presented scores close to the upper limit of the instrument, which is associated with a mean pain level of 4.9 points on the Numerical Pain Scale.

Conclusion: The results of this study suggest that pain catastrophizing is a characteristic present in adult patients with SLE in Brazil; furthermore, this finding was presented at a medium to high level. Due to its descriptive approach, future studies should be conducted

aiming at the association between the level of catastrophizing and other clinical variables of interest to better understand this relationship.

Implications: These findings suggest that tissue damage is not the only determinant in the poor progression of the disease, since catastrophizing impacts the execution of the individual's functions and their self-perception. Including this finding in treatment plans, with a focus on self-efficacy strategies and pain neuroscience education, may be crucial to empowering patients to deal with this phenomenon more effectively.

Keywords: Lupus Erythematosus Systemic, Catastrophization, Pain

Conflict of interest: The authors declare no conflict of interest.

Funding: CNPq.

Ethics committee approval: No. 6.606.644.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101524>

262

DEPRESSION IS ASSOCIATED WITH POSTURAL BALANCE IN INDIVIDUALS WITH LONG COVID: A CROSS-SECTIONAL STUDY

Izabella Bárbara de Araújo Paz Melo, Arthur de Sá Ferreira, Janice Regina Moreira Bastos, Talita Peixoto Pinto, Erika Rodrigues, Fabio Vieira dos Anjos

Programa de Pós-graduação em Ciências da Reabilitação, Centro Universitário Augusto Motta (UNISUAM), Rio de Janeiro, RJ, Brazil

Background: COVID-19 is a multisystemic condition that can cause persistent symptoms, including emotional alterations such as anxiety, depression, and stress. These symptoms may influence functional outcomes, including postural balance, but their relationship remains unclear.

Objectives: To compare body balance between controls and post-COVID-19 patients and analyze the correlation between body balance and the symptoms of anxiety, depression and stress in post-COVID-19 patients.

Methods: A cross-sectional study was conducted with 30 controls and 30 post-COVID-19 patients. Postural balance in both groups was assessed by the Berg Balance Scale (BBS), Timed Up and Go (TUG) and Mini-BESTest (MBT). Anxiety, depression and stress symptoms were assessed with the Depression, Anxiety and Stress Scale (DASS-21). The Mann-Whitney non-parametric test for independent samples was used to compare the scores obtained in the balance tests and emotional aspects of the DASS-21 between the groups (control and post COVID-19). Spearman's correlation test was used to correlate the results of the balance tests with the DASS 21.

Results: No significant differences in balance tests were observed between the control and post COVID-19 groups ($p > 0.05$). In the post COVID-19 group, all the balance tests were positively correlated with the emotional aspect of depression on the DASS-21 scale. A moderate positive correlation was observed between stress and the MBT balance test.

Conclusion: The main findings of this research indicated a low risk of falls in the post-COVID-19 group. The assessment of depression and stress may provide valuable insights into balance instability in post-COVID-19 individuals.

Implications: These findings suggest that emotional symptoms should be considered when evaluating postural balance, potentially contributing to a more comprehensive approach to motor rehabilitation.

Keywords: COVID-19, equilíbrio postural, sintomas emocionais

Conflict of interest: The authors declare no conflict of interest.

Funding: FAPERJ - grant number: E-26/211.104/2021. CAPES - grant