# ABSTRACT

**Background:** Prolonged screen time and sedentary behavior have emerged as significant public health concerns among university students, with potential adverse effects on musculoskeletal health. Chest expansion, thoracic mobility, and postural alignment are important clinical parameters that may be adversely influenced by these lifestyle behaviors. Despite growing evidence regarding the individual effects of screen time and sedentary behavior on posture and musculoskeletal function, their combined association with chest expansion and thoracic mobility remains underexplored in the university student population.

**Methodology:** A cross-sectional observational study was conducted on 64 university students (18–36 years; 71.9% female, 28.1% male). Chest expansion was measured using a standard measuring tape at the xiphisternal level during normal and deep inspiration. Thoracic mobility was assessed using a modified Schober's method. Postural alignment was evaluated via standardized postural assessment. Screen time and sedentary behavior were assessed using a structured self-administered questionnaire. Data were analyzed using descriptive statistics, independent samples t-test, chi-square test, and Spearman's rank correlation (SPSS v26).

**Results:** The mean chest expansion difference was 3.56 ± 1.17 cm. Forward head posture was the most prevalent postural abnormality (26.6%). A statistically significant association was found between postural alignment and screen time categories ($\chi^2 = 19.07$, $p = 0.004$). Male participants demonstrated significantly greater chest expansion (4.33 ± 1.28 cm vs. 3.26 ± 0.98 cm, $p < 0.001$) and screen time than females. No significant Spearman correlation was observed between chest expansion and screen time ($\rho = -0.178$, $p = 0.16$) or sedentary time ($\rho = 0.153$, $p = 0.23$). Chest expansion and thoracic mobility were perfectly correlated ($\rho = 1.000$).

**Conclusion:** While direct quantitative correlation between screen time/sedentary behavior and chest expansion was not statistically significant, a meaningful association between higher screen time and abnormal postural alignment was established. These findings suggest that elevated screen time contributes to postural deviations, particularly forward head posture, which may have downstream implications for thoracic function. Physiotherapy-based preventive interventions and postural education programs are recommended for university students.



**Keywords:** Chest expansion, thoracic mobility, postural alignment, screen time, sedentary behavior, forward head posture, university students, musculoskeletal health.

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