

ABSTRACT

Background: With the rapid increase in digital device usage, prolonged screen time has become a defining feature of modern desk-based work. Middle-aged and young desk workers routinely spend ≥ 5 –6 hours daily on computers and laptops, increasing exposure to musculoskeletal strain and blue light-induced sleep disruption. Neck pain and poor sleep quality are increasingly recognized as significant occupational health burdens with a bidirectional relationship.

Methodology: A cross-sectional observational study was conducted among 90 desk-based workers aged 18–26 years at Brainware University, Barasat, Kolkata. Participants were selected using purposive convenient sampling based on predefined inclusion and exclusion criteria. Data were collected using three validated instruments: the Numeric Pain Rating Scale (NPRS) for pain intensity, the Neck Disability Index (NDI) for functional disability, and the Sleep Quality Scale (SQS) for sleep quality assessment. Pearson's and Spearman's correlation coefficients were used for inferential analysis. An independent samples t-test was applied for gender-based comparisons.

Results: The mean NPRS score was 4.41 ± 1.22 , NDI was 0.26 ± 0.12 , and SQS was 37.51 ± 12.67 . Of the 90 participants, 41.1% showed poor sleep quality. Significant positive correlations were found: NPRS vs SQS ($r = 0.455$, $p < 0.001$), NPRS vs NDI ($r = 0.570$, $p < 0.001$), and NDI vs SQS ($r = 0.408$, $p < 0.001$). No significant gender differences were observed.

Conclusion: There is a statistically significant association between screen time-related neck pain, neck disability, and poor sleep quality among desk-based workers. Early physiotherapy intervention, ergonomic correction, and sleep hygiene education are recommended for this at-risk population.

Keywords: Numeric Pain Rating Scale (NPRS), Neck Disability Index (NDI), Sleep Quality Scale (SQS), neck pain, screen time, sleep quality, desk-based workers.

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