ABSTRACT

Background: Low back pain (LBP) is a common musculoskeletal disorder among college students and is often associated with prolonged sitting, poor posture, and altered spinal biomechanics. Lumbar lordosis and lumbosacral alignment play important roles in maintaining sagittal balance and mechanical stability of the spine. However, the relationship between lumbar spinal curvature and low back pain among young adults remains inconclusive.

Methodology: This retrospective cross-sectional pilot study was conducted among college students aged 18–25 years with chronic low back pain of more than 3 months duration. A total of 46 participants were included in the final analysis through convenience sampling. Pre-existing lateral lumbosacral radiographs were used to measure Cobb's angle and lumbosacral angle. Descriptive statistics were calculated, and Spearman rank correlation analysis was performed to determine associations between spinal angles, pain duration, and sitting duration. Mann–Whitney U test was used for gender-wise comparison of Cobb's angle.

Results: The mean Cobb's angle was 25.48 ± 8.26°, and the mean lumbosacral angle was 23.2 ± 8.04°. A very strong positive correlation was observed between Cobb's angle and lumbosacral angle (rho = 0.980, $p < 0.001$). No statistically significant association was found between spinal angles and pain duration or sitting duration. Additionally, no significant gender-wise difference in Cobb's angle was identified.

Conclusion: The study demonstrated a strong biomechanical association between Cobb's angle and lumbosacral angle among college students with chronic low back pain. However, spinal angular measurements showed limited association with clinical pain characteristics, suggesting that low back pain is multifactorial in nature.

Keywords: Low back pain, Lumbar lordosis, Cobb's angle, Lumbosacral angle, College students

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