Assessing the relationship between body mass index, dynamic balance, and pain intensity in patients with chronic low back pain attending selected hospitals in the Colombo District

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Chronic low back pain (CLBP), a prevalent musculoskeletal condition, is influenced by factors such as body mass index (BMI), dynamic balance, and pain intensity. These factors can significantly affect physical function and quality of life. This study aimed to assess the relationship between BMI, dynamic balance, and pain intensity among CLBP patients attending physiotherapy clinics in selected hospitals in the Colombo District. A descriptive cross-sectional study was conducted among 123 patients with CLBP aged 18–65 years at the Physiotherapy Units of National Hospital of Sri Lanka and Colombo South Teaching Hospital. Demographic data, pain intensity, dynamic balance, leg length, and anthropometric measurements were assessed using an interviewer-administered questionnaire, the Numeric Rating Scale (NRS-11), the Star Excursion Balance Test (SEBT), a measuring tape, a stadiometer, and a weighing scale, respectively. Statistical analysis was performed using SPSS version 25.0. Among the 123 participants, 78.05% were female, with a median age of 49 years (IQR = 22). More than half (58.71%) had a BMI above the normal range (median = 26.20, IQR = 5.70). Moderate pain (median score = 5.00, IQR = 3.00) was reported by 57.72% of participants. Mean SEBT scores were 62.44 ± 6.95 (left) and 61.15 ± 7.70 (right). BMI showed a weak positive correlation with pain intensity ($r = 0.35$, $p < 0.001$) and a very weak negative correlation with the left SEBT score ($r = -0.197$, $p = 0.029$), but not with the right SEBT score ($r = -0.135$, $p = 0.136$). A higher BMI was associated with increased pain intensity and reduced dynamic balance on the left side. These findings suggest that weight management and balance training may be important components in managing CLBP.

Keywords: *Chronic low back pain*, *Body mass index*, *Dynamic balance*, *Star Excursion Balance Test*