

ABSTRACT

Research background: Lumbar lordosis or sagittal balance is a prime postural component and most researchers have observed that the lumbar lordosis angle (LLA) increases in obesity, specifically in central (abdominal) obesity. This abnormal sagittal alignment calls for greater effort from the body to maintain balance devoid of external support. Hypo or hyper lordosis is gradually known to lead to Low Back Pain (LBP) due to an abnormal posture. Based on earlier National Health and Morbidity Surveys (NHMSs) carried out in 2015, overweight and obesity prevalence has shown an increasing trend among Malaysian adults (aged 18 years and older) and was reportedly 30.0% and 17.7% respectively. According to the statistics released by Primary Care Ministry of Health Malaysia, the incidence of Low Back Pain (LBP) in Malaysia is 12 – 60% which is quite similar to the world average of 10 – 63%. Lumbar lateral X-ray radiography is accepted worldwide to be a golden standard procedure in evaluating lumbar lordosis. Despite its confirmed validity, few concerns like exposure to radiation, high cost, longer wait time, etc. arise due to the dependence on X-ray examination. Hence, the use of low-cost, validated, non-invasive instruments may be an ideal alternative to X-ray examination. Several studies have been conducted earlier evaluating the LLA and morphometrics of lumbosacral spine (LSS) in different populations worldwide. Few studies have reported an association between BMI and Low Back Pain. However, there is an absence of similar studies in Malaysia.

Research Objectives: To evaluate the LLA using X-ray and flexi curve ruler and the morphometric variants of LLS as related to age, gender, BMI and LBP