Association of overweight and obesity with genu valgum and genu varum among 10–19-year-old female students in selected schools in Gampaha District

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Adolescent obesity is a growing global health concern. Excess body weight is believed to contribute to angular deformities of the lower limbs, such as genu valgum and genu varum. Identifying this association is crucial for planning early preventive strategies that aim to reduce long-term musculoskeletal complications in adolescents. A descriptive cross-sectional study was conducted among 130 female students aged 10–19 years from two selected schools in the Gampaha District. The presence of genu valgum and genu varum was determined by measuring the intermalleolar distance and intercondylar distance, respectively, with a value ≥2.5 cm considered positive. The body mass index (BMI) was calculated and used to classify participants as obese or overweight. Data were analyzed using Pearson's chi-square test in SPSS version 22 to determine associations between BMI categories and genu valgum and genu varum. Among the 130 participants, 75.4% were Sinhalese. The prevalence of obesity and overweight was 8.5% and 20%, respectively. The prevalence of genu valgum and genu varum was 16.2% (n=21) and 14.6% (n=19), respectively. A statistically significant association was observed between obesity and genu valgum ($p = 0.006$), and between overweight and genu valgum ($p < 0.001$), while there was no statistically significant association between obesity and overweight and genu varum. There's a significant association between genu valgum and obesity and overweight among female adolescents, but no significant association with genu varum. This may be because genu valgum is linked to increased knee stress from excess weight, while genu varum is often related to nutritional deficiencies, genetics, or early development. These results emphasize the importance of early screening and health education programmes in schools to promote healthy body weight and prevent lower limb deformities during adolescence.

Keywords: *Obesity*, *Overweight*, *Genu Valgum*, *Genu Varum*, *Adolescent health*