Mismatch between furniture dimension and anthropometric measures among primary school children in Putrajaya

ABSTRACT

Ergonomic is important in classroom. Sitting for protracted period in class may lead students to develop musculoskeletal disorders. Their physical health and performance in the class may increase by designing school furniture that match with human body. In Malaysia, there is a lack of ergonomic assessment for school environment especially in urban areas. The aim of this study is to determine the mismatch between the furniture dimension and anthropometric parameters among primary school children in Putrajaya. This is a cross-sectional study which involved 100, Year 1 and Year 6 primary school students randomly selected in Putrajaya. Five anthropometric measurements (popliteal height, buttock popliteal length, elbow height, shoulder height (sitting), hip breadth) as well as five furniture dimensions (seat height, seat depth, seat width, backrest height and seat to desk height) were measured. Instrument used is Martin type anthropometer set, SECA body meter, and SECA weighing scale. Calculation for determining mismatch between the furniture and anthropometric measures were calculated using a standard mismatch formula. There was 100% mismatch for seat height, seat depth, and seat to seat to desk height for Year 1. As for Year 6, mismatch was reported 100% for backrest height and seat to desk height. There were significance difference for parameters of popliteal height between Year 1 and Year 6 and between male and female of Year 1. There was a presence of mismatch between furniture dimension and children anthropometric measurement. Proposed dimension of furniture shows decrease in percentage of mismatch for the most parameter of anthropometric measurement.

Keyword: Anthropometric measures; Furniture dimension; Mismatch; Primary school children