

Association between platescapes, foodscapes, and meal energy intake in government employees from Muar, Johor, Malaysia

ABSTRACT

A microscale built environment was the focus in this cross-sectional study which aimed to investigate the associations between platescapes, foodscapes, and meal energy intake among subjects. A total of 133 subjects (54 male, 79 female) with mean age 36.8 ± 7.3 years completed a self-administered questionnaire on sociodemographic characteristics, platescapes, and foodscape preferences. For platescapes, a plate mapping method was used, where subjects were required to place various sizes of food models on two different sized plates (23 cm and 28 cm) based on their preferences. For foodscape preferences, subjects were given a 23-cm plate and various food models differentiated by shapes and colours. Then, 24-h daily recalls (for one weekday and one weekend day) were obtained using interviews. Significant differences were observed in meal energy intake ($p < 0.05$) between males (1741 ± 339 kcal) and females (1625 ± 247 kcal) and also between age groups ($p < 0.05$). There was a significant difference ($p < 0.0001$) in terms of subjects' meal energy intake when comparing 23-cm plates (419 ± 124 kcal) and 28-cm plates (561 ± 143 kcal). The bigger plate (28 cm) ($p < 0.01$) was significantly associated with subjects' meal energy intakes, but this was not so for the 23-cm plate. There were significant differences in subjects' meal energy when comparing white rice and multicoloured rice ($p < 0.0001$), unicoloured and multicoloured proteins ($p < 0.0001$), and unicoloured and multicoloured vegetables ($p < 0.0001$). There was a significant difference found between round- and cube-shaped proteins ($p < 0.05$). The colours of rice ($p < 0.01$), protein ($p < 0.05$), and vegetables ($p < 0.05$) were significantly associated with subjects' meal energy. Only the shape of carrots in vegetables ($p = 0.01$) was significantly associated with subjects' meal energy. Subconsciously, platescapes and foodscapes affect an individual's energy intake, and thus these elements should be considered in assessing one's dietary consumption.

Keyword: Foodscapes; Platescapes; Energy intake; Meal energy; Quasi-experiment