

Exploring the obesogenic food environments in influencing obesity in Taiwan

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Background: Obesity rates have increased dramatically around the world and, to combat this problem, the regulation of the obesogenic environment could be the dawn of a new era.

Objectives: The purpose of this study was to explore the obesogenic food environment in influencing obesity in Taiwan.

Methods: A Geography Information System (GIS) was used to collect mapping data and a search was carried out to explore policies, laws and regulations at the local, national and global level. Using probability proportionate to size sampling, a sampling frame was designed covering four area of Taiwan. This sampling frame was dependent on the age and sex distribution of individuals in these areas. Field observations, focus groups, and questionnaires were used to collect subjective data. We collected the perception of the neighborhood environment with respect to physical activity and diet behaviors from 1571 subjects; in addition, the reported body heights and weights of the subjects were also captured. Pearson correlation and independent t tests were used to examine criterion-related validity, content validity, and concurrent validity of the objective obesogenic environment.

Results and Conclusions: In terms of criterion-related validity, the correlation of body mass index (BMI) with factors influencing diet showed that shops selling food productions, shops selling cooked food and drinking fountains were found to be important factor influencing diet. The number of nursing rooms for breastfeeding in an area were all linearly correlated with BMI. A number of obesogenic environmental factors were found to be able to discriminate in relation to obesity, including the ability to purchase, the availability of drinking fountains, the presence of all-you-can-eat restaurant, the number of nursing rooms in the area. Using the identified indicators of an obesogenic environmental and the related local regulations, it is possible to portray the obesity rate of a township as a geographic map of the area. These findings will be helpful when government tries to improve the obesogenic environment of cities, town and rural areas.

Keywords: obesity, environment, regulations, GIS, map