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Factors affecting participation decision and amount of physical activity among urban dwellers in Malaysia

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ABSTRACT

Objectives: The rapid rise in the prevalence of physical inactivity-related diseases has become a serious public health issue worldwide. The objective of the present study is to examine the factors affecting participation in physical activity among urban dwellers in Malaysia.

Study design: This cross-sectional study measures physical activity using a rigorous regression model.

Methods: Data are obtained from the National Health and Morbidity Survey 2011 (NHMS 2011). A lognormal hurdle model is used to analyse the participation decision and the amount decision of physical activity.

Results: The results show that income, gender, ethnicity, marital status and employment status are significantly associated with participation decision and amount decision. However, age, insurance and self-rated health only affect participation decision, whereas family size, education and smoking only affect amount decision.

Conclusions: It can, thus, be concluded that sociodemographic, insurance, lifestyle and health factors play an important role in determining physical activity behaviour among urban dwellers. When formulating policies, special attention must be paid to these factors.

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Introduction

Physical inactivity is a health risk factor for various non-communicable diseases (NCDs) and is also the leading factor for global mortality.[1] Studies show that being physically active can reduce the risk of premature death by about 35%.[2] There is also evidence suggesting that physically inactive middle-aged women are 26% more likely to die from cardiovascular diseases than their physically active counterparts.[3] The negative relationships between physical activity and the risks of developing type 2 diabetes, and cancers are also well identified.[4,5]

In today's rapidly urbanising society, pollution, high criminal rate, heavy traffic, insufficient sports facilities and hectic lifestyle are the main contributing factors for physical inactivity.[6–9] Studies show that residing in an urban area is associated with physical inactivity.[9,10] In an effort to increase the number of physically active adults in urban areas, numerous policies targeted toward promoting exercises have been proposed by the government.[8] These include encouraging cycling and walking by reducing the speed limits for cars and air pollution, improving the availability of safe and accessible outdoor sport facilities and introducing various health-promotion programmes.

In view of the importance of physical activity, the factors affecting participation in physical activity have widely been studied in the United States (US),[11–13] the United Kingdom (UK)[14–17] and other developed countries.[10,18–20] However, few such studies have been conducted in Malaysia. The prevalence of physical activity in Malaysia is not very promising. Studies show that one in every three adults is physically inactive,[9] and only 14% have adequate exercise.[21] Compared with rural dwellers, urban dwellers are 17% less likely to be physically active. Poh et al.,[21] Cheah and Poh[9] and Cheah[22] are among the few researchers who have investigated the decision of individuals to participate in physical activity (i.e. participation decision) in the light of these worrying facts and figures. However, their analysis is somewhat limited as they do not pay attention to the time spent in physical activity (i.e. amount decision). Furthermore, their scopes are not urban population.

The purpose of the present study is to fill the gap in the literature on physical activity by examining the factors associated with participation decision and amount decision of physical activity among urban dwellers in Malaysia. Having a better understanding of which type of urban dwellers participate or do not participate in physical activity is important as it will provide policy makers with useful information on policy development. Reviewing the findings of previous studies,[10–17] income, age, family size, gender, ethnicity, education, marital status, employment status, insurance, smoking and self-rated health status are hypothesised to be significantly associated with physical activity.

Methods

Sampling method and data collection

Data from the National Health and Morbidity Survey 2011 (NHMS 2011) is used.[23] The survey was conducted by the Ministry of Health Malaysia between April and July 2011. The survey covered all the states in Malaysia, including Federal Territories. To ensure national representativeness, a two-stage stratified sampling designed by the Department of Statistics Malaysia was employed. The first-stage sampling unit was based on geographically contiguous areas of the country [i.e. Enumeration Blocks (EBs)]. The EBs were categorised into urban and rural areas. An urban area was a gazetted area which comprised ≥10,000 population.[23] Otherwise, it was classified as a rural area. A total of 794 EBs were selected. Each EB consisted of 500–600 people. The second-stage sampling unit was based on Living Quarters (LQs). A total of 12 LQs were randomly selected from each EB. Members in all households within the selected LQs were surveyed. Multilingual (English, Bahasa, Mandarin and Tamil) structured questionnaires were used to collect the data. Face-to-face interview was conducted by the trained staff.

Sample size

The sample size was calculated using sample size calculation formula for a prevalence study. The calculation was based on three criteria: (1) expected prevalence of diseases and health-related problems in the population; (2) margin of error (between 0.01 and 0.05); and (3) confidence interval of 95%. The total sample size was 17,783 respondents. The response rate was 93%. Because the population of interest was urban dweller, all the respondents resided in rural areas were excluded. As a result, only 10,141 respondents were used for analyses.

The questionnaire and variables

The survey consisted of several questions on physical activity: 'In the past 7 days, how many days in which physical activity (including leisure, work, home and transport) for at least 10 min per session were carried out?' and 'On the day you carried out the physical activity, how long did you do this activity?'.[6] Physical activity was measured by the minutes spent in any types of physical activity in a week.

The data comprised information on demographics (income, age, family size, gender, ethnicity, education, marital status and employment status), insurance, lifestyle (smoking) and health (self-rated health). The respondents were asked to self-report their monthly individual income [in Ringgit Malaysia (RM)]. While self-reported income may possess the problem of reporting error, it was sufficient for use in the present study. The respondents were requested to declare their age (in years) and family size. To allow for linear relationships, age and family size were formatted as continuous variables. Ethnicity was categorised into three groups: Malays (the ethnic majority), Chinese and Indian/Others. The respondents needed to report their education attainment when asked 'What is your highest education level?'. Their responses were categorised into tertiary (≥12 years of schooling), secondary (7–11 years) and primary (<7 years).

Marital status was grouped into three groups: single, widow/divorce and married. The employment status was obtained by asking the respondents: 'Are you working currently?'. The unemployed category included housewife,