

PREDICTORS OF PHYSICAL ACTIVITY AMONG GOVERNMENT SERVANTS IN MALAYSIA

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Abstract:

Introduction:

Work has become increasingly inert in nature especially for those who work in offices. This lack of physical activity could increase health risks. Moreover, readiness to perform physical activity is influenced by many factors including socio-demographic and socioeconomic characteristics and therefore it needs to be deliberated. Aim of the study is to determine the prevalence and determinants of physical activity among a group of government servants.

Methods:

This was a cross sectional study among a group of government servants using a self-administered questionnaire. Level of physical activity was assessed using a Malay version of International Physical Activity Questionnaire (IPAQ).

Results:

A total of 203 respondents participated. Majority of the respondents were in the moderate and high physical activity categories (59.6% and 25.6% respectively). There was a significant association between physical activity with gender and income ($P < 0.01$), however no significant predictor was identified. Although not statistically significant, the OR was higher in females compare to males OR 1.16 (95% CI:0.46, 2.888), non-Malays compared to Malays OR 1.95 (95%CI:0.20,19.44), age group 40-59 compared to 20-39 years OR 1.34 (95%CI:0.55, 3.25), income \geq RM 5000 compared to income RM 1000-4999 OR 1.89 (95%CI0.73,4.88), those with tertiary education compared to primary and secondary education OR 1.94 (95%CI:0.47,2.37), and officers compared to supporting staff OR 1.55 (95%CI:0.70,3.45).

Conclusions:

Results show 14.8% of respondents were low in physical activity and that certain groups were at higher risk of low physical activity.

Key Words: physical activity, predictors, government servants

1.0 Introduction:

World Health Organization (WHO) has reported that about 31% of adults have insufficient participation in physical activity. South East Asians show the lowest prevalence of insufficient physical activity of 15% among men and 19% among women (WHO, 2014). However, the National Health and Morbidity Survey (NHMS) 2011 reported a higher percentage of Malaysian adults who were not physically active (about 36%) as it reported that about 64.3% were physically active (Teh et al., 2014). In another national survey investigating physical activity pattern, it was reported that only 31.3% of the Malaysian population have ever-exercised and only 14% has adequate exercise (Poh & Safiah, 2010). The decision to do regular physical activity among Malaysians was associated with factors such as gender, age, ethnicity, marital status, education level, job position, monthly income and self-perceived health status (Cheah & Poh, 2014) and (Siti Affira et al., 2011).

Studies have shown that 81.8% of office hours involved sedentary activity (Parry & Straker, 2013). This could be due to the evolution of technology, computers and machines, which has resulted in an increase in low activity occupation especially in the office settings. The increasing trend of this sedentary lifestyle is of a public health concern since adequate physical activity and fitness can significantly lower mortality risk (Erikssen, 2001), and on the contrary, physical inactivity has been reported to cause 6% of all deaths and it is the fourth leading cause of mortality (WHO, 2014).

In view of the fact that physical activity was found to be low among office workers and it is a key factor in reducing the morbidity and mortality of non-communicable diseases, this study had chosen to focus on a group of office workers in the public sectors (i.e., one of the sectors which have the largest number of workers) and also to investigate the predictors of physical activity among the respondents.

2.0 Methodology

2.1 Study sample

This is a cross sectional study conducted among a group government servants in a randomly selected ministry in Putrajaya. Those with mobility impairment were excluded.

2.2 Data collection

The socio-demographics and socioeconomics characteristics of the respondents were collected using a self-administered questionnaire. The level of physical activity was assessed using a validated Malay version of International Physical Activity Questionnaire (IPAQ). The calculated metabolic equivalent (Met) scores were then categorized into 3 categories i.e., <600 Met-minutes/week as low physical activity, 600-2999 Met-minutes/week as moderate physical activity and ≥ 3000 Met-minutes/week as high physical activity.

2.3 Data Analysis

Statistical analysis was performed using IBM SPSS version 21.0. The relationship between level of physical activity and respondent characteristics (i.e., socio-demography and socio-economy) was analysed using chi-square test. The 3 categories of physical activity was further collapsed into 2 categories i.e., moderate and high physical activity as one category and low physical activity as the other category. The predictors were calculated using binary logistic regression. All significant levels were set at a standard p value of $P < 0.05$ and a confidential interval of 95%.

3.0 Results

3.1 Respondent's characteristics and their level of physical activity

A total 203 respondents participated in the study. The response rate was 88.3%. The mean age of the group was 34.95 ± 8.45 years. Among the respondents, 151 (74.4%) are females and 52 (25.6%) are males; and majority are Malays (98.0%). In term of education level and job position, 120 (59.1%) of them had tertiary education while 83 (40.1%) had finished secondary school. However, only 64 (31.5%) are officers and the rest 139 (68.5%) are support staffs. Majority, 167 (82.3%) has a monthly income of less than RM 5000. Majority of the respondents are in the moderate and high physical activity category, 121 (59.6%), and 52 (25.6%) respectively. Only 30 (14.8%) were found to be in the low physical activity category.

3.3 Associated factors and predictor of physical activity

Table 1 shows there was a significant association between physical activity levels and gender and income ($\chi^2=15.93$, $P<0.01$ and $\chi^2=7.55$, $P<0.01$, respectively). However, there is no significant association between physical activity levels and ethnicity, age group, educational level and job position. However, Table 2 shows in this group of respondents, their characteristics are not significant predictors of physical activity.

Table 1: Associations of Physical Activity with respondents' socio-demographic and socioeconomic characteristics (N = 203)

| Respondents' characteristics | Physical Activity | | | χ^2 | p-value |
|------------------------------|-------------------|---------------|-----------|----------|---------|
| | Low n(%) | Moderate n(%) | High n(%) | | |
| Gender | | | | | |
| Male | 7(13.5) | 21(40.4) | 24(46.2) | 15.93 | <0.01 |
| Female | 23(15.2) | 100(66.2) | 28(18.5) | | |
| Ethnic group | | | | | |
| Malay | 29(14.6) | 119(59.8) | 51(25.6) | 0.99* | 0.78 |
| Non-Malay | 1(25.0) | 2(50.0) | 1(25.0) | | |
| Age group (years) | | | | | |
| 20-39 | 22(13.9) | 95(60.1) | 41(25.9) | 0.42 | 0.81 |
| 40-59 | 8(17.8) | 26(57.8) | 11(24.4) | | |
| Income (RM) | | | | | |
| 1000- 4999 | 23(13.4) | 99(57.6) | 50(29.1) | 7.55 | 0.02 |
| ≥5000 | 7 (22.6) | 22(71.0) | 2(6.5) | | |
| Educational level | | | | | |
| Primary& secondary | 12(14.5) | 46(55.4) | 25(30.1) | 1.53 | 0.46 |
| Tertiary | 18(15.0) | 75(62.5) | 27(22.5) | | |
| Job Position | | | | | |
| Support staffs | 18(12.9) | 82(59.0) | 39(28.1) | 2.05 | 0.36 |
| Officers | 12(18.8) | 39(60.9) | 13(20.3) | | |

Chi squared test / *Fisher's exact test, significant $P < 0.05$

Table 2: Predictors of (moderate and high) Physical Activity according to the respondents' socio-demographic and socioeconomic characteristics (N = 203)

| Respondents' characteristics | B | SE | Wald | OR | 95% CI | p-value |
|------------------------------|-------|------|------|------|---------------|---------|
| Gender | | | | | | |
| Male | | | | 1 | | |
| Female | 1.14 | 0.47 | 0.09 | 1.16 | (0.46,2.88) | 0.76 |
| Ethnic group | | | | | | |
| Malay | | | | 1 | | |
| Non-Malay | 0.67 | 1.17 | 0.33 | 1.95 | (0.20, 19.44) | 0.57 |
| Age group (years) | | | | | | |
| 20-39 | | | | 1 | | |
| 40-59 | 0.29 | 0.45 | 0.41 | 1.34 | (0.55,3.25) | 0.52 |
| Income (RM) | | | | | | |
| 1000-4999 | | | | 1 | | |
| ≥5000 | -0.64 | 0.48 | 1.73 | 1.89 | (0.73,4.88) | 0.19 |
| Educational level | | | | | | |
| Primary & secondary | | | | 1 | | |
| Tertiary | 0.04 | 0.40 | 0.10 | 1.94 | (0.47,2.37) | 0.92 |
| Job Position | | | | | | |
| Support staffs | | | | 1 | | |
| Officers | 0.44 | 0.41 | 1.16 | 1.55 | (0.70,3.45) | 0.28 |

Binary logistic regression, significant $P < 0.05$
(OR=Odds Ratio)

4.0 Discussion

Respondents' characteristics reflected the cross section of government servants in the particular ministry. Majority were Malays and female. Most were educated and in the middle socioeconomic class. Results of this study show that the prevalence of participation in physical activity as 85.2% (i.e., 59.6% with moderate and 25.6% with high physical activity). This prevalence is higher than the national study (NHMS 2011 which used the same IPAQ Malay version questionnaire), which reported that the overall prevalence as 64.3% and prevalence among government and semi-government staff was 65.0% (Teh et al., 2014). The higher prevalence in this study could be due to other local factors which were not scrutinised in this study such as the environmental factors (e.g. more physical activity facilities in Putrajaya) and local healthy lifestyle promotional activities (which might be better and more frequent in Putrajaya compared to other places).

This study showed that physical activity has a significant association with gender but further analysis showed that the OR was not statistically significant. Nevertheless, females in this study were 1.16 times more likely to be physically active compared to males. This observation is in opposition to the finding in NHMS 2011 which reported that males are 1.53 times more likely to be physically active compared to females (Cheah, 2014). The opposite finding in this study could be because this study was carried out among government servants

and their socioeconomic characteristics are not gender biased as compared to the general population. However, the gender difference as reported by NHMS 2011 was observed globally (WHO, 2014) and is of public health concern because adequate physical activity can help prevent many non-communicable diseases specifically known to be more prevalent among women such as osteoporosis and depression.

There is no association between being physically active with ethnic groups shown in this study. Logistic regression shows that non-Malays are 1.95 times more likely to be physically active compared to Malays but the finding could be ethnic biased since majority (98.0%) of the respondents were Malays. Even so, local studies have shown that the overall prevalence of ever-exercised and adequate exercise is higher among the Chinese and Indians compared to Malays (i.e., 36.0%, 31.2% and 29.1%, and 17.0%, 16.0% and 12.4% respectively) (Poh, 2010). The ethnic difference could be due to cultural influences (Cheah, 2011).

There is also no association between physical activity level with age groups in this study and the logistic regression shows that those in age group 40-59 are 1.34 times more likely to be more physically active compared to those in age group 20-39. The study shows a similar trend to a study among adults in Penang which showed that an increase of one year of age can lead to an increase in the frequency of engaging in physical activity participation (Cheah, 2011). Nonetheless, the findings in this study contradict the findings of the logistic regression in the national study which reported that advancing age reduces the odds of an individual being physically active (Cheah, 2014). In fact, the national observation was supported by a systematic review of 53 studies on physical activity in older people which concluded that those in the older age group were less likely to be physically active (Sun, Norman & While, 2013). Again the different findings in this study could be due to the different study population. This study was carried out only among government servants who have stable jobs. Increasing age could mean increasing stability and thus more leisure time to engage in physical activity as compared to the younger age group.

This study showed that physical activity had a significant association with income. Although income is not a significant predictor, logistic regression shows those who earn > RM 5000 are 1.89 times more likely to be physically active compared to those who earn RM 1000-4999. This finding is similar to the findings of a study in Penang and a study among working women in private sectors in an urban district in Selangor which reported income to have a positive association with frequent physical activity and the percentages of those who were physically active were higher among higher income group (Cheah, 2011) and (Siti Affira et al., 2011). Those with higher income could be more health conscious and thus make the effort to be physically active. However, the finding of this study is the opposite to the NHMS 2011 finding, which reported those who earn less than RM 4000 were more likely to be physically active than those who earn more than that and that an additional one ringgit reduces an individual's odd of being physically active (Teh, 2014) and (Cheah 2014). Interestingly, physical activity was reported to be inversely associated with income in developing countries but is directly associated with income in developed countries (Hernandez & Ibanez, 2010), (Jurakic et al. 2009) and (Cauley et al. 1991). In developing countries, it was suspected that those with lower income engaged in more laborious job causing them to have high physical activity, while in developed country it is explained that those with higher income could be more involved in recreational physical activity.

In this study, educational level of the respondents showed no association with physical activity. Logistic regression shows those with tertiary education are 1.94 times more likely to

be physically active. This finding is similar to the findings in developed countries. For e.g., the Reykjavik Study, a cohort study in Iceland, (Thornorarinsson et al. 2002), a national study in America from the Health Retirement Study (Shaw & Spokane, 2008) and a study of prevalence of sedentary life style among 15 European Union members (Varo et al. 2003) showed that the more educated were more likely to be physically active and the decline in physical activity with age was steeper among lower education group compared to higher education group. However, the finding of this study is the opposite of the NHMS 2011 finding which reported that those with primary education have higher physical activity prevalence compared to those with secondary education and those with secondary education have higher prevalence than those with tertiary education and the logistic regression showed that higher education reduces an individual's odd of being physically active (Teh, 2014) and (Cheah & Poh, 2014). The finding in NHMS was explained by the fact that the more educated engaged with office work which are highly automated while the lower educated are engaged with more laborious work. While the finding in studies in developed countries partly explained that the more educated uses their leisure-time to participate in physical activity.

Job position also showed no association with physical activity in this study. Logistic regression shows officers were 1.55 times more likely to be physically active compared to support staffs. This is similar with the finding in a local study among workers in private sectors which showed higher percentage of physical activity among the managers (Siti Affira et al., 2011). As discussed in the developed countries, physical activity was shown to be higher among the higher social class, which include those among the professionals (Livingstone et al., 2001) and (Popham & Mitchell, 2007).

To summarize, the relationship of socioeconomic class and physical activity is complex. Studies have shown that the high socioeconomic class has the advantage to be involved in adequate physical activity mainly during their leisure-time (Livingstone et al., 2001) and (Popham & Mitchell, 2007). Socioeconomic class can be determined directly by an individual's income and indirectly by the job position and education level. The respondents in this study were government servant and their monthly salary was determined according to their job positions. However their monthly income could also be from other sources. In the public sector, job position is mainly determined by level of education, but in this study, although 59.1% of them had tertiary education (which qualified them to be officers), only 31.5% were officers. Therefore, the use of job position and education level as a measure for socioeconomic class in this study might be incorrect. In fact, a national physical activity and weight loss survey in United States concluded that the influence was more of the social class than the occupation (Grzywacz & Marks, 2001).

5.0 Conclusion and recommendation

In conclusion, this study revealed that 14.8% of respondents were low in physical activity and, gender and income have significant association with physical activity among this group of government servants, though were not significant predictors. However, findings of the study indicated that certain groups were at higher risk of low physical activity and thus required suitable intervention.

Ethical

Ethical approval was obtained from the Ethical Committee of Universiti Putra Malaysia. Reference UPM/TNCP1/RMC/1.4.18.1 (JKEUPM)/F2

Declaration of conflict of interest

The authors of this article declare that there is no conflict of interest regarding publication of this article.

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