

**PHYSICAL ACTIVITY AND ABDOMINAL OBESITY STATUS AMONG COMMUNITY  
AT KG BUKIT BANGKONG, SEPANG, SELANGOR, MALAYSIA**

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**Abstract**

**Background:** Physically inactivity is known as identifier of a major health impact. Insufficient physical activity is a key risk for non-communicable disease (NCDs) such as cardiovascular diseases, cancer and diabetes. Being physically inactive will also increase the risk of waist abdominal obesity. Therefore, this study has been conducted to determine the prevalence of physical inactivity and abdominal obesity; and its association among community at Kg. Bukit Bangkong, Sepang Selangor.

**Materials and Methods:** A cross sectional study was conducted among Malaysian, aged more than 18 years old and residents for at least one month. Respondents were selected through random sampling method. Data have been collected through face to face interview, using a validated questionnaire

**Result:** Majority of the respondents were physically active (75.2%) and also have abdominal obesity (66.2%). Among the physically inactive respondents, 69.4% had abdominal obesity. 'Not enough time' (41.2%), health issues (15.7%) and 'lazy' (11.8%) were the barriers among the physically inactive respondents.

**Conclusion:** Majority of the respondents were physically active, however, there was no association between physical activity and abdominal obesity.

**Keywords:** physical activity, waist circumference, socio-demography, association, sepang

## 1.0 INTRODUCTION

The World Health Organization (WHO) has defined physical activity as anybody motion created by skeletal muscles requiring energy expenditure (WHO, 2018). Regular and adequate levels of physical activity in adults are key contributors to energy expenditure and are essential for energy balance and weight control (Chan, et al., 2017). It also reduces abdominal obesity and results in favourable changes in body composition (Paley & Johnson, 2018).

Wedell-Neergaard, et al. (2018) reported fitness was found to be inversely associated with abdominal adiposity. Studies done in United States and China showed an increasing trend in the prevalence of abdominal obesity with 49% to 58.4% and 42% to 44%, respectively (Shin, et al., 2018, Chen, et al., 2009). Central obesity was associated with a higher incidence of development of risk factors related to cardiovascular diseases (Barosso, et al., 2017).

Globally, World Health Organization (WHO) reported 23% of adults aged 18 years and older were physically ineffective and these percentages were even larger in Malaysia (33.5%) (NHMS, 2015a). Thus, this study has been conducted to determine the prevalence of physical inactivity and abdominal obesity; and its association among community at Kampung Bukit Bangkong, Sepang Selangor.

## 2.0 MATERIALS AND METHOD

A cross-sectional study was carried out in Kg Bukit Bangkong, Sepang, Selangor, with total population of approximately 3000 people. Majority of the residents were Malay.

The residential area was divided into single storey houses and double storey houses. The houses have been stratified before systematic random sampling was conducted to choose the respondents' unit, followed by simple random sampling to select the respondent within the household. All Malaysian, who were living in Kampung Bukit Bangkong for at least one month, aged more than 18 years, not mentally retarded, deaf and mute, from each unit were selected. Respondents who refused to participate in the survey or were not there during the survey after three visits, will be considered as non-response.

Data was collected through face to face interview using a set of structured questionnaire from NHMS (2015b). The waist circumference was calculated and classified based on NHMS (2015b) as follow: Male  $\geq 90$  cm, Female  $\geq 80$  cm. The data has been analyzed using descriptive statistics to get the frequency and relative frequency (percentage) for physical activity level and sociodemographic variables.

### 3.0 RESULTS

A total of 206 participants participated in this study.

**Table 1. Prevalence of physical activity among respondents**

Physical Activity status	n	%
Active	155	75.2
Inactive	51	24.8
<b>Total</b>	<b>206</b>	<b>100</b>

Majority (75.2%) of the respondents are physically active (Table 1).

**Table 2: Physical activity status by socio-demographic (N=206)**

Sociodemographic Factors	Physical Activity Status		TOTAL n (%)	OR (CI)	P-Value
	Active n (%)	Inactive n (%)			
<b>Age</b>					
< 20	15 (78.9)	4 (21.1)	19 (100)	0.587 (0.127,2.703)	0.541
20 – 29	23 (71.9)	9 (28.1)	32 (100)	0.861 (0.232,3.185)	
30 – 39	30 (76.9)	9 (23.1)	39 (100)	0.660 (0.181,2.405)	
40 – 49	35 (85.4)	6 (14.6)	41 (100)	0.377 (0.096,1.479)	
50 – 59	11 (68.8)	5 (31.3)	16 (100)	1	
$\geq 60$	41 (69.5)	18 (30.5)	59 (100)	0.966 (0.293,3.186)	
<b>Gender</b>					
Male	85 (81.0)	20 (19.0)	105 (100)	0.531 (0.279,1.013)	0.053
Female	70 (69.3)	31 (30.7)	101 (100)	1	
<b>Marital status</b>					
Not married	24 (85.7)	4 (14.3)	28 (100)	0.462 (0.152,1.407)	0.383
Married	122 (73.5)	44 (26.5)	166 (100)	1	

Sociodemographic Factors	Physical Activity Status		TOTAL n (%)	OR (CI)	P-Value
	Active n (%)	Inactive n (%)			
Divorcee/Widower	9 (75)	3 (25)	12 (100)	0.924 (0.239,3.570)	
<b>Education level</b>					
No formal education	3 (60.0)	2 (40.0)	5 (100)	1	0.424
Primary education	30 (65.2)	16 (34.8)	46 (100)	0.800 (0.121,5.292)	
Secondary education	86 (81.9)	19 (18.1)	105 (100)	0.331 (0.052,2.122)	
Tertiary education	36 (72.0)	14 (28.0)	50 (100)	0.583 (0.088,3.872)	
<b>Occupational status</b>					
Unemployed	10 (66.7)	5 (33.3)	15 (100)	0.900 (0.240,3.379)	0.424
Govt. / Semi-govt.	18 (90.0)	2 (10.0)	20 (100)	0.200 (0.038,1.044)	
Private employee	25 (65.8)	13 (34.2)	38 (100)	0.936 (0.337,2.604)	
Self-employed	41 (82.0)	9 (18.0)	50 (100)	0.3951 (0.137,1.138)	
Housewife	36 (78.3)	10 (21.7)	46 (100)	0.500 (0.176,1.419)	
Retiree	18 (64.3)	10 (35.7)	28 (100)	1	
Student	7 (77.8)	2 (22.2)	9 (100)	0.5143 (0.089,2.964)	
<b>Monthly income (RM)</b>					
< 3,860 (B40)	118 (73.3)	43 (26.7)	161 (100)	2.478 (0.910,6.747)	0.154
3,860-8319 (M40)	34 (50.0)	5 (12.8)	39 (100)	1	
> 8,319 (T20)	3 (50.0)	3 (50.0)	6 (100)	6.8 (1.064,43.479)	

The prevalence of physically active are higher among male (81%), age 40-49 (85.4%), working in government/semi government (90%) and single respondents (85.7%) (Table 2)

**Table 3. Barriers to physically active among the physically inactive respondents**

Barrier Factors	n	%
Not enough time	21	41.2
Health issues	8	15.7
Lazy	6	11.8
Family commitment	4	7.8
Self-perception	4	7.8
Not enough energy	4	7.8
Motivation	2	3.9
No companion	1	2.0
No knowledge on exercise	1	2.0
<b>Total</b>	<b>51</b>	<b>100</b>

Not enough time, health issues and laziness are the common barrier factors towards physically active (41.2%, 15.7% and 11.8%, respectively) (Table 3).

**Table 4: Prevalence of abdominal obesity among respondents (\*N=204)**

<b>Abdominal obesity status</b>	<b>n</b>	<b>%</b>
Yes	135	66.2
No	69	33.8
<b>Total</b>	<b>204</b>	<b>100</b>

\* Two respondents have been excluded due to permanent hip fracture and pregnancy.

Table 4 shows that the prevalence of abdominal obesity was 66.2%.

**Table 5: Association between physical activity status and abdominal obesity**

<b>Physical activity Status</b>	<b>Abdominal obesity</b>		<b>Total n (%)</b>	<b>Odd ratio (CI)</b>	<b>P-value (<math>\chi^2</math> value)</b>
	<b>Yes</b>	<b>No</b>			
	<b>n (%)</b>	<b>n (%)</b>			
<b>Active</b>	101 (65.2)	54 (34.8)	155 (100.0)	1	0.586
<b>Inactive</b>	34 (69.4)	15 (30.6)	49 (100.0)	0.825 (0.413, 1.648)	(0.297)

Among the physically inactive respondents, 69.4% had abdominal obesity. However, statistically there was no significant association ( $p > 0.05$ ) between physical activity and abdominal obesity among the respondents in Kg. Bukit Bangkong.

#### **4.0 DISCUSSION**

Our study showed that the prevalence of physical activity was higher (75.2%) compared to other Malaysian studies (56.3% and 66.5%, respectively) (Ying Ying, et al., 2014 and NHMS, 2015). This proves that the community of Kampung Bukit Bangkong has been more active over the years

which may also shows the effectiveness of policies and programmes introduced by the Malaysian Government to inculcate healthy lifestyle within this decade (Ying Ying, et al., 2014).

Male is reported to be more physically active compared to female which was consistent with study done in Brasil by Martins, Inácio and Hallal, (2018). They have reported that men who lives in rural areas with low-middle income were more physically active (85.8%) due to their works as manual labor. However, for every given leisure time, these men decided to not participate in any physical activity and would rather stay at home to rest (Martins, Inácio and Hallal, 2018). Higher percentage of men who were involved in work-related physical labor also carries higher responsibility to support family in terms of financial (Samir, Mahmud & Khuwaja, 2011) and this greater levels of work-related fatigue were associated with gradually lower levels of physical activity (Blafoss, et al., 2019). These supported our finding in which not enough time and family commitment were the barriers for physically inactive. This also explained why there were higher prevalence of physical inactive among no formal education as lower level of education attainment, they would not be able to secure high-end jobs and had to settle with jobs that involve physical labor.

In relation to occupational, there was a greater percentage (90.6%) of participants in the 46 to 59-year age group performed at least 150 minutes of physical activity (Bicalho, et al., 2010), which was consistent with our finding. However, older adults aged more than 50 years old were associated with higher prevalence of physical inactivity compared to other age groups across men, women and combined groups. This was supported by previous studies which showed that prevalence of physical inactivity increased with advancing age group (NHMS, 2015; Ying Ying, et al., 2015; Aisyah Waheeda, et al., 2018). This might be due to their retirement phase, which contributed to the sedentary lifestyle (Touvier, et al, 2010).

Elderly also prefers to do exercise with their friends of the same age in which this selective behaviour leads to the decision to not do physical activity (Buman, Yasova & Giacobbi, 2010). Apart from that, 51.7% of elderly tend to have lower self-efficacy as they perceived their deteriorating age as the cause of their physical inactivity (Justine, et al., 2013) as their ability to participate in physical activity is limited by chronic health conditions (Costello et al., 2011). Majority of the elderly expressed the view that their sedentary behavior is mostly determined by arthritis-related stiffness and pain (Chastin et al., 2014).

More than half of the total respondents were obese which was consistent with previous studies in Malaysia that stated the national prevalence of abdominal obesity had increased by 2.0% compared to previous findings of similar study in 2011 (NHMS, 2015a; NHMS 2011). Zaki (2010) in his study has also reported that 55.6% of Malaysian adult had abdominal obesity.

El-Kassas and Ziade (2017) reported that low physical activity was noted to be associated significantly with greater chance of having elevated weight circumference. Other study in Brazil has also showed a positive association between physically active respondents and abdominal obesity, where poor physical activity leads to worsen heart rate variability and therefore reduced effort to prevent obesity (Germano-soares, 2018). However, a study done in Malaysia by Chew, et al., (2018) reported that there was no significant difference with respect to the duration of inactivity, sleep and levels of physical activities with abdominal obesity ( $p > 0.05$ ), similar as our finding.

## **5.0 CONCLUSION**

The overall prevalence of physical activity among the community of Kampung Bukit Bangkong was relatively high, with significant increase from previous years meanwhile the commonest barriers from being physically active are modifiable which were reported as 'not enough time', 'health issues' and 'lazy' which are modifiable.

Therefore, consistent interventions and health educations are crucial to promote better understanding on the benefit of physical activity to prevent obesity and cardiovascular diseases. The community should also be introduced to non-time-consuming physical activities that are appropriate for their age.

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