

Obesity and Habitual Physical Activity Level among Staffs Working in a Military Hospital in Malacca, Malaysia

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ABSTRACT

Introduction: Obesity has been recognized as a major public health concern due to lack of physical activity and a sedentary lifestyle. **Methods:** This cross sectional study was carried out to determine the status of body mass index (BMI) and habitual physical activity level among staffs working in Military Hospital, Malacca using Habitual Physical Activity Questionnaire (HPAQ). **Results:** About 120 HPAQ were distributed and only 82 responded with 23(28%) of them males and 59 (72%) females, aged between 21 to 59 (40.52 ± 9.38) years old. Anthropometry analysis showed the mean weight of male respondents was 79.48 (± 16.33) and 70.95 (± 15.66) for the females. Body mass index (BMI) for males (33.61 ± 2.82) was almost similar to females (33.20 ± 2.95). The mean waist circumference of men was 93.26 (± 10.94)cm compared to 94.03 (± 11.98)cm in the females. Following categorization of BMI, 59% (n=48) are in the obese group, 24% (n=20) are overweight and only 17% (n=14) have an ideal body weight or normal BMI. Relationship between BMI and HPAQ demonstrated strong and significant correlation coefficient for habitual physical activity at work (r = 0.775, p < 0.001), sports (r = 0.735, p < 0.05) and leisure (r = 0.713, p < 0.001). **Conclusion:** The staffs working in the Hospital demonstrated poor habitual physical activity which explains for the high incidence of obesity among the staffs. This requires measures to be taken to promote a healthier lifestyle among them.

KEYWORDS: Obesity, physical activity, body mass index, hospital staffs, military hospitals

INTRODUCTION

Obesity is described as excessive fat accumulation in the adipose tissues of the body that is linked unequivocally to several health hazards.¹ It is a complex chronic disease with a diverse etiology² and is becoming a major clinical and public health concern. This has contributed to increasing morbidity and mortality rates for several chronic diseases, affecting both adult and child populations worldwide.³ The prevalence of obesity is 14-20% in industrialized countries and in Malaysia, the prevalence of obesity is about 14%.⁴ According to Ismail et al. in a review of a large data set of over 5,623 adult Malaysians in urban and rural areas, the problem of overweight was about 18%, with 4% of the subjects being obese.⁵

Being staff and health care providers working in hospital settings, it is expected that the responsibility to promote wellness and healthy lifestyle becomes an important mission.⁶ There should be a commitment to health promotion activities and primary care prevention⁷ of obesity related diseases.⁸ According to Flegal et al., many health professionals do not truly understand the health implications of obesity or the diet and exercise strategies.⁹ This has major implications since they interact with the community and can significantly influence patients or clients to lose weight

or even try to maintain a weight loss.¹⁰ As obesity is becoming an alarming health problem nationwide, diet, exercise, and weight management is becoming an increasing priority among all healthcare providers. However, anecdotal observation of large groups of health professionals suggests that obesity is prevalent among the health professionals themselves.¹¹

Previous studies in Malaysia have focused on the prevalence of obesity among children,¹² adolescents¹³ and adults.¹⁴ There is a dearth of knowledge on the prevalence of obesity among staffs working in hospital. The objective of this study was to determine the body mass index (BMI) and the habitual physical activity level among staffs working in a hospital. Being staffs and health care providers, it is justifiable that such study be carried out to ensure that they are physically fit and project the right image to the public.

MATERIALS AND METHODS

Study design

This is a cross-sectional study involving staffs working at Military Hospital, Malacca. The study obtained ethical approval from the Military Committee, Malaysian Armed Forces, Kuala Lumpur and the Ethical Committee Board of UKM. An official letter was sent to the Director of Hospital and all heads of department informing them of the study. Interested staffs were invited to come to the physiotherapy department and they were explained regarding the study and prior consent was obtained from all involved. An explanation was given with self-address questionnaire and measurements of weight, height, waist circumference were taken. A letter box was placed at the physiotherapy counter, and all answered questionnaires were placed into the post box or posted to the department through self-addressed envelope. Convenient sampling was done among subjects who met the inclusion criteria. A sample size of 90 subjects was calculated to detect an effect size of 0.64, powered at 95% with a error of 5%.¹⁵

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Outcomes measurement

Body Mass Index (BMI)

The weight of subjects was measured in kilogram (kg) and the height was measured in meter (m). Body Mass Index (BMI) was calculated using the formula published by World Health Organization (1998): weight (kg) / height² (m²).¹⁶ Both height and weight were measured using a Seca weighing balance with height attachment and measured to the nearest 0.5cm and 0.1kg (not wearing shoes and light clothing). Body mass index (BMI, kg/m²) was calculated and then categorized into four groups underweight, normal weight, overweight, and obese.¹⁷

Waist circumference

Waist circumference was measured using a non stretchable tape to the nearest 0.1 mm at the mid-point between the iliac crest and the lowest ribs margin.

Habitual Physical Activities Questionnaire (HPAQ)

Habitual Physical Activities Questionnaire (HPAQ) is commonly used and it measures the physical activities of subjects. This questionnaire has been validated and its reliability has been tested by the previous study.¹⁸ This questionnaire has 3 domains which included activity at work,

sport activity and leisure activity. The scores identified from these questionnaire were categorise in low activity (0.00-1.75), moderate activity (1.76-3.24) and high activity (3.25 - 5.00).¹⁹ Even though the questionnaire used in the study was in English, the subjects were assisted in their comprehension of the questionnaire by the researcher.

Statistical analysis was done using SPSS software version 16.0. All values were expressed as mean (±SD) using descriptive and inferential statistics.

RESULTS

Demographic characteristics demonstrated 82 subjects participated in the study. There were 23 (28%) males and 59 (72%) females and most of them were Malays (n=81, 99%). The average age of the subjects was 40.52 (± 9.382) ranging between 20 to 59 years. In this study, about 49% (40) of them were paramedical staff whilst another 44% (n=36) were surveillance working in the Military Camp. Most of them (83%, n=68) were married .In terms of educational background, the subjects were equivalently educated as 50 % (n=41) having a Diploma qualification (Table 1).

Table I. Demographic information regarding subjects

Characteristics	Frequency (n)	Percent (%)
Sex	Male	23
	Female	59
Race	Malay	81
	Chinese	1
Age group (Year)	20 - 29	14
	30 - 39	23
	40 - 49	24
	50 - 59	21
Mean age (± S.P.)	40.52 (± 9.382)	
Marital status	Bachelor	14
	Married	68
Occupation	Professionls	6
	Paramedical group	40
Educational background	Support group	36
	LCE (SRP)	2
	MCE (SPM)	33
	Diploma	41
BMI Catergorization	Bachelor / Master	6
	Ideal body weight	14
	Overweight	20
	Obese	48

Anthropometry analysis showed that the mean weight of male respondents was 79.48 (± 16.33) and 70.95 (± 15.66) among the females. Body mass index (BMI) of males (33.61 ± 2.82) was almost similar to the females (33.20± 2.95).The mean waist circumference of men was 93.26 (± 10.94) cm compared to 94.03 (± 11.98) cm in the

females. Following categorization of BMI showed that 59% (n=48) of the respondents were in the obese group, 24% (n=20) overweight and only 17% (n=14) have an ideal body weight or normal BMI.²⁰ The mean weights of the males were heavier than the females, even though the BMI of the females were almost similar to the males (Table 1 & II).

Table II. Physical characteristic of subjects between gender (mean ±SD)

Characteristics	Respondents	
	Males (n=23)	Females (n=59)
Weight (kg)	79.48 (± 16.33)	70.95 (± 15.66)
Height (m)	1.64 (± 0.05)	1.55 (± 0.51)
Body Mass Index (kg/m ²)	33.61 (± 2.82)	33.20 (± 2.95)
Waist Circumference (cm)	93.26 (± 10.94)	94.03 (± 11.98)

n=no of subjects, ± = standard deviation

Analysis from the Habitual Physical Activity Questionnaire score showed that only 82 of the 120 questionnaires distributed were returned. Most of the respondents were either in the lower or moderate physical activity level in all domains of activity at work, sport or leisure time (Figure 1). Similar percentages were reported for activity

at workplace and sport activity among respondents (n=43, 52%) but most of them at leisure activities carry out, only low activity level (56%). Moderate activities were less carried out among respondents and were worst at leisure time. This showed that the habitual physical activities among the hospital staff were generally poor and minimal.

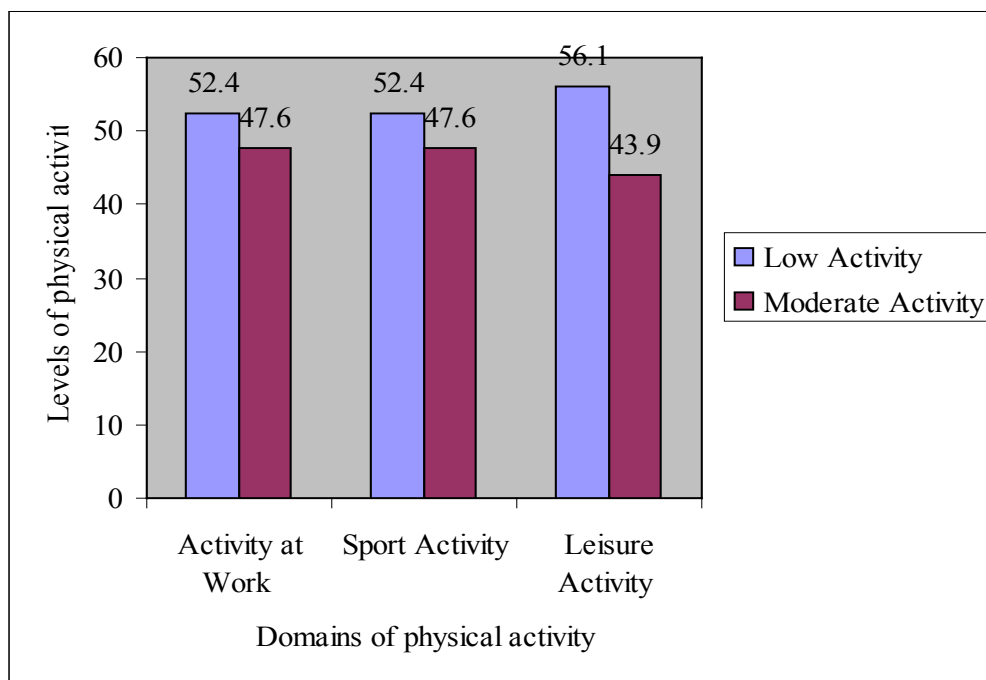


Figure 1. Physical activity level among subjects working in a hospital

Table III. Relationship between Body Mass Index (BMI) and Habitual Physical Activity (HPA)

Obesity	Activity at Work	Sport Activity	Leisure Activity
Correlation	0.775*	0.735*	0.713*
p Value	0.001	0.003	0.000

*Pearson Correlation significant value of p < 0.05

In Table III, the relationship between BMI and habitual physical activity shows good correlation coefficient. This demonstrates that the BMI is influenced by the habitual physical activity carried out in the everyday activities among staff in this hospital.

DISCUSSION

Due to poor physical activity, our findings showed that the majority of the staffs working in the hospitals were having problems of obesity. Similarly, the findings were consistent of Khawla, although their study were among health professionals who were obese in Bahrain.²¹ According to Maffeis et al., the lack of physical activity and sedentary lifestyle were directly related to the least energy consumption utilized by the body.²² This is not surprising, because the causes of obesity are due to lack of physical activity, sedentary lifestyles and poor dietary habits.⁸

Our findings showed significant relationship between obesity and habitual physical activity in the workplace, and recreational activities consistent with studies of Quah and Olive that demonstrated a significant relationship between obesity and physical activity.²³ Results of their study showed an increase rate of obesity which is

directly proportional to the lack of daily physical activity and sedentary lifestyle among respondents. The popular sedentary activities, such as watching television and sitting around, have been implicated in the obese person because they reduce resting metabolism, displace physical activity and expose to food advertisements.^{24,25} According to Jensen et al., television viewing and physical inactivity are strongly associated with overweight and obesity among Canadian young people.¹ Similarly, Elgar et al. in their study of Welsh adolescents demonstrated that sedentary behaviour can reduce physical activity in early adolescence, which can influenced their body mass in late adolescence.²⁶

Therefore, all staff working in the health sector regardless whether they are professionals or clerical staffs should consider a change in their lifestyle. Even though, our findings do not represent all hospital staffs in the country, this is significant because this group of staff and professionals presumably have an advanced knowledge of both the health-related risks of obesity and the methods for managing it.²⁷ If these staffs working in the hospitals do not respond to obesity intervention, it may be unrealistic to expect the general public to do so. If these informed professionals are not cognizant of obesity risks or responsive to interventions, there is a gap that should be thoroughly

investigated.²⁸ Since the prevalence of obesity among hospital staffs is high, future planning must be emphasized, where the obesity reduction percentage should be at the level of zero percent. To achieve this aspiration, all staffs regardless of whatever job they do, need to work together and cooperate in preventing and addressing the problem of obesity. This however would require the support and close cooperation and coordination of management level personnel from various departments.

LIMITATION OF STUDY

The findings in this study are not representing all hospital staff in the country and suggestion for a wider scale population to be carried out in the future. Another limitation is the use of the Habitual Physical Activity Questionnaire in the English language might have hindered their comprehension of the questionnaire even though the subjects were given assistance in answering them. Suggestion to carry out specific research on just health professionals themselves would be appropriate as they are the patient’s first line of contact.

CONCLUSION AND RECOMMENDATION

The staff working in Military Hospital Malacca demonstrated poor habitual physical activity resulting in high incidence of obesity. Efforts to promote healthy lifestyle in maintaining an ideal body weight can be further enhanced among staff and health professionals. More effective campaigns are therefore necessary to promote a healthy lifestyle. Measures should be taken by the authority to ensure that the practices were sustainable and effective at all times. Such campaign can enhance the practice of active physical activity in activities of daily living to reduce sedentary life styles among health professionals and the society.

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