

Artikel Asli/Original Articles

Physical Activity and Health Related Quality of Life Among Non-Academic Staff of a University  
(Aktiviti Fizikal dan Kualiti Kehidupan Berkaitan Kesihatan di Kalangan Kakitangan Bukan Akademik Universiti)

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ABSTRACT

Literature data on association between physical activity (PA) and health related quality of life (HRQoL) in non-clinical adults population are still limited. Thereby, the objective of this study was to evaluate the association between PA and HRQoL among the non-academic staff serving the Faculty of Health Sciences (FSK), Universiti Kebangsaan Malaysia (UKM), Kuala Lumpur (KL). In this cross sectional study, 105 non-academic staffs aged between 18 to 60 years were recruited. Self-administered questionnaires (Malay version of the International Physical Activity Questionnaire and World Health Organisation Quality of Life-Brief Version) were administered among the participants. Mann Whitney test and Spearman's rho correlation were employed for the statistical analysis using SPSS version 22.0. Majority of participants (72.4%) demonstrated high PA scores of  $\geq 3000$  MET-minutes/week. PA scores between genders was not statistically significant ( $p = 0.137$ ). However, total PA score of support staffs (median = 9039.0, IQR = 15811.00) was significantly higher compared to staffs in management and professional group (median = 4329.0, IQR = 4189.00). The mean(SD) self-perceived HRQoL score was 3.4 (0.76). There were no significant correlation between PA and all domains of HRQoL such as physical health, psychological, social relationship and environmental domains (Correlation coefficient,  $\rho = -0.108, 0.003, -0.023, 0.026$  respectively) with  $p = 0.273, 0.978, 0.818, 0.794$  respectively. Majority of non-academic staffs of FSK, UKM engaged in high physical activity. The PA levels of support staffs were significantly higher than management and professional staffs. However, there was no statistically significant correlation observed between PA and domains of HRQoL.

Keywords: Physical activity; health-related quality of life; office workers; life style; cross-sectional study

ABSTRAK

Data kajian kepustakaan mengenai aktiviti fizikal (PA) dan hubungannya dengan Kualiti Kehidupan Berkait Kesihatan (HRQoL) dalam kalangan populasi dewasa bukan klinikal masih terhad. Oleh itu, objektif kajian ini adalah untuk menilai hubungan antara PA dengan HRQoL dalam kalangan kakitangan bukan akademik Fakulti Sains Kesihatan (FSK), Universiti Kebangsaan Malaysia (UKM), Kuala Lumpur (KL). Dalam kajian keratan rentas ini, seramai 105 kakitangan bukan akademik dari Fakulti Sains Kesihatan, UKM, berumur antara 18 hingga 60 tahun telah terpilih untuk terlibat dalam kajian ini. Soalan soal selidik (versi bahasa melayu dari International Physical Activity Questionnaire dan World Health Organization Quality of Life-Brief Version) telah diedarkan kepada pekerja bukan akademik. Ujian Mann Whitney dan Spearman's rho telah dipilih dengan menggunakan SPSS versi 22.0. Majoriti daripada subjek (72.4%) menunjukkan skor yang tinggi dalam aktiviti fizikal iaitu sebanyak  $\geq 3000$  MET-minit/minggu. Skor aktiviti fizikal (PA) antara jantina adalah tidak signifikan ( $p = 0.137$ ). Walau bagaimanapun, jumlah skor aktiviti fizikal (PA) bagi kakitangan sokongan (median = 9039.0, IQR = 15811.00) adalah lebih tinggi berbanding kakitangan dalam kumpulan pengurusan dan profesional (median = 4329.0, IQR = 4189.00). Min(SD) bagi skor HRQoL adalah 3.4 (0.76). Hubungan antara PA dan semua domain HRQoL seperti domain kesihatan fizikal, psikologi, hubungan sosial, dan alam sekitar adalah sangat lemah (Correlation coefficient,  $\rho = -0.108, 0.003, -0.023, 0.026$ ) dan tidak signifikan ( $p = 0.273, 0.978, 0.818, 0.794$ ). Kebanyakan kakitangan bukan akademik FSK, UKM terlibat dalam aktiviti fizikal yang tinggi. Tahap PA kakitangan sokongan adalah lebih tinggi berbanding dengan kakitangan pengurusan dan profesional. Walau bagaimanapun, hubungan antara PA dan domain-domain HRQoL adalah tidak signifikan.

Kata kunci: Aktiviti fizikal; kualiti kehidupan berkait kesihatan; pekerja pejabat; gaya hidup; kajian keratan rentas

INTRODUCTION

Use of advanced technology in daily to day life such as improved transport system, elevators, escalators, ultra

modern electric household appliances have tremendously increased the over all comfort and convenience of life. However, this phenomena has greatly reduced the physical activity (PA) in today's technology oriented world.

Importantly, lack of physical activity has been identified as the fourth main risk factor for global mortality (WHO 2010).

The term physical activity refers to the body movement leading to expenditure of physical energy (Sims et al. 2009). Simplest physical activity definition encompasses sleeping, work and leisure-related activity (Caspersen et al. 1985). Researchers recommend that every adult should spend at least 30 minutes a day engaging himself or herself in moderate intensity PA (Pate et al. 1995; Blair et al. 2004). PA contributes to a good mental and physical health of an individual (Schmitz et al. 2005; Booth et al. 2001; Mechelen et al. 2000; Cooper et al. 2005) and reduce the risk of chronic diseases (Helmrich et al. 1994; Hu et al. 2005; Mc Tiernan et al. 2003).

Furthermore, researchers have established that regular physical activity is associated with a better health related quality of life (HRQoL) particularly in elderly population (Valadares et al 2011, Vallance et al. 2012). Quality of life represents physical, functional, psychological and social well being of a person. Individuals with chronic diseases such as diabetes are also likely to improve their HRQoL with regular PA (Maddigan et al. 2005). Overall quality of life was reported to be positively influenced by regular physical exercise after the diagnosis of cancer (Courneya & Friedenreich 1999).

Similarly, majority of the studies done in healthy adults reported consistent moderate to strong associations of better HRQoL scores with higher PA levels (Daskapan et al. 2005; Riise et al. 2003; Vuillemin et al. 2005) except in few longitudinal studies where PA did not improve HRQoL in general population (Ashley et al. 2001). In the studies that showed a positive association between PA and HRQoL, the influence of PA varied according to the different domains of HRQoL.

As regards to Malaysian studies on HRQoL, published data mainly focus on clinical population. However, literatures on association between PA and HRQoL in non-clinical adult populations aged below 60 years, specially in Malaysia are limited. Studies related to HRQoL mainly focus on clinical population. Clinical populations which had been investigated are osteoarthritis (Zainal et al. 2009), leukaemia (Alias et al. 2011), tuberculosis (Atif et al. 2012), type 2 diabetes mellitus (She et al. 2012) and migraine (Munvar et al. 2015). Not many study has been done on non-clinical population particularly from working environment setting. Having the fact that PA is crucial in HRQoL, it is important to explore it association among non-clinical population as well. Hence, the present study was carried out determine the correlation between physical activity level and health related quality of life status among the Non-Academic Staff of FSK, Universiti Kebangsaan Malaysia, Kuala Lumpur.

## METHODOLOGY

This cross-sectional study was conducted among non-academic staff of Faculty of Health Sciences (FSK),

Universiti Kebangsaan Malaysia. All non-academic staffs aged above 18 and below 60 years except staffs under maternity and unpaid leave were included in this study. Participants were recruited from March to May 2014 by using simple random sampling. Informed consent was obtained from all participants. The participants were asked to provide details on socio-demographic and personal profile such as age, gender, race, education level, income, marital status and job designation.

The Malay International Physical Activity Questionnaire (IPAQ-M) was utilized to estimate the amount of physical activity among the participants. IPAQ-M has been recently validated and result showed a good reliability and validity (Chu & Moy 2015). Briefly, IPAQ-M assess the physical activity of adults including leisure time physical activity, domestic and gardening (yard) activities, work-related physical activity and transport-related physical activity. The total of physical activity was classified into three categories as low, moderate and high. When the activity was reported but was not enough to meet categories of moderate and high activity level, it was reported as low activity. In moderate total activity, either of the following three assumption was met- 3 or more days of vigorous-intensity activity of at least 20- minutes per day or 5 or more days of moderate-intensity/activity and/ or walking of at least 30 minutes per day or 5 or more days of any combination of walking, moderate-intensity or vigorous-intensity activities achieving a minimum of at least 600 Met-min/week. In high category of physical activity, any one of the following 2 criteria was met - vigorous-intensity activity on at least 3 days and accumulating at least 1500 MET-minutes/week or 7 or more days of any combination of walking, moderate-or vigorous-intensity activities accumulating at least 3000 MET-minutes/week.

The Malay version of the World Health Organization Quality of Life-Brief (WHOQOL-BREF) (Hasanah et al. 2003), was also used in this study to measured the individual's perception of HRQoL. It consists of 4-domains such as physical health, psychological domain, social relationships and environment domain. Two more items that are examined separately are individual's overall perception of quality of life and individual's overall perception of his or her health. Domain scores are scaled in a positive direction (i.e. higher scores denote higher quality of life). The mean score of items within each domain is used to calculate the domain score. Self-administered technique was used to answer this questionnaire.

The Statistical Package for Social Sciences (SPSS) program version 22.0 was used to analyse collected data. Descriptive statistics were used to analyse physical activity level and HRQoL scores among non-academic staffs. Mann Whitney test was used to compare the physical activity scores of staff between gender and physical activity scores between work positions of the staffs. Spearman correlation was used to assess the correlation between physical activity and HRQoL among non-academic staffs.

## RESULTS

### SOCIO-DEMOGRAPHIC CHARACTERISTICS

A total of 105 respondents participated in this study, accounted for 95.5% response rate. The median (IQR) age of the respondents was 32.0 (11.00), ranging from 23 to 58 years. Among the 105 respondents, 69 (65.7%) were female staffs. The majority of the respondents were Malays 95.2%, followed by Chinese (3.8%) and others (1.0%). Most of the respondents were married (63.8%). Seventy-six (72.4%) were support group staffs and 29 (27.6%) were management and professional group staffs. The educational levels of most of the respondents were diploma (34.3%) and first degree (33.3%), and only seven (6.7%) of them possessed second degree (master/PhD). The majority of the respondents indicated that they had monthly income range between Ringgit Malaysia (RM) 3000 to RM4000 (33.3%). The respondents' characteristics are presented in Table 1.

TABLE 1. Socio-demographic characteristics of the non-academic staffs (N = 105)

Characteristics	Median (IQR)	Frequency (%)
Age (years old)	32.0 (11.00) <sup>a</sup>	
Gender		
Male		36 (34.3)
Female		69 (65.7)
Race		
Malay		100 (95.2)
Chinese		4 (3.8)
Indian		0 (0)
Others		1 (1.0)
Marital status		
Single		37 (35.2)
Married		67 (63.8)
Divorced		1 (1.0)
Others		0 (0)
Job position		
Support group		76 (72.4)
Management & Professional group		29 (27.6)
Educational level		
SPM		27 (25.7)
Diploma		36 (34.3)
Degree		35 (33.3)
Master/PhD		7 (6.7)
Monthly income (RM)		
1000-2000		20 (19.0)
2000-3000		33 (31.4)
3000-4000		35 (33.3)
4000 and above		17 (16.2)

<sup>a</sup>Median (IQR) – Data were skewed to the right

### DESCRIPTIVE STATISTICS ON PHYSICAL ACTIVITY AND HRQOL

The data on physical activity scores were not normally distributed. The median (IQR) of total physical activity score was 6252.0 (12370.00) MET-minutes/week. The majority of the respondents had high physical activity (72.4%), while 26 (24.8%) had moderate physical activity and only 3 (2.9%) had low physical activity (Table 2).

TABLE 2. Descriptive statistics of the physical activity in non-academic staffs (N = 105)

Physical Activity (MET-minutes/week)	Median (IQR) <sup>a</sup>	Frequency (%)
Total physical activity	6252.0 (12370.0)	
Work domain	2880.0 (6810.5)	
Active transportation domain	693.0 (2475.0)	
Domestic and garden (yard work) domain	1080.0 (2512.5)	
Leisure-time domain	346.5 (1914.0)	
Physical activity level		
Low (0-599)		3 (2.9)
Moderate (600-2999)		26 (24.8)
High (≥ 3000)		79 (72.4)

<sup>a</sup>Data were skewed to the right

Table 3 shows the mean scores of the respondents on WHOQOL-BREF according to two overall questions and each domain. The mean (SD) for self-perception of general quality of life and general health were 3.4 (0.76) and 3.5 (0.78) respectively. The mean (SD) scores for HRQoL domains range from 14.1 (1.76) for the environmental domain to 15.3 (2.56) for the social relationships domain.

### ROLES OF GENDER AND JOB POSITION ON PHYSICAL ACTIVITY

Mann-Whitney U test showed there was no significant difference of total physical activity score between male and female staffs ( $p = 0.137$ ), although male showed higher physical activity than female staffs. However, the finding revealed that there was significant difference of physical activity between support group and management and professional group staffs ( $p = 0.011$ ). The total physical activity score of support staffs (median = 9039.0, IQR = 15811.00) was significantly higher compared to staffs in management and professional group (median = 4329.0, IQR = 4189.00) (Table 4).

TABLE 3 Descriptive statistics of the HRQoL in non-academic staffs (N = 105)

Domains	Mean (SD)	Minimum score	Maximum score
General quality of life	3.4 (0.76)	1.0	5.0
General health	3.5 (0.78)	2.0	5.0
Physical health	15.0 (1.99)	10.3	20.0
Psychological	14.8 (2.09)	8.0	18.7
Social relationships	15.3 (2.56)	10.0	20.0
Environment	14.1 (1.76)	11.0	19.0

TABLE 4. Effects of gender and job position on the total physical activity score among non-academic staffs (N = 105)

Variables	Median (IQR)	Z statistic	p-value <sup>a</sup>
Gender			
Male	7844.0 (13147.50)	-1.485	0.137
Female	5442.0 (10485.50)		
Job position			
Support group	9039.0 (15811.00)	-2.537	0.011
Management & Professional group	4329.0 (4189.00)		

<sup>a</sup>Mann-Whitney U test

#### CORRELATION BETWEEN PHYSICAL ACTIVITY AND HRQoL

Table 5 presents the Spearman's rho ( $\rho$ ) correlation coefficient between total physical activity score and each domain score of HRQoL. None of the correlation between physical activity and HRQoL domains was statistically significant ( $p > 0.05$ ). Results showed that physical activity had very weak positive correlation with psychological domain ( $\rho = 0.003$ ) and environmental domain ( $\rho = 0.026$ ). Physical activity also was very weak negatively correlated with physical health domain ( $\rho = -0.108$ ) and social relationships domain ( $\rho = -0.023$ ).

TABLE 5. Correlation between the physical activity and the domains of HRQoL (N = 105)

HRQoL	Physical Activity	
	Correlation coefficient ( $\rho$ )	p-value <sup>a</sup>
Physical health	-0.108	0.273
Psychological	0.003	0.978
Social relationships	-0.023	0.818
Environment	0.026	0.794

<sup>a</sup>Spearman's rho correlation

#### DISCUSSION

This cross-sectional study examined the correlation between physical activity and the domains of quality of life in general adult aged between 18 to 60 years old. Domains of health-related quality of life include physical

health, psychological, social relationships and environment (WHO 2010).

The descriptive result showed that high physical activity level among non-academic staffs may be due to majority of participants involved on this study were support staffs who have more physical workload (Alla & Ajibua 2012). Besides, most of the staffs live in 'traditional' neighbourhood which characterised by high density residential area, short block length and mixture of land uses that engage more walking among the staffs (Saelens et al. 2003). Over-reporting could also influence the high score of PA result as Beyler et al. (2008) reported that survey participants over-reported their PA level as compared to accelerometer data.

Mann-Whitney result showed that male staffs have higher physical activity score compared to female staffs. Higher physical activity score in male staffs contributed by different roles attributed to males in our society (Özdöl et al., 2014). This result is in accordance to the study by Brown et al. (2003) which showed that males have higher moderate or vigorous physical activity level compared to females. Males mostly have higher physical load, volume of physical task and intensity of workload in the workplace compared to females (Ruzic et al. 2003). Social relationships domains showed highest score in health related quality of life.

Physical activity levels among staffs vary depending on the type of work performed (Ruzic et al. 2003). In this study, support staffs demonstrated significantly higher in physical activity score compared to managements & professional staffs due to different job scope. This might be due to support staffs have more workload that required



them to move around and lack of free time (Alla & Ajibua 2012).

Most of previous studies reported moderate to strong positive correlation between physical activity and health-related quality of life among apparently healthy adults (Daskapan et al. 2005; Riise et al. 2003; Vuillemin et al. 2005). Study done by Tessier et al. 2007 also showed increased physical activity was associated with high scores in domains of health-related quality of life in adult populations over 3 years. Result from study on 175,850 adults showed that recommended physical activity level was associated with better overall health-related quality of life (Brown et al. 2003).

Present study showed very weak correlation between physical activity and the domains of health-related quality of life. This study was contradictory to most of previous studies and it might be due to the methodological differences in term of sample size, sampling method and response bias. However, this study was similar to the finding reported by Ashley et al. (2001) showed that physical activity does not improve health-related quality of life in general populations. Increased in physical activity at workplace does not result in better quality of life might caused by persistent fatigue and chronic changes due to repetitive high intensity workload (Ruzic et al. 2003).

Some researchers suggest that the benefits of physical activity on HRQoL may depend on the presence of chronic disease or chronic medical conditions (Kritz-Silverstein et al. 2001; Steward et al. 1994). However, in this study we did not obtain health status. Hence, we could not control this factor during statistical analysis. This might be the reasons why this study showed weak correlation between physical activity and the health related quality of life among staffs.

The current study had several limitations. First, the relatively small sample size for a cross sectional study. Second, the health conditions of the participants were not reported. Health condition will determined the physical activities of individuals. Cross-sectional study was using as sampling method in this study. This method does not determine the cause and effect of relationship. It is possible that people who are physically active have better HRQoL and people with better HRQoL will engage more in physical activity.

## CONCLUSION

In summary, majority of the non-academic staff of FSK, UKM have high physical activity level. Besides, Physical activity score on support staffs was significantly higher than management and professional staffs. However, this study showed weak correlation between physical activity and the domains of health related quality of life among non-academic staffs of FSK, UKM.

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