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PRACTICING OF PHYSICAL EXERCISE AMONG ACADEMIC STAFFS IN FACULTY OF MEDICINE: IS IT VARIES WITH SOCIO-DEMOGRAPHIC CHARACTERISTICS?

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Abstract

Healthy lifestyle and regular physical exercise are well documented preventive factors of several chronic diseases. As the frontline of health care services, medical practitioners should be among the healthiest members of the community. Unfortunately most of the physicians have routinely neglected their own health in favor of their profession and personal obligations. Hence, the stress due to increased workloads and long working shifts may adversely affect the habit of engagement in physical exercise. To evaluate the adequacy of physical exercise performance and to identify the barrier in performing physical exercise among medical staffs A cross sectional study was conducted among the academic staffs of Faculty of Medicine UiTM. Each participant was given structured questionnaire to be answered. The questionnaire consists of 1) socio-demographic and medical details and 2) practice of exercise. A total of 155 participants enrolled. More than half of them were performing exercise. Jogging was the most performed exercise followed by body stretching and cycling. Tiredness, time constraint and work commitment were identified as important barrier in performing exercise. Ethnicity was significantly associated with practice of exercise ($\chi^2=4.101$, OR: 0.285, 95%CI 0.79-1.02). Clinicality of academic staffs was also associated with adequacy of exercise ($\chi^2=3.861$, OR: 2.567, 95% CI: 0.99-6.68). Despite living in medical line, lecturers of Faculty of Medicine UiTM practice exercise.

Keywords

Practice of Exercise, Barriers, Adequacy, and Type of Exercise

1. Introduction

Regular exercise and physical activity is very important to maintain the physical and mental health in individual. "Physical activity" and "exercise" are terms that describe different concepts. However, they are often confused with one another, and the terms are sometimes used interchangeably. Hence, it is important to differentiate between the action of physical activity

and exercise. Physical activity is defined as any body movement due to the contraction of skeletal muscle that increases energy expenditure above a basal level while exercise is a form of physical activity that is planned, structured, repetitive, and performed with the goal of improving health or maintenance of one or more components of physical fitness (Caspersen CJ, 1985).

Two factors that contribute to physical fitness: one related to health and the other related to skills that are relevant more to athletic ability. The health-related components of physical fitness are five including cardiorespiratory endurance, muscular endurance, muscular strength, body composition, and flexibility. The health related components are more important to public health compared to the components related to athletic ability (Pate, 1983).

Engagement in regular practice of physical exercise plays an important role to achieve health benefits and maintain the healthy lifestyle. The 2008 Ministry of Health recommends that healthy adults should get a minimum minutes per week as 150 of moderate-intensity or 75 as vigorous-intensity aerobic exercise, or a combination of the two (two days doing 20 - 25 minutes of vigorous exercise and two days doing 30 minutes of moderate exercise).

Study done previously stated that regular physical exercise able to reduce the risk of range of diseases including non-communicable and malignancy related disease: cardiovascular disease, type 2 diabetes mellitus (T2DM), hypertension, obesity, as well as cancer (Sabina Macovei, 2014). People who do regular physical exercises have a lower risk of up to; 50% type 2DM, 50% colon cancer, 35% coronary heart disease and stroke, 20% breast cancer a 30% early death, 83% osteoarthritis, 30% depression, 30% dementia. In spite of many evidences that had proven the link between physical exercise and health, only about 30 % of adult Americans reported they got regular physical exercise and about 40 % got no physical exercise at all while 63% of Canadians were not sufficiently got physical exercise (Lindsay R Duncan, 2010). In addition, World Health Organization (WHO) predicted that the prevalence of physical inactivity among adult (80%) population of Saudi Arabia was the highest in comparison to youth (71%) and children (57%) (Altaf H Banday, 2014).

It is assumed that medical practitioners should be among the healthiest members of the community as they have the privilege and responsibility of taking a frontline role in providing health promotion. Unfortunately most of the physicians have routinely neglected their own health in favor of their profession and personal obligations. Medical practitioners were proven not consistently meeting the recommended guidelines for physical activity. The prevalence of

physical inactivity among physicians in recent study in Saudi Arabia was 34.8% which is two times lower as compared to general adult population (Altaf H Banday, 2014). Previous survey of Japanese Physicians revealed that 59.9% of male physicians and 72.6% female physicians not performing recommended physical exercise over the past one year (K Wada, 2011). In aspect of sufficiency of physical exercise performance, Canadian physicians reportedly exercise of average 225 minutes per week (Tyzuk, 2012). Many contributing factors lead to physical inactivity among medical practitioners nowadays. Therefore, by the evidence of insufficient exercise performance among medical practitioners, the current study was designed to assess the adequacy of physical exercise performance and to identify the barrier in performing physical exercise among physicians employed in Faculty of Medicine, UiTM.

2. Methodology

A pilot study was carried out prior to embarking on the main project for testing the validity and reliability of the questionnaire. A cross sectional study was conducted among academic staffs of Faculty of Medicine University Technology MARA from both Sungai Bulow and selayang campuses. This study was performed for a period of 9 months from January 2015 till September 2015. Ethical approval was obtained from the Faculty of Medicine, UiTM. The estimated sample size was 227 participants, taking into account 10-20% as a defaulter rate the total sample size will be 250. However, the total number of academic staffs in Faculty of Medicine, UiTM was 230 persons and we have to exclude 10 academic staffs from this study as they are either supervisors (2 persons) or ethics committee members (8 persons). Thus, the total sample size will be 220 respondents. Therefore, well-structured validated questionnaires were distributed to 220 eligible academic staffs to be completed by themselves. Formal consent was obtained from each participant. In addition, all participants were ensured that their information were confidential, the questionnaire was anonymous. The questionnaire consists of two parts; first part related to socio-demographic characteristics (age, gender, race, nationality, weight and height to calculate BMI) and medical status (presence and type of chronic disease). The second part consists of two domains. One domain related to physical exercise; practicing; type; sufficiency of physical exercise. The other domain reflected the barrier for those not performing exercise. Physical exercise sufficiency was measured as product of duration of session performance and frequency of session per week. Based on the 2008 Ministry of Health

Guidelines, the respondents be categorised as sufficiently practising exercise when the duration is 150 minutes per week or more and insufficiently if it is less than 150 minutes/week. For those who were not practicing exercise, ten options as barriers were listed which includes: health problem, family commitment, already have an ideal body, older age, work commitment, tiredness and laziness, financial problem and no place to exercise.

The collected data was analysed by using SPSS 22.0. Descriptive statistics (frequency, percentage, and means) was calculated. Chi-square test was done to assess analytical statistical association between socio-demographic factors and practise and engagement on physical exercise and using $p < 0.05$ as the significant level. We have categorized most of the sociodemographic profiles as well as medical background information into two groups ; age (25-44, 45-72), race (Malay, non-Malay), education discipline (MD or non-MD), department of medical field (preclinical and clinical) and BMI (underweight/normal, overweight/obese).

3. Result

Of the 220 questionnaires distributed, 155 medical academic staffs responded (70.5% response rate). The socio-demographic profiles of the total 155 participants are shown in Table 1. The majority of the respondents were Malay (87.7%), married (70.3%) and (80.0%) having no known medical illness.

More than two-third (71.6%) of the participants were females. According to department of medical field, (69.0%) of participants were teaching in clinical years while 31% were in pre-clinical years. The respondents' mean age was 36.1(± 9.07) years (range 25-72 years). The mean BMI for all participants was 24.80 (± 4.80) kg/m² ranges from 15.61 to 41.8 kg/m².

Our study revealed that less than two-third of respondents, 98(63.2%) were performing physical exercise while 57(36.8%) were not engaging to physical exercise at all.

Regarding engagement of physical exercise, respondents aged above 45 years old accounted for 81% in compared to those below 45 years old (60.4%). Male (70.5%) had more practice compared to female (60.4%). Significantly, higher performance in physical exercise detected among non-Malay (84.2%) compared to Malay (60.3) ($\chi^2=4.101$, $p<0.05$). As for marital status, single respondents (73.9%) had performed more physical exercise compared to married respondent (58.7%). Clinical lecturers (66.4%) had more good practice of exercise compared to preclinical lecturers (56.2%). Those who were having medical illness tend to

practice more exercise (64.5%) than those who have no medical illness (62.9%). There is difference between underweight/normal (65.6%) and overweight/obese (60.0%). However, there were no significant difference between age, gender, marital status, medical cluster, medical illness and BMI and practice.

Of all 63.2% respondents were performing physical exercise, only 26.5% were performing exercise sufficiently. Table 2 shows the relationship of socio-demographic characteristics with adequacy in practising exercise. It was classified into two whether one having sufficient practice of exercise or insufficient practice in exercise.

Results show that respondents aged more than 45 years old (29.4%), male (35.5%) had more adequate practice of exercise compared to those less than 45 years old (25.9%) and (22.4%) respectively. Non-Malay (50.0%) showed significantly higher adequacy in practising exercise compared to Malay (22.0%) ($\chi^2=5.404$, $p<0.05$). Single/divorced respondents (32.4%) had more sufficient practice of exercise compared to married respondent (23.4%). Interestingly, preclinical lecturers (40.7%) had more significant adequate practice of exercise compared to clinical lecturers (21.1%) ($\chi^2=3.861$, $p<0.05$). Those who were having medical illness tend to practice good exercise (35.0%) than those who have no medical illness (24.4%). For BMI, overweight/obese (30.8%) had more adequate physical exercise than underweight/normal respondents (23.7%).

In respect to type of physical exercise, the respondents were given the list of type of exercise including: muscle lifting, aerobic dance, body stretching, jogging, yoga and tai chi swimming and cycling. Of the total 98 respondents which performed exercise, the highest percentage of exercise practice was jogging (59.2%) followed by body stretching (33.7%) and cycling (23.5%) while the lowest practice exercise were yoga and tai chi (9.2%).

Regarding the barriers not practising exercise, we found that tiredness (73.7%) is the topmost reason preventing respondents to perform physical exercise, followed by lacking of time (66.7%) and work commitment (63.2%) respectively.

Table 1: Relationship of socio-demographic and performance of physical exercise

| Socio-demographic characteristics: | | Practice Engagement | | | Chi-square | P value | Odd ratio (95% CI) |
|------------------------------------|---------------------|---------------------|----------|----------|------------|---------|--------------------|
| | | Total | Yes N(%) | No N(%) | | | |
| Age | <45 | 134 (86.5) | 81(60.4) | 53(39.6) | 3.283 | 0.076 | 0.360 |
| | ≥45 | 21(13.5) | 17(81.0) | 4(19.0) | | | |
| Gender | Male | 44(28.4) | 31(70.5) | 13(29.5) | 1.381 | 0.240 | 1.566 |
| | Female | 111 (71.6) | 67(60.4) | 44(39.6) | | | |
| Race | Malay | 136 (87.7) | 82(60.3) | 54(39.7) | 4.101 | 0.043 | 0.285 |
| | Non Malay | 19(12.3) | 16(84.2) | 3(15.8) | | | |
| Marital status | Single / divorced | 46(29.7) | 34(73.9) | 12(26.1) | 3.213 | 0.073 | 0.502 |
| | Married | 109 (70.3) | 64(58.7) | 45(41.3) | | | |
| Clinicality | Preclinical | 48(31.0) | 27(56.2) | 21(43.8) | 1.455 | 0.228 | 1.534 |
| | Clinical | 107 (69.0) | 71(66.4) | 36(33.6) | | | |
| Medical illness | Yes | 31(20.0) | 20(64.5) | 11(35.5) | 0.028 | 0.868 | 1.072 |
| | No | 124 (80.0) | 78(62.9) | 46(37.1) | | | |
| BMI | Underweight/ Normal | 90 (58.1) | 59(65.6) | 31(34.4) | 0.501 | 0.479 | 0.788 |
| | Overweight/ Obese | 65 (41.9) | 39(60.0) | 26(40.0) | | | |

Table 2: Relationship of socio-demographic and adequacy practice of physical exercise

| Socio-demographic characteristics: | | Practice Adequacy | | | Chi-square | P value | Odd Ratio (95% CI) |
|------------------------------------|-----|-------------------|----------|----------|------------|---------|--------------------|
| | | Total | Yes N(%) | No N(%) | | | |
| Age | <45 | 81 (82.7) | 21(25.9) | 60(74.1) | 0.088 | 0.767 | 1.190 |

| | | | | | | | |
|--------|--------|--------------|----------|----------|-------|-------|-------|
| | ≥45 | 17 (17.3) | 5(29.4) | 12(70.6) | | | |
| Gender | Male | 31 (31.6) | 11(35.5) | 20(64.5) | 1.865 | 0.172 | 1.907 |
| | Female | 67 (68.4) | 15(22.4) | 52(77.6) | | | |

| | | | | | | | |
|-----------------|------------------------|--------------|----------|----------|-------|-------|-------|
| Race | Malay | 82 (83.7) | 18(22.0) | 64(78.0) | 5.404 | 0.020 | 3.556 |
| | Non Malay | 16 (16.3) | 8(50.0) | 8(50.0) | | | |
| Marital status | Single / divorced | 34 (34.7) | 11(32.4) | 23(67.6) | 0.905 | 0.341 | 1.562 |
| | Married | 64 (65.3) | 15(23.4) | 49(76.6) | | | |
| Clinicality | Preclinical | 27 (27.6) | 11(40.7) | 16(59.3) | 3.861 | 0.049 | 2.567 |
| | Clinical | 71 (72.4) | 15(21.1) | 56(78.9) | | | |
| Medical illness | Yes | 20 (20.4) | 7(35.0) | 13(65.0) | 0.925 | 0.336 | 0.598 |
| | No | 78 (79.6) | 19(24.4) | 59(75.6) | | | |
| BMI | Underweight/ Normal | 59 (60.2) | 14(23.7) | 45(76.3) | 0.597 | 0.440 | 0.700 |
| | Overweight/ Obese | 39 (39.8) | 12(30.8) | 27(69.2) | | | |

4. Discussion

Our study found that, more than half (63.2%) of respondents were practicing exercise. In contrast to other study, reported that almost all surveyed physicians were doing regular exercise (Altaf H Bandy, 2014). In aspect of adequacy of exercise, of all 63.2 % respondents, only 26.5% were performing exercise sufficiently. This finding supported the result of previous study done among the staffs of the International Institute of Tropical Agriculture in Nigeria (Adeleke, Abioye-Kuteyi, & Sikuade, 2012).

The difference in gender shows no significant association in determining the practice of regular physical exercise. The practice of physical exercise was more among male (70.5%) as compared to female (60.4%). This is comparable to the result of other study which found that 54.9% of female doctors do not practice exercise regularly (Richards, 1999). A recent study stated that lesser proportion of women indulged in physical activity compared to men (Tanu, Rajesh, Sneha, Meena, & Ingle, 2012). However, female physicians (42.9%) to be more active in performing physical exercise than male (40.2%) (Altaf H Bandy, 2014). Best explanation for such result is due to nature of a man like to build up muscle to appear more fit and confidently. In addition, this finding also most probably be explained that male facing less barrier to practice exercise than female.

According to 2008 National Health and Nutrition Survey in Japan, the percentage of individuals who reported exercising at least once a week increased with increasing age, peaking in the 60s in men and 50s in women. Similarly, our study found that older individuals were more likely to be physically active than younger individuals. However, in contrary to the study done stated that older people perform less regular physical exercise compared to younger population (Ruth Sullivan, 2011). However, it is possible that advancing age could be one of the motivating factors to perform regular physical exercise in order to maintain healthy lifestyle. This is probably due to elderly population is often associated with higher prevalence of chronic diseases which make them more alert to their health. In addition, similarly the relationship between medical and BMI status and physical exercise was positively associated whereby those who have known medical illness (64.5%) are more likely to engage in regular physical activity than those who have no known medical illness (62.9%). As for BMI status, normal/underweight respondents have higher level of practice than obese/overweight group, in which contradicting

the other researcher, reported that overweight respondents tend to practice more exercise (Adeleke et al., 2012).

The influence of ethnicity variation in our study is remarkable. Non-Malays were notably more active than Malays. However, this is opposing other study reported that the level of physical activity was not correlated with ethnicity (S P Dan, 2007). Cultural difference could be one of the contributing factors that may lead to the difference of performance of physical activity in ethnicity.

Marital status is associated with physical activity, as single respondents more likely to be physically active as compared to married respondents, in consistent with the findings of several studies (MD., 2010). A study was conducted among adults in England, which found that single adults have higher likelihood to participate in sports than married individuals (MD., 2010). In concordance with such findings was also reported that single women were more likely to participate and also spent more time in physical activity. Single individuals may have more leisure time to engage in physical activity as they do not carry the responsibilities to look after their children and spouse.

To our knowledge, this is the first report to compare the department of medical field in an academic institutional setting. The differences of department of medical field contribute to varieties in practical of physical exercise. There is significant difference in physical activity between preclinical and clinical physicians. Interestingly, the result showed that clinical respondents more likely to perform regular exercise than preclinical respondents. Although, higher physical exercise performance among clinical individuals, preclinical individuals were found to exercise adequately as they meet the recommended 2008 Guideline of Ministry of Health Malaysia. In consistent with previous study which suggested that involvement in physical activity was significantly associated with job characteristics, provided that different job characteristics of workers may face a different level of stress associated with the job, which, in turn, affects the workers' physical activity level (MD., 2010). The possible explanation is that clinical individuals have higher workloads and job stress than preclinical individuals in order to balance up between the needs of patients as well as students.

In relation to barrier not performing exercise, we can classify together the three highest reasons including tiredness, lacking of time and work commitment into one same category. As we know, the medical practices demand higher commitment particularly in working hours as

compared to the other line of job. It was common problem when medical staff feeling tired and exhausted after work hour especially during on-call hours. Tiredness and lack of energy will mostly prevent them from doing high energy requirement activity such as exercise. In addition, family commitment was also one of the most popular barriers from doing exercise and as we mentioned earlier, due to time limitation, medical practitioner usually prefer to spend time with their family on their free time.

Nevertheless, there are several limitations that need to be addressed. First, our participants were from a single medical institutional; therefore, it is not possible to generalize the conclusions for medical academic employees across the whole of Malaysia's institution. Hence, the design for further study can expand to include more institutions. Second, this study was conducted with a cross-sectional design; therefore, the limitation of weak causal inference is inherent. However, this study is the first study to investigate the variation of socio-demographic characteristics with practicing physical exercise among academic staffs in faculty of medicine in which considered to be the strength of this study.

5. Conclusion

From present study we conclude that majority of the physicians surveyed were practicing physical exercise. Those who are non-Malays, young, single, normal BMI status and have known medical illness engage more in regular physical exercise. However, only minority of them were practicing exercise adequately as tiredness, lacking of time and work commitment are the most three common barriers towards exercise. Overall, there is a need to emphasize and focus on adequacy of exercise in order to achieve health benefits. All physicians should have their own health and fitness instructor, who can provide regular, continual and effective healthcare to the physicians themselves.

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