International Journal of Advanced Biotechnology and Research (IJBR)
ISSN 0976-2612, Online ISSN 2278–599X,
Vol-9, Issue-1, 2018, pp683-688
http://www.bipublication.com

Research Article

To Assess the Physical Activity Pattern among Medical Students With Reference To Who Criteria

[1]Mehwish Zulifqar, [2]Hafiz Habib Ur Rehman Khalil,

and [3]MuhammadAhsan UlHaq

[1]WMO RHC Changa Manga,,Kasur, Pakistan
[2]MO BHU 30/11L, Chichawatni, Sahiwal, Pakistan
[3]MO THQ Hospital Sahiwal, Sargodha, Pakistan

ABSTRACT

Objective: To assess the physical activity pattern among medical students with reference to WHO criteria
Material & Methods: This cross-sectional study was under-taken in Islamabad Medical and Dental College over a period of six months from April 2014 to September 2014. We took data from students of 4th year MBBS through questionnaires made according to the subject of our study. There were total of around 100 students, out of which 79 students responded. Data was analyzed and summarized using SPSS version 19.00.
Results: There was total number of 79 people, out of which 24(30.4%) were males and 55(69.6%) were females. The physical activity of 68(86.1%) people was not according to WHO criteria whereas that of 11(13.9%) people was according to the WHO criteria. In our study group, the BMI of 7(8.9%) was underweight, 64(81%) were normal, 6(7.6%) were overweight and 2.25% were obese.
Conclusion: There is very few students doing physical and muscle strengthening activities according to WHO criteria.

Keywords: Physical activity, Muscle strengthening exercise,WHO, BMI.

INTRODUCTION

Physical activity (PA) and muscle strengthening activities are important parameters of body fitness. Physical activity (moderate and vigorous) of specified durations and in combination with muscle strengthening activities has effect on the BMI of people [1]. Exercise is classified into three different intensity levels. These intensity levels are: low, moderate, and vigorous and are measured by the metabolic equivalent (METs)[2]. The physical activity is generally expressed as METs which is multiple of resting metabolic rate (RMR), higher is physical activity more would be METs [3]. Medical students have more knowledge about relationship of physical activity and body mass index and its associated side effects. In academic environment of college, students exert less physical activity and they do not meet the guideline of World Health Organization for physical activity. Medical students have sedentary life style and bad dietary habits and they do not translate their knowledge in practical way [4].

Higher Body Mass Index (BMI) is associated with risk factors such as coronary artery diseases, high blood pressure, type 2 diabetes, sleep apnea, stroke, Gallstones and cancers etc [5]. Physical activity and Body mass index have inverse relation [6]. In Spain a study was conducted with the objective of assessment of their compliance with the physical activity with the recommendation of world health organization (WHO) and 2.5% were obese. In Spain almost eighty four percent of independent areas made recommendations on aerobic physical activity and thirty seven percent made recommendation exercise [7]. Behavioral risk factor surveillance system point that aerobic physical activity is important for United States (U.S) and data for prevalence of aerobic

physical activity as they have established programs to increase physical activity participation. In all United States (US) a large number of U.S young individuals met minimum aerobic criteria according to guideline of 2008 [8].

At obesity unit, Department of medicine, Karolinska Hospital, Sweden, a study was conducted to find out the association of Body Mass Index and physical activity and this study showed aninverse relation of physical activity and BMI. Though, there is week association of physical activity and BMI in non-obese individuals [9].

On the other hand, there is highly association of physical activity and obese individuals. At Dow Medical college of Karachi a study was conducted that showed a high prevalence of risk factors of blood pressure, body mass index and CVS risks in medical students [10].At California State University, Chico, a study was conducted to find out the accuracy of self-reported weight and role of BMI, gender, weight satisfaction, weight behavior and physical activity among rural college students. Height and weight of students were measured and questionnaire about physical activity and BMI were filled. The outcome of the study was that there is association of physical activity and BMI [11].

The objective of this study to know the Physical activity pattern among medical students and its associated risk factors according to WHO criteria.

OBJECTIVES

1) To assess physical activity pattern of medical students.

2) To assess whether physical activity pattern is according to WHO criteria or not?

3) To study BMI in relation to physical activity

METHODOLOGY

Operational Definitions

Vigorous-Intensity Aerobic Activity: It means that one should have fast breathing and his heart rate has gone up bit high. He is not able to utter more than few words without holding his breath.

Moderate-Intensity Aerobic Activity: It means that one should work out enough to increase heart beat level and sweating. And he can only talk but cannot sing a song.

Muscle Strengthening Activity: it includes working of all major muscle groups i.e. arms, shoulders, legs, chest, abdomen and back.

MATERIAL METHODS

Setting: Islamabad medical and dental college

Duration: 6 months (April to September 2014)

Sample size: 79 people responded out of class of 100 students.

Sampling technique: Consecutive.

Inclusion criteria: Medical students aging between 20 to 24 years.

Exclusion criteria: Non-medical, age less than 20 or more than 24 years.

Study design: Cross-sectional

Data collection procedure: Every student of the batch individually took the data from 8 students of 4th year MBBS through questionnaires made according to the subject of our study. There were total of around 100 students, out of which 79 students responded.

Data analysis plan: SPSS version 19

RESULTS:Table-1:

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
age in years	79	20	24	21.86	.747
Valid N (listwise)	79				

Group of people in our study design aged ranges between 20 to 24 years.

Table-2:

gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	24	30.4	30.4	30.4
	female	55	69.6	69.6	100.0
	Total	79	100.0	100.0	

Study was conducted on both males and females. There were 30.4 % males and 69.6% females

Table-3:

do you do moderate activity?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	32	40.5	40.5	40.5
	yes	47	59.5	59.5	100.0
	Total	79	100.0	100.0	

In our study group, 40.5% people don't do moderate-intensity aerobic activity, whereas 59.5% people do it.

Table-4:

do you do vigorous activity?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	60	75.9	75.9	75.9
	yes	19	24.1	24.1	100.0
	Total	79	100.0	100.0	

In our study group, 75.9% people don't do vigorous-intensity aerobic activity, whereas 24.1% people doit.

Table-5:

do you do muscle strengthening exercise?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	59	74.7	74.7	74.7
	yes	20	25.3	25.3	100.0
	Total	79	100.0	100.0	

In our study group, 74.7% people don't do muscle strengthening exercise whereas 25.3% people do it.

Table-6:

is physical activity according to WHO criteria?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	68	86.1	86.1	86.1
	yes	11	13.9	13.9	100.0
	Total	79	100.0	100.0	

In our study group, the physical activity of 13.9% people is according to WHO criteria, whereas it is not according to WHO criteria of 86.1% people.

Fig-1:

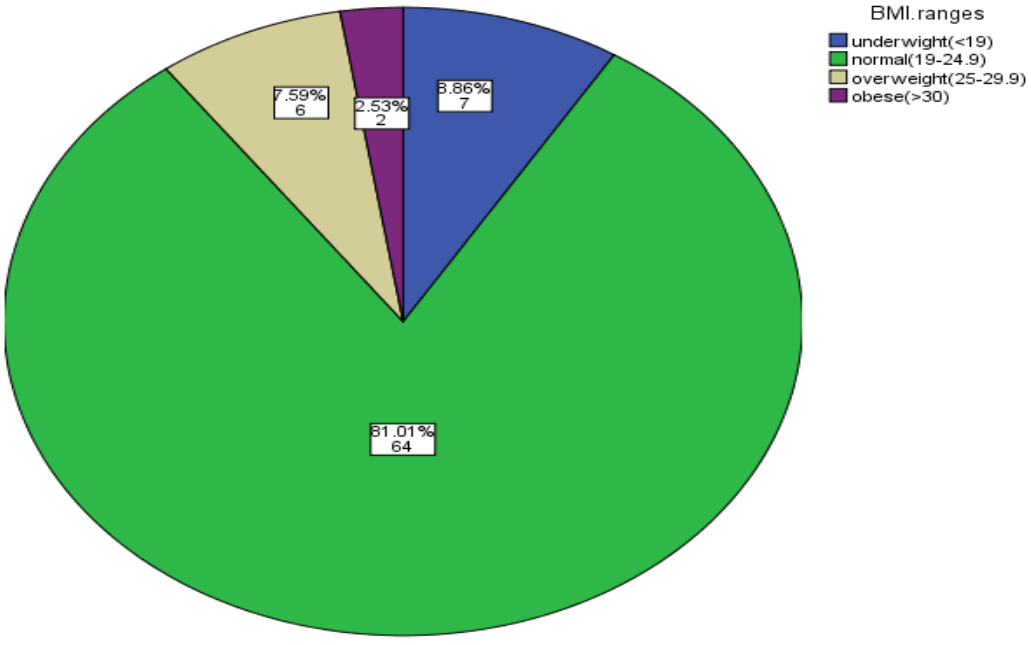

Fig.1. The distribution of the population lying in different ranges of the BMI. 81.01% were normal, 8.86% were underweight, 7.59% were overweight and 2.53% were obese according to the WHO criteria.

DISCUSSION

Physical Activity is necessary to maintain the bodily fitness and a healthy and prosperous life. For physical activity skeletal muscles strengthening exercises are done with the expenditure of energy. Physical inactivity has become the leading cause of mortality in the whole world [12]. There are 3 levels of physical activities according to WHO criteria including: simple physical activities, moderate physical activities and vigorous physical activities [2].

Simple physical activities are walking, climbing stairs, playing soccer, dancing, and pushing baby racks etc. Moderate physical activities include: walking briskly (three and half per hour), water aerobics, bicycling less than ten mils per hour and canoeing etc. Vigorous physical activities are running at least five miles per hour, sports (tennis, cricket and basketball), swimming, bicycling more than ten miles per hour. Moderate and vigorous activities meet the needs of physical fitness [2, 13].

Global Recommendations on physical activity for health divided age groups in to three, these are 1) five to seventeen years old 2) eighteen to sixty four years old 3) above sixty five years old. Our study is on medical students aged 20 to 24 years old. Age eighteen to sixty four should perform moderate activity of at least one hour and fifty minutes all over the week or should do vigorously activities of at least seventy five minutes all over the week or perform combination of both activities. For more benefits foe health individuals should increase in timing hours [14].

There are different effects of three levels of physical activities; low, moderate and vigorous. Healthy life style based on age, height, weight, and activity levels. Physical activity and BMI has inverse relation .higher BMI has risk factors such as cardiovascular complications (arteriosclerosis, hypertension, myocardial infarction deep vein thrombosis and pulmonary embolism), vertebral fractures, type 2 diabetes, breast and colonic cancers etc [15]. Some studies shows that thirty to sixty minutes moderate and vigorous activities are required to decrease risks of these cancers [16]. Exercise is important to prevent higher morbidities and mortalities [15].

People in urban areas are likely to have high prevalence of physical inactivity than rural areas because in urban areas people have to sit in offices for longer time period [17]. Women have higher prevalence than men [18]. Some studies shown that higher BMI is linked with gall stones, kidney stones and pancreatitis [5]. Individuals with age 65 or above who are more active have lower rates of morbidities and mortalities as compared to less active [19].

A study was also conducted to know the effects of fat deposition and sleep disorders (insomnia and sleep apnea) and the outcome of this study was that the effects of 6 months of moderate to vigorous exercise have significantly reduces the risk of sleep disorders [20]. Exercise also cause the reduction in psychotic disorders. Obesity is also genetically associated morbidity [21].

Our study was held on medical students of 4th year MBBS aging between 20 to 24 years including both males (30.4%) and females (69.6%). The number of students who do physical activity according to WHO criteria (13.9%) was less than those who don't do it according to the WHO criteria (86.1%) which is similar to the study held in Iceland in which 1 of 4 men and 1 of 5 women not participated in normal physical activity. The result of the study was that more than half of adults in Iceland are overweight than those who perform five days per week work out[22].

In our study, the physical activity was studied in association with BMI categorized as underweight(8.9%), normal(81%), overweight(7.2%) and obese(2%) which is similar to a study held in Manipal, India according to which majority of students had normal body mass index BMI(69%), 21% were overweight, while 3% were obese [23]. Another study held in Malaysia which also suggests the same [24]. Other studies also show that the adults who do not meet the aerobic and muscle movements' activity guidelines cannot achieve physical fitness, muscle fitness, BMI and combination of these three [1].

An increase in aerobic activity levels and days was related to improvement of fitness zone. Medical students' physical activity was satisfactory but most of students did not meet the WHO criteria. Medical students need to improve in their own habits because they well educated and well trained to promote health habits. Many studies were conducted in Lebanese that showed that only few percentage of students were engaged in physical activity [25]. A study held in china with the outcome is that only one third of Chinese were physically inactive [26].

We know that there is high burden of studies on medical students, they should spare time for their health to do proper work out by muscle strengthening exercises, walk, running, competitive cycling, swimming etc. Medical students should translate their knowledge into proper way and should have physical fitness [27].

LIMITATIONS:

Limitations of our study are:

- It is confined only to the medical students of a specific age group.
- It is held only on people aging between 20 to 24 years.
- Study group was limited.
- Sufficient financial and human resources were demanded by the study.

REFERENCES

1. Kohl III HW, Cook HD. Physical Activity and Physical Education: Relationship to Growth, Development, and Health. 2013.
2. Elmahgoub SS, Calders P, Lambers S, Stegen SM, Van Laethem C, Cambier DC. The effect of combined exercise training in adolescents who are overweight or obese with intellectual disability: the role of training frequency. J Strength Cond Res. 2011;25(8):2274-82.
3. Hills AP, Mokhtar N, Byrne NM. Assessment of physical activity and energy expenditure: an overview of objective measures. Front Nutr. 2014;1.
4. Wattanapisit A, Fungthongcharoen K, Saengow U, Vijitpongjinda S. Physical activity among medical students in Southern Thailand: a mixed methods study. BMJ. 2016;6(9):e013479.
5. Pi-Sunyer X. The medical risks of obesity. Postgrad Med J. 2009;121(6):21-33.
6. Rauner A, Mess F, Woll A. The relationship between physical activity, physical fitness and overweight in adolescents: a systematic review of studies published in or after 2000. BMC Pediatr. 2013;13(1):19.
7. Chodzko-Zajko WJ, Schwingel A, Romo-Pérez V. A critical analysis of physical activity recommendations in Spain. Gac Sanit. 2012;26(6):525-33.
8. Song M, Carroll DD, Fulton JE. Meeting the 2008 physical activity guidelines for Americans among US youth. Am J Prev Med. 2013;44(3):216-22.
9. Hemmingsson E, Ekelund U. Is the association between physical activity and body mass index obesity dependent? Int J Obes. 2007;31(4):663.
10. Raza S, Sheikh MA, Hussain M, Siddiqui SE, Muhammad R, Aziz S, et al. Dietary modification, body mass index (BMI), blood pressure (BP) and cardiovascular risk in medical students of a government medical college of Karachi. J Pak Med Assoc. 2010;60(11):970-4.
11. Gunnare NA, Silliman K, Morris MN. Accuracy of self-reported weight and role of gender, body mass index, weight satisfaction, weighing behavior, and physical activity among rural college students. Body Image. 2013;10(3):406-10.
12. Kohl HW, Craig CL, Lambert EV, Inoue S, Alkandari JR, Leetongin G, et al. The pandemic of physical inactivity: global action for public health. Lancet. 2012;380(9838):294-305.
13. Rennie KL, Hemingway H, Kumari M, Brunner E, Malik M, Marmot M. Effects of moderate and vigorous physical activity on heart rate variability in a British study of civil servants. Am J Epidemiol. 2003;158(2):135-43.
14. Organization WH. Global recommendations on physical activity for health. 2010.

15. Booth FW, Roberts CK, Laye MJ. Lack of exercise is a major cause of chronic diseases. Compr Physiol. 2012.
16. Kushi LH, Byers T, Doyle C, Bandera EV, McCullough M, Gansler T, et al. American Cancer Society Guidelines on Nutrition and Physical Activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity. CA Cancer J Clin. 2006;56(5):254-81.
17. Lopez RP, Hynes HP. Obesity, physical activity, and the urban environment: public health research needs. Environ Health. 2006;5(1):25.
18. Monteiro CA, Conde WL, Matsudo SM, Matsudo VR, Bonseñor IM, Lotufo PA. A descriptive epidemiology of leisure-time physical activity in Brazil, 1996-1997. Rev PanamSaludPublica. 2003;14(4):246-54.
19. Watson KB. Physical inactivity among adults aged 50 years and older—United States, 2014. Morb Mortal Wkly Rep. 2016;65.
20. Passos GS, Poyares D, Santana MG, D'Aurea CVR, Youngstedt SD, Tufik S, et al. Effects of moderate aerobic exercise training on chronic primary insomnia. Sleep Med. 2011;12(10):1018-27.
21. Engh JA, Andersen E, Holmen TL, Martinsen EW, Mordal J, Morken G, et al. Effects of high-intensity aerobic exercise on psychotic symptoms and neurocognition in outpatients with schizophrenia: study protocol for a randomized controlled trial. Trials. 2015;16(1):557.
22. Guðmundsdóttir S, Oskarsdottir D, Franzson L, Indriðason O, Sigurðsson G. The relationship between physical activity, body mass index, body composition and grip strength in an Icelandic population. Laeknabladid. 2004;90(6):479-86.
23. Rao CR, Darshan B, Das N, Rajan V, Bhogun M, Gupta A. Practice of physical activity among future doctors: A cross sectional analysis. Int J Prev Med. 2012;3(5):365.
24. Boo N, Chia G, Wong L, Chew R, Chong W, Loo R. The prevalence of obesity among clinical students in a Malaysian medical school. Singapore Med J. 2010;51(2):126.
25. Musharrafieh U, Tamim HM, Rahi AC, El-Hajj MA, Al-Sahab B, El-Asmar K, et al. Determinants of university students physical exercise: a study from Lebanon. Int J Public Health. 2008;53(4):208-13.
26. Abdullah A, Wong C, Yam H, Fielding R. Factors related to non-participation in physical activity among the students in Hong Kong. Int J Sports Med. 2005;26(07):611-5.
27. Sajwani RA, Shoukat S, Raza R, Shiekh MM, Rashid Q, Siddique MS, et al. Knowledge and practice of healthy lifestyle and dietary habits in medical and non-medical students of Karachi, Pakistan. J Pak Med Assoc. 2009;59(9):650.