

Level of and Perceived Barriers to Physical Activity in a Sample of College Sophomores

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Abstract: The purpose of this study was to identify the level of participation and the barriers in engaging in physical activities among college sophomores. A total of 235 respondents (n=235) participated in this study and answered the International Physical Activity Questionnaire (IPAQ) to identify the level of participation and the Questionnaire for Physical Activity Barriers to assess the internal and external barriers to physical activity participation. Findings revealed that participants who do physical activity for 3 days and accumulating at least 1500 MET-minutes per week or 7 or more days of any combination of walking, moderate or vigorous intensity activities accumulating at least 3000 MET- minutes /week were classified as highly active. Other participants were categorized as moderately active and low active/inactive. Overall findings of the present study identified that lack of time was the most significant barriers for not participating in physical activity among the samples.

1 INTRODUCTION

Involving oneself in physical activities is indispensable to be healthy and away from illness. Yet, students are spending time being sedentary due to rapid technological advancement of the present times. This is evident through the playing of computer games, social media and the likes rather than taking part in physical activities. Participation in regular physical activity remains an important behaviour for promoting health. (Daskapan et al., 2006). There are many factors or barriers that affect participation in physical activity. These included the demographic variables, knowledge, attitudes and beliefs about physical activity (Dishman, 1994). The period of adolescence represents the transition from childhood to adulthood and lifetime habits such as regular exercise are normally begun at this time (Andersen et.al, 1993). But unfortunately research indicated that physical activity rates decline consistently during the adolescent years (Kann et al., 2000).

According to the U.S. Center for Disease, Control and Prevention, Control and Prevention, regular physical activity at least sixty minutes daily builds healthy bones and reduces muscles, improves

muscle strength and endurance, reduces the risk of developing chronic diseases, improves self-esteem, and reduces stress and anxiety among children and adolescents. Middle income countries including the Philippines, Indonesia, Malaysia and Thailand also face the double burden of obesity according to a joint report by the United Nations International Children's Emergency Fund (UNICEF), World Health Organizations (WHO), and Association of Southeast Asean Nations (ASEAN). In an article by the Stanford Wockets Activity Project emphasized that changes in transportation, communication, workplace, domestic and entertainment technologies have been associated with significantly reduced demands for physical activity thus leading to sedentary behaviour.

In the Philippines, physical inactivity is the major factor in the prevalence of obesity. The National Nutrition Survey of the Food and Nutrition Research Institute (FNRI) noted that the number of obese Filipino adults increased by 14.5 percentage points, from 16.6 percent in 1993 to 31.1 percent in 2013. This means that three (3) out of ten (10) Filipino adults are obese. This is very alarming as over nutrition is not only a problem among the rich, but also among the poor. Among 10 to 19 years old, the prevalence increased by 2.5 points, from 5.8

percent in 2003 to 8.3 percent in 2013. In a survey, 93 percent of Filipinos do not engage in leisure-related physical activity and about three-fourth of adults do not engage in non-work physical activity (75.4 percent) and work-related physical activity (76.3 percent). There were studies which were completed that assessed the participation and barriers to physical activity among young people (Brown et al., 2005). However, there is limited data about the physical activity participation and barriers to physical activity participation on college students in the locality. This study analyzed the level of and perceived barriers to physical activity in a samples of college sophomores at private university in Angeles City, Philippines.

2 METHODS

The study was a descriptive research where structured questionnaires were employed to gather data. The values were expressed as mean + standard error (SE). Statistical significance was determined using the Kruskal- Wallis test. All statistical analysis were performed using the Stata 13. A convenience sample of 235 college sophomore students attending physical education classes agreed to participate in this descriptive and correlation study. There were 111 females (47%) and 124 males (53 %) in this study. The samples included many more males than females. Written informed consents were obtained from all the respondents before answering the survey questionnaires. Adopting the International Physical Activity Questionnaire (Sallis and Patrick, 1994), the level of physical activity participation of the respondents was assessed. It is a survey with 7 item questionnaires in which the subject personally answered the questions. To identify the barriers to physical activity participation among the respondents, another set of survey questionnaire by (Daskapan et al., 2006) was used. A 12 test items were rated based on the adopted and modified 4-point Likert-type scale (Kotechi, J.E., et al., 2007).

3 RESULTS AND DISCUSSION

The study included 235 respondents. A total of 133 or 56.60% of the respondents were identified to be low active or inactive. It appeared to be no physical activity or some activity were reported but not enough to meet categories 2 or 3. Though, a good number of 78 respondents or 33.19% were doing 3

more days of vigorous 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-minutes/week and were identified as moderately active.

In general, there were 24 or 10.21% of the respondents were classified as highly active doing 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. In the survey, the rate of physical activity participation of males was higher than males. According to World Health Organization (WHO) in 2008, physical inactivity is the fourth leading risk factor for global mortality, causing 6 percent of all death worldwide (high blood pressure, tobacco use, and high blood sugar are the top three risk factors). This 6 percent translates to approximately 3.2 million people deaths annually and 60 percent of the world's population does not meet the recommended amount of physical activity. The United States Department of Health and Human Services stated the three main types of physical activity: aerobic, muscle-strengthening and bone-strengthening activities. According to World Health Organization (WHO), it is important to be scientifically informed about the recommendations outlined by the FITT (frequency, intensity, type and time) principle as these recommendations are necessary to produce health benefits. Furthermore, the WHO also endorsed the Global Recommendations on Physical Activity for Health which addresses three age-groups 15-17 y/o, 18-64y/o and 65y/o and above. The age groups are classified according to the nature and availability of scientific evidence related to the prevention of non-communicable diseases through physical activity.

In order to improve health related fitness, the WHO stated that children and youth should participate in at least 60 minutes of moderate of vigorous physical activity daily in accumulation for the entire day while adults should participate in at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or at least 75 minutes throughout the week or an equal combination of both. The reasons for participation can, however, differ subtly among individuals (Allender et al., 2006).

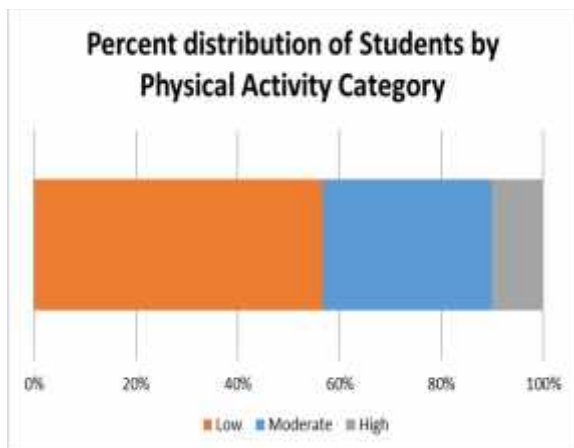


Figure 1: Demographic characteristics of the participants.

Table 1 showed the perceived barriers to physical activity participation. It can be gleaned on the table that there were differences in the mean levels of perceived barriers considering the gender. Female respondents have higher rates on almost all questions compare to male respondents. The total score of the external barriers was significantly higher than the score of the internal barriers. It was identified that lack of time was one of the most important external barrier to physical activity participation with the mean of 5.19 while lack of motivation with the mean of 4.54 was the most important internal barrier that somewhat affect the participation of the respondents in doing physical activity.

In a survey conducted by the National Health Surveillance in Singapore, the percentage of Singaporeans who exercise increased from 20 per cent in 2001 to 22.4 per cent in 2007. The study strongly supported the findings that lack of time and lack of motivation to exercise affected the respondents' participation to physical activities. Not having enough time was the most important barrier for not participating in physical activity among the respondents. This means that respondents find exercises difficult and too tiring, also by some means they prefer other recreational activities with their friends as they find it more entertaining than exercise. Likewise, they have not fully realized that exercises have positive effects on their health. Subsequently, they are worried about how they look when they exercise as they lack self-confidence about their ability to exercise. Equally, respondents were also affected by external physical activity barriers like lack of resources, lack of support and lack of time in particular. Some external barriers includes lack of fitness centers or no exercise

equipment at home, also they are encourage by friends and family to exercise as parents give academic success priority over exercise. Lastly and most evidently no leisure time for exercise because of the busy lesson schedule, social and family responsibilities.

Although most people recognized that there were health benefits associated with the physical activity, this was not the main reason for participation. Other factors such as weight management, enjoyment, social interaction and support were more common reasons for people being physically active (Allender, 2006).

Table 2 presents the respondents profile to barrier to physical activity participation. Data shows that the sum of physical activity internal barriers was not significantly different among male and female respondents while the physical activity external barriers of male is less with female respondents. The total mean score of the barriers of males were less than those of the females. The result implied that male respondents find more resources for fitness like fitness center or gym to do physical activity. In addition, male respondents are more inclined to go to fitness center/gym with friends or family member/s and put their time and energy to such activities over academic and other responsibilities. Research showed that one woman in six has exercised regularly since childhood, compared to more than one in three men. Meanwhile three out of five women said they have never taken regular exercise – double the rate of men. Fun, enjoyment and social support were reported more often as predictors of participation and non-participation than perceived health benefits

Table 3 shows the respondents profile to physical activity. The data indicates that male respondents are more physically active than female respondents. Data showed that female's physical activity was lower than those of the males. It was supported with the fact that going to fitness center is more appealing to male and they are more aware of the benefits of exercises like strengthening of the body and mind, enhancement of self-confidence and self-expression. Also, male are more indulge into vigorous activities. Contradictory, dance is more appealing to girls than boys (O'Neill, 2011).

In a study (Azevedo, 2007) regardless of the guideline used, males were more active than women. Because men and women have different levels of physical activity, and the variables associated with activity levels are not consistent across the genders, interventions promoting physical activity should take these differences into account. Aerobic physical

activity classes are attended primarily by females (Crawford and Eklund, 1994). Therefore, it was also expected that females would prefer exercising in structured settings (for both aerobic activity and weight training), more so than males. Finally, based on the discussion relating to Sports and Physical Activity (Crawford and Eklund et.al., 1994) it is expected that females would prefer to exercise alone.

Table 1: Description of perceived barriers items.

Items	Means		
	All	Males	Females
1. I've been thinking about exercise is difficult and too tiring	2.24	2.23	2.26
2. I have no energy as much as to be able to do exercise.	2.10	2.12	2.09
<i>Lack of energy Score</i>	<i>4.35</i>	<i>4.35</i>	<i>4.35</i>
3. I've been thinking about other recreational activities with my friends are more entertaining than exercise.	2.85	2.79	2.91
4. I have not been thinking about exercise has positive effects on my health.	1.70	1.75	1.64
<i>Lack of motivation Score</i>	<i>4.54</i>	<i>4.54</i>	<i>4.55</i>
5. I've been worried about my looks when I exercise.	1.93	1.93	1.94
6. I have not been thinking about my ability to exercise.	2.08	2.14	2.02
<i>Lack of Self-confidence Score</i>	<i>4.01</i>	<i>4.06</i>	<i>3.95</i>
Sum of Perceived Internal Barriers Score	12.91	12.95	12.86
7. There is no fitness center that I could get into.	2.06	2.03	2.08
8. I have no exercise equipment at home that I use.	2.51	2.34	2.69
<i>Lack of Resource Score</i>	<i>4.56</i>	<i>4.37</i>	<i>4.77</i>
9. My family or friends do not encourage me to exercise.	1.73	1.74	1.72
10. My parents give academic success priority over exercise.	2.35	2.25	2.47
<i>Lack of Support</i>	<i>4.09</i>	<i>3.99</i>	<i>4.19</i>
11. I have no leisure time for exercise because of my busy lesson schedule.	2.84	2.74	2.95
12. I have no leisure time for exercise because of my social and family responsibilities.	2.35	2.23	2.49
<i>Lack of Time</i>	<i>5.20</i>	<i>4.98</i>	<i>5.44</i>
Sum of Perceived External Barriers Score	13.84	13.34	14.41
<i>Sum of Barriers Score</i>	<i>26.75</i>	<i>26.29</i>	<i>27.26</i>

Table 2: Respondent's profile and barriers.

Group	Std. Err.	Obs	Mean	
			Std. Dev.	[95% Conf. Interval]
Male		124	26.29	.46
	5.08		25.39	27.19
Female		111	27.26	.47
	4.90		26.33	28.19
Combined		235	26.75	
	.33		26.10	27.39
Diff	-.9709387	.6566831	-2.264734	.3228568
Diff = mean(1) - mean(2)				t = -1.4785
Ho: diff = 0				degrees of freedom = 233
Ha: diff < 0				Ha: diff != 0
				Ha: diff > 0
Pr(T < t) = 0.0703				Pr(T > t) = 0.1406
				Pr(T > t) = 0.9297

*One-tailed test Significant at 10% level of significance

Table 3: Respondent's profile and physical activity.

Gender	Physical Activity Level			Total
	Low	Moderate	High	
Male	67	45	12	124
Female	66	33	12	111
Total	133	78	24	235

Kendall's tau-b = -0.0414 ASE = 0.063

Table 4 shows the Relationship of Barriers and Physical Activity. There is a significant relationship between barrier scores of the respondents in different physical activity categories. Respondents' level of participation varies considering the preferences, choices, capabilities, abilities and such factors. The responses of the students on the barriers to physical activity significantly differed based on how the respondents coped up and dealt with all the barriers to participate to physical activity.

The results of the present study offered insight into conditions beneficial to the development of effective physical activity interventions. Understanding individual preferences is important; physical activity preferences are linked to both adherence behaviors and various psychological responses related to physical activity (Thompson and Wankel, 1980). It has been suggested that physical activity interventions are most beneficial when they are tailored to individual preferences and that a better understanding of these preferences could lead to increased adherence to exercise programs (Moore and Ruland, 2003).

Thus, it is beneficial to gain an understanding of some of the personal factors that might influence these individual preferences. One personal factor

that is examined in the present study is gender. Reports of physical activity behaviour provide support for a suggestion that males and females have different preferences for physical activity contexts.

Table 4: Relationship of barriers and physical activity.

Category	Obs	Rank Sum
Low /Inactive	133	16745.00
Moderately Active	78	7925.50
Highly Active	24	3059.50

4 CONCLUSIONS

Findings revealed majority of the participants have low level of participation in physical activity. Furthermore, data indicated that male respondents are more physically active than female respondents. Data showed that female's physical activity was lower than those of the males.

Second, it was identified that lack of time was one of the most important external barrier to physical activity participation while lack of motivation was the most important internal barrier that somewhat affect the participation of the respondents in doing physical activity.

Lastly, there is a significant relationship between barrier scores of the respondents in different physical activity categories. The respondents' level of participation varies considering the preferences, choices, capabilities, abilities and such factors. Choosing to live healthy requires constant effort by assessing ones current behaviours, be well-informed of the consequences, commit and plan the necessary changes and employ sound techniques to modify these behaviour.

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