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Benefits and Barriers of Physical Activities among Technical University Students

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ABSTRACT

This study aims to examine the perceptions of benefits and barriers to physical activity, especially workouts among Malaysian University Technical Network students (MTUN). In order to be educated and trained to become a highly skilled human resource that is able to contribute towards the vision of a world-class industrial nation, these students must be ensured to be physically fit and smart. Objectives: To examined perceived benefits and barriers of physical activities among Technical University students. Method: A total of 355 college students from each faculty in Universiti Teknikal Malaysia Melaka (UTeM) completed the Exercise Benefits/Barriers Scale. Findings: The greatest perceived benefit from exercise was physical performance followed by the benefits of psychological outlook, preventive health, life enhancement, and then social interaction. Physical performance was rated significantly higher than all other benefits. Psychological outlook and preventive health were not rated significantly different, although both were significantly higher than life enhancement and social interaction. Life enhancement was also rated significantly higher than social interaction. The greatest perceived barrier to exercise was physical exertion, which was rated significantly higher than time expenditure, exercise milieu, and family discouragement barriers. Implications from this investigation for the design of physical activity programmes include the importance, for females, of a perception of high benefit/barrier ratio that could be conducive to participation in exercise. Applied interventions need to assist students to 'disengage' from or overcome any perceived 'unpleasantness' of physical exertion during physical activity (decrease their perceived barriers), and to further highlight the multiple health and other benefits of regular exercising (increase their perceived benefits).

Keywords:
Physical activity, technical university students, motivation, benefits, barriers

1. Introduction

Involvement in physical activity as a free-time dimension has become a growing area of interest in recent years [1]. Physical activity is a good practice for you and should be one of the ongoing

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activities of life. With a systematic and organized physical exercise or physical exercise, physical fitness can be maintained and enhanced, thereby helping the individual to reduce the stress of life in daily life management. However the transmission of physical activity among adolescents is alarming. In fact, studies in the United States show up to 65% of adolescents may have inadequate levels involved in physical activity [2]. While in Australia, this prevalence is shown to be high especially among adult female adolescents [3]. Thus, more studies have been conducted to identify factors that can promote physical activity (PA) among adolescents [4-5]. Researchers have begun to realize the importance of participation in sports and physical activity and, consequently, there has been an increase in the number of studies related to this area [6-8].

Individual inactivity for exercising has enough complex reasons to include personal, interpersonal, environmental determinants, and policies. With particular reference to the barrier factor, the most powerful single predictor is health behavior [9] but the barrier to exercise has never been seen in detail [10]. A greater understanding of the benefits and obstacles to physical activity can help healthcare providers and educators create a way to encourage exercise physical and mental health work better for university students [11]. Given the lack of data availability under the study area in Malaysia, this study aims to examine the visible benefits and barriers among MTUN students to engage in physical activity. The results of this study can help in designing promotional activities of physical activity that can help in suggesting strategies for specific strategies or interventions to promote the culture of exercise and healthy lifestyles among young engineers.

2. Methodology

This is a descriptive study to examine perceived benefits and barriers of physical activities among Technical University students. Questionnaires were given to 355 students come from each faculty in Universiti Teknikal Malaysia Melaka (UTeM). A questionnaire that consisted of two sections was administrated for data collection. The first section targeted at demographic data and the second section was the following scale to collect information on perceived benefits and barriers of physical activity.

Perceived benefit and barrier intensities to exercise were assessed by the EBBS questionnaire [12] that comprised two components: Benefits and Barriers. The benefit component comprised of 29 benefit items categorised into five subscales: life enhancement, physical performance, psychological outlook, social interaction, and preventative health. The barrier component included 14 barrier items categorised into four subscales: exercise milieu; time expenditure; physical exertion; and family discouragement.

3. Results

From this study 355 sets of questionnaires were distributed to students at UTeM. The raw data collected from the demographic questinnaire were analyzed using teh total number aand percentage. The table 1 shows the distribution of respondents based on the faculty. Of the 355 respondents, a total of 15 (4.2%) from the Faculty of Electronic and Computer Engineering, 58 (16.3%) from Electrical Engineering Faculties, 42 (11.8%) from Mechanical Engineering Faculty, 11 (3.1%) from Engineering Manufacturing Faculty and 76 (21.4%) people from the Information and Communication Technology Faculty. Meanwhile, 41 (11.5%) people from Faculty Of Technology Management And Technopreneurship and the rest 112 (31.5%) from the faculty of Engineering Technology.

Demographics table also shows the respondents' distribution by CGPA. The findings showed that 107 (30.1%) had a CGPA of 3.50 to 4.00, 174 (49.0%) of CGPA between 3.00 to 3.49 and 73 (49.0%) people attained CGPA ranging from 2.20 to 2.99. While 1 (0.3%) people get CGPA below 2.20 level. Of the 355 respondents, 162 (45.6%) were male and the rest 193 (54.4%) were female.

Table 1
Demographic characteristic of the samples

Faculty	Faculty Of Electronics And Computer Engineering	15	4.2
	Faculty Of Electrical Engineering	58	16.3
	Faculty Of Mechanical Engineering	42	11.8
	Faculty Of Manufacturing Engineering	11	3.1
	Faculty Of Information And Communications Technology	76	21.4
	Faculty Of Technology Management And Technopreneurship	41	11.5
	Faculty Of Engineering Technology	112	31.5
CGPA	3.50 - 4.00	107	30.1
	3.00 - 3.49	174	49.0
	2.20 - 2.99	73	20.6
	Below 2.20	1	.3
Gender	Male	162	45.6
	Female	193	54.4
Age	18 - 19 years old	17	4.8
	20 - 21 years old	191	53.8
	22 - 24 years old	118	33.2
	25 years old and above	29	8.2
Living	Residence hall	242	68.2
	Off campus	64	18.0
	Living at home with family	42	11.8
	Others	7	2.0

From the table above we also can see the distribution of respondents based on age. The findings showed that 17 (4.8%) people aged between 18 and 19 years old, 191 (53.8%) were between 20 and 21 years old and 118 (33.2%) were between 22 and 24 years old. While the balance is 29 (8.2%) people aged 25 years and over. The findings also show that 242 (68.2%) people live in residence hall, 64 (18.0%) people off campus, 42 (11.8%) living at home with family and 7 (2.0%) others.

Table 2 shows a descriptive statistic for the sub-scale of Life Enhance. Item Exercise improves overall body functioning for me has the highest mean value (M = 4.16; SD = 0.71), followed by item Exercising helps me sleep better at night (M = 4.10; SD = 0.75), Exercising increases my mental alertness = 4.08; SD = 0.72); Exercise improves my self-concept (M = 4.06; SD = 0.72), followed by Exercise item improves the quality of my work with value (M = 4.03; SD = 0.73), Exercise allows me to carry out normal activities without becoming tired M = 4.00; SD = 0.73) and My disposition item improved by exercise (M = 3.72; SD = 0.74). While the lowest is Exercise item helps me decrease fatigue with value (M = 3.65; SD = 0.74).

For the Physical Performance sub-scale. Exercise Item increases my level of physical fitness with the highest mean value (M = 4.30; SD = 0.75), followed by Exercise items increases my stamina (M = 4.28; SD = 0.71), Exercise increases my muscle strength (M = 4.22; SD = 0.76); Exercise improves functioning of my cardiovascular system (M = 4.20; SD = 0.66), followed by Exercise item improves my flexibility with value (M = 4.20; SD = 0.69), My physical endurance is improved by exercising (M = 4.14; 0.70) and Exercise item improves the way my body looks (M = 4.14; SD = 0.77). While the lowest is the item My muscle tone is improved with exercise with value (M = 4.00; SD = 0.74).

Table 2
The The exercise benefits scale: mean and standard deviation of each questionnaire item. Perceived Benefits Items

Life Enhance Sub-Scale	N	Mean	S.D
My disposition is improved by exercise	355	3.72	0.74
Exercising helps me sleep better at night	355	4.10	0.75
Exercise helps me decrease fatigue	355	3.65	0.82
Exercising improves my self-concept	355	4.06	0.72
Exercising increases my mental alertness	355	4.08	0.72
Exercise allows me to carry out normal activities without becoming tired	355	4.00	0.73
Exercise improves the quality of my work	355	4.03	0.73
Exercise improves overall body functioning for me	355	4.16	0.71
Physical Performance Sub-Scale	N	Mean	S.D
Exercise increases my muscle strength	355	4.22	0.76
Exercising increases my level of physical fitness	355	4.30	0.75
My muscle tone is improved with exercise	355	4.00	0.74
Exercising improves functioning of my cardiovascular system	355	4.20	0.66
Exercise increases my stamina	355	4.28	0.71
Exercise improves my flexibility	355	4.20	0.69
My physical endurance is improved by exercising	355	4.14	0.70
Exercise improves the way my body looks	355	4.14	0.77
Psychological Outlook Sub-scale	N	Mean	S.D
I enjoy exercise	355	4.11	0.90
Exercise decreases feelings of stress and tension for me	355	4.28	0.80
Exercise improves my mental health	355	4.34	0.68
Exercise gives me a sense of personal accomplishment	355	4.08	0.75
Exercising makes me feel relaxed	355	4.10	0.78
I have improved feelings of well being from exercise	355	4.05	0.69
Social Interaction Sub-scale	N	Mean	S.D
Exercising lets me have contact with friends and persons I enjoy	355	4.08	0.82
Exercising is a good way for me to meet new people	355	3.99	0.85
Exercise is good entertainment for me	355	3.96	0.85
Exercising increases my acceptance by others	355	3.82	0.83
Preventive Health Sub-scale	N	Mean	S.D
I will prevent heart attacks by exercising	355	4.05	0.83
Exercising will keep me from having high blood pressure	355	3.88	0.96
I will live longer if I exercise	355	3.75	0.91

For sub-scale Psychological Outlook. Item Exercise improves my mental health having the highest mean value (M = 4.34; SD = 0.68), followed by Exercise item decreases feelings of stress and tension for me (M = 4.28; SD = 0.80), I enjoy exercise (M = 4.11 ; SD = 0.90), followed by Exercising item makes me feel relaxed with value (M = 4.10; SD = 0.78) and Exercise item gives me a sense of personal accomplishment (M = 4.08; SD = 0.75). While the lowest is item I have improved feelings of well being from exercise with value (M = 4.05; SD = 0.69).

For sub-scale Social Interaction. Item Exercising lets me have contact with friends and people I enjoy having the highest mean value (M = 4.08; SD = 0.82), followed by Exercising item is a good way for me to meet new people (M = 3.99; SD = 0.85) and item Exercise is good entertainment for me (M = 3.96; SD = 0.85). While the lowest is the item Exercising increases my acceptance by others with the value (M = 3.82; SD = 0.83).

The table above shows descriptive statistics for the Preventive Health sub-scale. Item I will prevent heart attacks by exercising have the highest mean value (M = 4.05; SD = 0.83), followed by

Exercising item will keep me from having high blood pressure (M = 3.88; SD = 0.96) and the lowest is item I will live longer if I exercise with value (M = 3.75; SD = 0.91).

Table 3
The exercise barriers scale: mean and standard deviation of each questionnaire item.
Perceived Barriers Items

Exercise Milieu Sub-scale	N	Mean	S.D
Places for me to exercise are too far away	355	2.79	1.08
I am too embarrassed to exercise	355	2.38	1.12
It costs too much money to exercise	355	2.02	0.97
Exercise facilities do not have convenient schedules for me	355	3.11	0.92
I think people in exercise clothes look funny	355	2.08	0.95
There are too few places for me to exercise	355	3.24	1.08
Time Expenditure Sub-scale	N	Mean	S.D
Exercising takes too much of my time	355	2.68	0.89
Exercise takes too much time from family relationships	355	2.21	0.91
Exercise takes too much time from my family responsibilities	355	2.23	0.96
Physical Exertion Sub-scale	N	Mean	S.D
Exercise tires me	355	2.95	1.00
I am fatigue by exercise	355	2.92	0.95
Exercise is hard work for me	355	3.01	1.07
Family Discouragement Sub-scale	N	Mean	S.D
My spouse (or significant other) does not encourage exercising	355	2.52	1.03
My family members do not encourage me to exercise	355	2.04	1.02

The table above shows the descriptive statistics for the Scale of Exercise Milieu sub-scale. There are too few places for me to exercise to have the highest mean value (M = 3.24; SD = 1.08), followed by Exercise facilities do not have convenient schedules for me (M = 3.11; SD = 0.92), Places for me To exercise are too far away (M = 2.79; SD = 1.08), followed by item I am too embarrassed to exercise with value (M = 2.38; SD = 1.12) and item I think people in exercise clothes look funny (M = 2.08 ; SD = 0.95). While the lowest is item It costs too much money to exercise with value (M = 2.02; SD = 0.97).

For the sub-scale of Time Expenditure. Exercise item takes too much of my time to have the highest mean value (M = 2.68; SD = 0.89), followed by Exercise item takes too much time from my family responsibilities (M = 2.23; SD = 0.96) and the lowest is Exercise item Takes too much time from family relationships with value (M = 2.21; SD = 0.91). Physical Exertion sub-scale, Item Exercise is hard work for me having the highest mean value (M = 3.01; SD = 1.07), followed by Exercise tires me item (M = 2.95; SD = 1.00) and the lowest is item I am fatigue by exercise with value (M = 2.92; SD = 0.95).

Table 3 also shows a descriptive statistic for the sub-scale of Family Discouragement. The items of my spouse (or significant other) does not encourage exercising have the highest mean value (M = 2.52; SD = 1.03) and the lowest is My family members do not encourage me to exercise with value (M = 2.04;).

The table above shows the mean distribution and standard deviation for sub-scales exercise benefits. Sub-scale Physical Performance has the highest mean value (M = 4.18; SD = 1.56), followed by sub-scale Psychological Outlook (M = 4.16; SD = 0.59), Life enhancement (M = 3.97; SD = 0.54) With sub-scale Social Interaction with the value (M = 3.96; SD = 0.67) and the lowest is the sub-scale of Preventive Health with the value (M = 3.89; SD = 0.63). Meanwhile for the sub scales of Exercise barriers mean and standard deviaton, sub-scale Physical Exertion has the highest mean value (M = 2.96; SD = 0.74), followed by sub-scale Exercise Milieu (M = 2.60; SD = 0.64) followed by sub-scale

Time Expenditure with value (M = 2.37; SD = 0.69) and the lowest is the Family Discouragement sub-scale with the value (M = 2.28; SD = 0.87). The diagram below illuminates this statement.

Table 4
Descriptive Statistics for Exercise Benefits and Barriers Scale

Exercise Benefits Sub Scale	N	Mean	S.D
Physical Performance	355	4.18	0.56
Psychological Outlook	355	4.16	0.59
Life enhancement	355	3.97	0.54
Social Interaction	355	3.96	0.67
Preventive Health	355	3.89	0.63
Exercise Barriers Sub Scale	**N**	**Mean**	**S.D**
Physical Exertion	355	2.96	0.74
Exercise Milieu	355	2.60	0.64
Time Expenditure	355	2.37	0.69
Family Discouragement	355	2.28	0.87

4. Discussion

In this study, the perceived benefits seemed more important than perceived barriers. Matters relating to the barriers are seen to have low rates. Exercise not only helps you live longer — it helps you live better. In addition to making your heart and muscles stronger and fending off a host of diseases, it can also improve your mental and emotional functioning and even bolster your productivity and close relationships. This study finds that exercise can make enhancement of our life. It can improve overall body functioning for the practioners. This is consistent with research by Akbari Kamrani *et al*., [13]. Although Geoff, Walid and John [14] said that from exercise, you can help your body to have a better sleep, but the objective is still remain, to make your body functioning improves.

Burke and McCarthy [15] through his investigation found that our level of fitness also can be increases by doing exercise or physical activity. It is consistent with the findings of this study. Previous research also support this statement [13-14,16]. Exercise is not just about aerobic capacity and muscle size. Sure, exercise can improve your physical health and your physique, trim your waistline, improves your sex life, and even adds years to your life. But that's not what motivates most people to stay active. People who exercise regularly tend to do so because it gives them an enormous sense of well-being. They feel more energetic throughout the day, sleep better at night, have sharper memories, and feel more relaxed and positive about themselves and their lives. And it's also powerful medicine for many common mental health challenges. Kubayi [17], Burke *et al*., [15], Geoff, Walid and Parker [14] Kamaria and Mohd Sofian [16] and Akbari Kamrani *et al*., [13] also have the same findings in their previous study.

Recent findings underline the social benefits of exercise, particularly in relation to improved social and psychological health, with increased feelings of wellness and confidence through social interaction. Social areas that exercise has been found to effective in include encouraging both family and community connectedness, improving social skills and networks while reducing isolation and loneliness. For social interaction, this study found that exercise can make contact with our friends that i enjoyed, can meet new people, can be a good entertainment for us and also can increases my acceptance by others. It also has been supported by previous study [13-14,17]. Exercise can help prevent heart disease, stroke, diabetes, and colon cancer. It can help treat depression, osteoporosis, and high blood pressure. People who exercise also get injured less often. Routine exercise can make

you feel better and keep your weight under control. Findings of this study and other researcher [14,17] also support this statement. Based on previous study did by Rosli Saadan *et al*., [18] found that the perceived external barriers seemed more important than internal barriers. Matters relating to the internal barriers are seen to have low rates. Exercise milieu one of the external barriers to participate in exercise. A few places to exercise are one of the reasons for UTeM's student to get involve in physical activity. This statement is supported by Burke *et al*., [15]. UTeM's student also perceived that the time that they expend for exercise take too much. Previous study also agreed with this findings [14,15,18] but Kamaria and Mohd Sofian [16] state that only male students are concern regarding time expenditure when they doing physical activity.

The other barriers that the students perceive in this study is doing exercise is hard work for them. When we talk about physical exertion it means the activity of exerting our muscles in various ways to keep fit. This barrier is perceived by them is consistent with Rosli Saadan *et al*., [18], Burke and McCarthy [15] and Akbari Kamrani *et al*., [13]. For the last barriers that the students perceive is family discouragement. Their spouse (or significant other) does not encourage exercising. It is admit by Geoff *et al*., [14], Rosli Saadan *et al*., [18] and Akbari Kamrani *et al*., [13]. As we can see from the Table 4, it shows that UTeM's student perceived regarding the benefits rather than barriers to involve in exercise or physical activity. All the sub scales; Physical Performance, Psychological Outlook, Life enhancement, Social Interaction and Preventive Health are important for them. Only some of them are concern regarding the barriers like Physical Exertion, Exercise Milieu, Time Expenditure and Family Discouragement.

5. Conclusions

If we can make comparison between perceived benefits and perceived barriers, we know that the UTeM's student love to take part in exercise. In other words they are making exercise to their own chosen activity like sports and recreation when they are in leisure time. Samples for this study were drawn from the Technical University of Malaysia Malacca; our results may not characterize the general Malaysian university students. There is a need for future research, which will be carried out with larger sample groups to develop a national standardized instrument. It will be helpful to accurately identify the perceived barriers and then recommend changes to enhance physical activity among young people. In term of their knowledge especially the benefits of involving in exercise, maybe can be recommended to university to promote more in healthy lifestyle.

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