

Knowledge, attitude and practice regarding exercise among people exercising in gymnasium and recreational parks around Kuantan, Malaysia

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ABSTRACT

Physical inactivity is becoming a global epidemic and lead to many diseases. This cross-sectional study tried to investigate knowledge, attitude and practice (KAP) regarding exercise among married and single person attending gymnasium and recreational parks. Furthermore, this study tried to look for factors associated with regularity of exercise and to find association between knowledge and attitude on practice of exercise. A total of 103 participants aged above 18 years old were purposely selected to answer an interview-guided questionnaire. Likert scale was used for participants to answer the questionnaire on KAP and the total score for each knowledge, attitude and practice was computed to find the associations using SPSS. The mean age of the respondent was 25.34 years (SD=5.699). Knowledge was not significantly associated with practice ($r=0.071$, $p=0.475$). There was also no significant correlation between practice and attitude score ($r=0.006$, $p=0.510$). Therefore, there is no association between knowledge and attitude on practice of exercise. Besides that, endurance exercise like jogging, cycling and walking was a respondent's choice as their exercise routine. Other than that, there are significant associations between factors of gender ($p=0.014$), marital status ($p<0.001$) and age ($p=0.005$) with regularity of exercise. This study found that single person is more regularly doing exercise than married people. Regularity of exercise could be influenced by motivation. Therefore, relevant policies and campaigns might be able to change and boost people towards practicing exercise regularly in Malaysia.

INTRODUCTION

Exercise includes a wide range of activities like gardening, car washing or walking around with a pet in the neighborhood and exercise can also be done at home. But some people have a wrong idea that exercise can only be done in gymnasium, recreational park, or a stadium, etc. As long as physical activity causes sweating it is considered as exercise. Muscular contraction during dynamic exercise generates heat which rapidly boosts internal temperature, followed by increasing in perspiration rate (Shibasaki *et al.*, 2006). However, going to sauna and sleeping in hot place can also cause people to sweat but this is not exercise. This is due to evaporative heat loss

from human sweat glands, also caused by an exposure to hot surroundings (Shibasaki *et al.*, 2006). Exercise is a subset of physical activity that defined as any body movement produced by skeletal muscles that result in energy expenditure which increases body calorie output and also the heart rate to burn more calories in the body and maintaining physical fitness (PBRC, 2009; Morris and Schoo, 2004). One study claimed that there is no doubt that today's technology is radically altering people's day-to-day life and how people function and think (Oliveira, 2012). These technology causes people to become lazy, decrease of physical activity, unbalanced diet, smoking and drinking alcohol, which are becoming increasingly prevalent in both developed and developing countries (Imbellino, 2014; WHO, 2008). The trend shows modern living provides many conveniences except a natural physical activity. People of all ages use remote controls, ride in cars, play on computers and shop on the internet which causing less muscular activity (Neporent *et al.*, 2006).

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Furthermore, another study claimed that smoking, high total cholesterol and high blood pressure are strongly related to the development of heart disease and physical inactivity which also lead to a major risk factors for heart disease (Howley and Franks, 2007). One research estimated that nearly 80% of adult Americans potentially setting themselves to many health problems because of low physical activity (Jaslon, 2013). Physical inactivity is a serious health threat in the USA, which can increase morbidity and mortality (Wright and Winter, 2009).

A regular exercise of three to four times a week for a minimum of 30 minutes each session helps people to stay fit and healthy (CDCP, 2003). Low level of exercise and uncontrolled diet resulted in obesity and weight gain; ultimately increases higher risk of heart disease and diabetes mellitus. Even a short term reduction in regular exercise from 4 to 2 times a week, can cause acute changes associated with diabetes that can occur even before weight gain and obesity (Shy, 2011). Exercising skeletal muscle utilize glucose without insulin and glucose will be burned (Weil, 2015). Exercise helps to lower blood glucose level so that people have lower risk of getting diabetes mellitus.

WHO estimates that approximately 7.6 million people died because of cancer in 2008 and an estimated 13.1 million deaths from cancer will continue to rise in 2030 (Chan, 2013). The common available treatment for cancer is by using chemotherapy. Adverse effects of chemotherapy include sarcopenia, loss of bone mass, and reduction of muscle mass in prostate cancer patient, undergoing an androgen deprivation therapy (ADT) (Galvao *et al.* 2007). It has been revealed that increase physical activity improves patient's life after receiving a cancer treatment. The study has been conducted on prostate cancer patients receiving ADT with or without exercise. It was found that exercise group had improved endurance and health related quality of life as compared to the non-exercise group (Galvao *et al.* 2007). Another study conducted on lung cancer found that breathing exercise was an effective way to reduce the post-operative complications of lung cancer ensures better quality of life of the patients (Liu *et al.*, 2013). Cardiovascular diseases can also be prevented with a regular exercise. A study concluded that physical activity is inversely related to cardiovascular disease risks (Thijssen *et al.*, 2008). Exercise reduces around 30% risk of cardiovascular events like myocardial infarction and stroke (Anderson *et al.*, 2008). Therefore, exercise can assist people to feel healthier and live longer.

Exercise improves people's mood because as it increases the production of endorphin. This hormone is believed to induce happiness, create reward pathway in the brain and reduce pain (Lueneberger, 2006). The life is often stressful, exercise can help to relieve the stress and makes life easier. Therefore, exercise not only improves physical but also mental status. A study reported that regular exercise routine could result in improving mood of the Alzheimer's patients (Williams and Tappen, 2007).

Exercise is very important to keep children healthy, as it prevents extra weight gain and obesity. 30% of young children aged 2-5 years and 37% of all children aged 2-years are obese or overweight (Hughes, 2009). Consequently, these children have a

higher risk of developing type II diabetes mellitus, heart disease, high blood pressure, asthma, and sleep apnea. Obese children are at greater risk for social and psychological problems of stigmatization and poor self-esteem. However, children who are physically active early in life enjoys high quality of life. A research claimed that women who evaluated the physical fitness of men and muscular body have positively relate it to body attraction which results in mating achievement for the men (Ortega *et al.*, 2011).

In Malaysia, the Malaysian Ministry of Health has launched a nationwide Healthy Lifestyle Campaign in 1991 which includes the objectives to promote exercise as a norm and culture, to disseminate knowledge on benefits of exercise and to increase the proportion of Malaysian to exercise regularly (WHO, 2008). So, all of these measures are very important to promote exercise among people. An adequate knowledge on practicing exercise can encourage people to exercise regularly. A study claimed that 68% of the women had heard about the advantages of physical exercise during pregnancy (Ribeiro and Milanez, 2011). The purpose of this study is to investigate the knowledge, attitude and practice regarding exercise among married and single person who go to gymnasiums and recreational parks around Kuantan, Malaysia.

MATERIALS AND METHODS

This study was conducted in Kuantan, Malaysia. It has been conducted among people who practiced exercise in gymnasium, and also recreational parks around Kuantan city. Married and single person were recruited from age 18 years old and above. This was a cross-sectional study based on structured questionnaire. Power and Sample Size Calculations (PS) software was used to calculate the sample size in this study. The calculation using independent t-test, α value is 0.05, $power = 0.8$, $\delta = 3.7$, $\sigma = 6.32$ and $m = 1$ that yields 94 subjects + 10% of non-respondents=103 of the subjects. The standard deviation ($\sigma=6.32$) mentioned above was taken from the study on Alzheimer's disease (Williams and Tappen, 2007). Therefore, 103 people were selected purposively from gymnasium and recreational parks.

People above 18 years old were included in the study. They were physically healthy to exercise. People who have history of chronic diseases such as hypertension, diabetes mellitus or cardiovascular disease were excluded from the study. Gymnasium instructors were also excluded. Informed consent form and questionnaire were prepared in set of two languages which were in English and Malay languages. The data was collected dated 10-01-2014 - 27-01-2014. The questionnaire had been divided into four sections that include questions regarding sociodemographic data, knowledge, attitude and practice regarding exercise. The questions had been constructed randomly and few corrections and amendments had been made to improve the questionnaire. A pilot study had been carried out to check the face validity of questionnaire that involved five people to check the understandability of the questionnaire. The content validity had been checked by an expert. This study had been approved ethically

by IIUM Research Ethic Committee (IREC). The collected data was analyzed using SPSS software version 12.

RESULTS

A total of 103 participants attending gymnasium and recreational parks around Kuantan participated in this study. The participants mean age was 25.34 ± 5.699 years. 51 (50%) and 52 (50%) of study participants were male and female respectively. 68 (66%) and 35 (34%) of study participants were single married respectively. 43.7% (45), 6.8% (7), 4.9% (5) and 1% (1) of participants were full-time workers or students, housewife, part-time, unemployed respectively. 56.3% (58) and 96% (99) participants knew the definition of exercise and helps to combat many diseases respectively. While 82.5% (85), 99% (102), 84.5% (87), and 82.5% (85) understood exercise is able to improve mood, strengthen endurance and stamina, makes life happier and relieve stress respectively. 96-99% of the participants (99-102) were aware exercise yields a healthy body and fits body (Table 1).

The majority (83.5%, 86) of participants have an understanding that exercise causes significant injury. Half of the participants (50.5%, 52) disagreed that exercise increases chance of stroke and other circulation problem, remaining 37.9% (39), and 11.7% (12) and either agree or disagree respectively. Furthermore, 75.7% (78), 19.4% (20), 21.4% (22), and 15.5% (16) participants thought that exercise cause people to be exhausted, experience vitamin, iron loss, and thought it as stressful activity respectively (Table 2). The majority (88.3%, 91) of the participants choose jogging as their exercise, followed by cycling and walking (45.6%, 47), weightlifting (33%, 34), swimming (14.6%, 15), others (5.8%, 6), gardening (4.9%, 5) and yoga (1.9%, 2).

53.4% (55), 90.3% (93), 88.3% (91), 50.5% (52), 48.5% (50), 87.4% (90), 41.7% (43) of the study participants stated that they do exercise for fun, improving health, increasing fitness level, looking good, socializing with others, controlling weight, and motivation from others respectively as the major reason to exercise (Table 3).

Table 1: Knowledge of participants regarding the benefits of exercise (N= 103).

Statements	N (%)		
	Strongly Agree and Agree	Neither agree or disagree	Strongly disagree and Disagree
Exercise help to combat many diseases	99 (96.1)	3 (2.9)	1 (1.0)
Exercise improve mood	85 (82.5)	13 (12.6)	5 (4.9)
Exercise strengthen endurance and stamina	102 (99)	0	1 (1.0)
Exercise makes life happier	87 (84.5)	13 (12.6)	3 (2.9)
Exercise is able to relieve stress	85 (82.5)	12 (11.7)	6 (5.8)
Exercise yield healthy body	102 (99)	0	1 (1.0)
Exercise fits body	99 (96.1)	3 (2.9)	1 (1.0)

Table 2: Knowledge of participants regarding the disadvantages of exercise (N= 103).

Statements	N (%)		
	Strongly Agree and Agree	Neither agree or disagree	Strongly disagree and Disagree
Significant injuries can occur	86 (83.5)	9 (8.7)	8 (7.8)
Exercise increases chance of stroke and other circulation problem	12 (11.7)	39 (37.9)	52 (50.5)
Exercise causes people to be exhausted	78 (75.7)	11 (10.7)	14 (13.6)
There is vitamin loss after exercise	20 (19.4)	32 (31.1)	51 (49.5)
There is iron loss after exercise	22 (21.4)	29 (28.2)	52 (50.5)
Exercise is stressful activity	16 (15.5)	9 (8.7)	78 (75.7)

Table 3: Attitude of participants regarding the reasons they do exercise (N = 103).

Statements	N (%)		
	Major reason	Minor Reason	Not a reason
Having fun	55 (53.4)	43 (41.7)	5 (4.9)
Improving health	93 (90.3)	8 (7.8)	2 (1.9)
Increasing fitness level	91 (88.3)	11 (10.7)	1 (1.0)
Looking good	52 (50.5)	42 (40.8)	9 (8.7)
Socializing with others	50 (48.5)	33 (32.0)	20 (19.4)
Controlling weight	90 (87.4)	11 (10.7)	2 (1.9)
Motivation from others	43 (41.7)	38 (36.9)	22 (21.4)

Table 4: Attitude of participants regarding the reasons they do not exercise (N = 103).

Statements	N (%)		
	Major reason	Minor Reason	Not a reason
Do not have enough time	40 (38.8)	51 (49.5)	12 (11.7)
Afraid of getting injured	15 (14.6)	59 (57.3)	29 (28.2)
No safe place	7 (6.8)	52 (50.5)	44 (42.7)
Have health problem to exercise	4 (3.9)	37 (35.9)	62 (60.2)
Do not have partner to exercise	7 (6.8)	62 (60.2)	34 (33.0)
Gymnasium membership is expensive	15 (14.6)	51 (49.5)	37 (35.9)
Lack of energy and tired	33 (32.0)	47 (45.6)	23 (22.3)
Have many responsibilities such as child care and work	29 (28.2)	45 (43.7)	29 (28.2)

Table 5: Attitude on the importance level of exercise type (N= 103).

Statements	N (%)		
	Very Important	Moderate importance	Not very important
Endurance exercise such as jogging	89 (86.4)	13 (12.6)	1 (1.0)
Strength such as weight lifting	22 (21.4)	58 (56.3)	23 (22.3)
Flexibility such as stretching	42 (40.8)	40 (38.8)	21 (20.4)
Balance such as standing on one leg or tai chi	42 (40.8)	33 (32.0)	28 (27.2)

Table 6: Relationship between gender and marital status on regularity of exercise (chi- square test).

Variable	Always (n=46) N (%)	Seldom (n=57) N (%)	Chi-square statistics (d.f)	p-value
Sex				
Male	29 (63.0)	22 (38.6)	6.086	0.014
Female	17(37.0)	35 (61.4)	(1)	
Marital status				
Married	7 (15.2)	28 (49.1)	13.045	<0.001
Single	39 (84.8)	29 (50.9)	(1)	

Table 7: Comparing age between different regularity of exercise using Independent t-test.

Variables	Always N=46 Mean(sd)	Seldom N=57 Mean(sd)	Mean difference (95%CI)	t-statistical (df)	p-value
Age (years)	23.65 (4.270)	26.70 (6.347)	3.050 (0.965, 5.134)	2.904 (98.048)	0.005

Table 8: Correlation between knowledge and attitude with practice regarding exercise.

Variables	r-value	p-value*
Practice v.s. knowledge	+0.071	0.475
Practice v.s. attitude	-0.066	0.510

* Pearson Correlation test

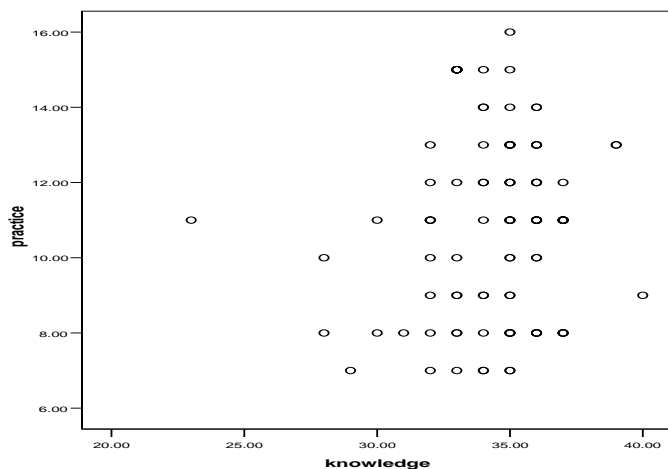


Fig. 1:Correlation between practice and knowledge regarding exercise

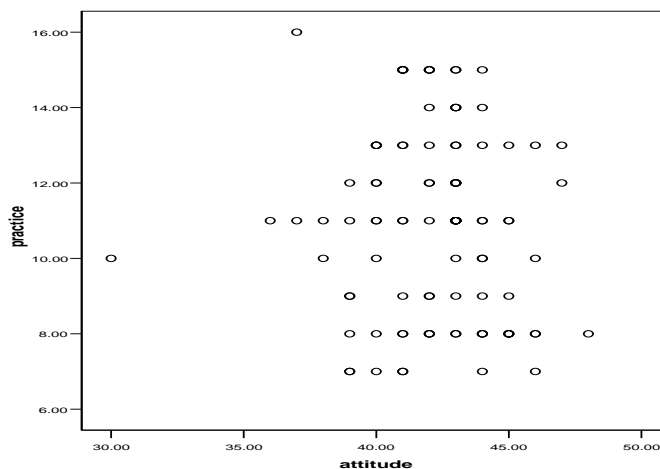


Fig. 2: Correlation between attitude and practice regarding exercise

Again, 38.8% (40), 14.6% (15), 6.8% (7), 3.9% (4), 6.8% (7), 14.6% (15), 32% (33), and 28.2% (29) of the study participants answered as their major reason not to do exercise due to lack of time, afraid of getting injured, no safe place, have health problem to exercise, do not have partner to exercise, gymnasium membership is expensive, lack of energy and tired, and have many responsibilities such as child care and work respectively (Table 4).

99% (102), 77.7% (80), 79.6% (82), and 72.8% (75) of the participants claimed that endurance exercise such as jogging, strength such as weight lifting, flexibility such as stretching, balance such as standing on one leg or tai chi respectively was moderate to very important to be practiced (Table 5).

55.3% (57), and 44.7% (46) of the study participants answered when asked whether do exercise regularly; answer was:

seldom, and always, respectively. Again, 50.5% (52), 27.2% (28), and 22.3% (23) of the study participants answered when asked whether do stretching before exercise, answer was: seldom, always, and never respectively. The duration of exercise of the current study participants were >30 minutes (62.1%, 64), 20-30 minutes (26.2%, 27), 10-20 minutes (8.7%, 9), and ≤ 10 minutes (2.9%, 3). The frequency of exercise of our study participant were three times a week (47.6%, 49), once a week (29.1%, 30), once or twice a month (11.7%, 12), five or more time a week (6.8%, 7), less often than once a month (3.9%, 4), and not at all (1%, 1). There were significant associations between gender and marital status (Table 6) with regularity of exercise ($p=0.014$ and <0.001 , respectively). Furthermore, there is also a significant ($p = 0.005$) association between age and regularity of exercise (Table 7). There was no

significant correlation between knowledge and attitude with practice of exercise (Table 8, Figure 1 and 2).

DISCUSSION

This physical inactivity is associated with an increased risk on morbidity and mortality because of increased risk of developing chronic diseases. According to WHO, almost 2 million deaths per year worldwide are attributable to physical inactivity (Fransson *et al.*, 2012). The occurrence of physical inactivity is thought to be influenced by knowledge and attitude of people on practice of exercise. The majority of participants were young and only a few was old. This is common as the older people face many barriers to exercise. The older people has a number issues like; fear of pain, lack of energy, fear of fall and injury and low education about exercise and health, which compel them to practice more rest. Again, many of them had a health problem because of aging. A study reported similar findings of minimal performance scores, which matches with the study results (Rasinaho *et al.*, 2006).

The young people are concerned with many advantages of exercise and confidence level. It is reported that young women aged 18-30 years became physically active aiming for a positive body image and weight loss. A meta-analysis found that both young women and men were equally concern about good body images and also self-esteem significantly related body image (O'Dougherty *et al.*, 2010; Mendelson *et al.*, 2002). Therefore, young people were motivated to exercise in order to lose weight and to look good. This explains why majority of the current study participants were young. It was reported that >60% of adults in European were physically active while in the USA it is >50% (Teixera *et al.*, 2012). The trend also common in Canada whereby only 15% of adults were physical active. The current study participants also possess similar ideas and leads physically inactive lifestyle.

The majority of the participants have selected endurance exercise such as jogging, walking and cycling as their exercise routine. It may be because of easier method for different age groups and can be performed anywhere without additional expense. Similar method of exercise was recommended by American College of Sports Medicine and the American Heart Association (Barreira *et al.*, 2010).

There was a significant association between gender and the regularity of exercise. Male usually performed better in exercise than female (Cooper *et al.*, 2011). This is due to the different attitude among genders, males are more committed towards physical exercise (Modolo *et al.*, 2011). Females do exercise because of better appearances. A previous study reported that young girls often have image-related problems which causes them extreme diet and nutritional insufficiency (Modolo *et al.*, 2011, Chin *et al.*, 2008).

There is a significant association between marital status and the regularity of exercise. This is because married people have many commitments and responsibilities towards their families and

work. These findings are similar with another study regarding marital status and exercise (Hull *et al.*, 2010). There was a significant association between age and regularity of exercise. This might be due to a low level of awareness among the older people. One study reported that the older community participants were aware of exercise and quality of life. Their knowledge regarding the advantages of exercise on cholesterol, diabetes and hypertension were less (Pienaar *et al.*, 2004). Therefore, older people had positive attitude towards exercise but they lack of sufficient knowledge and motivation. The truth is older people need a regular exercise to be healthier as regular exercise may slow down their ageing process (Xu *et al.*, 2006). The older people develops chronic diseases that may cause negative effect in their physical capability (Cooper *et al.*, 2011). Knowledge and attitude can be the most important points on practicing exercise regularly. The current study shows that more than half of the participants knew the definition of exercise. Exercise is defined as a subset of physical activity that is planned, structured, and repetitive for a physical fitness goal (Caspersen *et al.*, 1985).

Most of the participants in this study were aware of the benefits of exercise. Regular exercise can control blood glucose level and can delay to appear many chronic diseases such as type II diabetes mellitus and cardiovascular diseases (Colberg *et al.*, 2010). Previous study has shown that stroke can be prevented by a good effect of aerobic exercise (Stoller *et al.*, 2012). The patients who suffers from anxiety neurosis, regular exercise reduces their sufferings, improve their mood, and create a sense of happiness (Otto *et al.*, 2007; Steinberg *et al.*, 1997). The current study participants think finds that exercise also strengthens an endurance and stamina. Regular physical activity improves their cardiovascular physiology (Myers, 2003).

The results in this study also shows that majority of the participants were aware that one of the disadvantages of exercise is that significant injuries can occur. A previous research stated that a higher proportion of pregnant women who were injured had participated in at least some vigorous exercise activity during 17 to 22 weeks of gestation than non-injured women (Vladutiu *et al.*, 2010). Besides that, more than half of the participants knew that exercise will not increase a chance of having stroke and other circulation problem. This is mentioned earlier in this study that exercise gave the benefits to reduce the risk of heart attack and stroke due to its ability to improve both oxygen delivery and oxygen extraction in body (Anderson *et al.*, 2008). Furthermore, majority of the participants believed that exercise is not a stressful activity. Exercise has been proven to reduce anxiety and depression (Sharma *et al.*, 2006). Other than that, most of the participants had good knowledge that exercise can cause exhaustion. This is supported by previous research that the diaphragm and abdominal muscles are susceptible to tiredness with heavy and sustained exercise (Romer and Polkey, 2008). However, majority of the participants in this study had negative knowledge about losing vitamins and iron after doing exercise. Actually, intense physical exercise could affect iron balance by a mechanism of increased gastrointestinal blood loss after running

and hematuria as a result of erythrocyte rupture within the foot during running. Furthermore, the whole-body loss of iron occurs 20% faster in female athletes as compared to non-athletes (Beard and Tobin; 2000). Moreover, exercise also increases the loss of vitamin B-6, thiamine and riboflavin as these vitamins play a role in producing energy during exercise (Manore, 2000). This study participants, more than half, had the positive attitude regarding exercise and they feel fun. It is reported that exercise enhances mental health. Therefore, increases self-esteem, cognitive function and increased levels of confidence especially in children (Sharma *et al.*, 2006; Eather *et al.*, 2013). This explains why participants had fun after exercise. The study participants agreed that exercise improves their health and fitness level. Previous studies also concluded that exercise was effective in improving cardiopulmonary fitness in asthmatic children and expands their quality of life (Fanelli *et al.*, 2007; Basaran *et al.*, 2006). The current study participants also do exercise to look good and socialize with others. Exercise has been reported to facilitate the symptoms of low self-esteem and social withdrawal (Sharma *et al.*, 2006). Other research also claims that women evaluated a physical fitness of men and muscular body have positively related to body attraction which results in mating achievement for men (Ortega *et al.*, 2011). Therefore, current findings were reasonably analogous with the mentioned research reports. The majority of the participants exercise to control and manage their weight. Obese women do exercise to lose weight as primary motivation (Guess, 2012). The combination of exercise and balanced is most effective way to control obesity (Jakicic and Otto, 2005).

However, less than half of the participants exercise due to motivation from others. It has been reported from Canada that motivation influences people to exercise (Duncan *et al.*, 2010). There is a significant relationship has observed between exercise trainer attitude and their customer to join exercise program regularly (Seguin *et al.*, 2010). Moreover, social support also encourage the children to do exercise (Eather *et al.*, 2013). Thus, the motivation from others can also influence people to exercise regularly. Most of the participants answered the reasons they are not exercising were due to lack of energy and time and also feeling of tiredness. Similar, findings were also reported before (Fox *et al.*, 2012). The current study participants opined that they do not have safe place to exercise. A previous study had revealed that some external barriers: not having enough time, have no one to exercise with and lack of facilities and internal barriers: were too tired, already active enough, do not know how to do it and too lazy (Justine *et al.*, 2013).

Surveys had discovered that those residents in lower-income urban settings are the most likely to rate their neighborhoods as unsafe and crime prevalent (Fox *et al.*, 2012). The majority of the participants did not exercise as they were afraid of injury. Another study reported that 46% of the exercise participants had at least one injury (Janney and Jakicic, 2010). Furthermore, some pregnant women have reported fear of injury (Vladutiu *et al.*, 2010). An obese individual could potentially face a higher risk of musculoskeletal injury (Campbell *et al.*, 2012).

Same study also reported that exercise may cause injuries but it will eventually promote better health and prevent injuries from other causes (Campbell *et al.*, 2012). Many responsibilities and commitments such as child care and work were the reason more than half of the participants did not exercise. Similar findings have reported in a number of studies (Beckford, 2011; Ebben and Brudzynski, 2008). The current study participants thought a gymnasium membership was expensive. However, the membership cost cannot be the reason as they can do exercise at any place or home. The participants in this study do not have health problems which can prevent them to exercise. Most of the participants in this study thought that endurance exercise such as jogging was the most important exercise. They however show a slightly negative attitude towards flexibility and balance. It has been reported that different kinds of exercise should combine to get the best outcome especially for the elderly (Anderson *et al.*, 2008; Xu *et al.*, 2006). More than 50% of the participants seldom practice exercise.

The US population >50% meets the current physical activity guidelines (Campbell *et al.*, 2012). Less than half of the participants in this study did a stretching before exercise which it is not a good practice. As mentioned earlier, benefits of stretching include enhance circulation, reduce soreness, improve body awareness and muscular coordination and making body to feel relaxed (Collins, 2007). Therefore, stretching can reduce muscle soreness and can prevent any injury from occurring. The majority of the participants did more than 30 minutes of exercise and they exercise three times a week. The established ACSM guidelines recommended only at least 20 minutes for high-intensity exercise (Klika *et al.*, 2013). So that, 20 to 30 minutes is a suitable duration of time to practice exercise. Furthermore, a minimum of 3 times a week performing exercise is recommended.

There was no significant correlation between knowledge and attitude on practice of exercise. Education can be more effective when it is educated along with attitude and practice of the participants (Salleh *et al.*, 2012). However, it is not necessarily meant that participants with high level of knowledge and good attitude towards exercise will practice exercise regularly. This is supported by other findings regarding women's knowledge, attitude, and practice (Ribeiro and Milanez, 2011). Motivation also plays an important role to encourage people to exercise regularly. The barriers to exercise as described by the pregnant women in the study suggest that many women do not feel motivated to exercise although they were aware of the benefits. Similar findings were also reported regarding pregnancy related health and fetus (Ribeiro and Milanez, 2011).

LIMITATION

This study was a cross-sectional with purposive sampling, conducted in a few gymnasiums and two recreational parks around Kuantan, Malaysia. Thus, the result may not be giving the reflection of the general population.

CONCLUSION

Improving knowledge of the participants can improve their attitude to change their practice to exercise regularly. Therefore, it is indeed an urgent need to further improve the current health intervention programs for better future. Other than that, the study found that endurance training such as jogging and cycling had been selected as favorite routine of exercise. Lastly, there is the relationship between factors of gender, marital status and age with regularity of exercise. It is recommended to do well-designed prospective multi-centre study to have better understanding in this issue and to provide data for policy makers.

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