



UNIVERSITI PUTRA MALAYSIA

***FACTORS ASSOCIATED WITH PHYSICAL ACTIVITY AMONG
SECONDARY SCHOOL STUDENTS IN BATU PAHAT, JOHOR***

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ABSTRACT

FACTORS ASSOCIATED WITH PHYSICAL ACTIVITY AMONG SECONDARY SCHOOL STUDENTS IN BATU PAHAT, JOHOR

Lilis Ayuni Ibrahim

The prevalence of adolescents in Malaysia being physically active was low and in alarming stage as it will affect their health condition in when they are adult. This cross sectional study was conducted to determine association between socio-demographic backgrounds, academic achievement, psychosocial factors and body weight status with physical activity among secondary students in selected school in Batu Pahat, Johor. A total of 245 students of Form 2 and Form 4 were recruited in this study by using convenience sampling method and consent form for parents were given before questionnaire were distributed to students. This study used two type of study instruments which were self-administered questionnaire to measure their socio-demographic background, academic achievement, physical activity level and psychosocial factors, while anthropometric measurement were taken by researchers twice. Then, the data of weight and height have been analysed by using AnthroPlus software to get their BMI-for-age. There were about 50.6% of female respondents and 49.4% of male respondents participated in this study. Moreover, 48.2% of them were form 2 while 51.8% of them were form 4 with mean age of 14.96 ± 1.00 years old. Most of them (49%) had moderate level of academic achievement, followed by high (41.2%) level of academic achievement and about 9.8% were in low academic achievement. In term of psychosocial factors, there were 35.9% of them have low self-efficacy toward physical activity with boys have higher self-efficacy (43%) compared to their girls counterparts (29%), most of them (79.2%) had high score belief toward physical activity and family was reported to influence more on their physical activity (2.68 ± 0.97) compare to peer influence (2.63 ± 1.00). For body weight status, about 9% were thinness, 60% were in normal weight, 19.2% were overweight, 9% were classified as obesity and 2.9% were in severely obese. As a whole, there were more than half (54.3%) of them were classified under low physical activity, (41.2%) had moderate physical activity and (4.5%) had high physical activity. There were no association between socio-demographic factors (age, household income, parents' educational level and parents' occupation), academic achievement and body weight status with physical activity. Meanwhile sex of the respondents show a significant association with physical activity ($\chi^2 = 12.324, p < 0.001$) in which male were more physically active compared to female. Besides, psychosocial factors have positive and significant association with physical activity that comprised of self-efficacy toward physical activity ($r = 0.651, p < 0.01$), peer influence with physical activity ($r = 0.517, p < 0.01$), family influence with physical activity ($r = 0.417, p < 0.01$) and belief toward physical activity outcomes ($r = 0.247, p < 0.01$). In conclusion, this study reported low prevalence of physical activity level, male were more active than female and psychosocial factors were associated with physical activity among them. Therefore, these factors should be considered in conducting intervention program to raise awareness on importance of physical activity in order to have adequate amount of physical activity.

ABSTRAK

FAKTOR YANG BERIKATAN DENGAN TAHAP FIZIKAL DALAM KALANGAN PELAJAR SEKOLAH MENENGAH DI BATU PAHAT, JOHOR

Lilis Ayuni Ibrahim

Prevalens remaja di Malaysia yang aktif secara fizikal adalah rendah dan dalam tahap yang membimbangkan kerana ia akan memberi kesan kepada keadaan kesihatan mereka ketika mereka memasuki alam dewasa. Kajian keratan rentas ini dijalankan untuk menentukan hubungan antara latar sosio-demografi, pencapaian akademik, faktor psikososial dan status berat badan dengan aktiviti fizikal di kalangan pelajar menengah di SMK Dato Onn di Batu Pahat, Johor. 245 pelajar daripada tingkatan 2 dan tingkatan 4 telah direkrut dalam kajian ini dengan menggunakan kaedah persampelan mudah dan borang persetujuan untuk ibu bapa diberikan dahulu sebelum soal selidik diedarkan kepada pelajar. Kajian ini menggunakan dua jenis instrumen kajian yang bagi, manakala pengukuran antropometrik diambil oleh penyelidik sebanyak dua kali. Kemudian, data berat dan ketinggian akan dianalisis dengan menggunakan perisian AnthroPlus untuk mendapatkan BMI untuk usia mereka. Terdapat kira-kira 50.6% responden perempuan dan 49.4% responden lelaki yang menyertai kajian ini. Selain itu, 48.2% daripadanya adalah tingkatan 2 manakala 51.8% daripadanya adalah tingkatan 4 dengan umur min 14.96 ± 1.00 tahun. Hampir separuh (49%) mempunyai pencapaian akademik yang sederhana, diikuti oleh pencapaian akademik yang tinggi (41.2%) dan kira-kira 9.8% berada dalam pencapaian akademik yang rendah. Dari segi faktor psikososial, terdapat 35.9% daripadanya mempunyai tahap keberkesanan diri yang rendah terhadap aktiviti fizikal dengan lelaki mempunyai keyakinan diri lebih tinggi (43%) berbanding rakan-rakan perempuan mereka (29%), kebanyakan mereka (79.2%) mempunyai kepercayaan yang tinggi terhadap aktiviti fizikal dan keluarga dilaporkan mempengaruhi lebih banyak aktiviti fizikal mereka (2.68 ± 0.97) berbanding dengan pengaruh rakan sebaya (2.63 ± 1.00). Bagi status berat badan, kira-kira 9% kurus, 60% adalah dalam berat badan normal, 19.2% adalah berat badan berlebihan, 9% dikelaskan sebagai obesiti dan 2.9% adalah obesiti yang teruk. Keseluruhannya, terdapat lebih daripada separuh (54.3%) diklasifikasikan dalam aktiviti fizikal yang rendah, (41.2%) mempunyai aktiviti fizikal sederhana dan (4.5%) mempunyai aktiviti fizikal yang tinggi. Tiada hubungan antara faktor sosio-demografi (umur, pendapatan isi rumah, tahap pendidikan ibu bapa dan pendudukan ibu bapa), pencapaian akademik dan status berat badan dengan aktiviti fizikal. Manakala jantina responden menunjukkan hubungan yang signifikan dengan aktiviti fizikal di mana lelaki lebih aktif secara fizikal berbanding wanita. Selain itu, faktor psikososial mempunyai persamaan positif dan signifikan dengan aktiviti fizikal yang terdiri daripada keyakinan diri terhadap aktiviti fizikal, pengaruh rakan sebaya dengan aktiviti fizikal, pengaruh keluarga dan kepercayaan terhadap hasil aktiviti fizikal). Kesimpulannya, kajian ini melaporkan prevalens tahap fizikal yang rendah, lelaki lebih aktif daripada wanita dan faktor psikososial yang dikaitkan dengan aktiviti fizikal di kalangan mereka. Oleh itu, faktor-faktor ini perlu dipertimbangkan dan program intervensi perlu dijalankan untuk meningkatkan kesedaran tentang kepentingan aktiviti fizikal.

CHAPTER 1

1.1. Background

According to definition of World Health Organization 2014, physical activity is any bodily movement or development created by skeletal muscle and required energy consumption. To be physically active in life is one of first line approach and also a primary factors in preventing chronic diseases such as cardiovascular disease, chronic diseases such as hypertension and diabetes, overweight and obesity, psychiatric problems such as depression and anxiety, and colon cancer (Ministry of Health Malaysia, 2008). More worrying, there is decline in number of engaging physical activity especially among adolescents in both developed and developing countries, and Malaysia is of no exception (Bauman et al., 2009; Guthold, Ono, Strong, Chatterji, & Morabia, 2008).

The World Health Organization has defined adolescence is period of age between the ages of 10 to 19 years and this can be further subdivided into 3 groups that is early (10-14 years), middle (15-17 years) and late adolescence (18-19 years). A total of 18% out of 31 million population in Malaysia were adolescents and they are the main concern since their health has been much neglected in the past, hence greater attention and priority should be accorded to this important population (National Adolescents Health Plan Of Action, 2015). Moreover, being an adolescent is a critical time of improvement in which individual way to life decisions and standards of conduct build up, including the decision to be physically active especially during early and middle aged adolescents

(Kumar, Robinson, & Till, 2015). When related to adolescents, school is a primary setting to observe their physical activity behaviour as they spend roughly 50% of their waking day at school.

According to WHO, being physically active for adolescents is at least 60 minutes per day for a minimum 5 days or more per week engaging with any kind of activities that will increase heart rate and make one breathe hard than usual (Baharuddin et al., 2015). However, from the previous studies there is shown that physical activity will decline especially when people enter adolescence (Jago et al., 2005; Pahkala et al., 2007). From data reported by National Health and Morbidity Survey III (MOH, 2008) indicate the prevalence of physical inactivity among Malaysian adults to be 43.7% and this sedentary behaviour can also be observed from children and adolescents. Also, findings from Malaysia Active Healthy Kids Report Card (MAHK) 2016 reported that only 22.8% of adolescents aged 13-17 years old were being physically active. While, findings by NHMS 2017 stated that only 19.8% of the total students were being physically active for a total of at least 60 minutes daily for and about 50.1% of students spent at least three hours of their typical or usual day with sitting activities. Therefore, there is a declining trend of adolescents being physically active in one year interval.

Young Malaysians are inactive, unfit and overweight which has debilitated the long effect to restoring great health to the population particularly in fighting for cardiovascular diseases. Moreover, the factors associated with physical activity level during adolescence is important to reduce the prevalence of sedentary lifestyle and other non-communicable diseases in the future life of young Malaysians. The strongest risk factors that associated with physical activity among adolescents in school were socio-

demographic factors, academic achievement, psychosocial factors and body weight status (Chan et al., 2014; Cheah, Lim, & Kee, 2018; Mohd Nasir et al., 2011; So, 2012; Su et al., 2014). Therefore, this current study proposed to ascertain the factors associated with physical activity among male and female secondary school in Batu Pahat, Johor.

1.2. Problem Statement

Physical inactivity is the main concern of many developing countries in world because currently there is increasing percentage of sedentary lifestyle and no exercise trend in adolescents especially those in secondary school (Aniza & Fairuz, 2009). Physical activity is said to have many benefits than harmful especially in young people that later are predictive of health behaviours throughout adulthood. Decline in physical activity level among adolescents may lead to various health consequences such as cardiovascular disease, diabetes, colon cancer, hypertension obesity as well as promotes psychological wellbeing during their later life (Cdc, 2010).

Since there is a numerous number of studies have revealed that there was significant decline in level of physical activity among adolescents (Jago et al., 2005), they are becoming one of the priority population that need to be concern on to avoid from many negative effect when they enter adulthood period. In order to increase the prevalence of physical activity level among adolescents, it is important to assess the factors that may associated with physical activity so that it was easier for the entities to plan an action for them. Therefore, the factors that might have association with physical

activity level among secondary school students are socio-demographic factors, academic achievement, psychosocial factor and body weight status.

Socio-demographic factors that comprise with sex, age, parental education attainment, parents occupation and household income have association with physical activity level among adolescents such gender and age are the main items that were influence different level of physical activity (Allison, Dwyer, & Makin, 1999). Kjelsås & Augestad (2004) stated that gender is the main important factors to this study of physical activity level which in numerous studies showed the fact that male adolescents are more physically active compare to female adolescents (Aarnio, 2003; MT Mohd Nasir, 2011; Wenthe, Janz, & Levy, 2009). However, when they aged their physical activity level were decline or reduce among girls and boys (Riddoch et al., 2004).

In one study by CDC during 2010 found that physical activity might improve students' academic achievement as their cognitive development developed well whenever they are performing any sports that required movement and energy. In many several studies from other countries reported that physical activity enhance the academic performance and outcomes in adolescents students (So, 2012), but in a study that was performed in Malaysia by Hashim, Golok, & Ali (2011) show a result that students who characterized by high level of physical activity has the lowest academic outcomes along with other different variables that might affect the results. Therefore there is a different findings about academic achievement toward physical activity that were the main purpose of this research study.

A study carried out in Malaysia among adolescents found that psychosocial factors is also one of the predictor to engage with physical activity but did not explore the

difference between male and female (Dan, Mohd Nasir & Zalilah, 2011). There are many studies evidence that physical activity is related with psychosocial factors that are self-efficacy toward physical activity, social influence for physical activity and beliefs toward physical activity outcomes (Adeniyi, Idowu, & Ogwumike, 2012). Findings from Robbins, Pender, Ronis, Kazanis, & Pis in 2004 indicated that physical activity of self-efficacy is higher in male compared to female. But in another study by (Dowda, Dishman, Pfeiffer, & Pate (2007) stated that even if adolescents that have high self-efficacy tend to have greater decline in physical activity if they lack of social support from peer and family. Moreover, male adolescents who have moderate to high intensities of physical activity will have positive belief toward physical activity outcome as it is suit their physical and mental health (Taymoori, Lubans, & Berry, 2010).

Body weight status is the most important indicator of healthy adolescents as it will classified them into underweight, normal weight, overweight or obesity. There were about 50-70% of obese or overweight adolescence become obese adults with higher rate of metabolic, musculoskeletal or cardiovascular diseases (Kumar et al., 2015). Physical activity level and body mass index (BMI) has negative but significant relationship which low level of physical activity is an indicator of obesity (Su et al., 2014; Lahti-Koski, Pietinen, Heliövaara, & Vartiainen, 2002). Differ from study by Wan, Kandiah, & Taib (2004) that overweight adolescents are more active than normal weight adolescents might be due to different segment of priority population. This different is also one of the reason of this current study.

However, results and findings obtained from previous research studies might be different from one and another and not always have positive finding on the factors

associated with physical activity level among adolescents in secondary school. So, there is a need to study the factors of socio-demographic, academic achievement, psychosocial and body weight status to fill the gap and retain the consistency of all the factors with physical activity.

Therefore, this current study is pointed to answer several research questions:

- 1) What is the socio-demographic, academic achievement, psychosocial factors and body weight status of the respondents?
- 2) What is the physical activity level among the respondents?
- 3) Is there any association between socio-demographic, academic achievement, psychosocial factors and body weight status with body weight status among secondary school students?

1.3. Significance of the Study

Physical activity plays an important role in improving health among adolescents to avoid the development of non-communicable diseases during adulthood. In a recent study from Malaysian (GSHS) Global School-based Health Study 2012, the prevalence of adolescents being physically active is very low, 14.1% that leads to various disease during adulthood and increase the number of obese and overweight in adolescents tremendously. Therefore, this serious health issues had risen attention among researchers and policy makers. This recent study will help policy makers to have better understanding

on factors affecting level of physical activity among adolescents thus a better intervention towards promoting physically active lifestyle can be acquaintance.

There is limited information on the factor of socio-demographic, academic achievement among secondary students, psychosocial factors and body weight status that is associated with level of physical activity in ASEAN adolescents (Peltzer & Pengpid, 2016). So this study can help in providing quantitative data on the several factors that have relationship with physical activity among secondary school children especially in Johor, Malaysia. Besides, it can also help to provide additional information to health care provider that has specialised on the research about adolescents such as Ministry of Health and Nutrition Department. This research study can also act as a guideline for the future study and for the source of references for new study in future.

The study on physical activity on adolescents would also be an informational source for Ministry of Education in order to ensure that all of the adolescents would have benefits and advantages in performing physical activity especially for the cognitive function, mental health and healthy body status. The findings of this research will help arising awareness through parents, friends and teachers on healthy growth of adolescence period that is important to their later adulthood.

1.4. Research Objectives

1.4.1. General objective

To determine the factors associated with physical activity level among secondary school students in Batu Pahat Johor.

1.4.2. Specific objectives

1. To determine socio-demographic factors (sex, age, parental education attainment, parents' occupation and household income), academic achievement, psychosocial factors (self-efficacy toward physical activity, social influences for physical activity and beliefs for physical activity outcomes) and body weigh status (height and weight) among secondary school students in Batu Pahat, Johor.
2. To assess physical activity level among secondary school students in Batu Pahat, Johor.
3. To determine the association between socio-demographic factors, academic achievement, psychosocial factors and body weight status with physical activity level among secondary school students in Batu Pahat, Johor.

1.5. Null Hypotheses

1. H_0 There is no significant association between socio-demographic factors with physical activity level among secondary school students in Batu Pahat, Johor.
2. H_0 There is no significant association between academic achievements with physical activity level among secondary school students in Batu Pahat, Johor.
3. H_0 There is no significant association between psychosocial factors with physical activity level among secondary school students in Batu Pahat, Johor.
4. H_0 There is no significant association between body weight status factors with physical activity level among secondary school students in Batu Pahat, Johor.

1.6. Conceptual framework

This study was aimed to determine the factors associated with physical activity level among secondary students in Batu Pahat, Johor. The factors that may associated with physical activity level is referred as independent variables, while physical activity level among secondary students is determined as dependent variable. Based on the previous research study, the factors that may contribute to the physical activity level among secondary school are socio-demographic factors, academic achievement, psychosocial factors and body weight status. The relationship between all of the factors with physical activity level were conceptualized in Figure 1.0.

Based on the conceptual framework in Figure 1.0, the main variable for this study was physical activity level among secondary students in Batu Pahat district in Johor. The relationship between the factors and the physical activity level among priority groups have been studied to know is there any relationship between independent variables with dependent variable. For the socio-demographic factors, the items that have been examine were sex, age, parental education attainment, parent's occupation and household income. Students' final examination result have been taken in order to analyse their result point of average to classify their academic achievement. In order to determine their psychosocial factors, the items that have been assessed were self-efficacy toward physical activity, social influence to physical activity and belief toward physical activity outcomes. Lastly, their height and weight have been taken to analysed body mass index following the z-score method.

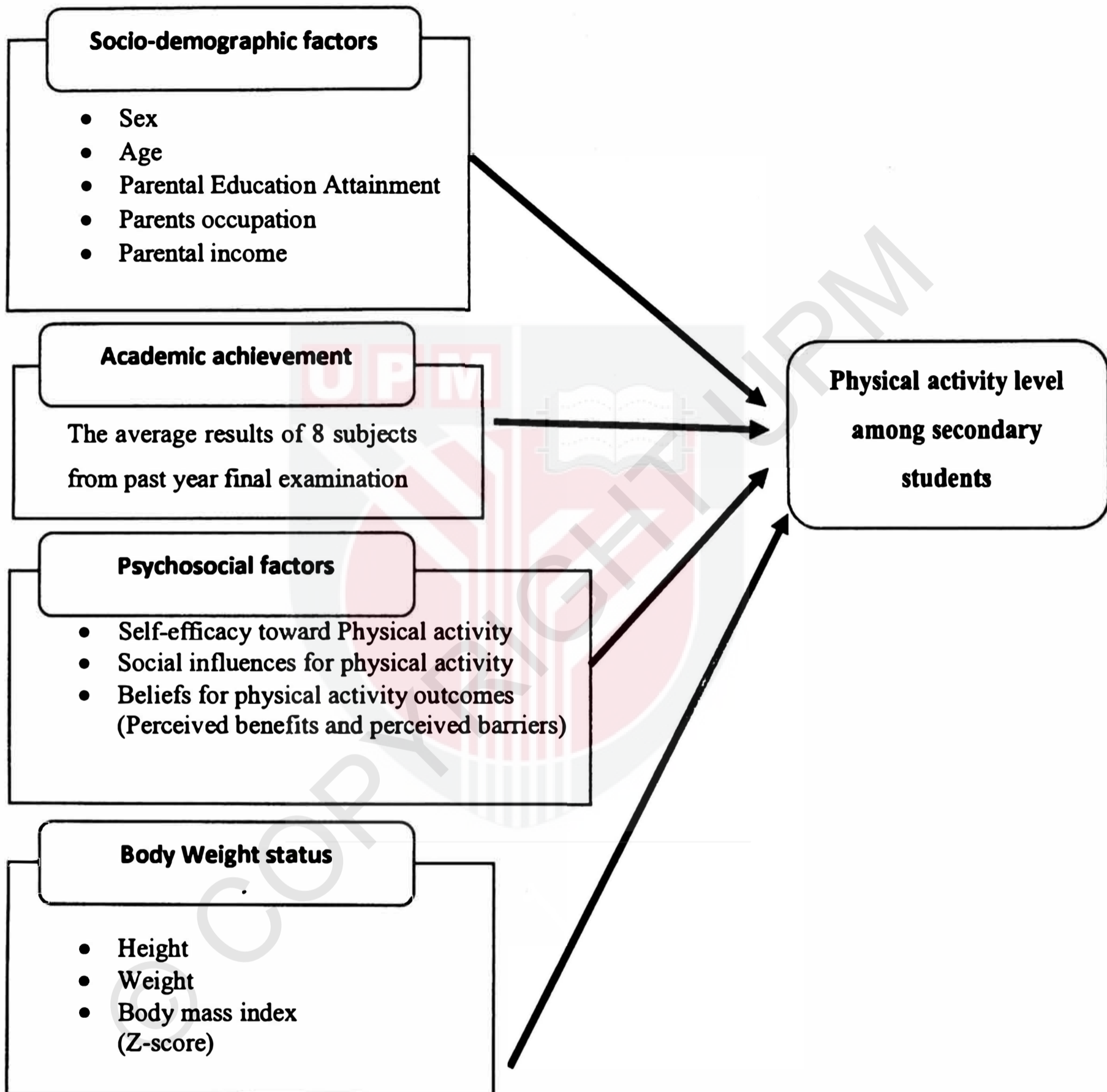


Figure 1.1: The conceptual framework of factors associated with physical activity level among secondary students in Batu Pahat, Johor.

CHAPTER 2

LITERATURE REVIEW

2.1 Physical Activity

Physical activity can be define by WHO, 2015 is as any bodily movement produced by skeletal muscle and required consumption of energy that yield in energy expenditure. Physical activity are not only focus by doing exercise or any sports, thus in can be done through daily life and can be categorized as occupational, sports, conditioning, household, or other activities (Carpersen et al., 1985). Besides, physical activity can be classified into three main categories which are low, moderate and high level from the total of mean score from PAQ-A questionnaire that used to assess the frequency and assumptions of adolescents doing physical activity. The main categories was made through the study of Dan, Mohd Nasir and Zalilah (2011) to ease the current researches to classified the adolescents according to their level of physical activity by answering self-administered questions. The behaviour of being inactive and lack of physical activity has been identified as fourth leading causes of mortality as it prevalence is 6% death globally.

There was a declining trends in physical activity level especially among adolescents attending school that ranged from 11-17 years old in global and even in Malaysia (Bauman et al., 2009; Guthold et al., 2008). There were several of research done in our country to determine the level of physical activity among school-age adolescents in order to ease many agencies and also to raise awareness about these

declining lifestyle among early age population such as a study by Dan SP, Mohd Nasir MT & Zalilah MS in 2011. Data from Malaysia Active Healthy Report Card (MAHK), 2016 reported that only 22.8% of Malaysian adolescents were physically active for at least 60 minutes per day on five or more days in a week, while in one year time findings by NHMS 2017 stated that the percentage of adolescents being physically active is 19.8% of the total students and about half of students spent at least three hours of their typical or usual day with sitting activities.

According to a study to assess level of physical activity and sedentary behaviour among schoolchildren across 34 countries that participated in the Global School-based Student Health Survey (GSHS) found that very little adolescents being active in their life. It is reported that only 23.8% of boys and 15.4% of girls met the recommendation to be physically active while the rest live in sedentariness. Besides, in one study that included seven ASEAN (Association of Southeast Asian Nation) region that were participated in previous GSHS study in 2016 reported that the prevalence of student aged 13-15 years being inactive during school is 80.4% that range from 74.8% in Myanmar to 90.7% in Cambodia. The study measured the overall physical activity of the students such as walking or biking to school and their time spent on sitting. For the prevalence of overall sedentary behaviour was 33.0%, ranging from 10.5% in Cambodia and Myanmar up to 42.7% were reported in Malaysia. Next, adolescents in half of the countries spent more than one third of their time by doing sedentary lifestyle. Furthermore, a study from Saudi Arabia by Al-Hazzaa et al., (2011) a very high proportion of male students 84% and female students 91.2% spent more than 2 hours per day on screen time and half of boys and three-quarters of female students did not perform sufficient physical activity required

by WHO. These results of sedentary lifestyle is becoming the major public health concern in Saudi Arabia. Thus, the national policy need to produce prevention program in order to promote active living and reduce the sedentary lifestyle.

Generally, the decrease percentage of students being physically active is worrying as it will poses negative effects such as cardiovascular diseases, chronic diseases such as diabetes, hypertension and overweight also obesity that might be developed in adulthood period. Moreover, WHO 2015 stated that physical inactivity is known to be the fourth leading risk factor for worldwide mortality that causing about 3.2 million deaths in global. Therefore, there is a need to know the factors that can increase the level of physical activity especially among adolescents that spend most of their walking day in school.

2.2 Factors associated with Physical activity

2.2.1 Socio-demographic background

Demographic factors play an important part in determining someone's level of physical activity (Y. K. Cheah et al., 2018) as it is important to understand the differences of adolescents background so that policy marker may know the causes to produce success intervention program of any health problems. Therefore, the potential correlates that might have association with physical activity level are sex, age, parental education attainment, parent occupation and household income of the family.

a) Sex

Sex was one of the best predictors of determining factors for physical activity level. In a cross-sectional study in Kuantan, Malaysia by Dan SP, Mohd Nasir MT & Zalilah MS (2011) revealed that males is more active than female and 45.1% female has low in physical activity than male which is 22.1%. Thus, this study also showed that males were more physically active than females whereby female adolescents were twice as likely as male respondents to fall in the low physical activity level category. In other study conducted in Southeast Brazil reported that boys are 62.6% being physically active whereas only 34.5% girls are active and a study from Nigeria by Adewale L et al., 2016 also found that boys are more physically active (54.3%) than girls (45.7%). A cross sectional study among 4,325 subjects from the city in Southern Brazil which in Pelotas by (Dumith et al., 2010) reported that prevalence of physical activity were 48.2% which comprised of 62.6% greater in boys compared to 34.5% of girls. The level of physical activity were analysed using the approached of prevalence of engaging in at least 300 minutes per week. Other than that, male adolescents spent a greater percentage time in their day by engaging with moderate to vigorous physical activity (MVPA) than their female counterparts supporting many earlier evidence about it (Wenthe et al., 2009). Overall from all results reported from previous studies stated that boys are being more active and frequently engaging with physical activity than girls due to many circumstance.

b) Age

A study in Maiduguri, Nigeria among 1006 secondary school adolescents found that younger adolescents which age 12 to 14 years were significantly higher in moderate-intensity physical activity ($P = 0.024$) and total physical activity level ($P = 0.049$) than the older adolescents that age 15 to 18 years old (Oyeyemi et al., 2016). In similar study of 2185 school children to assess level of physical activity done in Denmark, Portugal, Estonia and Norway stated that the great majority of boys and girls achieved current health-related physical activity recommendations in 9 years old which is low age compared to at age 15. During increasing of age, fewer children achieved the guideline to be physically active and gender difference were apparent. In three cohort studies of 8483 adolescents who participated in the Health Behaviour in School-aged Children Portuguese survey in 2002, 2006 and 2010 reported that adolescent's boy who aged 11-13 years old practicing physical activity in the past 7 days was between 4.2 ± 2.1 to 4.4 ± 2.1 times while adolescents that age 15 to 17 practising 3.5 ± 1.9 times a week in 2002, 3.9 ± 1.9 times a week in 2006 and 3.8 ± 1.9 times a week in 2010, with a significant increase from 2002 to 2006 and 2010 (Marques & Gaspar De Matos, 2014).

c) Parental educational attainment

Educational level of parents were classified into none which mean no education received, primary education which is during primary school, secondary level and tertiary level that comprised of education in university. In previous studies reported that parental education have a significant relationship with their children level of physical activity. For

example, in a few cross sectional studies reported that adolescents whose parents had higher educational level were more active than those adolescents whose parents had lower educational level (Schmitz et al., 2002; Gordon-Larson et al., 2000; Lasheras et al., 2001). In one of the local study showed that that there is significant association between physical activity level and total years of father's schooling (MT Mohd Nasir, 2011).

d) Household income

Household income was refers as combination of father and mother income in a month. In a cross sectional survey that was conducted among 1006 representative of secondary school students reported that high parental socioeconomic status was associated with more leisure-time PA, more score of moderate-intensity and vigorous-intensity (MVPA) and less active transportation to school. While study in Germany children and adolescents that age 6-17 years old found that physical activity was associated with low income. A study conducted in California during 2010 until 2012 by (Smith & Yin, 2015) documented that lower family income was associated with lower fitness score and higher prevalence of obesity compare to children with high family income. These inverse associations were seen among American Indian, Asian, Pacific Islander, Filipino, Hispanic/Latino, African American, and white children. Moreover, one study conducted by United State cities to assess the rates and correlates of students that should compliance to national physical activity program that was done to decrease the level of sedentariness were among adolescents who come from low income family, older adolescents as well as female. This targeted adolescents must have those criteria because

it was the main indicators of being inactive among adolescents. Lastly, in a seven study from ASEAN region stated that for a boys students that have lower socioeconomic status that experience hunger and poverty in their life would associated with physical inactivity. These are also reported in most of the low income and medium income countries that participated on this study. However, this report gave different result for girl adolescents which is higher socioeconomic made them less walking or biking to school and being bullied were associated with sedentary behaviour (Peltzer & Pengpid, 2016).

2.2.2 Academic Achievement

According to Good & Phi (1959), academic achievement is referred as marks or test scores obtained from examination to assess students' knowledge obtained and skill learnt in many subjects in school. The prevalence of inactivity has become great concern as children and adolescents have increasingly sedentary and this lifestyle have led to many substantial increase in obesity problem and metabolic diseases. However, a sedentary behaviour during childhood not only influences health consequences but also influences students' cognitive and brain health as well. Study by .(Kalantari & Esmailzadeh, 2016) examined that low level of physical activity might associated with declines in cognitive abilities, brain structure and function and academic achievements. In reviewing the previous literature between academic achievement and physical activity it is observed that some studies reported significant positive relationship between them (Sibley B, 2003, Tomporowski P, 2013 & Dawyer. T, 2015,), but there are also some studies that gave contradict result that there is no relationship or even negative relationship between those two variables of physical activity and academic. Maintaining a

high level of physical activity may be one of the factors to maintain good performance of academic in school children as their brain have ability to use their brain with any condition or circumstance.

A research conducted among local university students in Malaysia have revealed that female students have higher academic achievement and have higher grade point averages compared to male. The association between physical activity and academic achievement is positive and thus, physical activities could help enhance the brain activities and gives better performance in academic achievement (Ahmad Kamal & Nurhidayah, 2014). Moreover, study conducted by Vanessa Schley in 2002 found that student who did participate in physical activity program are tend to have higher grade point average, better attendance results, lower rate of dropouts and also have good discipline in school. A cross sectional study in Maule Region of Chile among adolescents have stated that an obesity adolescents, lack of physical activity were less likely to achieve high academic performance. While in both genders, adolescents with obesity and excessive screen time gained worse grades compared to their non-obese peers and their peers that complied with screen time recommendations (García-Hermoso & Marina, 2017). A different cluster analysis cross sectional study that was conducted in Malaysia adolescents boy that aged 13 to 17 years that revealed three distinct cluster groups have contradict results from other studies. It has been stated that high physical activity group of students had low academic performance. Furthermore, students who have good academic performance were low in physical activity level and all variable measurements (Hairul, Golok, & Ali, 2011).



2.2.3 Psychosocial factors

Psychosocial factors are usually linked to a particular theory or theory-related construct or to multiple theories and constructs. There are vary in many other studies which may be included as individually or with combination with other psychosocial factors in each of the study. Although that psychosocial factors are often related to physical activity as a component for intervention program by policy makers, the effectiveness of intervention based on improving psychosocial factors as a route to increase physical activity still remain unclear in many studies. For instance, in a study conducted among older African American women found that intervention that include self-efficacy through group exercise session, materials and discussion of physical activity may led to increase their level of being physically active (B. Resnick et al., 2008). Whereas, in the other study that also reported in Africa American country stated that the intervention that include psychosocial factors as their components did not yield in better involvement in physical activity (Baruth M, Wilcox S, Dunn AL, et al., 2010). As overall result from a study by Mama. K et al. (2015) reported that social support was found as a common psychosocial factors reported, and followed by motivational readiness and then self-efficacy as being associated to increase physical activity.

2.2.4 Self-efficacy

Research conducted in Bau Sawarak among rural secondary school students have revealed that male students between 13 to 15 years old had higher self-efficacy in physical activity compared to females (W. L. Cheah, Helmy, & Chang, 2014). Other cross sectional study conducted in Northeast Brazil among 14 up to 19 years old secondary school students found that adolescents that have positive attitudes towards physical activity are more active. There is also a significant positive association between self-efficacy and physical activity level in adolescents (Castro, Nunes, & Silva, 2016). In different design study of randomized control trial in South Carolina stated the relationship for self-efficacy and physical activity was stronger in boys than girls of 10 to 14 years old. Moreover, self-efficacy for overcoming barriers to PA was shown to account for the relationship between parent instrumental social support and boys' PA (Jongenelis et. al, 2018). Besides, a study that was conducted among 168 African American and European American reported that pre-activity self-efficacy predicted perceived exertion only in boys and are not exist in girls. Before the activity which also known as pre-activity, girls are lower than boy in self-efficacy and boys are reported to have high perceived exertion. Those adolescents that have uncomfortable perception at early of this program towards exertions to increase physical activity are more likely to discourage their future activity. Therefore, there is a need to have an intervention that can lower their perception of exertion that will enhance their self-efficacy and competence to the physical activity (Robbins et al., 2004).

2.2.5 Social Influences

Previous research conducted among 250 secondary school youth in Iowa City has found that family support has the strongest association with physical activity among males when measured objectively ($r=0.37$) but peer support will also have association with their physical activity involvement. Whereas for girls, family support is the only factors associated with their physical activity level. This association was small but statistically significant (Wenthe et al., 2009). According to local study conducted in Sarawak Malaysia on adolescents also have same result that males had greater pressure influence than female adolescents. In overall genders, family had stronger influences than peers. Furthermore, meta-analysis study suggest that social support is not a strong predictor of physical activity in adolescent girls though parents and friends may have a role in enhancing PA (Laird, Fawkner, Kelly, McNamee, & Niven, 2016).

2.2.6 Beliefs for Physical Activity Outcomes

Recent study during 2014 that was conducted to measure factors associated with physical inactivity among rural adolescents that aged 13 up to 15 years old found that boy students had stronger belief toward their physical activity compare to female students. This have shown that boy students always have positive perception when they are being physically active and also increase their level of physical activity (W. L. Cheah et al., 2014). Similar study conducted in different state of Malaysia, Kuantan also yield in same results that belief for physical activity outcomes were positively correlated with level of physical activity level that indicate high beliefs toward PA outcome would lead them to

be more active (MT Mohd Nasir, 2011). The example of expected positive outcomes by doing physical activity by recent study on Iranian boys was a belief that exercising an hour a day every day of the week will lead to weight loss and positive mental health (Taymoori et al., 2010). One study stated that adolescents that have bad perception at early of this program towards exertions to increase physical activity are more likely to discourage their future physical activity and made them less performing physical activity. (Robbins et al., 2004).

2.2.7 Body Mass Index (BMI)

An anthropometric measurements of the students such as weight and height are measured to obtain their body mass index (BMI). Their BMI were analysed through AnthroPlus to obtained their z-score of BMI-for-age percentile that were specified made for children and adolescents to know either they are at risk of nutrition problems such as obesity, overweight or underweight. Currently, the problem of obesity and overweight had becoming most serious public health issues in 21st century as it gave many negative consequences to health causes morbidity and mortality to many population in the world. Around the world it is reported that 42 million of children are suffering from obesity and overweight according to data from World Health organization 2016. Malaysian Association for The Study of Obesity (2009) reported that there are increasing pattern of overweight and obesity among children where 11.0% overweight and 9.7% in 2002 increase to 12.8% overweight and 13.7% obese in 2008. Therefore, there is a need for intervention to reduce the obesity and overweight trend among school children in Malaysia.

In Malaysia, a study that was conducted in Peninsula Malaysia during 2014 among 1361 school-going adolescents to examine the association between physical activity and body composition and BMI were included in this study. This study had found that most of the adolescents, 63.9% in this study were physically inactive. There was a weak but significant correlation between self-reported physical activity scores and indicators of obesity.. Therefore, this study has conclude that high PA were inversely associated with precursor risk factors of obesity (Su et al., 2014).

Other than that, in a cross sectional study that conducted in Cameroon by Lifoter K. Navti, et, al (2017) among early adolescents students found that more number of boys were overweight and obesity than girls. Moreover, the result for moderate and high physical activity were significantly associated with lower prevalence of being overweight and obesity. So that, those with moderate and high sedentary lifestyle were more significantly to be overweight and obese.

Similar study conducted in South Carolina also revealed that higher risk of overweight and obesity is associated participation in physical activity. Thus, higher physical activity was negatively associated with risk of overweight and obesity. The findings also shown that the number of days physically active was inversely associated the prevalence of overweight and obesity among them. It was found that age during adolescent had a higher prevalence of obesity (38.8%) than the middle childhood (32.9%) or early childhood (30.6%) groups (Ickpyo Hong et al., 2012). Furthermore, the study from Iran by (Al-Hazaa, Abahussain, Al-Sobayel, Qahwaji, & Musaiger, 2011)also stated that BMI had a significant positive association with computer-use and sedentary behaviour.

CHAPTER 3

METHODOLOGY

3.1. Study design

This was a cross-sectional study aim to determine the association between socio-demographic factors, academic achievement, psychosocial factors, body weight status and physical activity among secondary students in Batu Pahat, Johor.

3.2. Study location

This study was conducted among school age adolescents from secondary school located in Batu Pahat, Johor. Johor is the second populous state in Malaysia that consists of 3,233,434 population (Department of Statistic Malaysia, 2010). Johor is located at the south with capacity of 19, 210.00 kilometres square. It has 10 division of districts which are Batu Pahat, Johor Bahru, Kluang, Kota Tinggi, Kulajaya, Muar, Mersing, Pontian, Segamat and Tangkak.

Batu Pahat is the northwest coast district that was known as growing city becoming 16th most populated Malaysian urban centre by 2012. It covered approximately 1,878.00 kilometres square with 335, 368 population (JPS Daerah Batu Pahat, 2011). Batu Pahat was selected study location due to its convenience place for data collection since it has 31 secondary schools. Therefore, among all the listed secondary school, there were 21 schools have inclusion criteria for public national school, all forms available, non-single gender, and non-religious school. Hence, SMK Dato Onn in Batu Pahat was a school that has been selected.

3.3. Sample size determination

The sample size for this study was calculated by using formula for correlation studies by (Hulley, Cummings, Browner, Grady & Newman, 2013).

$$C = 0.5 * \ln [(1+r) / (1-r)]$$

$$N = [(Z\alpha + Z\beta) / C]^2 + 3$$

Where;

$$\alpha = Z\alpha = 1.96$$

$$\beta = Z\beta = 0.84$$

r = the expected correlation coefficient

Table 3.1: Calculation for correlation studies.

Correlation studies	Correlation, r	Sample size, N
Body mass index, BMI with physical activity level (Kantanista et al., 2015)	0.23	$C = 0.5 * \ln [(1+0.23) / (1-0.23)] = 0.234$ $N = [(1.96+0.84) / 0.234]^2 + 3$ $= 146$
Academic achievement with physical activity (Han, 2018)	0.225	$C = 0.5 * \ln [(1+0.225) / (1-0.225)] = 0.229$ $N = [(1.96+0.84) / 0.229]^2 + 3$ $= 153$
Self-efficacy with physical activity (Kang & Kim, 2015)	0.44	$C = 0.5 * \ln [(1+0.44) / (1-0.44)] = 0.47$ $N = [(1.96+0.84) / 0.47]^2 + 3$ $= 39$

After calculation by the formula of two proportions and correlations studies, the sample size is 153. Design effect for the sampling design also needed to be considered as below:

Table 3.2: Design effect for the sample

Criteria	Calculation
Sample size determination	Number of respondents, N = 153
Adjust for the estimated sample effect	DEFF = 1.3 So, $153 \times 1.3 = 199$
Adjust for the expected response rate	Response rate = 95% So, $199 / 0.95 = 209$
Adjust for the expected proportion eligible	% of eligible = 90% So, $209 / 0.9 = 232$ respondents

Therefore, the estimated total number of the respondents for this study is **232** respondents from SMK Dato Onn, Batu Pahat Johor. After all, there were 245 students participated in this data collection.

3.4. Sampling design

A multistage random sampling method is used for this study to choose the secondary school. Johor is surrounded by 10 education districts which are Batu Pahat, Johor Bahru, Kluang, Kota Tinggi, Kulaijaya, Muar, Mersing, Pontian, Segamat and Tangkak. Batu Pahat is randomly selected as there are about thirty-one secondary schools available in Batu Pahat (Pejabat Pelajaran Daerah Batu Pahat, 2016). The inclusion

criteria for secondary school that have been selected were public national school, all forms available, non-single gender, and non-religious school. Twenty out of thirty-one secondary schools fulfilled the inclusion criteria stated. Sekolah Menengah Kebangsaan Dato Onn was randomly selected among all the twenty schools. The election of students was been made by their Guru Hal Ehwal Murid (HEM) to ease the entire data collection. Five classes for each form which were have good academic performance classes, class that have many athletes in the middle and another classes that have low performance of academic achievement have been chosen. The sampling procedures were shown in figure below:

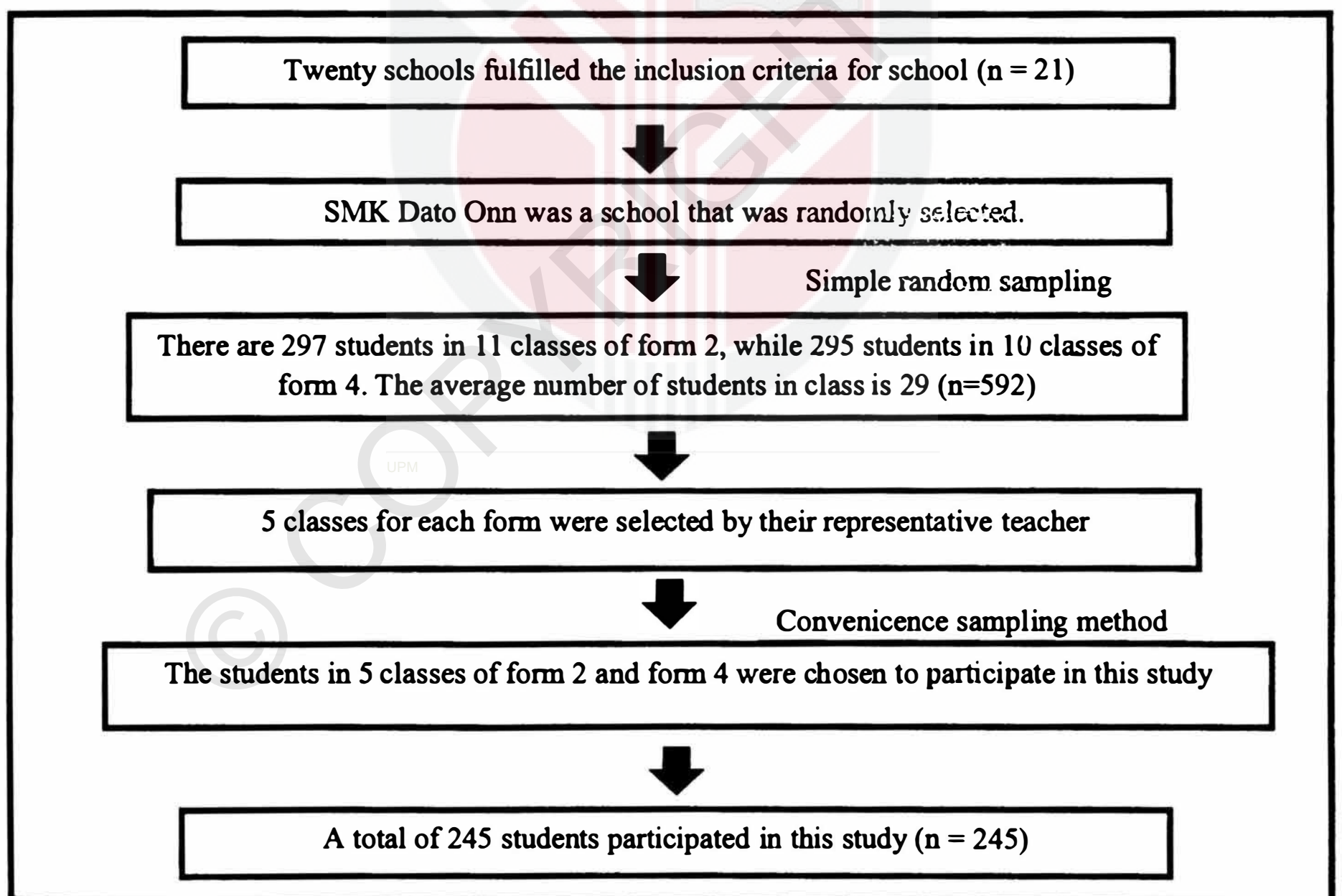


Figure 3.1: Sampling procedure

3.5. Respondents

Respondents for this study were consist of Form 2 and Form 4 students in Sekolah Menengah Kebangsaan Dato Onn. All student from Form 1, Form 3 and Form 5 were excluded from this study as there is no previous result for form 1 students in that school, while form 3 students are having Pentaksiran Tingkatan 3 (PT3) and form 5 students are having Sijil Pelajaran Malaysia (SPM). All respondents have been chose based on inclusion and exclusion criteria. The inclusion and exclusion criteria are as below:

Table 3.3: Inclusion and exclusion criteria of students

Inclusion criteria	Exclusion criteria
Malaysian	Adolescents with any disability and health problem (example: physical impairment, blindness, deafness, chronic diseases, handicap)
All gender	Adolescents who did not return back their
Adolescents from Form 2 and Form 4	parents' consent form
Malay	

3.6. Study instruments

A detailed descriptions of questionnaire used in this study are listed below. A Malay version, self-administrative was used in this study for the convenience of respondents in this secondary schools. Socio-demographic background, academic achievement, psychosocial factors and physical activity level was assessed in this questionnaire, while body weight status such as weight and height were measured by researcher.

3.6.1. Socio-demographic factors

The information of respondents that were comprised of gender, age, mother and father education attainment, mother and father occupation and also mother and father's income have been obtained and filled by respondents themselves.

3.6.2. Academic Achievement

Academic performance were analysed based on final year result for form 2 students while form 4 students' were analysed from their previous Pentaksiran Tingkatan 3 (PT3) result. A result from single grade point average (GPA) were obtained by averaging the results of eight subject they have taken (Hairul et al., 2011). Both have previous examination by the time they are form 1 and form 3 with total of eight subjects that comprise of Malay language, English language, Mathematics, Sciences, History, Geography, Islamic studies and Living Skills. Students' grade were converted to a numerical form ranging from 6 (Grade A), 5 (Grade B), 4 (Grade C), 3 (Grade D), 2

(Grade E) and 1 (Grade F). Students 8 subjects' results have been converted into numerical form first and then divided into eight to assess their academic achievement score (Hairul et al., 2011). By this result of ranking, we can conclude those students' who have higher GPA showed a better academic performance compared to lower GPA as classified in table below:

Table 3.4: Classification of academic achievement

Academic Achievement score	Academic Achievement Level
1.00 to 2.66	Low
2.67 to 4.33	Moderate
4.34 to 6.00	High

3.6.3. Physical Activity Level

The level of PA among the students have been assessed by using Physical Activity Questionnaire for Adolescents (PAQ-A) for age 14-19 years was adapted from Ernst and Pangrazi (1999) and Kowalski, Crocker, & Donen, 2004. The PAQ-A is a self-administered, 7 day recall instrument in order to assess the general level of physical activity for adolescents. The activities that were listed out was modified following the suitable physical activities that commonly done in Malaysian school setting. The PAQ-A was comprised with 10 items which are item 1 was on spare time activity for the past 7 days while items 2 to 8 are on the activities that was related during PE (physical education), lunch, right after school, evening, weekends and describes you best. For item

1, respondents are required to answer on the PA checklist that they were done during past 7 days where scored on 5-point scale range from 'no' activity being scored as 1 and '7 times or more' being scored as 5. Meanwhile for item 2 to 8, the answer start lowest activity response being score 1 and up to highest activity response being score 5. For the item 9, respondents are required to answer the frequency of doing physical activity in the previous week which 'none' indicate score 1 while 'very often' indicate score 5. For item 10, used to identify students who had unusual activity during the previous week, but this question is not used as part of the summary activity score. Finally, once the value of 1-5 for each 9 items were received, the mean of these 9 items is the result of final summary PAQ-A activity. Respondents were categorized into three categories of level of physical activity based on their mean total score that ranged from low, moderate and high. The indicator for each level of physical activity were adapted from a study conducted by Dan, Mohd Nasir and Zalilah (2011) as shown in the table below:

Table 3.5: Classification of physical activity level

Physical activity score	Physical activity level
1.00 to 2.33	Low
2.34 to 3.66	Moderate
3.67 to 5.00	High

3.6.4. Psychosocial factors

This section had measured 3 factors that were relevant to measure psychosocial factors among adolescents which are self-efficacy toward physical activity, social influence for physical activity and belief on physical activity outcomes. A previous study

from W. L. Cheah, Helmy, & Chang, 2014 on physical inactivity among adolescents had used the similar questionnaire that was translated to Bahasa Melayu. A permission to access this translated questionnaire was approved by from Assoc Prof Dr. Cheag Whye Lian, UNIMAS's lecturer.

Self-efficacy toward physical activity or confidence of the respondents to be physically active have been assessed by using questionnaire from (Saunders et al., 1997) that consists of 17 items altogether. A 5-point scale respond of "not at all confidence" being 1 to "extremely confidence" being 5 for each item. A high score will show the high self-efficacy while low score will result with low efficacy toward physical activity.

Social influence for physical activity have been assessed by using questionnaire from Saunders et al., (1997). It consists of 8 items in order to assess peer influence and family influence toward being physically active, based on a 5-point scale range from "not at all" being 1 and "a great deal" being 5.

Lastly, in order to measure respondents' belief toward physical activity outcome, a total of 16 items was adapted from Saunders et al., (1997). The respondents were needed to answer by using 5-point scale range from 1 "strongly disagree" and 5 "strongly agree". Higher score will indicate strong positive belief in physical activity outcomes.

3.6.5. Body Weight Status

In order to measure respondents' height and weight, the researcher had assisted them to take their measurement to avoid from too many error if self-reported measurement if done. By using TANITA digital weighing scale, each weight of the

respondents were measured without shoes and socks, without belt and emptying their pocket from any things. For height measurement, the respondents are required to stand upright on a flat surface while their back of their heels and occiput have touch the wall to make sure their height is correct and accurate by using SECA body meter. Both of the instruments were calibrated and re-zero before researcher start to measure.

For each respondents, height and weight were taken twice and take the average to calculate the body mass index (BMI). The data of body weight status were transferred into WHO AntroPlus software for children and adolescents adjusted for different gender and age according to BMI-for-age percentile using z-score determination. BMI-for-age classification are as below:

Table 3.6: Classification for BMI-for-age of WHO reference 2007 for children adolescents

Z-score	Classification For BMI-for-Age
< - 3 SD	Severe thinness
< - 3 SD to < - 2 SD	Thinness
< - 2 SD to < 1 SD	Normal
< 1 SD to < 2 SD	Overweight
< 2 SD to < 3 SD	Obese
> 3 SD	Severely obese

3.7. Ethical Approval

For the sake of this study, was send to Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia (JKEUPM) in order to obtain approval from them. Moreover, the approval for conducting study protocol in secondary school have

been obtain from Ministry of Education Malaysia (MOE) Putrajaya and Batu Pahat Education Office PPD. Thus, the permission from the principal of secondary school that was selected, SMK Dato Onn were obtained. Before the study conducted, respondents have been given an informed consent form informing the aim for this study and approval from their parents. All the information were confidently kept as the details of the respondents will not be revealed on this study.

3.8. Pre-Test

A set of questionnaire were pre-tested on 18 adolescents from form 2 and form 4 from the school that have the same criteria with real respondents before the study conducted. This pre-test was conducted to identify the reliability and validity of the questionnaire, the time needed to complete a set of questionnaire and to identify either the instructions given to the respondents can be easily understand or not. Based on the pre-test, questionnaire were regenerated if there is problems arise or it is not suitable for the respondents. A group of adolescents that was involved in this pre-testing are excluded during the real data collection.

3.9. Data Collection

This study was conducted during mid-semester break from 14 January 2019 to 10 February 2019. The election of students was been made by their Guru Hal Ehwal Murid (HEM) to ease the entire data collection. Five classes for each form which were have

good academic performance classes, class that have many athletes in the middle and another classes that have low performance of academic Five classes for each form which were have good academic performance classes, class that have many athletes in the middle and another classes that have low performance of academic. A set of questionnaire were distributed to the respondents and they are required to answer all sections from the questionnaire that consists of socio-demographic part, academic achievement results, psychosocial part and physical activity part by themselves. Though, for the anthropometry measurement to assess their body mass index (BMI) section were conducted by researcher in order to obtain their height and weight after all respondents finish answering the questionnaire.

3.9.1. Data Analysis

After finish collecting data from respondents, all data were gathered and analysed by using IBM SPSS Statistics 22 software. The descriptive analysis that have shown the results of frequencies, percentage, means and standard deviation of all variables. Moreover, the association between the results for socio-demographic factors, academic achievement, psychosocial factors and body weight status with physical activity level have beeb further analysed by using the Pearson correlation coefficients and Chi-Square tests. The level of significance among all variables have been set as $p < 0.05$.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Socio-demographic background

This study was conducted in Sekolah Menengah Kebangsaan Dato Onn, Batu Pahat Johor. Five classes from form 2 and five classes from Form 4 were chosen by Guru Kanan Hal Ehwal Murid (HEM) to participate in this study. The students in all ten classes fulfilled the inclusion criteria stated. A total of 245 students (49.4% of male and 50.6% of female) that aged 14 and 16 years old with a mean age of 14.96 ± 1.00 were participated in this study. The percentage based on their age were 51.8% are from Form 2 and another 48.2% are from Form 4. The distribution of gender from recent study show that more female than male participated in this study which 49.4% of them were male and another 50.6% were female. This result was correspond with the study conducted in Kuantan, Pahang which were participated by 41.8% male and 58.2% female respondents (MT Mohd Nasir, 2011). Moreover, in a previous study conducted also show the same result that the percentage of female (66.2%) were higher compare to male (33.8%) participation in secondary school (W. L. Cheah et al., 2014). The socio-demographic background distribution of the respondents in this study as shown in Table 4.1 below.

Table 4.1: Socio demographic backgrounds of the respondents (n=245)

Characteristics	Male (n=121) Mean ± SD / n (%)	Female (n=124) Mean ± SD / n (%)	Total (n=245) Mean ± SD / n (%)
Age (years)	14.96 ± 1.00	14.97 ± 1.00	14.96 ± 1.00
14	63 (52.1)	64 (51.6)	127 (51.8)
16	58 (47.9)	60 (48.4)	118 (48.2)
Ethnicity			
Malay	121 (49.4)	124 (50.6)	245 (100)
Household income (RM)¹	2935.65 ± 2828.19	2424.84 ± 2384.05	2677.12 ± 2620.00
<RM4830 (B40)	101 (83.5)	112 (90.3)	213 (86.9)
RM4830 – 9409 (M40)	15 (12.4)	9 (7.3)	24 (9.8)
>RM9410 (T20)	5 (4.1)	3 (2.4)	8 (3.3)
Father educational level			
No educational	5 (4.1)	7 (5.6)	12 (4.9)
Primary	5 (4.1)	2 (1.6)	7 (2.9)
Secondary	84 (69.4)	96 (77.4)	180 (73.5)
Tertiary	27 (22.3)	19 (15.3)	46 (18.8)
Mother educational level			
No educational	2 (1.7)	2 (1.6)	4 (1.6)
Primary	1 (0.8)	2 (1.6)	3 (1.2)
Secondary	97 (80.2)	106 (85.5)	203 (82.9)
Tertiary	21 (17.4)	14 (11.3)	35 (14.3)
Father occupation			
None (not working)	6 (5.0)	14 (11.3)	20 (8.2)
Self-employed	50 (41.3)	49 (39.5)	99 (40.4)
Government	37 (30.6)	36 (29.0)	73 (29.8)
Private	28 (23.1)	25 (20.2)	53 (21.6)
Mother occupation			
None (not working)	73 (60.3)	73 (58.9)	146 (59.6)
Self-employed	20 (16.5)	18 (14.5)	38 (15.5)
Government	20 (16.5)	17 (13.7)	37 (15.1)
Private	8 (6.6)	16 (12.9)	24 (9.8)

¹ Based on Report of Household Income and Basic Amenities Survey 2016 by Department of Statistics Malaysia.

All of students that participated in this study were comprised by all Malay. There were no other races participated in this study because all students in that school are Malay. Furthermore, the area of this study are known as suburbs area which is located just between town and rural area. The suburbs area in Batu Pahat were mainly comprised of 63.2% Malay, 29.7% are Chinese, 1.6% are Indian and the rest are others (Department of Statistic Malaysia, 2016). However, this result did not show similar result with other study conducted in secondary school such that 56.2% of the respondents were Malay, 42.0% were Chinese and 1.8% were Indian. The difference of ethnicity might be due to different area and also different type of school studied (MT Mohd Nasir, 2011).

The mean monthly income of the students were RM 2677.12±2620.00. Further classification of monthly income were classified according to Johor threshold of monthly household gross income by household group and state, Malaysia 2016 by Majlis Amanah Rakyat. It is divided in to three categories which are Below 40 (B40) that monthly income is less than RM4830.00, Middle 40 (M40) that is monthly income between RM4831.00 and RM9409.00 and Upper 20 (T20) which is monthly income greater than RM9410.00. Most of the students were classified as B40 (86.9%), followed by M40 (9.8%) and T20 which is only (3.3%). Again, from the study located in Kuantan, Pahang stated the means household income among those respondents was RM 3238.12±2740.55. Thus, more than one-third of the respondents (38.5%) have household income that was greater than RM 3000.00, followed by 60% were classified onto household income that range RM 501.00 to RM 2999.99 while the rest of 1.6% were classified onto less than RM 500.00 (MT Mohd Nasir, 2011).

Moreover, most of the respondents' father (73.5%) and mother (80.9%) attained secondary school level. Whereas, 18.8% of their fathers and 14.3% of their mothers were in tertiary level which is the highest educational level of them were in university (diploma, degree, master or PhD). There were 2.9% of father and 1.2% of mother have higher school until primary school level. Besides, 4.9% of respondents' father and 1.6% of respondents' mother did not attained any education.

For the parents' occupation, 40.4% of respondent's father worked with their own by self-employed, followed by 29.8% of them work in government sectors, 21.6% are working in private sectors and only 8.2% of their fathers did not working due to health problems. Thus, for respondents' mother, there are high percentage of them 59.6% did not working and act as housewife, while 15.5% are work by their own, 15.1% are working in government sector and other 9.8% are working in private sectors.

4.2 Academic Achievement

Table 4.2: Distribution of respondents by grades from final year examination and PT3

Subjects	Scales					
	A	B	C	D	E	F
Malay language	71 (29.0)	78 (31.8)	48 (19.6)	26 (10.6)	16 (6.5)	6 (2.4)
English language	14 (5.7)	29 (11.8)	72 (29.4)	52 (21.2)	43 (17.6)	35 (14.3)
Science	8 (3.3)	27 (11.0)	78 (31.8)	65 (26.5)	35 (14.3)	32 (13.1)
Mathematics	8 (3.3)	35 (15.3)	50 (20.4)	45 (18.4)	46 (18.8)	61 (24.9)
Geography	77 (31.4)	60 (24.5)	54 (22.0)	25 (10.2)	11 (4.5)	18 (7.3)

History	52 (21.2)	67 (27.3)	58 (23.7)	32 (13.1)	17 (6.9)	19 (7.8)
Living skills	65 (26.5)	66 (26.9)	67 (27.3)	18 (7.3)	12 (4.9)	17 (6.9)
Islamic studies	85 (34.7)	74 (30.2)	42 (17.1)	14 (5.7)	6 (2.4)	24 (9.8)

Respondents' academic achievement was assessed by using results from their past final year examination for form 2 students, while for form 4 were using their PT3 examination result. The distribution of respondents by academic achievement was tabulated in Table 4.2 above.

From the table, most of the respondents get B grade for their Malay language subjects (31.8%), followed by most of them about (29.4%) get C for their English language subjects, C for their Science subjects (31.8%), F for their Mathematics subject (24.9%), A for Geography subject (31.4%), C for History subject (23.7%), C for Living skills subject (27.3%) and A for Islamic studies (34.7%).

Table 4.3: Distribution of respondents by academic achievement

	Male (n=121) Mean ± SD / n (%)	Female (n=124) Mean ± SD / n (%)	Total (n=245) Mean ± SD / n (%)
Academic achievement	3.50 ± 1.15	4.40 ± 0.79	3.95 ± 1.08
Low	22 (18.2)	2 (1.6)	24 (9.8)
Moderate	70 (57.9)	50 (40.3)	120 (49.0)
High	29 (24.0)	72 (58.1)	101 (41.2)

Table 4.3 showed the distribution of academic achievement based on category among the respondents. The mean score for academic achievement was (3.95 ± 1.08) . By comparing to their gender, female respondents (4.40 ± 0.79) have higher mean score compare to their male counterparts (3.50 ± 1.15) . Thus, for category of academic achievement, there are about half of the respondents (49.0%) have moderate academic achievement, followed by (41.2%) of them have high academic achievement and only about (9.8%) of the respondents have low level of it. Among the total of respondents, both male (57.9%) and female (40.3%) have moderate academic achievement, while more than half of the female respondents (58.1%) have high academic achievement and only 24.0% of male respondents have high academic achievement. Higher percentage of male (18.2%) have low academic achievement compared to female (1.6%).

4.3 Psychosocial Factors

Table 4.4 shows the distribution score for each questions that was asked about respondents' internal and external self-efficacy toward physical activity, mean score for social support and belief toward physical activity outcomes. The mean score of their self-efficacy was 2.81 ± 0.79 . Male respondents (3.00 ± 0.83) had higher mean score of self-efficacy compared to female respondents (2.63 ± 0.69) .

For self-efficacy assessment, only four out of 17 items had a mean score greater than 3.0 and above. A list of items that received mean score greater than 3.0 were "Can ask my friends to be physically active with me", "Possess the skill to be physically active", "Able to be physically active although I have to be at home " and "Able to be physically active at least three times a week for the coming 2 weeks ".

Table 4.4: Distribution mean score of psychosocial factors questionnaire among the respondents

Variables	Male (n=121) Mean ± SD	Female (n=124) Mean ± SD	Total (n=245) Mean ± SD
Self-efficacy external			
Can ask my parents or other adults to register me for sports, dance, or other physical activities	2.80 ± 1.39	2.47 ± 1.14	2.63 ± 1.28
Can ask my parents or other adults to send me to physical training session or sports	3.07 ± 1.22	2.77 ± 1.04	2.91 ± 1.14
Can ask my friends to be physically active with me	3.26 ± 1.19	3.02 ± 1.16	3.14 ± 1.18
Can ask my parents or other adults to be physically active with me	2.93 ± 1.16	2.77 ± 1.07	2.85 ± 1.12
Can ask my parents or other adults to obtain the equipment that I need for PA	3.02 ± 1.12	2.62 ± 1.08	2.82 ± 1.12
Self-efficacy internal			
Possess the skill to be physically active	3.26 ± 1.17	2.91 ± 1.10	3.09 ± 1.15
Able to be physically active in most of the day after school	3.17 ± 1.16	2.77 ± 1.11	2.97 ± 1.15
Able to be physically active despite how busy on that day	2.55 ± 1.18	2.16 ± 1.05	2.36 ± 1.13
Able to be physically active no matter how tired I am	2.51 ± 1.22	2.08 ± 1.08	2.29 ± 1.17
Able to be physically active outdoor whether it is hot or cold	3.18 ± 1.13	2.74 ± 1.09	2.96 ± 1.13
Able to be physically active although I have a lot of homework	2.94 ± 1.22	2.32 ± 1.08	2.63 ± 1.19
Able to be physically active after school although I can watch TV or play video or computer games	3.12 ± 1.33	2.66 ± 1.05	2.89 ± 1.21
Able to be physically active although I have to be at home	3.11 ± 1.18	3.01 ± 1.06	3.06 ± 1.11
Able to be physically active although I prefer to do other things	2.97 ± 1.18	2.71 ± 1.00	2.84 ± 1.09
Able to be physically active although my friends disapprove	2.95 ± 1.25	2.68 ± 1.12	2.81 ± 1.19

Able to be physically active although my friends want me to do other things	2.81 ± 1.20	2.56 ± 1.09	2.69 ± 1.15
Able to be physically active at least three times a week for the coming 2 weeks	3.20 ± 1.27	2.94 ± 1.14	3.07 ± 1.21
Peer influence	2.85 ± 0.95	2.42 ± 0.91	2.63 ± 1.00
Family influence	2.84 ± 1.04	2.51 ± 0.96	2.68 ± 0.97
Beliefs in physical activity outcomes	3.40 ± 0.56	3.41 ± 0.46	3.41 ± 0.51

Moreover, male respondents had more positive self-efficacy in physical activity because there were ten out of 17 items had mean score greater than 3.0, while mean score for female whose had greater than 3.0 were two out of 17 items.

In term of social influences for physical activity, family had a stronger influence on physical activity compare to peer influence (2.68 ± 0.97 and 2.63 ± 1.00). For male respondents, there was not much difference between peer and family influence as both of the mean score are quite similar (2.85 ± 0.95 and 2.84 ± 1.04). However, the results were consistent with female respondents which is family of mean score 2.51 ± 0.96 had a stronger influence compare to peer of mean score 2.42 ± 0.91 . Furthermore, the assessment for belief toward physical activity had a high mean score than was greater than 3.0 (3.41 ± 0.51). Thus, male and female respondents have positive belief toward physical activity (3.40 ± 0.56 and 3.41 ± 0.46).

Table 4.5 showed the distribution of respondents according to their self-efficacy toward physical activity. The total mean score of respondents' self-efficacy toward physical activity was 2.81 ± 0.79 . It was reported that male respondents (3.00 ± 0.83) had higher self-efficacy mean score compare to female respondents (2.63 ± 0.69).

Table 4.5: Distribution of respondents based on their self-efficacy toward physical activity

Variables	Male (n=121)	Female (n=124)	Total (n=245)
	Mean ± SD / n (%)	Mean ± SD / n (%)	Mean ± SD / n (%)
Self-efficacy toward PA	3.00 ± 0.83	2.63 ± 0.69	2.81 ± 0.79
Low	69 (57.0)	88 (71.0)	157 (64.1)
High	52 (43.0)	36 (29.0)	88 (35.9)

Based on table 4.5, most of respondents (64.1%) are reported to have low self-efficacy toward physical activity where, female respondents had low self-efficacy compare than male respondents (71.0% and 57.0%). However, 35.9% of the total respondents had high self-efficacy of being physically active. Male respondents (43.0%) had higher self-efficacy and being more active than female counterparts (29.0%).

Table 4.6: Distribution of respondents based on belief toward physical activity outcomes

Variables	Male (n=121)	Female (n=124)	Total (n=245)
	Mean ± SD / n (%)	Mean ± SD / n (%)	Mean ± SD / n (%)
Belief toward PA outcomes	3.40 ± 0.56	3.41 ± 0.46	3.41 ± 0.51
Low	29 (24.0)	22 (17.7)	51 (20.8)
High	92 (76.0)	102 (82.3)	1949.2)

The distribution of respondents based on their belief toward physical activity outcomes was based on table 4.6. The total mean their belief toward outcome was greater than 3 which indicate high belief (3.41 ± 0.51). Majority of the respondents (79.2%) had

high belief that physical activity would give them positive outcomes and good advantages. Thus, 82.3% of female and 76.0% of male respondents were categorized under high belief toward physical activity outcomes. Whereas, (24.0%) among the male and (17.7%) of female respondents had belief that physical activity would give them negative outcomes.

4.4 Body weight status

Table 4.7 shows the distribution of respondents by anthropometric measurement. The mean body weight and height of respondents were 55.34 ± 20.35 kg and 157.45 ± 15.75 cm respectively. The mean body mass index (BMI) according to normal categories was 20.91 ± 5.04 whereas, the mean BMI-for-age z-score of them was 0.09 ± 1.53 . The mean BMI z-score for female respondents (0.01 ± 1.47) was higher than male respondents (0.17 ± 1.60). Therefore, it is consistent with findings Woon, Chin & Mohd Nasir (2014) that male were being more significantly higher in BMI-for-age compared to female students.

Table 4.7: Distribution of respondents by anthropometric measurements

Characteristics	Male (n=121)	Female (n=124)	Total (n=245)
	Mean \pm SD	Mean \pm SD	Mean \pm SD
Weight (kg)	59.79 ± 24.60	51.01 ± 13.89	55.34 ± 20.35
Height (cm)	159.41 ± 21.60	155.54 ± 5.46	157.45 ± 15.75
BMI (kgm ²)	20.90 ± 4.95	20.92 ± 5.15	20.91 ± 5.04
BMI Z-score	0.17 ± 1.60	0.01 ± 1.47	0.09 ± 1.53

Table 4.8: Distribution of respondents by classification of BMI-for-age

Characteristics	Male (n=121)	Female (n=124)	Total (n=245)
	n (%)	n (%)	n (%)
Thinness	11 (9.1)	11 (8.9)	22 (9.0)
Normal weight	65 (53.7)	82 (66.1)	147 (60.0)
Overweight	28 (23.1)	19 (15.3)	47 (19.2)
Obesity	15 (12.4)	7 (5.6)	22 (9.0)
Severe obesity	2 (1.7)	5 (4.0)	7 (2.9)

Based on table 4.8, there were 60% of the respondents in normal weight status (53.7% for male, 66.1% for female), followed by 19.2% of them were overweight (23.1% for male, 15.3% for female), 9.0% were in thinness category (9.1% for male, 8.9% for female) and obesity category (12.4% for male, 5.6% for female) while 2.9% of them were severely obese (1.7% for male, 4% for female) for this study. A consistent findings was reported in a study by Su et al., 2014 among Malaysian adolescents, there were 8.7% of the total respondents being obese. More male were obese 10.7% compared to female respondents 7.4%. Thus, 15.9% of them (16.1% male and 15.8% female) were classified in overweight and 53% of male and 54.5% of female were within normal range. Moreover, another study found that 19.5% of the respondents were overweight and obese and 10.5% were underweight. Among the respondents, 74.6% of them are male and 74.6% of female respondents in normal weight status, followed by 12 (17.9%) were overweight and obese, and 5 (7.5%) were thin. Furthermore, a similar findings by W. L. Cheah et al., 2014 shown that more than half of the respondents (69.7%) in that study had

normal body weight status, 11.7% of them were obese and 15.2% of them being overweight while about 0.7% were thinness and below. For female respondents, there were 86 (87.8%) respondents in normal weight status, followed by 10 (10.2%) were overweight and obese, and 2 (2.0%) thin (Fara Wahida, Chin, and Barakatun Nisak, 2012).

4.5 Physical Activity Level

Table 4.9 shows the distribution score for each questions in Physical Activity Questionnaire-Adolescents (PAQ-A). Question 1 used to assess the type of activities that were carried out by respondents during their spare times. There were 18 activities that are commonly done by adolescents in Malaysia listed in the questionnaire. The total mean score of question 1 was 1.64 ± 0.41 where male respondents (1.74 ± 0.42) were found to have higher mean of activities done during their spare time compare to female respondents (1.54 ± 0.37).

Table 4.9: Distribution of physical activity questionnaire for adolescents (PAQ-A) among the respondents

Question 1-8	Male (n=121) Mean \pm SD / n (%)	Female (n=124) Mean \pm SD / n (%)	Total (n=245) Mean \pm SD / n (%)
Activities during spare time	1.74 \pm 0.42	1.54 \pm 0.37	1.64 \pm 0.41
Involvement during physical education class			
I don't do physical education	7 (5.8)	8 (6.5)	15 (6.1)
Hardly ever	20 (16.5)	14 (11.3)	34 (13.9)
Sometimes	37 (30.6)	57 (46.0)	94 (38.4)

Quite often	31 (25.6)	30 (24.2)	61 (24.9)
Always	26 (21.5)	16 (12.1)	41 (16.7)
Activities during recess time			
Sat down (talking, reading, doing homework)	56 (46.3)	57 (46.0)	113 (46.1)
Stood around or walked around	28 (23.1)	39 (31.5)	67 (27.3)
Run or played a little bit	15 (12.4)	19 (15.3)	34 (13.9)
Run or played quite a bit	14 (11.6)	6 (4.8)	20 (8.2)
Run or played hard most of the time	8 (6.6)	3 (2.4)	11 (4.5)
Involvement in any activities after school session			
None	13 (10.7)	17 (13.7)	30 (12.2)
1 time last week	30 (24.8)	37 (29.8)	67 (27.3)
2 or 3 times last week	39 (32.2)	49 (39.5)	88 (35.9)
4 or 5 times last week	13 (10.7)	7 (5.6)	20 (8.2)
6 or 7 times last week	26 (21.5)	14 (11.3)	40 (16.3)
Involvement in any activities in the evening			
None	18 (14.9)	20 (16.1)	38 (15.5)
1 time last week	24 (19.8)	36 (29.0)	60 (24.5)
2 or 3 times last week	40 (33.1)	51 (41.1)	91 (37.1)
4 or 5 times last week	19 (15.7)	10 (8.1)	29 (11.8)
6 or 7 times last week	20 (16.5)	7 (6.6)	27 (14.6)
Involvement in any activities during weekends			
None	9 (7.4)	20 (16.1)	29 (11.8)
1 time last week	27 (22.3)	37 (29.8)	64 (26.1)
2 or 3 times last week	38 (31.4)	48 (38.7)	86 (35.1)
4 or 5 times last week	23 (19.0)	13 (10.5)	36 (14.7)
6 or 7 times last week	24 (19.8)	6 (4.8)	30 (12.2)
General description about respondent's physical activity			
All or most of my free time was spent doing things that involve little physical effort	17 (14.0)	28 (22.6)	45 (18.4)
I sometimes (1 - 2 times last week) did physical things in my free time (e.g.	38 (31.4)	62 (50.0)	100 (40.8)

played sports, went running, swimming, bike riding, did aerobics)			
I often (3 - 4 times last week) did physical things in my free time	25 (20.7)	23 (18.5)	48 (19.6)
I quite often (5 - 6 times last week) did physical things in my free time	14 (11.6)	9 (7.3)	23 (9.4)
I very often (7 or more times last week) did physical things in my free time	27 (22.3)	2 (1.6)	23 (11.8)
Mean score for involvement in physical activity each day	2.76 ± 1.03	2.27 ± 0.87	2.51 ± 0.98

Question 2 is used to assess the frequency of students involved during physical education (PE) session. One third of the respondents (38.4%) answered that they did involve in physical activity sometimes, followed by 24.9% of them involved in PE classes quite often and 16.7% of them always involve actively during PE class. Moreover, question 3 is used to assess their activities during recess time, other than just eating and drink. Majority of them (46.1%) spend their recess time with sat down (talking, reading, doing homework), followed by stood around or walk around (27.3%) and the rest are run or played a little bit, run and played quite a lot and only 4.5% did run or played hard most of the time. Table 4.10 also showed results of activities done by the respondents after school session in question 4. There were 89.2% of male respondents and 86.2% done any activities after school while only about 12.2% of them do not involve in any activities for the past 7 days after school session

Similar involvement in physical activity pattern found during evening and on weekends for question 5 and 6. There are about one third of them involve 4 or 5 times for the past in the evening and on weekends (37.1% and 35.1%). More males (85.1% during evening and 92.6% during weekend) found to involve in physical activities compare to female

(83.9% for both during evening and weekend). Question 7 are used to assess respondents' general description about their physical activity involvement for the past 7 days. More than half of the respondents (59.2%) stated that their spent most of their free time that involve little physical activity effort and only 1 – 2 times for the last week. Therefore, the remaining 40.8% of respondents spend their free time involved in physical activity for more than 3 to 7 times a week.

For further question 8 which is used to assess mean score for involvement in physical activity each day was 2.51 ± 0.98 . Male respondents are reported to have high total mean score compared to female (2.76 ± 1.03 and 2.27 ± 0.87). Lastly, question 9 were used to assess barriers that prevent or restrict respondents from being physically active during the past 7 days. About most of the respondents (88.6%) did not have difficulties to perform any physical activity for the past 7 days. A few type of barriers that prevent them from being active are asthma (2.9%), fever (2.9%), injuries (9.0%) and muscle cramp (2.0%).

Table 4.10 showed the distribution of respondents according to category of physical activity level. The total mean score was 2.31 ± 0.63 which is male respondents also had high mean score (2.50 ± 0.67) for physical activity rather than female respondents (2.12 ± 0.53).

Table 4.10: Distribution of respondents by physical activity level

Variables	Male (n=121)	Female (n=124)	Total (n=245)
	Mean \pm SD / n (%)	Mean \pm SD / n (%)	Mean \pm SD / n (%)

Physical activity level	2.50 ± 0.67	2.12 ± 0.53	2.31 ± 0.63
Low	52 (43.0)	81 (65.3)	133 (54.3)
Moderate	59 (48.8)	42 (33.9)	101 (41.2)
High	10 (8.3)	1 (0.8)	11 (4.5)

Based on table 4.10, there were more than half (54.3%) of the respondents are fall under low category of physical activity that was comprise of higher percentage of female respondents (65.3%) compared to male respondents (43.0%). Next, the percentage of respondents being moderate in physical activity level was 41.2%. Male respondents are being more moderately active (48.8%) than female respondents (33.9%). Last but not least, there was only 4.5% of the total respondents on high physical activity category which that 8.3% of them are male, while only 0.8% of female being in high category of physical activity. There are a lot of studies from different countries such as Malaysia, Southeast Brazil and Nigeria revealed that boys students are being more physically active compared to female.(Dumithet al., 2010: Dan SP et al.,2011: & Adewale L et al., 2016 &).

The current result have consistent finding with data reported by National Health and Morbidity Survey (NHMS) 2017, only 19.8% of the total students being physically active for a total of at least 60 minutes daily for 5 days or more while about 50.1% students spent at least three hours of their usual day with sitting activities. A study that was conducted in Kuantan, Malaysia among secondary school students stated that there are 61.5% of the respondents were in the moderate physical activity level category while about one third of the respondents (35.5%) were in the low physical activity level. Whereas, only 3.0% of the respondents were in the high physical activity level category

(Dan SP et al., 2011). The level of high physical activity are quite similar with current findings that was below than 10% of respondents were categorized as high physical activity.

4.6 Hypothesis Testing

4.6.1 Association between socio-demographic with physical activity among secondary school students.

The relationship between socio-demographic backgrounds with physical activity was shown in Table 4.11 and Table 4.12.

Table 4.11: Correlation test between age and household income with physical activity level

Socio-demographic background	Physical activity score	
	<i>r</i>	<i>p</i>
Age	0.008*	0.895
Household income	0.096*	0.135

*Pearson's correlation is significant at the 0.005 level

Pearson's correlation coefficient (*r*) was used to test the association between continuous variables with physical activity. According to results from table 4.11, there is no significant association between age with physical activity ($r = 0.008$, $p = 0.895$). this current result was similar with a study that was conducted in Jiangsu Province, China in 2006 that result association between vigorous physical activity with age and socio-

economy are not significant ($p = 0.564$ and $p = 0.392$). However, this result was contradict with previous studies in Malaysia by Y. K. Cheah et al., 2018 and in Switzerland by Zimmermann-sloutskiset al., 2010 that older age is positively associated with the likelihood of adopting a physically inactive lifestyle because of lack of time engaging in physical activity. Older adolescents often take more household responsibilities, school homework and less social communication than their younger counterpart, thus the have less time for physical activity. Moreover, older adolescents among low income family who are inactive were due to inadequate time for physical activity since most of them are working and they live in environment with lack of sport's facilities (Lima et al., 2017).

Table 4.12: Relationship between sex, ethnicity, parent educational level and parent occupation with physical activity level

Socio-demographic background	Physical activity level		χ^2	<i>p</i>
	Low n (%)	Moderate – High n (%)		
Sex			12.324*	0.000
Male	52 (21.2)	69 (28.2)		
Female	81 (33.1)	43 (17.6)		
Father educational level			0.023	0.880
None – Primary	10 (4.1)	9 (3.7)		
Secondary – High	123 (50.2)	103 (42.0)		
Mother educational level			0.024	0.878
None – Primary	4 (1.6)	3 (1.2)		
Secondary – High	129 (52.7)	109 (44.5)		
Father occupation			0.445	0.505
None – Self-employed	62 (25.3)	57 (23.3)		
Government – Private	71 (29.0)	55 (22.4)		
Mother occupation			0.732	0.392
None – Self-employed	97 (39.6)	87 (35.5)		

Government – Private	36 (14.7)	25 (10.2)
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*Correlation is significant at the 0.001 level

Furthermore, the association of other socio-demographic backgrounds of respondents with physical activity such as sex, father educational level, mother educational level and parent occupation were assessed by using Chi-Square test. The level of physical activity were recorded high among boys compare to girls and thus, sex was found to had a significant association with physical activity ($\chi^2 = 12.324, p < 0.001$). Similar with numerous previous findings that that gender is significantly associated with physical activity and male respondents were more likely to participate in physical activity compare to female (Al-Nuaim et al., 2012; Baharuddin et al., 2015; Bauman et al., 2009). A several reasons for this findings were cultural factors that female were encouraged to spend more time in study and do household activities and also sport opportunities for female are limited. Lastly, physical activity may promote masculinity that female adolescents may tend to avoid it in order to maintain their girl characteristics.

Other than that, father and mother educational level ($p = 0.880, p = 0.878$) as well as father and mother occupational ($p = 0.505, p = 0.392$) did not have significant relationship respondents' physical activity level. Nevertheless, other studies have opposite findings from this current study stated that a positive association between physical activity among adolescents and parents' educational have been reported (McVeigh et al., 2004 and Kantomaa et al., 2007). It was reported that parents' level of educational were inversely associated with time spent on television. Therefore, the null hypothesis of there are no associations between socio-demographic backgrounds with

physical activity among secondary students in Batu Pahat, Johor were failed to be rejected except for gender of respondents.



4.6.2 Association between academic achievements with physical activity among secondary school students.

The relationship between academic achievements with physical activity level were shown in Table 4.13. There was no significant association reported between respondents' academic achievements with physical activity level ($r = -0.21$, $p = 0.739$; $\chi^2 = 5.760$, $p = 0.056$).

Table 4.13: Relationship between physical activity score and academic achievement

Variable	Physical activity score			
	<i>r</i>		<i>p</i>	
Academic achievement score	-0.21		0.739	
Academic achievement	Physical activity level		χ^2	<i>p</i>
	Low n (%)	Moderate – High n (%)		
Academic achievement			5.760	0.056
Low	12 (4.9)	12 (4.9)		
Moderate	57 (23.3)	63 (25.7)		
High	64 (26.1)	37 (15.1)		

Pearson correlation coefficient test and Chi-Square test were used to find the relationship between academic achievements and physical activity. Although no significance relationship was shown in this study, a negative correlation between the variables was reported in Pearson's test, suggesting that the higher the academic performance, the lower level of physical activity among respondents. This current result were showed in other studies that no relation was found between physical activity and

academic performance of students (Huang et al., 2006; Tremblay et al., 2016). This results may be further justified by the fact that academic success within the studied institution are more valuable than involvement in sports as those who have good academic performance may receive a reward from their school. Besides, the time for involvement in physical activity were limited due to personal desire to achieve better grades as there is believe that active involvement in physical activity may take away their study hours (Singh et al., 2012). Additionally, the class period for physical education was substitute with other educational classes as teachers often concern about exam evaluation (Pandolfo et al., 2018).

However, there were still many previous studies discussed that relationship between physical activity and academic achievement is positive such as a study by Ahmad Kamal & Nurhidayah, 2014 stated that physical activities could help enhance the brain activities and gives better performance in academic achievement.

4.6.3 Association between psychosocial factors (self-efficacy toward physical activity, social support and belief toward physical activity outcomes) with physical activity among secondary school students.

Table 4.14 show the Pearson's correlation coefficient test between psychosocial factors with physical activity. Table 4.14 shows that there were significant association between self-efficacy toward physical activity ($r = 0.651, p < 0.01$), peer influence with physical activity ($r = 0.517, p < 0.01$), family influence with physical activity ($r = 0.417, p < 0.01$) and belief toward physical activity outcomes ($r = 0.247, p < 0.01$).

Table 4.14: Correlation between self-efficacy toward physical activity, peer and family influence on physical activity and beliefs toward physical activity with physical activity score.

Psychosocial factors	Physical activity score	
	<i>r</i>	<i>p</i>
Self-efficacy toward physical activity	0.651**	0.000
Peer influence on physical activity	0.517**	0.000
Family influence on physical activity	0.417**	0.000
Beliefs on outcomes of physical activity	0.247**	0.000

** Correlations is significant at the 0.001 level

The result obtained was constant with most of the previous studies. A study among adolescents in Kuantan, Malaysia by Mohd Nasir et al., (2011) showed a similar findings as there was a positive and moderate linear relationship between self-efficacy with physical activity scores ($r = 0.496, p < 0.001$). As in other meaning stated that higher self-efficacy would also have higher physical activity score. Moreover, a study conducted that was conducted in Northeast Brazil among 14 up to 19 years old adolescents found that there was a positive association between self-efficacy and physical activity. The consistency of the relationship between self-efficacy and physical activity in numerous number of studies that it is the latter important predictor of physical activity (Reis & Hallal, 2014). Self-efficacy may also influence motivational and self-administrative process such as the type and persistence of behaviour when facing obstacles and ready to solve the problems. Other than that, self-efficacy exerted the largest total effect on adolescents' physical activity in Korea as adolescents with high self-efficacy were more likely to participate in physical activity (Kang & Kim, 2015). This theory is consistent with Bandura's theory, which an individual's level of confidence to engage a specific

behaviour were based on their actual behaviour. For example, seeing friends receive rewards or accomplishment from their success on physical activity would increase one's efficacy expectations (Bandura, 1997).

Furthermore, both social influences from family and peer have significant association with involvement in physical activity ($r = 0.517, p < 0.001$; $r = 0.417, p < 0.001$). This current result had a constant findings with other previous studies for example, one research among youth in Iowa City has found that family support has the strongest association among males when measured ($r = 0.37$) but peer support will also have association with their physical activity (Wenthe, Janz, & Levy, 2016). However, it was reported that family support was the only factor associated with all measure of moderate-vigorous physical activity among female adolescents in Iowa City. This findings was found to have significant association but statistically significant ($r = 0.23-0.13$). Additionally, peer influence in social norm alone can exerted a positive effect on physical activity that suggest that a close friends attitude and perception toward physical activity and ease the involvement of adolescents to be active. For example, engaging in physical activity after school with supportive friends can sustain an active lifestyle of Korean adolescents (Duncan & Mummery, 2005). Besides, there was also finding stated that a positive and significant relationship between social support from parents and friends. Those who received more social support from parents were about 50% more likely to achieve higher level of physical activity, while for those who received social support from peer would have the chance to be more three times higher in physical activity (Reis & Hallal, 2014). There were a few different types of social support for activity such as companion in doing physical activity, support in emotional or psychological, provide

information about physical activity and also provide transport to physical activity site (Dowda et al., 2007).

The third psychosocial factors which is beliefs toward physical activity outcomes was also have significant association with physical activity ($r = 0.247, p < 0.001$). This result showed that the relationship is positive and weak with physical activity in which respondents who have positive belief on physical activities outcomes would have higher engagement in physical activity. Similar outcomes demonstrated in a study conducted among rural adolescents who live in Borneo, Sabah there was association between beliefs with physical activity outcomes with physical activity level. Male respondents were reported to have stronger belief compare to female because male adolescents are more prone to moderate and high intensity activities that suit their physical and mental well-being, hence, they tend to have positive belief in PA outcome (W. L. Cheah et al., 2014). On the other hand, a study conducted in Kuantan, Malaysia by MT Mohd Nasir et al., (2011) also give similar findings that there was a positive and weak correlations between beliefs in physical activity outcomes score and physical activity score ($r = 0.247, p < 0.001$). There are two kind of expectations are central to the social cognitive theory (SCT; Bandura, 1986) which are outcomes expectations and efficacy expectations. The example of outcomes expectations is that a belief that exercising an hour a day every day of a week will lead to weight loss and positive mental health, while efficacy outcomes example is individual's confidence that may overcome barriers and be active every day (Taymoori et al., 2010).

4.6.4 Association between body weight status (BMI-for-age) with physical activity among secondary school students.

Two types of test were used to determine the relationship between BMI-for-age and physical activity was shown in the table 4.15. The result shown no significance association was found between BMI-for-age with physical activity ($r = -0.001$, $p = 0.985$, $\chi^2 = 0.010$, $p = 0.919$). The result show inverse relationship between BMI-for-age with physical activity, where high BMI would have low physical activity.

Table 4.15: Relationship between BMI-for-age Z-score with physical activity level

Nutritional status	Physical activity score		r	p
	Low	Moderate – High		
BMI-for-age			-0.001	0.985

Variables	Physical activity level		χ^2	p
	Low n (%)	Moderate – High n (%)		
BMI-for-age			0.010	0.919
Thinness – Normal	117 (47.8)	99 (40.4)		
Overweight – Obese - Severe obese	16 (6.5)	13 (5.3)		

This current finding show a similar result with study conducted by (Kantanista et al., 2015; Zalilah Mohd et al., 2006) that there was no significance difference found between physical activity and BMI among adolescents. BMI is not a significant predictor of moderate-vigorous of physical activity (MVPA) in the regression model even the weight management motive of for undertaking physical activity was positively related

with BMI (Ingledeu and Sullivan, 2002). Several studies have shown that obese children are physically less active but expended more energy for physical activity due to higher body weight, yet were not necessarily more active. The findings of this current result might be due to possibility that overweight respondents had misreported the duration and intensity of their physical activity, thus yield in overestimation of physical activity associated energy expenditure (Zalilah Mohd et al., 2006). The overweight students tend to underreport their PA activities because they know the purpose of this study was to assess their PA level. Therefore, the reason for doing this were because they want to have high PA level.

However, there were numerous of studies had different findings from this current result in which the relationship between BMI and physical activity was significant (Al-Nuaim et al., 2012; Ickpyo Hong et al., 2016; Su et al., 2014) as the number of days being physically active was inversely associated with the prevalence of overweight and obesity among adolescents. Nonetheless, being overweight and obese in this study only measured by using BMI, cannot determine adolescents adiposity and body fatness lead to inaccurate measurement. Body fatness was the most important indicator of obesity followed by waist circumferences and lastly BMI in Malaysia adolescents (Su et al., 2014).

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

There was 245 respondents participated in this current study that comprise of 121 male and 124 female respondents. Their mean age was 14.96 ± 1.00 , 51.8% were from Form 2 and another 48.2% were from Form 4. More than half of the respondents (54.3%) were reported to have low physical activity level while another 41.2% were being moderately active and only 4.5% were in high physical activity. Gender of the respondents was the only socio-demographic background that were found to be significantly associated with physical activity. Male respondents are tend to be physically active than female respondents. Furthermore, another variable that had significant association with their level of physical activity was psychosocial factors.

In details, psychosocial factors that include self-efficacy toward physical activity, peer and family influence and also belief toward physical activity outcomes had significant association with level of physical activity among the respondents. Those who

had strong psychosocial factors will tend to had high and moderate physical activity. Other than that, academic achievement and body weight status had no significant association with physical activity level among them.

In conclusion, the level of physical activity was low among secondary students among this school. This result was similar with a finding by latest NHMS 2017 that adolescents had lower involvement in physical activity. Therefore, an intervention program by both government and non-government should be accorded among adolescents especially among the factors that were associated with physical activity such as female students and those student who have strong psychosocial factors.

5.2 Limitation

There were a few limitation that should be taken into consideration in this current study. Firstly, this is a cross-sectional study design where the causal relationship between socio-demographic background, academic achievement, psychosocial factors and body weight status with physical activity cannot be drawn. Furthermore, data collected for cross-sectional design will only focus at one point of time which does not portray the usual practice of the respondents. Hence, a cohort study should be conducted to have better relationship between independent variables and dependent variables.

Next, the data for this study was collected by using self-administered questionnaire so respondents have higher risk to report over or under-reporting data. Respondents are required to remembering their socio-demographic information and level

of physical activity for the past seven days so there still a chance to recalling false information. Thus, there is also chance of being bias since the respondents for this study is a convenience sampling as it was chosen by their teacher include class that have many athletes. Athletes are tend to have great performance in physical activity. Therefore, other sampling method should be done to avoid this limitation.

Lastly, this current study was limited and focused on secondary students' in only one school in Batu Pahat, Johor. Therefore, this results obtained cannot generalized all adolescents in entire Malaysia. However, data obtained can act as a baseline data for future study and also a guideline for the current school to have future intervention program on physical activity.

5.3 Recommendations

Even though, the result provided in this current study can be used as an updated information to many agencies and parties in the school, parents and government agencies, there were still have a few things to be improve. In order to have clear and precise result on the factors that have relationship with physical activity among secondary school students in Batu Pahat, Johor, a longitudinal study is recommended as this kind of study can determine the causality of the factors can be drawn. Moreover, the election of the respondents must be made by using probably sampling method so that the chance for being bias can be reduce.

There were high prevalence of students being inactive and overweight in SMK Dato Onn so that this data can become a baseline for school administration to conduct an

intervention program in order to raise awareness among teachers and students about the importance of physical activity in their future life. For example, information of physical activity should be integrated into school co-curricular by conducting an exhibition, talk, interactive game and poster can be paste at school areas. In order to reduce the prevalence of students being overweight and obese, school administrations should encourage students to involve in sports and physical education class so that there can become more active and energetic.

Other than that, family were reported to have strong influence in helping students to engage with sports and be physically active as they are the closest people with them so they are encourage to show good role model by exercising at home and ask students to join them. Parents also need to have knowledge and awareness about the importance of being physically active during adolescents can have greater impact when they are older especially those female students have higher tendency to follow their family routine. A session of exercising together by jogging, playing Frisbee should be held once a week to build rapport among family and at the same time can increase level of physical activity at home.

Since the result showed that psychosocial factors including self-efficacy toward physical activity, social support and beliefs toward physical activity outcomes can give impact to students' physical activity, so it is crucial to approach the psychosocial factors by raising their consciousness and confidence when doing physical activity in future research.

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APPENDICES

APPENDIX I: APPROVAL FROM MINISTRY OF EDUCATION, MALAYSIA



KEMENTERIAN PENDIDIKAN MALAYSIA
BAHAGIAN PERANCANGAN DAN PENYEDIAAN DASAR PENDIDIKAN
ARAS 1-4, BLOK E3
KOMPLEKS KERAJAAN FAKEL E
PUSAT PENTABERAN KERAJAAN SEREMBAN
CENDE PUTRAJAYA

TEL : 0300040001
FAX : 0310046079

Ruj. Kami : KPM/GD/323/seremban(2012)
Tarikh : 3 Disember 2018

LILIS AYUNI BINTI IBRAHIM
NO. KP : 960903015296

BATU 2 1/4 LORONG MESJID
PESERAI BATU PAHAT 83000 BATU PAHAT
JOHOR

Tuan,

KELULUSAN UNTUK MENJALANKAN KAJIAN DI SEKOLAH, INSTITUT PENDIDIKAN GURU, JABATAN PENDIDIKAN NEGERI DAN BAHAGIAN DI BAWAH KEMENTERIAN PENDIDIKAN MALAYSIA

Perkara di atas adalah dirujuk.

2. Subjeda dimaklumkan bahawa permohonan tuan untuk menjalankan kajian seperti di bawah telah diluluskan.

"FAKTOR YANG BERKAITAN DENGAN TAHAP AKTIVITI FIZIKAL DALAM KALANGAN PELAJAR SEKOLAH MENENGAH DI SMK DATO ORIN, BATU PAHAT, JOHOR."

3. Kelulusan adalah berdasarkan kepada kertas cadangan penyediaan dan kawal seliaan kajian yang dikemukakan oleh tuan kepada bahagian ini. Walau bagaimanapun kelulusan ini bergantung kepada kebenaran Jabatan Pendidikan Negeri dan Pengasas / Guru Besar yang berkenaan.

4. Surat kelulusan ini sah digunakan bermula dari 14 Januari 2019 hingga 10 Februari 2019.

5. Tuan ditahendaki menyerahkan senastah laporan akhir kajian dalam bentuk *hardcopy* bersama salinan *softcopy* berformat pdf dalam CD kepada Bahagian ini. Tuan juga diingatkan supaya mendapat kebenaran terlebih dahulu daripada Bahagian ini sekiranya sebahagian atau sepenuhnya dapatan kajian tersebut hendak diterbitkan di mana-mana forum, seminar atau diumumkan kepada media massa.

Sekian untuk makluman dan tindakan tuan selanjutnya. Terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

Ketua Sektor
Sektor Penyelidikan dan Penilaian
b.p. Pengarah
Bahagian Perancangan dan Penyediaan Dasar Pendidikan
Kementerian Pendidikan Malaysia

salinan kepada:-

JABATAN PENDIDIKAN JOHOR

• SURAT SAH DILAKSANAKAN OLEH KOMPUTER DAN TIDAK PERLU DITANDATANGGULI •

APPENDIX III: CONSENT FORM FOR PARENTS (Malay Version)



**JAWATANKUASA ETIKA UNIVERSITI UNTUK
PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
SELANGOR, MALAYSIA**

BORANG 2.5: PENERANGAN DAN PERSETUJUAN IBUBAPA/PENJAGA

Sila baca maklumat berikut dengan teliti. Sekiranya anda mempunyai sebarang pertanyaan, sila kemukakan kepada penyelidik.

1.TAJUK KAJIAN

Faktor yang berkaitan dengan tahap aktiviti fizikal dalam kalangan pelajar sekolah menengah di S.M.K Dato Onn, Batu Pahat Johor.

2. PENGENALAN

Kajian ini adalah berbentuk soal selidik yang bertujuan untuk menegetahui perkaitan antara latar belakang sosio-demografik, tahap pencapaian akademik, faktor psikososial dan indeks jisim badan dengan tahap fizikal aktiviti dalam kalangan pelajar sekolah menengah di Batu pahat, Johor. Kajian ini juga merupakan projek ilmiah tahun akhir bagi kursus PKK 4999 untuk pelajar-pelajar B. Sc. (Pemakanan dan Komuniti Kesihatan), Universiti Putra Malaysia.

3. APAKAH YANG PERLU ANDA LAKUKAN?

Anda hanya perlu bekerjasama dengan penyelidik dengan membenarkan penyelidik untuk mengambil berat dan ketinggian anak anda. Selain itu, membenarkan anak anda mengisi borang soal selidik yang disediakan.

4. SIAPA YANG TIDAK BOLEH MENYERTA KAJIAN INI?

Remaja yang mempunyai masalah kesihatan dan kekurangan upaya serta remaja yang tidak memulangkan kembali borang persetujuan ibu bapa tidak boleh terlibat dalam kajian ini.

5. APAKAH FAEDAH MENYERTA KAJIAN INI?

KEPADA ANAK/JAGAAN SAYA SEBAGAI PESERTA?

Anda akan mengetahui tahap fizikal aktiviti, faktor psikososial dan status berat badan anak anda. Selain itu, anda juga akan dapat mengenalpasti faktor-faktor yang dapat membantu anak anda untuk lebih aktif dan lebih banyak melakukan aktiviti fizikal.

KEPADAPENYELIDIK?

Kajian ini akan membantu penyelidik untuk mendapatkan maklumat berkaitan latar belakang sosio-demografi, tahap pencapaian akademik, faktor psikososial dan tahap fizikal aktiviti dalam

kalangan pelajar sekolah menengah di Batu Pahat Johor. Di samping itu, penyelidik dapat mencari perkaitan antara faktor-faktor yang menyumbang kepada tahap aktiviti fizikal dalam kalangan pelajar sekolah menengah.

6. ADAKAH IA BERISIKO?

Kajian ini tidak akan membawa sebarang risiko kepada para peserta kerana ia hanya memerlukan peserta kajian untuk mengisi borang soal selidik dan menjalani beberapa aktiviti dengan bersemuka dengan penyelidik. Untuk makluman penyertaan adalah secara sukarela. Sebarang penarikan diri daripada kajian ini pada bila-bila masa adalah hak responden.

7. ADAKAH MAKLUMAT DAN IDENTITI ANAK/JAGAAN SAYA KEKAL RAHSIA?

Segala maklumat yang diberikan adalah dijamin sulit dan tidak akan didedahkan identiti responden. Tidak akan ada sebarang olahan akan dilakukan pada mana-mana bahagian kajian ini mahupun dari segi penerbitan.

8. SIAPA YANG SAYA PERLU HUBUNGI SEKIRANYA SAYA MEMPUNYAI SOALAN TAMBAHAN SEPANJANG PENYELIDIKAN INI?

Sekiranya anda mempunyai sebarang pertanyaan, anda boleh menghubungi:

Lilis Ayuni binti Ibrahim
Penyelidik
Bachelor Sains (Pemakanan dan Kesihatan Komuniti)
Jabatan Pemakanan dan Dietetik
Fakulti Perubatan dan Sains Kesihatan
Universiti Putra Malaysia,
43400 Serdang Selangor.
Tel no: 012-7390805
E-mel: lilisayuni49@gmail.com

Ataupun

Prof. Madya Dr. Hazizi Abu Saad
Pensyarah / Penyelia Projek Ilmiah Tahun Akhir
Jabatan Pemakanan dan Dietetik
Fakulti Perubatan dan Sains Kesihatan
Universiti Putra Malaysia,
43400 UPM Serdang, Selangor Darul Ehsan.
Tel no: +603-8947 2434
E-mel: hazizi@upm.edu.my

Sila tandatangan di sini sekiranya anda telah membaca dan memahami kandungan halaman ini

9. PERSETUJUAN

Saya..... No Kad Pengenalan.
beralamat.....
.....dengan ini secara sukarela bersetuju membenarkan *anak /
jagaan saya menyertai penyelidikan tersebut di atas
*(klinikal/percubaan ubat-ubatan/rakaman video/kumpulan sasaran/temuduga/ soal
selidik).

Saya telah diberi penjelasan secara menyeluruh mengenai penyelidikan ini dari segi metodologi, risiko dan komplikasi (seperti yang tercatat dalam Helaian Penerangan). Saya memahami bahawa *anak / jagaan saya berhak menarik diri dari penyelidikan ini pada bila-bila masa tanpa memberi sebarang alasan. Saya juga memahami bahawa sebarang maklumat yang berkaitan identiti *anak / jagaan saya akan dirahsiakan.

Saya* berminat / tidak berminat untuk mengetahui keputusan kajian yang melibatkan *anak / jagaan saya.

I setuju/tidak bersetuju untuk imej/gambar/rakaman video/ rakaman suara berkaitan dengan anak/ jagaan saya digunakan dalam apa jua bentuk penerbitan atau pembentangan. (sekiranya berkaitan).

*potong yang tidak berkenaan

Tandatangan Tandatangan
(Ibubapa/ Penjaga) (Saksi)

Tarikh : Nama :

No. K/P:

Saya mengesahkan bahawa saya telah menerangkan kepada ibubapa/penjaga responden mengenai sifat dan tujuan penyelidikan tersebut di atas.

Tarikh Tandatangan
(Penyelidik)

APPENDIX IV: CONSENT FORM FOR RESPONDENTS (Malay Version)



**JAWATANKUASA ETIKA UNIVERSITI UNTUK
NYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
LANGOR, MALAYSIA**

BORANG 2.4: PENERANGAN DAN PERSETUJUAN RESPONDEN

Sila baca maklumat berikut dengan teliti. Sekiranya anda mempunyai sebarang pertanyaan, sila kemukakan kepada penyelidik.

1. TAJUK KAJIAN

Faktor yang berkaitan dengan tahap aktiviti fizikal dalam kalangan pelajar sekolah menengah di S.M.K Dato Onn, Batu Pahat Johor.

2. PENGENALAN

Kajian ini adalah berbentuk soal selidik yang bertujuan untuk menegetahui perkaitan antara latar belakang sosio-demografik, tahap pencapaian akademik, faktor psikososial dan indeks jisim badan dengan tahap fizikal aktiviti dalam kalangan pelajar sekolah menengah di Batu pahat, Johor. Kajian ini juga merupakan projek ilmiah tahun akhir bagi kursus PKK 4999 untuk pelajar-pelajar B. Sc. (Pemakanan dan Komuniti Kesihatan), Universiti Putra Malaysia.

3. APAKAH YANG PERLU ANDA LAKUKAN?

Borang soal selidik yang terdiri daripada beberapa bahagian iaitu bahagian A (butiran peribadi dan latar belakang sosio-demografi), bahagian B (pencapaian akademik peperiksaan akhir tahun lepas), bahagian C (tahap fizikal aktiviti) dan bahagian D (faktor psikososial) akan diedarkan kepada responden untuk dijawab dengan sendiri. Manakala untuk bahagian E (indeks jisim badan), berat dan tinggi responden akan diambil oleh pengkaji. Setelah bahagian A hingga E selesai dijawab, responden harus memulangkan borang soal selidik kepada pengkaji.

4. SIAPA YANG TIDAK BOLEH MENYERTA KAJIAN INI?

Remaja yang mempunyai masalah kesihatan dan kekurangan upaya serta remaja yang tidak memulangkan kembali borang persetujuan ibu bapa tidak boleh terlibat dalam kajian ini.

5. APAKAH FAEDAH MENYERTA KAJIAN INI?

KEPADA ANDA SEBAGAI PESERTA?

Anda akan dapat mengetahui status indeks berat badan, pencapaian akademik dan faktor psikososial yang menyumbang kepada tahap fizikal aktiviti. Selain itu anda akan mengetahui faktor-faktor lain yang mampu membantu anda untuk meningkatkan tahap fizikal aktiviti seharian anda.

KEPADA PENYELIDIK?

Kajian ini akan membantu penyelidik untuk mendapatkan maklumat berkaitan latar belakang sosio-demografi, tahap pencapaian akademik, faktor psikososial dan tahap fizikal aktiviti dalam kalangan pelajar sekolah menengah di Batu Pahat Johor. Di samping itu, penyelidik dapat mencari perkaitan antara faktor-faktor yang menyumbang kepada tahap aktiviti fizikal dalam kalangan pelajar sekolah menengah.

6. ADAKAH IA BERISIKO?

Kajian ini tidak akan membawa sebarang risiko kepada para peserta kerana ia hanya memerlukan peserta kajian untuk mengisi borang soal selidik dan menjalani beberapa aktiviti dengan bersemuka dengan penyelidik. Untuk makluman penyertaan adalah secara sukarela. Sebarang penarikan diri daripada kajian ini pada bila-bila masa adalah hak responden.

7. ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Segala maklumat yang diberikan adalah dijamin sulit dan tidak akan didedahkan identiti responden. Tidak akan ada sebarang olahan akan dilakukan pada mana-mana bahagian kajian ini mahupun dari segi penerbitan.

8. SIAPA YANG SAYA PERLU HUBUNGI SEKIRANYA SAYA MEMPUNYAI SOALAN TAMBAHAN SEMASA MENGIKUTI PENYELIDIKAN INI?

Sekiranya anda mempunyai sebarang pertanyaan, anda boleh menghubungi:

Lilis Ayuni binti Ibrahim
Penyelidik
Bacelor Sains (Pemakanan dan Kesihatan Komuniti)
Jabatan Pemakanan dan Dietetik
Fakulti Perubatan dan Sains Kesihatan
Universiti Putra Malaysia,
43400 Serdang Selangor.
Tel no: 012-7390805
E-mel: lllisayuni49@gmail.com

Ataupun

Prof. Madya Dr. Hazizi Abu Saad
Pensyarah / Penyelia Projek Ilmiah Tahun Akhir
Jabatan Pemakanan dan Dietetik
Fakulti Perubatan dan Sains Kesihatan
Universiti Putra Malaysia,
43400 UPM Serdang, Selangor Darul Ehsan.
Tel no: +603-8947 2434
E-mel: hazizi@upm.edu.my

Sila tandatangan di sini sekiranya anda telah membaca dan memahami kandungan halaman ini



9. PERSETUJUAN

Saya..... No Kad Pengenalan.
beralamat.....

.....dengan ini bersetuju untuk mengambil bahagian secara sukarela dalam penyelidikan yang tersebut di atas *(kajian klinikal/percubaan ubat-ubatan/rakaman video/kumpulan sasaran/temuduga/ soal selidik).

Saya telah diberi penjelasan secara menyeluruh mengenai penyelidikan ini dari segi metodologi, risiko dan komplikasi (seperti tertulis pada Helaiian Penerangan Responden). Saya memahami bahawa saya berhak menarik diri dari penyelidikan ini pada bila-bila masa tanpa memberi sebarang alasan.Saya juga memahami bahawa sebarang maklumat yang berkaitan identiti saya akan dirahsiakan.

Saya* berminat / tidak berminat untuk mengetahui keputusan kajian yang melibatkan saya.

I setuju/tidak bersetuju untuk imei/gambar/rakaman video/ rakaman suara digunakan dalam apa jua bentuk penerbitan atau pembentangan. (sekiranya berkaitan).

*potong yang tidak berkenaan

Tandatangan Tandatangan
(Responden) (Saksi)

Tarikh : Nama :

No. K/P:

Saya mengesahkan bahawa saya telah menerangkan kepada responden ini sifat dan tujuan penyelidikan yang tersebut di atas.

Tarikh Tandatangan
(Penyelidik)

APPENDIX V: QUESTIONNAIRE (Malay Version)

No. Rujukan :

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UNIVERSITI PUTRA MALAYSIA
JABATAN PEMAKANAN DAN DIETETIK
FAKULTI PERUBATAN DAN SAINS KESIHATAN

Tajuk Kajian:

Faktor yang Berkaitan Dengan Tahap Aktiviti Fizikal Dalam Kalangan Pelajar Sekolah Menengah di S.M.K Dato Onn, Batu Pahat, Johor.

Penyelidik:

Lilis Ayuni binti Ibrahim

Diselia oleh:

Prof. Madya Dr Hazizi Abu Saad

Perlaksanaan projek ilmiah ini adalah merupakan salah satu syarat kelayakan bagi mendapatkan Ijazah Bacelor Sains (Pemakanan dan Kesihatan Komuniti), Fakulti Prubatan dan Sains kesihatan (FPSK) di Universiti Putra Malaysia, UPM.

Segala maklumat yang diberikan oleh responden adalah sulit dan hanya untuk tujuan penyelidikan semata-mata. Kejujuran dan keikhlasan dalam memberikan maklumat adalah amat diharapkan bagi kelancaran projek ini. Kejayaan projek ini amatlah bergantung kepada kerjasama yang diberikan oleh pihak berkenaan. Segala kerjasama dari pihak tuan/puan amatlah dihargai dan didaului ucapan terima kasih.

A. LATAR BELAKANG SOSIODEMOGRAFIK

I. MAKLUMAT PELAJAR:

1. NAMA : _____

2. TARIKH LAHIR : _____

3. JANTINA : Lelaki Perempuan

4. BANGSA : Melayu Cina
 India Lain-lain

II. MAKLUMAT PENJAGA:

PENJAGA	BAPA	IBU
TARAF PENDIDIKAN TERTINGGI	<input type="checkbox"/> Tiada Pendidikan Formal <input type="checkbox"/> Sekolah Rendah <input type="checkbox"/> Sekolah Menengah <input type="checkbox"/> Diploma <input type="checkbox"/> Ijazah <input type="checkbox"/> Sarjana Muda <input type="checkbox"/> Doktor Falsafah	<input type="checkbox"/> Tiada Pendidikan Formal <input type="checkbox"/> Sekolah Rendah <input type="checkbox"/> Sekolah Menengah <input type="checkbox"/> Diploma <input type="checkbox"/> Ijazah <input type="checkbox"/> Sarjana Muda <input type="checkbox"/> Doktor Falsafah
PEKERJAAN
PENDAPATAN	RM.....Sebulan	RM.....Sebulan

B. PENCAPAIAN AKADEMIK BAGI PEPERIKSAAN AKHIR TAHUN LEPAS

MATA PELAJARAN	GRED (A/B/C/D/E/F)
BAHASA MELAYU	
BAHASA INGGERIS	
SAINS	
MATEMATIK	
GEOGRAFI	
SEJARAH	
KEMAHIRAN HIDUP	
PENDIDIKAN AGAMA ISLAM/MORAL	

C. TAHAP AKTIVITI FIZIKAL (Kowalski, Crocker, & Donen, 2004)

Soal selidik ini bertujuan untuk mengetahui tahap aktiviti fizikal anda pada 7 hari yang lepas (bagi minggu lepas). Aktiviti fizikal ini termasuklah sebarang sukan atau tarian yang membuatkan anda berpeluh atau membuatkan kaki anda berasa letih atau sebarang aktiviti yang membuatkan anda bernafas dengan laju seperti kejar - mengejar, lompat tali, berlari, mendaki, dan lain-lain.

Peringatan:

- Tiada jawapan yang betul atau salah bagi soal selidik ini – soal selidik ini bukan peperiksaan.
- Tolong jawab soal selidik ini dengan jujur dan tepat – soal selidik ini amatlah penting.

1. Aktiviti fizikal pada masa lapang: Adakah anda melakukan mana-mana aktiviti berikut pada 7 hari yang lepas (minggu lepas)? Sekiranya Ya, berapa kerapkah anda melakukannya? (Sila tandakan ✓ bagi setiap aktiviti)

	Tiada	1-2	3-4	5-6	7 kali/ lebih
Melompat tali					
Bermain kasut roda					
Bermain kejar-kejar					
Berjalan untuk bersenam					
Berbasikal					
Berjoging atau berlari					
Aerobic					
Bermain bola sepak					
Bermain bola jarring					
Bermain bola tampar					
Menari					
Bermain badminton					
Bermain hoki					
Bermain bola baling					
Bermain tenis					
Bermain skuash					
Bermain futsal					
Berenang					
Lain-lain sukan (sila nyatakan)					
i.					
ii.					

2. Pada 7 hari yang lepas, berapa kerapkan anda menjadi aktif (bermain dengan lasak, berlari, melompat, membaling) semasa kelas pendidikan jasmani (PJ)? (Sila tandakan ✓ bagi setiap pilihan)

Saya tidak melakukan PJ	
Jarang	
Kadang-kadang	
Agak kerap	
Sentiasa	

3. Pada 7 hari yang lepas, apakah yang kerap anda lakukan pada waktu makan tengah hari (selain makan)? (Sila tandakan ✓ bagi setiap pilihan)

Duduk (berborak, membaca, membuat kerja sekolah)	
Berdiri atau berjalan	
Berlari atau bermain sedikit	
Berlari dan bermain lebh sedikit	
Berlari dan bermain pada setiap masa	

4. Pada 7 hari yang lepas, berapa kerapkan anda melakukan senaman, menari, bermain permainan yang membuatkan anda aktif, sejurus selepas sesi persekolahan tamat? (Sila tandakan ✓ bagi setiap pilihan)

Tiada	
1 kali pada minggu lepas	
2 atau 3 kali pada minggu lepas	
4 kali pada minggu lepas	
5 kali pada minggu lepas	

5. Pada 7 hari yang lepas, berapa kerapkan anda melakukan senaman, menari, bermain permainan yang membuatkan anda aktif, pada waktu petang? (Sila tandakan ✓ bagi setiap pilihan).

Tiada	
1 kali pada minggu lepas	
2 atau 3 kali pada minggu lepas	
4 atau 5 kali pada minggu lepas	
6 atau 7 kali pada minggu lepas	

6. Pada hujung minggu yang lepas, berapa kerapkan anda melakukan senaman, menari, bermain permainan yang membuatkan anda aktif, pada waktu petang? (Sila tandakan ✓ bagi setiap pilihan).

Tiada	
1 kali	
2-3 kali	
4-5 kali	
6 kali	

7. Antara kenyataan yang berikut, yang manakah yang menggambarkan anda pada 7 hari yang lepas? Sila baca dengan teliti sebelum membuat pilihan. (Sila tandakan ✓ bagi setiap pilihan)

A.	Saya banyak menghabiskan masa untuk melakukan aktiviti yang menggunakan pergerakan fizikal yang sedikit	
B.	Kadang-kadang (1-2 kali pada minggu lepas), saya akan melakukan aktiviti fizikal pada masa lapang. (cth: bersukan, berlari, berenang)	
C.	Saya kerap (3-4 kali pada minggu lepas) melakukan aktiviti fizikal	

	pada masa lapang.	
D.	Saya agak kerap (5-6 kali pada minggu lepas) melakukan aktiviti fizikal pada masa lapang.	
E.	Saya selalu (7 kali atau lebih pada minggu lepas) melakukan aktiviti fizikal pada masa lapang.	

8. Sila tandakan kekerapan anda melakuakan aktiviti fizikal (seperti bersukan, menari dll) bagi setiap hari, pada minggu lepas. (Sila tandakan \checkmark bagi setiap pilihan)

	Tiada	Sedikit	Medium	Kerap	Sangat kerap
Isnin					
Selasa					
Rabu					
Khamis					
Jumaat					
Sabtu					
Ahad					

9. Adakah anda sakit, atau terdapat perkara yang menghalang anda daripada melakukan aktiviti fizikal harian pada minggu lepas?

Ya	
Tidak	

Sekiranya Ya, nyatakan apakah yang menghalang anda?

FAKTOR PSIKOSOSIAL (Saunders et al., 1997)

Kepercayaan Keupayaan Kendiri terhadap Aktiviti Fizikal (self-efficacy toward physical activity)

Sila bulatkan satu pilihan jawapan yang sesuai bagi setiap kenyataan yang berikut.

	1	2	3	4	5
	Sama sekali tidak yakin	Yakin sedikit	Agak yakin	Sangat yakin	Teramat yakin
1) Saya merasakan saya boleh meminta ibu bapa saya atau orang dewasa lain untuk mendaftarkan saya untuk satu jenis sukan, tarian atau aktiviti fizikal lain.	1	2	3	4	5
2) Saya merasakan saya boleh meminta ibu bapa saya atau orang dewasa lain untuk menghantar saya ke satu latihan aktiviti fizikal atau sukan.	1	2	3	4	5
3) Saya merasakan saya boleh meminta kawan baik saya untuk sama-sama aktif dari segi fizikal dengan saya.	1	2	3	4	5
4) Saya merasakan saya boleh meminta ibu bapa saya atau orang dewasa lain untuk sama-sama melakukan perkara yang aktif dari segi fizikal dengan saya.	1	2	3	4	5
5) Saya merasakan saya boleh meminta ibu bapa saya atau orang dewasa lain untuk mendapatkan peralatan yang saya perlukan untuk menjadi aktif dari segi fizikal	1	2	3	4	5
6) Saya merasakan saya mempunyai kemahiran yang saya perlukan untuk menjadi aktif dari segi fizikal.	1	2	3	4	5
7) Saya merasakan saya boleh aktif dari segi fizikal pada kebanyakan hari selepas waktu sekolah.	1	2	3	4	5
8) Saya merasakan saya boleh aktif dari segi fizikal tidak kira bagaimana sibuk saya pada hari itu.	1	2	3	4	5
9) Saya merasakan saya boleh aktif dari segi fizikal tidak kira bagaimana letih saya rasakan.	1	2	3	4	5

- | | | | | | | |
|-----|---|---|---|---|---|---|
| 10) | Saya merasakan saya boleh aktif dari segi fizikal walaupun di luar adalah panas atau sejuk. | 1 | 2 | 3 | 4 | 5 |
| 11) | Saya merasakan saya boleh aktif dari segi fizikal walaupun saya mempunyai banyak kerja rumah. | 1 | 2 | 3 | 4 | 5 |
| 12) | Saya merasakan saya boleh aktif dari segi fizikal selepas waktu sekolah walaupun sebaliknya saya boleh menonton TV atau bermain permainan video/computer. | 1 | 2 | 3 | 4 | 5 |
| 13) | Saya merasakan saya boleh aktif dari segi fizikal walaupun saya perlu berada di rumah. | 1 | 2 | 3 | 4 | 5 |
| 14) | Saya merasakan saya boleh aktif dari segi fizikal walaupun apabila saya lebih suka membuat perkara yang lain. | 1 | 2 | 3 | 4 | 5 |
| 15) | Saya merasakan saya boleh aktif dari segi fizikal walaupun kawan-kawan saya tidak ingin saya berbuat demikian. | 1 | 2 | 3 | 4 | 5 |
| 16) | Saya merasakan saya boleh aktif dari segi fizikal selepas waktu sekolah walaupun kawan-kawan saya mahukan saya membuat perkara yang lain. | 1 | 2 | 3 | 4 | 5 |
| 17) | Saya merasakan saya boleh aktif dari segi fizikal sekurang-kurangnya tiga kali seminggu bagi dua minggu yang akan datang. | 1 | 2 | 3 | 4 | 5 |

Pengaruh Social Terhadap Aktiviti Fizikal (Social Influences for Physical Activity)

Sila bulatkan satu pilihan jawapan yang sesuai bagi setiap kenyataan yang berikut.

	1	2	3	4	5
	Tidak ada	Jarang-jarang sekali	Beberapa kali	Kerap	Sangat kerap
1) Seorang kawan telah menawarkan untuk bersama-sama menjadi aktif dari segi fizikal dengan saya pada 2 minggu yang lepas.				1	2 3 4 5
2) Seorang kawan telah aktif dari segi fizikal bersama dengan saya pada dua minggu yang lepas.				1	2 3 4 5
3) Seseorang dalam keluarga saya telah aktif dari segi fizikal bersama saya pada dua minggu yang lepas.				1	2 3 4 5
4) Seseorang dalam keluarga saya telah menawarkan untuk menjadi aktif dari segi fizikal bersama dengan saya pada 2 minggu yang lepas.				1	2 3 4 5
5) Seorang kawan saya telah menggalakkan saya untuk menjadi aktif dari segi fizikal pada 2 minggu yang lepas.				1	2 3 4 5
6) Kawan-kawan saya merasakan saya harus menjadi aktif dari segi fizikal.				1	2 3 4 5
7) Seseorang dalam keluarga saya telah menggalakkan saya untuk menjadi aktif dari segi fizikal pada 2 minggu yang lepas.				1	2 3 4 5
8) Keluarga saya merasakan saya harus menjadi aktif dari segi fizikal.				1	2 3 4 5

Kepercayaan terhadap Hasil dari aktiviti fizikal (Beliefs for Physical Activity Outcomes)

Sila bulatkan satu pilihan jawapan yang sesuai bagi setiap kenyataan yang berikut.

1	2	3	4	5
Sangat tidak bersetuju	Agak tidak bersetuju	Kedua-dua tidak	Agak bersetuju	Sangat bersetuju

Jika saya menjadi aktif dari segi fizikal pada kebanyakan hari, ini akan

- | | | | | | |
|--|---|---|---|---|---|
| 1) Membentuk atau mengekalkan bentuk badan saya | 1 | 2 | 3 | 4 | 5 |
| 2) Menjadikan saya lebih baik dalam sukan | 1 | 2 | 3 | 4 | 5 |
| 3) Menjadi seronok | 1 | 2 | 3 | 4 | 5 |
| 4) Membantu saya menjadi sihat | 1 | 2 | 3 | 4 | 5 |
| 5) Membantu saya mengawal berat badan saya | 1 | 2 | 3 | 4 | 5 |
| 6) Memberi saya tenaga | 1 | 2 | 3 | 4 | 5 |
| 7) Membantu saya mendapat kawan-kawan baru | 1 | 2 | 3 | 4 | 5 |
| 8) Membantu saya meluangkan lebih masa bersama dengan kawan-kawan saya | 1 | 2 | 3 | 4 | 5 |
| 9) Membantu saya kelihatan kemas dan lawa kepada orang lain | 1 | 2 | 3 | 4 | 5 |
| 10) Menjadikan saya lebih menawan kepada jantina yang berlainan | 1 | 2 | 3 | 4 | 5 |
| 11) Membantu saya menangani perasaan marah saya | 1 | 2 | 3 | 4 | 5 |
| 12) Menjadi bosan | 1 | 2 | 3 | 4 | 5 |
| 13) Membuat saya cedera | 1 | 2 | 3 | 4 | 5 |
| 14) Membuat saya malu di hadapan orang lain | 1 | 2 | 3 | 4 | 5 |
| 15) Membuat saya letih | 1 | 2 | 3 | 4 | 5 |
| 16) Menyebabkan kesakitan dan lenguh otot | 1 | 2 | 3 | 4 | 5 |

D. UKURAN ANTROPOMETRI

	Bacaan 1	Bacaan 2	PURATA
BERAT (kg)			
TINGGI (cm)			

JISIM TUBUH BADAN

(kgm²): _____

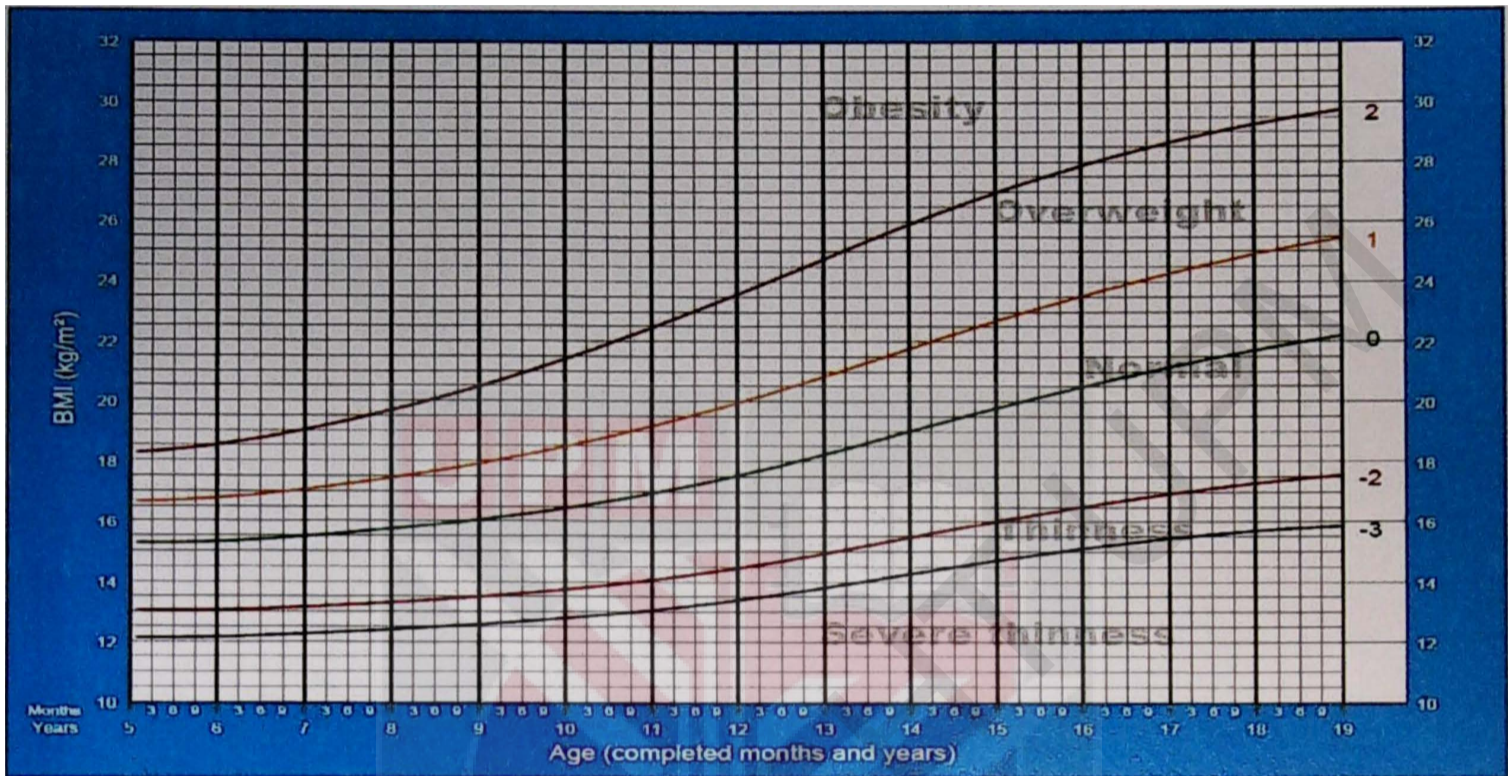
KLASIFIKASI : _____



APPENDIX VI: WHO GROWTH CHART (BMI-FOR-AGE)

BMI-for-age BOYS

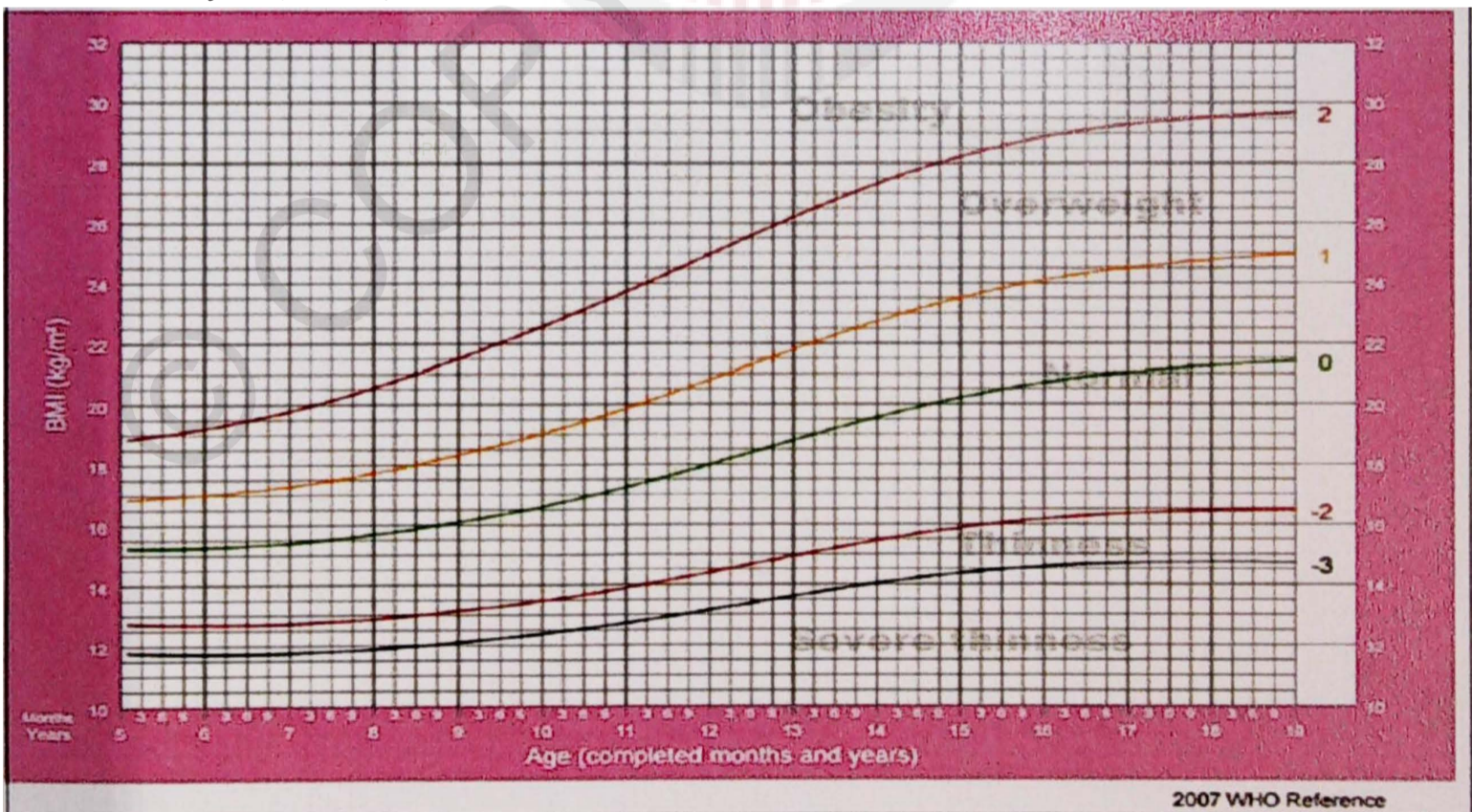
5 to 19 years (z-scores)



2007 WHO Reference

BMI-for-age GIRLS

5 to 19 years (z-scores)



2007 WHO Reference



UPM

APPENDIX VII: TOTAL POPULATION ACCORDING TO ETHNICS, AREA AND STATE IN BATU PAHAT, JOHOR

JUMLAH PENDUDUK MENGIKUT KUMPULAN ETNIK, KAWASAN PBT DAN NEGERI, MALAYSIA, 2010

Daerah Pentadbiran/ Kawasan Pihak Berkuasa Tempatan Administrative District/ Local Authority Area	Jumlah Total	Warganegara Malaysia Malaysian citizens							Bukan Warganegara Malaysia Non-Malaysian citizens
		Jumlah Total	Bumiputera			Cina Chinese	India Indians	Lain-lain Others	
			Jumlah Total	Melayu Malay	Bumiputera Lain Other Bumiputera				
BATU PAHAT									
M.P. Batu Pahat	209,461	198,507	105,923	105,017	906	88,642	3,345	597	10,954
Bandar Penggaram	75,148	72,527	26,852	26,568	284	43,580	1,824	271	2,621
Parit Raja	3,046	2,950	2,180	2,138	42	752	12	6	96
Rengit	815	760	351	347	4	399	1	9	55
Semerah *	350	342	167	165	2	175	-	-	8
Sengarang	1,890	1,821	750	747	3	1,063	-	8	69
Sri Gading	1,104	1,084	413	407	6	615	53	3	20
Tongkang Pechah	4,436	3,784	1,815	1,801	14	1,937	23	9	652
Kawasan selebih M.P. Remainder of M.P.	122,672	115,239	73,395	72,844	551	40,121	1,432	291	7,433

JUMLAH PENDUDUK MENGIKUT ETNIK, MUKIM DAN NEGERI, MALAYSIA

Daerah Pentadbiran/ Mukim Administrative District/ Mukim	Jumlah Total	Warganegara Malaysia Malaysian citizens							Bukan Warganegara Malaysia Non-Malaysian citizens
		Jumlah Total	Bumiputera			Cina Chinese	India Indians	Lain-lain Others	
			Jumlah Total	Melayu Malay	Bumiputera Lain Other Bumiputera				
JUMLAH TOTAL	3,230,440	2,968,088	1,748,245	1,698,472	49,773	997,590	209,260	12,993	262,352
BATU PAHAT	401,902	383,391	256,719	254,078	2,641	119,361	6,443	868	18,511
Bagan	7,591	7,440	6,640	6,634	6	791	3	6	151
Chaah Bahru	6,528	5,426	3,504	3,440	64	1,291	611	20	1,102
Kampung Bahru	11,997	11,627	9,786	9,286	500	1,806	18	17	370
Linau	19,658	18,325	13,125	13,079	46	5,062	117	21	1,333
Lubok	6,660	6,594	6,103	6,100	3	487	1	3	66
Minyak Beku	17,324	16,634	12,068	12,025	43	4,493	36	37	690
Pesera	9,527	9,143	8,396	8,395	1	717	18	12	384
Simpang Kanan	143,955	135,911	56,602	56,004	598	75,751	3,083	475	8,044
Simpang Kiri	26,416	25,455	23,965	23,952	13	1,432	32	26	961
Sri Gading	66,375	63,903	57,024	56,740	284	6,415	370	94	2,472
Sri Medan	23,275	22,501	20,786	20,616	170	1,639	53	23	774
Sungai Kluang	16,591	15,844	12,665	11,854	811	3,090	43	46	747
Sungai Punggor	10,417	10,132	8,897	8,887	10	1,211	11	13	285
Tanjung Sembrong	35,588	34,456	17,158	17,066	92	15,176	2,047	75	1,132