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Correlation between Obesity towards Physical Fitness based on Health among Students in Three Categories of A Primary School in Zone Pudu, Kuala Lumpur

[1]Mohd Firdaus Abdullah and [2]M. Nasrun Mastor
[1]Centre for Languages and Human Development, Universiti Teknikal Malaysia Melaka, 76100 Melaka, Malaysia
[2]Universiti Kebangsaan Malaysia, 43300 Bangi, Selangor Darul Ehsan, Malaysia

Abstract: Physical education is a subject that aims to educate students for sports, recreation, social and health care. In addition, students also have the skills to act in an emergency and to apply a healthy lifestyle (Halijah and Omar Nor). A survey conducted on 165 students obesity level 2 in three schools in Zone Pudu, Kuala Lumpur is intended to identify the level of obesity and the level of emotional intelligence based on National Physical Fitness Standard (SEGAK). The findings show that respondents are 165 students who suffer from obesity majority of whom are primary school student of SK Jalan Peel. The majority of respondents also have obesity levels I with a BMI of 30-35 and have a low level of physical fitness. They comprise the majority of whom were 10 years old, the majority of whom are Malays and also is composed of female students. The results of this study will hopefully help teachers, parents, school authorities, the ministry of education and ministry of health in addressing obese student and improve their physical fitness level.

Key words: Obesity, physical fitness, health and students level 2, Malays, hopefully

INTRODUCTION

Background: Health Education Curriculum in Malaysia formulated to meet the needs of growth and development of individuals to form a healthy society that adopting a healthy lifestyle. It is divided into three pillars, namely education and health first, family second and healthy lifestyle hygiene and environmental health third. Problems that can cause various harmful diseases that are closely associated with unhealthy lifestyle practices such as taking food out of balance while doing less physical movement. While physical fitness refers to the ability to perform daily tasks and responsibilities without a fast experiencing sluggishness, still have the energy to engage in leisure activities and can cope with all emergencies that may occur. Direct, physical fitness is closely related to a person's ability to work effectively, enjoy leisure time be healthy, avoid getting various diseases such as (high blood pressure, heart disease and obesity) and attempts to deal with emergency situations.

Indirectly, someone who has good physical fitness will have a low risk for the disease, no health problems and have the energy to participate in various physical activities (Goran and Treuth, 2001). Physical activity can increase the level of physical fitness and can also reduce the risk of heart disease, diabetes, high blood pressure and type-specific cancers (Larsen *et al*., 2002).

Objective of the study: This study embarks on the following objectives:

- To assess the level of obesity among children in two stages (years 4-6) in school zones Pudu, Kuala Lumpur
- To review of health related physical fitness levels among children in two stages (years 4-6) in school zones Pudu, Kuala Lumpur
- To identify the relationship between the degree of obesity and health related physical fitness among children in two stages (years 4-6) in school zones Pudu, Kuala Lumpur
- To identify the relationship between the degree of obesity (Stage 1-3) with health related physical fitness among children in two stages (years 4-6) in school zones Pudu, Kuala Lumpur
- To identify the differences between the levels of obesity (Stage 1-3) with health related physical fitness among children in two stages (years 4-6) in school zones Pudu, Kuala Lumpur

Problem statement: Today, obesity is among the problems experienced by people not only for the most developed countries including the United States, Australia, France and even Malaysia. Problems that can

Corresponding Author: Mohd Firdaus Abdullah, Centre for Languages and Human Development, Universiti Teknikal Malaysia Melaka, 76100 Melaka, Malaysia

cause various harmful diseases that are closely associated with unhealthy lifestyle practices such as taking food out of balance while doing less physical movement. Now, most people who practice modern lifestyle of eating fast food, mostly driving the car was too busy concentrating on the job in the office and not doing physical activity. For Malaysians also took a lot of fatty foods take rice in every meal such as breakfast, lunch, afternoon and evening. Carbohydrates are essential for the body but take the excess carbohydrates will lead to obesity.

Within 20 years, more and more people who suffer from the disease of obesity. What is even more distressing when there are children aged between 2 and 3 years have already been classified as obese or overweight excessive. Related to the above, students in primary schools in Malaysia, especially lack of knowledge and understanding of obesity and the factors that lead to obesity. Similarly, the teaching and learning in the classroom subjects health education only discuss about balanced meals for 30 min. With time so limitation, not much can be explained by teachers to understanding primary school student about the factors of obesity. Excessive food intake and insufficient physical activity are among the main factors that lead to obesity. Far less information about obesity among girls render them less take cognizance of obesity. Therefore, this study aimed to get a body mass index and physical activity index. This study also allows us to know the degree of obesity and physical activity levels of primary school female students in the Federal Territory of Kuala Lumpur. The study also aims to look at the relationship between body mass index and physical activity in addition to knowing the extent of their practice healthy eating.

Research questions: The central research questions that have been examined in this research are as follows:

- R_1: what is the level of obesity among children in two stages (4-6 years) in school zones Pudu, Kuala Lumpur?
- R_2: what health related physical fitness levels among children in two stages (4-6 years) in school zones Pudu, Kuala Lumpur?
- R_3: is there a relationship between the degree of obesity and health related physical fitness among children in two stages (4-6 years) in school zones Pudu, Kuala Lumpur? R4: how did they practice healthy eating?
- R_4: is there a relationship between the degree of obesity (Stage 1-3) with health related physical fitness among children in two stages (4-6 years) in school zones Pudu, Kuala Lumpur?
- R_5: is there a difference between the degree of obesity (Stage 1-3) with health related physical fitness among children in two stages (4-6 years) in school zones Pudu, Kuala Lumpur?

Literature review

Obesity: According to Heyward (2002), obesity is an epidemic of obesity in which the amount of body fat is part of the total weight. This is also known as overweight. Excess body fat percentage will cause problems such as obesity. Percentages are ideal for an individual is between 25-29.9 kg/m^2. While in Asia, classification of body mass index, 25 kg/m^2 and above is categorized as obese.

The rising prevalence of obesity is a serious problem in the developed countries (Lobstein *et al*., 2004) and increasingly in many parts of the developing world (Wang and Lobstein, 2006; Boreham *et al*., 2004). It is interesting to note that according to the latest data from Sweden, Denmark and Norway which show that obesity is not deteriorated since 2000, it is possible to stop the epidemic (Pearson *et al*., 2010; Lissner *et al*. 2010). Long-term effects of the most significant of obesity in childhood and adult obesity is related comorbidities. A body of research shows a higher risk of children being overweight and obesity become obese adults from friends their normal weight (Boreham *et al*., 2004; Daniels *et al*., 2009; Singh *et al*., 2008; Mamun *et al*., 2009; Venn *et al*., 2007) and the main factor is the low level of physical activity. Obesity in adolescence also predict mortality (Baker *et al*., 2007).

According to Waters childhood obesity can cause social, psychological and health problems and is linked to obesity later in life and poor health outcomes as an adult. obesity development is related to physical activity and nutrition. To prevent obesity, 55 studies conducted internationally have looked at programmes aiming to improve either or both of these behaviours. Although, many studies were able to improve children's nutrition or physical activity to some extent, only some studies were able to see an effect of the programme on children's levels of fatness.

Physical fitness: Physical fitness health involves certain physiological and psychological aspects in helping protect us from health problems such as cardiovascular disease, obesity and mental emotional problems. It can also be seen in terms of cardiovascular endurance, muscular endurance, body composition, bleaching and flexibility and muscle strength. Students who are active in sports have higher fitness levels than students who are not active. Continue engagement in improving cardiovascular endurance sports (Beets and Pitetti, 2005).

However, the effects of treatment and participation in vigorous sports activity and aerobic fitness is better than practicing activities in general. Girls have the performance level of physical fitness in contrast to men according to age. This may be due to the teaching and learning environment that is received by a child affects the impact on the performance of physical fitness. Gender differences in physical fitness will always change from time to time (Callister and McLaren, 2001) because performance is affected by factors of physical fitness training, opportunity, family expectations and needs in a particular environment. Donald (2006), explained that participation in physical activity can have a positive impact on health. Among them is reducing the risk of various diseases, reduce cholesterol in the body, improve your fitness level, mental health and academic performance. He also concluded that individuals who engage in physical activity for 60 min a day to stay healthy in terms of physiological, psychological and social. The American College of Sports Medicine (ACSM) defines physical fitness as a set of measurable health and skill-related attributes that include body composition, Cardiorespiratory Fitness (CRF), muscular fitness, flexibility and neuromotor fitness (Garber *et al*., 2011).

Children with higher physical activity levels have also higher fitness levels (Rowland, 2007). A recent review has shown in children a positive relationship between levels of physical-activity and academic performance and executive function (Haapala, 2013). Physical activity related neurophysiological changes in the brain have been hypothesized to explain the positive influence of physical fitness on academic performance such as that physical activity increases brain blood flow, improves neuroelectric functionality and stimulates the release of brain derived neurotrophic factor that facilitates learning and maintains cognitive functions by improving synaptic plasticity (Hilman *et al*., 2008). In addition, studies analysing the relationship between academic achievement and other components of physical fitness such as strength (Van *et al*., 2011; Castelli *et al*., 2007; Eveland *et al*., 2009) or speed/agility are scarce and in most of these studies, physical fitness has been indexed as an overall score across several fitness tests (Chomitz *et al*., 2009; London and Castrechini, 2011) which makes it difficult to determine the independent association of each component of physical fitness with academic achievement.

Student in primary schools in Malaysia, especially lack of knowledge and understanding of obesity and the factors that lead to obesity. Similarly, the teaching and learning in the classroom subjects health education only discuss about balanced meals for 30 min. So by the time limitations, not much can be explained by teachers to understanding primary school student about the factors of obesity. Excessive food intake and insufficient physical activity are among the main factors that lead to obesity. Far less information about obesity among girls render them less take cognizance of obesity.

Therefore, this study aims to gain body mass index and assess its relationship with the physical fitness of students in the two schools Zone Pudu, Kuala Lumpur. This study also allows us to know the degree of obesity and physical activity levels of primary school girls at the Pudu Zone. The study also aims to determine the extent to which they adopt healthy eating and adopting a healthy lifestyle. Furthermore, a positive lifestyle practiced by most individuals at least adopt a healthy lifestyle such as taking care of nutrition, physical activity at least 30 min, three times a week can help people to be healthy. Trend practiced through active physical treatment and taking a balanced diet is a popular trend now a days. In any case, the main objective of a healthy lifestyle is to establish a healthy individuyang of the physical, mental and spiritual.

In conclusion in this chapter, the researcher has explained the background to the study, the problem statement, research questions, research objectives, research interests and the definition of the term. Hopefully this overview of the study will be clearer and easier to understand.

MATERIALS AND METHODS

Research design: This study aims to explore the relationship of the influence of obesity and physical fitness level of health-based primary school student. Therefore, the design of a descriptive study through a survey method using questionnaires have been to collect data. Among the aspects to be reviewed is the background of the students such as sex, age. Next, aspects of nutrition, physical activity and BMI.

The study also conducted a cross-sectional study in which researchers collect data only once at a time (Zamalia, 2008). Because of this quantitative study, a questionnaire was used as an instrument. The scale used to measure the variables in the questionnaire using Likert scale. While the Statistical Package for the Social Science (SPSS) Version 17.0 was used to analyse the data collected. This study uses a study design that is most appropriate descriptive and inferential study. Correlation method is used to investigate the relationship between obesity and physical fitness level of the two students in three schools in Kuala Lumpur Pudu Zone.

Table 1: Number of obesity student in zone

Name of schools	No. of obesity's student
SK Taman Maluri	56
SK Taman Midah	52
SK Jalan Peel	57
Total	165

Table 2: Total number of question

Section	Content	Total of question	Scales
A	Demographic	5	Option
B	Obesity scale	14	Likert
C	SEGAK	5	Likert
Total of question	24		

The selection of respondents: Researchers have chosen primary school student in the Federal Territory of Kuala Lumpur (aged 10-12 years) as respondents. According to Yahaya *et al.* (2007), the sample is defined as a part of the population regardless of whether it can be representative of the population or vice versa. To implement this research, total of 165 respondents were among primary school student in the Federal Territory of Kuala Lumpur (aged 10-12 years). Site selection is made based on the purpose of the study and taking into account the distance factor and the cost of transportation researchers. It involves three schools namely SK Taman Maluri, Taman Midah SK and SK Jalan Peel only. Population studies in the area of Kuala Lumpur's Pudu Zone were 1650 student in two stages. Only 10% of students in each school has two levels of the obese (Table 1).

Instruments (premier data): Primary data is data collected directly by the researcher of the survey respondents. There are several methods of collecting primary data such as observation, interview, questionnaire and many others. Sources that contribute to the production of primary data is the questionnaire. According to Yahaya *et al.* (2007), the creation and regulation of the questionnaire is an effective and successful. Questionnaires were done properly and carefully increase the volume of feedback, facilitate the conclusion and analysis of the collected data. The questionnaire is also suitable for use as a questionnaire to ensure the confidentiality and create a more honest response in addition to requiring a low cost of getting feedback. The study was conducted using a questionnaire based on the modification of some questionnaires previous studies. Questionnaires were used as data collection instruments.

Questionnaires were distributed to the respondents in primary schools around the Federal Territory of Kuala Lumpur. Respondents were given 2 days to complete this questionnaire. Once finished answering, the researchers collected the results of the questionnaire through the cooperation of the school administration. Data collected and analysed is calculated to ensure the quality of the data received.

In this study, a questionnaire used as an instrument divided into five parts, namely Part A-C as shown in Table 2. The total number of questions is 24 questions. A total of 165 sets of questionnaires distributed to respondents who have been among the disciples stage two in three schools in Kuala Lumpur Pudu Zone of SK Taman Maluri, Taman Midah SK and SK Jalan Peel. Each set of questionnaire is divided into 3 main sections consisting of demographic variables, the questionnaire consists of Obesity Scale (Concern Over Weight and Dieting scale, COWD) and physical fitness scale (test scores segak). Respondents are assured that all personal information and the results of the questionnaire will be kept confidential by the researcher. Clear instructions will be specified in the initial questionnaire that does not happen ambiguity among respondents when you want to answer the questionnaire.

Procedure with ethical considerations: In this study, researcher used the interview for data collection. Respondents are well informed of the objective of the research. Besides telling the importance of the interview, they are assured about the confidentiality of their responses and that the data would only be utilized for the purpose of this study. A letter was given to the informant before the interview started and the explanation of the objectives of the interview was done.

Secondary data collection: Resources used for secondary data is from reference books, the Internet and reading articles from previous studies. The information obtained from these sources are collected and selected according to their importance in the study.

Data collection and analysis: In this study, researchers used computer software Statistical Package for Social Science (SPSS) Version 17.0 to analyze the data collected. There are two major components in the statistical descriptive and inferential statistics (Jaggi, 2011). Descriptive analysis refers to the transformation of raw data into a data form that can be understood, interpreted and designed to explain the characteristics of the population or phenomenon (Zamalia, 2008). Descriptive analysis is used to describe the characteristics of the study sample (Pallant, 2010) and can be done using basic statistics such as frequency, percentage, distribution and central tendency. This analysis is often described as a findings at an early stage (Mohd, 2003).

Inferential analysis also provides a procedure for making inferences about the population from the sample (Jaggi, 2011). Inferential statistics were used to describe

Table 3: Summary of research data statistical analysis methods for students respondent at Zone Pudu, Kuala Lumpur

Research objective	Analysis methodology
Identify the level of obesity among students in two stages	Descriptive analysis; frequency distribution and mean
Identify the level of physical fitness among student in two stages	Descriptive analysis; frequency distribution and mean
Reviewing the significant relationship obesity and physical fitness among student	Analysis inference pearson between correlation test

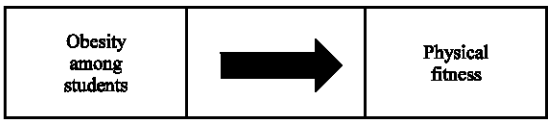

Fig. 1: Conceptual framework

the relationship between a variable and the other variable, where the intended use is to make generalizations about the relationships between variables in the sample to a population study (Chua, 2006). Accordingly, the data obtained in this study are described by descriptive and inferential (Table 3).

Conceptual framework: Through this study, the researchers have developed a model named Model of obesity and physical fitness (Fig. 1). In this model, the researchers put obesity variables as independent variables, while the variables of physical fitness as the dependent variable. The main idea is emphasized in this model is obesity is a predictor of the level of physical fitness. In this model, the researchers describe the level of obesity has a relationship with the level of physical fitness. In this study, the researchers assume that the level of obesity is strongly influenced by the lifestyle of a student of physical fitness. Students who were obese typically are faced with the opposite problem of physical fitness and students who are not obese have a higher level of physical fitness is higher.

RESULTS AND DISCUSSION

BMI (Body Mass Index): Table 4 shows the BMI for body composition components in health related physical fitness according to type and degree of obesity. The table indicates that as many as 87 people (53.0%) respondents for primary school student in Zone Pudu, Kuala Lumpur I have obesity levels of BMI between 25 and 30 kg/m^2. While as many as 70 people (42.0%) of respondents indicated that obesity level 2 of BMI between 31 and 35 kg/m^2. Meanwhile, there were 8 patients (5.0%) respondents exhibit Phase 3 obesity BMI of >36 kg/m^2.

Table 4: BMI students by type and level of obesity

Level of obesity	Frequency	Percentage
Level 1 (over weight)	87	53.0
Level 2 (obesity)	70	42.0
Level 3 (obesity diseases)	8	5.0
Total	165	100.0

Table 5: Obesity level among the respondents

Level of obesity	Frequency	Pecentage
Level 1 (27.5- 34.9 kg/m^2)	87	53
Level 2 (35.0-39.9 kg/m^2)	70	42
Level 3 obesity (≥40 kg/m^2)	8	5
Total	165	100

Table 6: Level of respondents' physical fitness

Level of fitness	Frequency	Pecentage
Level 1	137	83
Level 2	28	17
Level 3	0	0
Total	165	100

Level of obesity: Based on Table 5, it was found that as many as 87 people (53.0%) respondents for primary school student in Zone Pudu, Kuala Lumpur I have obesity levels of BMI between 30 and 35 kg/m^2. While as many as 70 people (42.0%) of respondents indicated that obesity level 2 of BMI between 36 and 40 kg/m^2. Meanwhile, there were 8 patients (5.0%) respondents exhibit phase 3 obesity BMI of >40 kg/m^2.

Level of physical fitness: The results (Table 6) showed that a total of 137 (83.0%) respondents have a low level of physical fitness. Meanwhile, the remaining 28 people (17.0%) respondents have a level of physical fitness is simple. While none of the respondents who have a high level of physical fitness.

Significance of the study towards practices: This study aims to identify the level of obesity and physical fitness level and determine the relationship between the degree of obesity and health related physical fitness levels among children in two stages (4-6 years) in school zones Pudu, Kuala Lumpur. The study used a number of theories and models in levels of obesity and physical fitness, namely stress and coping theory theory Konstruktisme.

For the Body Mass Index (BMI), a majority of respondents have a BMI between 27.5-34.9 kg/m^2. This is supported by Sumarni, Muhammad Amir, Ibrahim, Mohd. Ghazali *et al.* (2006) conducted a study in the district to study the problem of obesity among schoolchildren. Overall symptoms of obesity is 7.2% (50 students) in which 14.6% (102 students) are overweight. The prevalence of obesity is 8.9% of male students and female students is 5.3%. Only in terms of ethnic relations which

give significant value of $p<0.001$, sex and urban or rural areas do not provide significant value. However, girls in urban areas tend toward obesity. In terms of ethnicity, the Malay students three times more likely to obese compared to the Indians.

Results showed that levels of obesity are two levels of students at level 1 which has a BMI between 27.5-34.9 kg. Furthermore, obesity or overweight is considered as an issue that affects the health and appearance of a person in Obesity Prevention Module. The latest scenario, overweight and obesity among children is a growing problem in Malaysia. According to Summerbell *et al.* (2005) statistics released by the Association for the Study of Obesity (MASO) in 2005 recorded a 27% or any one of four Malaysians are reported to have problems of excess weight. Malaysia ranked first among countries in Southeast Asia most people suffering from obesity and sixth place in the Asia-Pacific countries. This information is based on statements of the House of Commons in 2011. Survey Report of the Third National Health and Morbidity Survey showed that the prevalence of overweight has increased to 29.1% from 16.6% while the prevalence of obesity increased to 14.0% compared to 4.4% in 1996.

Results showed that the level of physical fitness of students in the three schools, two are located at a low level. However, these findings contradict a study was conducted by Ward *et al.* (2006) to over 1015 teenagers aimed at comparing the correlation between white girls and girls of African-Americans with physical activity. The findings indicate that participation in physical activity is more significant among girls who are more active, regardless of weight or nation. This proves that despite having problems with weight, engaging in physical activity will not affect a person's performance.

However, many of the findings of past studies prove a direct correlation between the increases in weight by engaging in physical activity is low. Advances in technology and transportation cause involvement in physical activity rather than a vital necessity in daily functions like elevators which reduce the activity and use the remote control to change the current activity. Hence, the need of energy for daily activities contribute to a decrease in the number of energy production and lead to weight gain. This was supported by Swallen *et al.* (2005) who conducted a study of 4643 adolescents using the National Longitudinal Study of Adolescent Health in 1996. The findings show that obesity is closely related to the quality of life that is not healthy. Teens who have a normal weight does not face the problem of depression, self-esteem or their social function. These findings confirm that individuals who do not practice a healthy lifestyle will gain health or fitness level is lower. This will affect their performance in physical activities and cause them not to function in society as well as psychological problems.

CONCLUSION

Overall it can be concluded that all the objectives, research questions and hypotheses built at the beginning of the study have been answered. It can be concluded that there is a significant negative correlation between the degree of obesity and physical fitness levels among primary school student in three schools in Zone Pudu, Kuala Lumpur. Similarly, the level of obesity of student at level I and level of physical fitness disciples were at a low level.

Furthermore, children are a valuable national assets because they are the future generation who will lead our country in future. From that with the health and physical education in schools so teachers can achieve a healthy society is not only among school students and even parents and the local community through the dissemination of knowledge. What is important is that every member of a society must act and determined to both change the way of life that can be emulated by children if they want to enjoy a comfortable life as a result of prolonged health.

RECOMMENDATIONS

The finding has several implications to the Ministry of Education (MOE) and the Ministry of Health (MOH). Results showed that the high level of obesity that causes the student have a low level of physical fitness. Thus, the role of teachers in educating student to keep healthy by giving priority to an ideal weight. Students may apply by way of a balanced diet, regular exercise and maintain mental and physical balance. Ministry of Health should also work closely with the school to address the problem of obesity among primary school student now becoming infectious. Health talks can be held in schools to health care information to students.

The findings also indicate the level of obesity of primary school pupils being studied in phase I with a BMI of 30-35 and the level of physical fitness of primary school pupils in three schools in Zone Pudu, Kuala Lumpur is located at a low level. Therefore, schools need to diversify into the high school students to gain knowledge and take care of their health by adopting healthy lifestyle practices such as a balanced diet and physical activity that makes consistent. This is because good health starts in students themselves.

It is hoped that this study can be used as a guide to a group of primary school teachers and parents to enhance their role and responsibilities in childbirth children expectation national gem of a healthy, active and intelligent. Therefore, the primary school teacher should instill positive attitudes and behavior and balanced so that students can both understand the importance of health care and a healthy lifestyle.

In another study conducted by Wang and Popkin (2000) and Monteira, found that there was an increase in body weight that occurs among children, especially in countries of the developing world. This is because obesity has complex etiology related to genetic factors and the environment in which an imbalance between energy intake and energy use. Obesity among children may be avoided by health among parents and the surrounding community. All parties need to be sensitive to this issue and take appropriate action to address them.

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