



**UNIVERSITI PUTRA MALAYSIA**

***COMPARISON STUDY ON SLEEPING DISTURBANCES, HEALTH  
RELATED QUALITY OF LIFE, AND PHYSICAL ACTIVITY LEVEL  
BETWEEN OVERWEIGHT/OBESE AND NORMAL-WEIGHT CHILDREN***

**NUR AZLEEN NOR MOHAMAD**

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FPSK6 2014 5**

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## ABBREVIATIONS

|       |                                |
|-------|--------------------------------|
| BMI   | Body Mass Index                |
| HRQOL | Health-related quality of life |
| Owt   | Overweight                     |

## Abstract

### COMPARISON STUDY ON SLEEPING DISTURBANCES, HEALTH-RELATED QUALITY OF LIFE, AND PHYSICAL ACTIVITY LEVEL BETWEEN OVERWEIGHT/OBESE AND NORMAL-WEIGHT CHILDREN

Nur Azleen bt Nor Mohamad

This was a cross-sectional comparison study aimed to compare the sleeping disturbances, health-related quality of life, and physical activity level between overweight/obese and normal-weight children. A total of 200 respondents comprising of 100 overweight/obese and 100 normal-weight children aged 10 to 11 years old in Puchong, Selangor were participated in this study. Majority of the respondents were Malays (94%) and girls (56%) with their aged of 11 year old (75%). Sleeping disturbances, health-related quality of life and physical activity level were assessed through Children Sleeping Habit Questionnaire, Pediatric Quality of Life Inventory and Physical Activity Questionnaire respectively. Body weight and height were measured using the TANITA digital weighing and SECA meter respectively. Overweight/obese children were matched with normal-weight children based on the age, gender and ethnicity. The mean body weight, height and BMI-for-age for overweight/obese children were  $51.07 \pm 10.60$  kg,  $143.96 \pm 7.32$  cm and  $2.06 \pm 0.67$  kg/m<sup>2</sup> respectively. Meanwhile, the mean body weight, height and BMI-for-age for normal-weight children were  $34.19 \pm 4.89$  kg,  $139.91 \pm 7.26$  cm and  $0.08 \pm 0.62$  kg/m<sup>2</sup> respectively. Majority of the respondents having a good HRQOL with 48% of overweight/obese children and 51% of normal-weight children have scored >50 reported by the children. About 52% of overweight/obese and 46.2 % of normal-weight children were reported have a better HRQOL as reported by their parents. Sleeping disturbances were comparably occurred among normal-weight children (18.6%) and overweight/obese children (12.2%). Majority of the respondents were in sedentary level of physical activity with 62.4% of overweight/obese children and 72.6% of normal-weight children. Age, gender and ethnicity ( $\chi^2 = 0.00$ ,  $p > 0.05$ ) were not differing significantly between overweight/obese and normal-weight children. No significant differences were found on socio-demographic characteristics (household income) between overweight/obese and normal-weight children. HRQOL scores reported by children were significantly differences between overweight/obese and normal-weight children in which overweight/obese had less HRQOL compared to normal-weight children. There were no significant differences of sleeping disturbances, HRQOL scores reported by the parents and physical activity level between overweight/obese and normal-weight children. In conclusion, almost of the population does not have any sleep disturbances and were in sedentary physical activity level. HRQOL score were low among overweight/obese children compared to the normal-weight children as reported by the children. Girls who were normal-weight were even better in HRQOL scores as compared to girls who were overweight/obese children. Normal-weight children also have a good psychosocial health compare to the overweight/obese children. Hence, future study should be conducted to compare the sleep duration between overweight/obese and normal-weight children as well as the environmental causes also needs to take into the accounts for future research.

## Abstrak

# KAJIAN PERBANDINGAN MENGENAI GANGGUAN TIDUR, KUALITI HIDUP BERKAITAN KESIHATAN DAN TAHAP FIZIKAL AKTIVITI DI ANTARA KANAK-KANAK BERLEBIHAN BERAT BADAN/OBESITI DAN KANAK-KANAK BERAT BADAN NORMAL

Nur Azleen Bt Nor Mohamad

Kajian perbandingan keratan kertas ini bertujuan untuk membandingkan gangguan tidur, HRQOL, dan tahap aktiviti fizikal di antara kanak-kanak yang berlebihan berat badan/obes dan kanak-kanak yang berat badan normal. Seramai 200 responden terdiri daripada 100 kanak-kanak berlebihan berat badan dan 100 kanak - kanak berat badan normal yang berusia 10 hingga 11 tahun di Puchong, Selangor telah mengambil bahagian dalam kajian ini. Majoriti responden yang menyertai kajian ini adalah terdiri daripada responden Melayu (94%) dan kanak-kanak perempuan (56%) yang berumur 11 tahun (75%). Gangguan tidur, HRQOL dan tahap fizikal aktiviti dinilai melalui *Children Sleeping Habit Questionnaire*, *Pediatric Quality of Live Inventory and Physical Activity Questionnaire*. Berat badan dan ketinggian diukur dengan menggunakan penimbang TANITA digital dan SECA meter. Kanak-kanak berlebihan berat badan/obes dipadankan dengan kanak-kanak berat badan normal berdasarkan umur, jantina dan kaum. Min berat badan, ketinggian dan jisim berat badan untuk kanak-kanak berlebihan berat badan adalah  $51.07 \pm 10.60$  kg,  $143.96 \pm 7.32$  cm dan  $2.06 \pm 0.67$  kg/m<sup>2</sup> manakala untuk kanak-kanak berat badan normal adalah  $34.19 \pm 4.89$  kg,  $139.91 \pm 7.26$  cm dan  $0.08 \pm 0.62$  kg/m<sup>2</sup>. Majoriti responden mempunyai tahap HRQOL yang baik iaitu seramai 48% daripada kanak-kanak berlebihan berat badan manakala 51% daripada kanak-kanak berat badan normal. Sebanyak 52% kanak-kanak berat badan berlebihan dan 46.2 % kanak-kanak berat badan normal pula dilaporkan mempunyai HRQOL yang lebih baik oleh kedua-dua ibu bapa mereka. Gangguan tidur dilaporkan setara dalam kalangan kanak-kanak berat badan normal (18.6%) berbanding dengan kanak-kanak berlebihan berat badan (12.2%). Majoriti daripada responden berada dalam tahap fizikal aktiviti yang sederhana iaitu 62.4 % merupakan kanak-kanak berlebihan berat badan dan 72.6% merupakan kanak-kanak yang berat badan yang normal. Umur, jantina dan etnik tidak mempunyai perbezaan yang ketara antara kanak-kanak berlebihan berat badan dengan kanak-kanak berat badan normal. Tiada perbezaan yang ketara juga dilaporkan untuk ciri-ciri socio-demografi antara kanak-kanak berlebihan berat badan dan kanak-kanak berat badan normal. HRQOL skor yang dilaporkan oleh kanak-kanak mempunyai perbezaan antara kanak-kanak berlebihan berat badan dan kanak-kanak berat badan normal. Namun, tiada perbezaan yang ketara dilaporkan untuk gangguan tidur, HRQOL skor daripada laporan ibu bapa dan tahap fizikal aktiviti antara kanak-kanak berlebihan berat badan dan kanak-kanak berat badan normal. Kesimpulannya, sebahagian daripada kanak-kanak tidak mempunyai gangguan tidur dan mengamalkan aktiviti fizikal yang tidak aktif. Kanak-kanak berlebihan berat badan/obes mempunyai tahap HRQOL yang rendah berbanding

kanak-kanak berat badan normal. Kanak-kanak perempuan yang berat badan normal mempunyai tahap HRQOL yang lebih baik terutamanya dari segi kesihatan psikosocial. Oleh itu, kajian mengenai perbandingan tempoh tidur dengan mengambil kira faktor sekeliling perlu dilakukan pada masa hadapan.

## CHAPTER I INTRODUCTION

### 1.1 Background

Childhood obesity has become a major public health issue in developed countries. Body mass index (BMI) is classified using a specific  $Z$  score or percentile. Overweight is defined as BMI  $Z$  score of 1.84 or 85th percentile based on the 2000 CDC growth charts. Obesity is defined as above 2.58  $Z$  score or 97.7th percentile (WHO, 2007).

The prevalence of overweight and obesity in children is similar to adults in developed countries but shows an increasing trend. The highest prevalence is in the Western and industrialized countries, but it is also rising in some developing countries.

The prevalence of overweight and obesity in American and Eastern Mediterranean was 14.6% (20-49%) and 14.1% (Europe 20-30%), South-East Asia, Western Pacific and African regions (10-20% in the latter three) (Wang & Lim, 2012). A total

## CHAPTER 1

### INTRODUCTION

#### 1.1 Background

Childhood obesity is considered as a one of the major issue in developed countries. Body mass index for children is classified using a specific z-score or percentile. Overweight is defined as between 1SD to 2SD based on the z-score meanwhile above the 85<sup>th</sup> percentile for the percentile. Obese is defined as above 2 SD for z-score and greater than 95<sup>th</sup> for percentile (WHO, 2007).

The prevalence of overweight and obesity in children is similar to adults in developing countries that shows an increasing trend. The highest prevalence is in the western and industrialized countries, but it is still low in some developing countries. The prevalence of overweight and obesity in Americas and Eastern Mediterranean were higher (30-40%) than in the Europe (20-30%), south-East Asia, Western Pacific and African region (10-20% in the latter three) (Wang & Lim, 2012). A total

of 43 million children were estimated to be overweight/obese and about 92 million were at risk of overweight in 2010 (Wang & Lim, 2012). The scenario of this epidemic can also be seen among pre-school children from approximately 4% in 1990 to the 7% in 2010 and the prevalence may reach to 9% in 2020 if the trend continues to increase. The prevalence of obesity among 5 to 12 years old children in Thailand increased from 12.2% to 15.6% over a period of 2 years (WHO, 2003). In China, the prevalence of childhood obesity reached 7.1% in Beijing and 8.3% in Shanghai in year 2000 (WHO, 2000)

In Malaysia, lifestyle and disease pattern changed in tandem to rapid development led to the growing problems of childhood obesity (Ismail et al., 2012). About 6.1% of children aged below 18 years in Malaysia were obese and the prevalence was higher in urban area (National Health Morbidity Survey (NHMS), 2011). NHMS (2011) also stated that about 6.3% children aged 10 to 14 years old were overweight in Malaysia. The prevalence of overweight and obesity among primary school children in Kuching, Sarawak were 18.2 % and 15.2 % respectively (Lee et al., 2012). In Selangor, the prevalence of overweight and obesity were 6.3% and 6.3% in primary school children aged between 9 to 10 years old (Ismail et al., 2012). The prevalence of overweight was also similar comparable across the main ethnicities (Moy, Gan, & Zaleha, 2004) but higher in boys (8.9%) as compared to girls which was only 6.3%. (Sumarni et al.,2006).

Sleep is the basic fundamental need of every human being. Sleep disturbances is defined as a poor sleep behaviour that leads to the poor quality of sleep. Sleep disruption during the night led to excessive daytime sleepiness which decreased physical activity and thus increased the probability to become obese (Daniel, 2006).In Malaysia, about 41.5% Malaysian children who were obese were

having sleeping disturbances (Somayyah et al., 2013). Similarly, overweight/obese children also reported to have poor HRQOL. Indeed, they were more likely to have impaired HRQOL 5.5 times greater than normal-weight children (Jeffrey, Tasha & James, 2003).

### 1.3 Significance of the study

## 1.2 Problem Statement

Childhood obesity becomes a public health problem as the prevalence is in increasing trend. Previous study among Malaysian children who were overweight/obese and normal-weight aged 6 to 12 years old showed that overweight/obese children were having sleeping disturbances compared to the normal-weight children. Sleep disturbances and body weight status were positively correlated among overweight/obese and normal-weight children. This is most likely due to the sleep disruption at the night time (Somayyah et al., 2013). HRQOL was also found correlate with body weight status as a previous study conducted among overweight/obese children and adolescents aged <20 years showed there was a relationship between HRQOL and body weight status (Tsiros et al., 2009).

Nevertheless, there was a limited study conducted to compare the sleeping disturbances and HRQOL on the specific children aged 10 to 11 years old who were overweight/obese and normal-weight children in Selangor area. Therefore, this study was conducted to compare the sleeping disturbances, HRQOL, and physical activity level between overweight/obese and normal-weight children aged 10 to 11 years old in Selangor area. The research question for this study is:

1. What are the differences of sleeping disturbances, HRQOL and physical activity level between overweight/obese and normal-weight children?

### 1.3 Significance of the study

This study provided baseline information pertaining to sleep disturbances, HRQOL and physical activity level between overweight/obese and normal-weight children aged 10 to 11 years old. Besides, the results from this study can also be used as a reference for policy makers, health agencies, program planners and community leaders in planning and implementing effective program to promote healthy lifestyle for children in Malaysia.

### 1.4 Objective

#### **General objective:**

To compare sleeping disturbances, HRQOL and physical activity level between overweight/obese and normal-weight children.

#### **Specific objective:**

1. To determine sleeping disturbances, HRQOL and physical activity level between overweight/obese and normal-weight children.
2. To compare:
  - socio-demographic characteristics between overweight/obese and normal-weight children.

- sleeping disturbances between overweight/obese and normal-weight children
- HRQOL between overweight/obese and normal-weight children.
- physical activity level between overweight/obese and normal-weight children.

### 1.5 Null Hypotheses

**Ho1:** There was no significant difference in socio-demographic characteristics between overweight/obese and normal-weight children.

**Ho2:** There was no significant difference in sleeping disturbances between overweight/obese and normal-weight children.

**Ho3:** There was no significant difference in HRQOL between overweight/obese and normal-weight children.

**Ho4:** There was no significant difference in physical activity level between overweight/obese and normal-weight children.

Figure 1.1: Conceptual framework

## 1.6 Conceptual framework

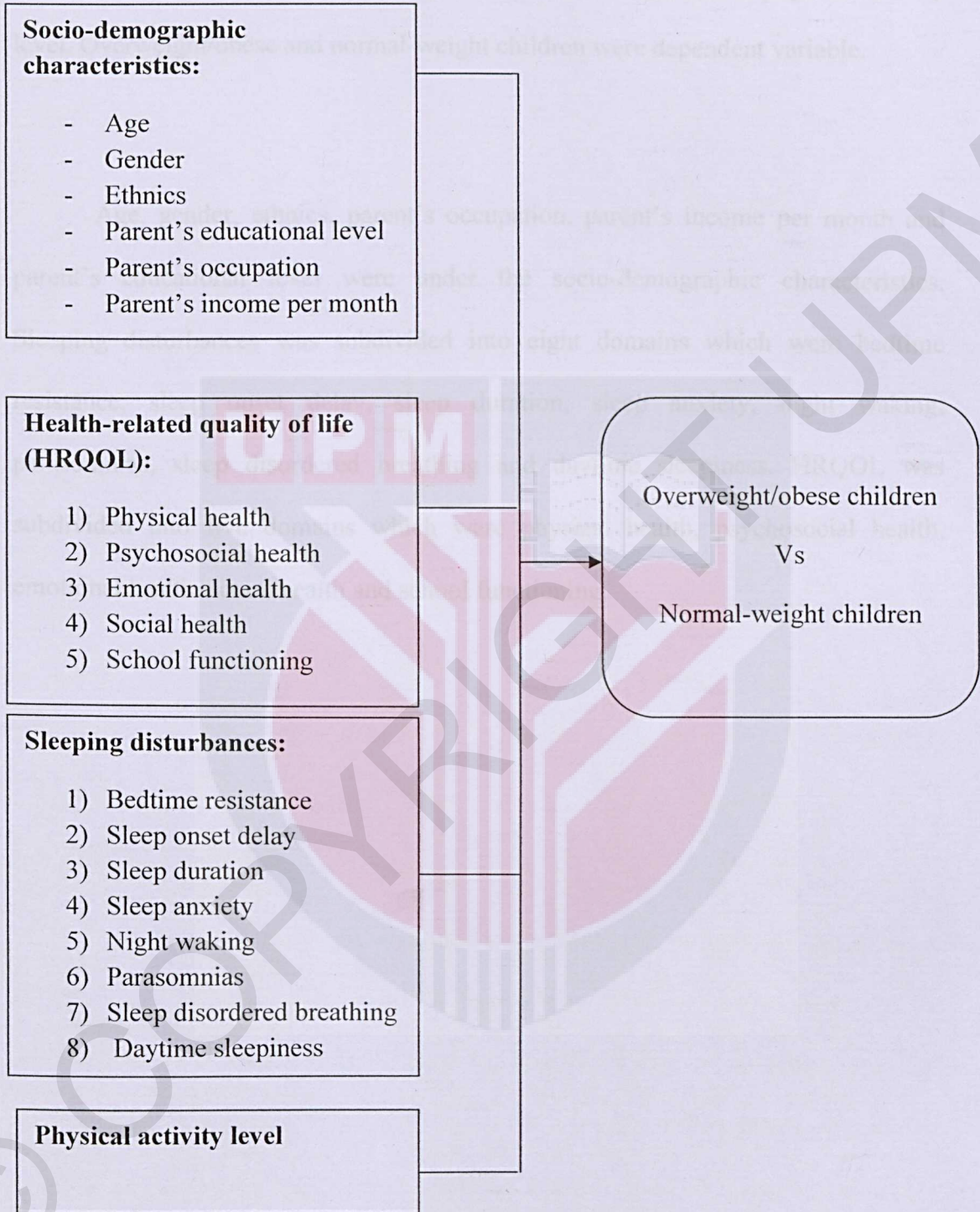


Figure 1.1: Conceptual framework

Based on the figure 1.1, the independent variables consist of socio-demographics characteristics, sleeping disturbances, HRQOL, and physical activity level. Overweight/obese and normal-weight children were dependent variable.

Age, gender, ethnics, parent's occupation, parent's income per month and parent's educational level were under the socio-demographic characteristics. Sleeping disturbances was subdivided into eight domains which were bedtime resistance, sleep onset delay, sleep duration, sleep anxiety, night waking, parasomnias, sleep disordered breathing and daytime sleepiness. HRQOL was subdivided into five domains which were physical health, psychosocial health, emotional health, social health and school functioning.

## 2.1 OBESITY

Obesity is defined as the accumulation of excess fat in the body which may lead to many health problems. The high availability of energy-dense food with the consumption of sedentary lifestyle have led to a rapid increase in health condition (WHO, 2010). Nowadays, childhood obesity is the most common nutritional problem developed worldwide and has turn out to be a global epidemic (Kaya et al., 2013). The body mass index (BMI) is used as an indicator to evaluate the body weight status. However, it does not provide information regarding the distribution of fat in the body (Kaya et al., 2013).

Obesity prevalence was about 14- 20% in industrialised countries but the childhood obesity prevalence was seen in faster increasing trend in developing countries such as in Chile and China (Finer, 2013). The situation was similar in Malaysia where the prevalence of overweight and obese children was at increasing trend too. There are many factors that contribute to this trend such as the nutrition, genetic and sedentary lifestyle. As the prevalence and severity of childhood obesity increased, there was a concern about the adverse health outcomes associated with obesity including cardiovascular disease, type II diabetes mellitus, hypertension, metabolic disorders, and other chronic diseases (Deniel, 2007).

## CHAPTER 2

### LITERATURE REVIEW

#### 2.2 SOCIO-DEMOGRAPHIC CHARACTERISTICS

The prevalence of obesity was higher among males (10.3%) as compared to the girls (9%). Age, educational level, household

#### 2.1 OBESITY

Obesity is defined as the accumulation of excess fat in body which may leads to any health problems. The higher consumptions of energy-dense food with the combination of sedentary lifestyle have led to a rapid increase in health condition (WHO, 2010). Nowadays, childhood obesity is the most common nutritional problem in developed countries and has turn out to be a global epidemic (Kaya et al., 2013). The body mass index becomes an indicator to evaluate the body weight status. However, it does not provide information regarding the distribution of fat in the body (Kaya et al., 2013).

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## **2.2 SOCIO-DEMOGRAPHIC CHARACTERISTICS**

The prevalence of obesity was significantly higher among males (10.3%) as compared to the girls (6.9%). Age, gender, parental educational level, household income was significantly associated with increasing childhood obesity. Parents with greater education level and high household income per month (>RM 3000) were significantly associated with obesity among pre-school children at Shanghai, China (Jiang et al., 2009).

However, it was a contrast to a previous study among primary schools children in Victoria, Australia which stated that a higher proportion of females were classified as overweight (21.3%) and obese (4.9%) compared to the males who were only 19.2% of overweight and 3.8% of obese but the results was not significantly different (William et al., 2003).

Arbelaez et.al (2014) stated that the higher household income was significantly correlated with waist circumference due to the child's food environment. Children who were from higher income families tend to have more food consumption due to the higher availability of food as compared to the lower income children. Moreover, high socioeconomic status children also seem to be at increased risk of being overweight/ obese due to the increased facilities towards westernised lifestyle. In addition, high-SES children also tend to have inactive lifestyle as decreasing in physical activity that promote to weight gain as found in previous study conducted among Columbian children in Bucaramanga (Arbelaez et al., 2014).

### **2.3 SLEEPING DISTURBANCES**

Sleeping disturbances can be measured using a few of questionnaires such as Paediatric Sleep Questionnaire (PSQ), Sleep Disorder Questionnaire, Children's Sleep Habits Questionnaire (CSHQ) and The Sleep Disturbances Scale for Children (SDSC). Children 's Sleep Habit Questionnaire (CSHQ) is a tool to screen for the most common sleep disturbances among children. CSHQ is a useful sleep screening instrument to identify sleeping disturbances and problematic sleep domains in school-aged children and has been used in a previous study among Malaysian children aged 6 to 12 years old (Somayyah et al., 2013).

Sleeping duration is prospectively and independently associated with body weight status among children who were having less adequate amount of sleeping time (Jim, 2008). Poor quality of sleep increased sleep disturbances, waist circumference and promotes weight gain (Somayyah et al., 2013).

Sleep duration was significantly associated with overweight/obese in early childhood as there was a significantly differences in the distribution of body mass index categories. A greater percentage of overweight and obese children (25.9%) were having short sleep duration compared to the children who were having an adequate sleep (10%). Sleeping time less than 10 hours persistently significantly increased the risk of overweight/obesity (Touchette et al., 2008). Touchette et al (2008) stated that ghrelin hormone level increased as short sleep duration increased along with the decreasing leptin level. The combinations of these hormones are likely to stimulate appetite which leads to the weight gain.

Similarly a previous study stated that sleep duration interfere the circulatory levels of neuroendocrine factors that regulate hunger and appetite (Karine et al., 2004). Two days with 4-hours of sleeping time decreased the levels of hormone leptin by 18% and 28% increased in daytime level of ghrelin hormone (Karine et al., 2004).

Jiang et al. (2009) mentioned sleep disturbances were associated with reduced levels of the adipocyte-derived hormone (leptin) and increased the levels of the stomach-derived hormone (ghrelin) hence leads to the increasing body weight status and lastly results in obesity.

## 2.4 HEALTH-RELATED QUALITY OF LIFE

HRQOL can be measured using a various types of questionnaires such as KIDSCREEN- 52, KIDSCREEN-27, KIDSCREEN-10, Pediatric Quality of Life Inventory, and Child Health Questionnaire (CHO). Pediatric Quality of Life Inventory was commonly used due to availability of the question for the specific children aged 8 to 12 years old to answer the questionnaire. HRQOL is a subjective measure of an individual's condition that encompasses several domains which includes physical health, psychological health, emotional health, social health and school functioning (Pinhas-Hamiel et al., 2006).

Pinhas-Hamiel et al. (2006) stated that HRQOL among obese children were significantly low in school functioning, physical and social health as compared to the normal weight children due to the physical difficulties. There was a good correlation analysis between body weight status with HRQOL scores which showed negative correlation for physical ( $r= 0.47$ ), social ( $r=0.42$ ) and school functioning domain ( $r=-0.22$ ). The severity of obesity affected HRQOL scores and thus declined the HRQOL scores. (Pinhas-Hamiel et al., 2006). However, it was inversely with the school and emotional domains that was less affected with body weight status.

Similar with the previous study, that also stated both of the physical and social health was decreased significantly with increasing body weight status (Joanne et al., 2005). Emotional and school functioning was also not affected by the body weight status between overweight/obese and normal-weight children. However, there were differences on the physical and social functioning domains between overweight/obese and normal-weight children.

In contrast to Riazi et al. (2010) study that stated HRQOL scores were significantly lower in all dimensions between obese children as compared to the normal-weight children. In 96 children from Royal London Hospital samples, body weight status was significantly associated with all subscales (physical, psychosocial, social, and emotional) excluding the school functioning domain. Poorest school functioning were seen among the pre-pubescent obese children. The results from the study also demonstrated that the degree of obesity did not relate to the degree of psychosocial functioning. Obese children were most likely to have lowered psychosocial function even as the degree of the obesity increased (Riazi et al., 2010).

## **2.5 PHYSICAL ACTIVITY LEVEL**

There were various types of questionnaires that can be used to measure the physical activity level such as International Physical Activity Questionnaire (IPAQ), Leisure-time Physical Activity Instrument, Physical Activity Questionnaire for Children (PAQ-C) and Seven Day Physical Activity Recall. The PAQ-C has been

supported as valid and reliable measures of general physical activity levels. In fact, the assessment not precisely measuring frequency, intensity and duration, hence it was easy to administer to large-scale populations.

Low physical activity increased the obesity risk in children and adolescents but obesity may also reduce the physical activity (Sharifah et al., 2014). Sharifah et al. (2014) measured habitual physical activity and sedentary behaviour between obese children and normal-weight children. There was significantly higher sedentary behaviour in obese group where 90.2 % were waking day as compared to the healthy weight group (87.5%). Participation from the normal-weight group in moderate-to-vigorous physical activity (MVPA) was also higher compared with obese group where 1.2 % and 0.7% respectively.

Ridger et al. (2014) found that overweight children engaged more significantly in low physical activity (LPA) and moderate physical activity (MPA) and less in vigorous physical activity compared to their non-overweight peers. Among gender aspects, boys engaged more significantly in moderate physical activity (MPA), vigorous physical activity (VPA) and moderate-to-vigorous physical activity (MVPA) as compared to girls.

Similarly with Sigmundova et al. (2013) which mentioned that there was slight increase of sedentary behaviour between the years 2002 and 2010 in Czech Republic children with aged 11 to 15 years old in particularly in weekdays and

weekends. The times spent on the computer among girls were increased from 0.7 hours per weekdays in 2002 to 3 hours in 2010 meanwhile 1.6 hours per weekday in 2002 to 4 hours in 2010 among boys. However, the time spent for watching television and video remained stable at an average of between 2.3 and 3.3 hours per day for both years. The prevalence of overweight/obese school-aged children were increased as there were a decline in the proportion of children meeting the recommendation for physical activity from 2002 to 2010 (Sigmundova et al., 2013).

In addition, Somayyah et al. (2013) found that physical activity and sedentary time did not differ significantly between overweight/obese and normal-weight children but differently with sedentary time is positively associated with age. Furthermore, sedentary activity are also significant positively correlated with weight, height and waist circumference (WC).

Puchong is a major town in the Puchong district of Selangor. The total population in Puchong is 335,419 and consists of 53% Malays, 29% Chinese, 16% Indians, and 2% from the other ethnic groups (Department of Statistics, 2010).

This study was conducted in four national primary schools located in Puchong. There were a few researches and no recent published study was conducted in Puchong regarding overweight/obese children. Using a list of primary schools obtained from the Ministry of Education (MOE), the four national primary schools were independently selected by a simple random sampling.

## CHAPTER 3

### METHODOLOGY

#### 3.1 Respondents

Standard 4 and Standard 5 children who were overweight/obese and normal-weight children were the subjects in the study.

#### 3.1 Study design

This was a cross-sectional comparative study that aimed to compare the sleeping disturbances, HRQOL, and physical activity level between overweight/obese and normal-weight children. This study comprised of both descriptive and analytical components.

#### 3.2 Study location

Selangor is one of the 13 states of Malaysia. The state capital of Selangor is Shah Alam and the total population is 5,4113,24 at year 2010 (Department of Statistics, 2010). It consists of 52.9% of Malay, 27.8% of Chinese, 13.3% of Indians and 6% from others ethnic (Department of Statistics, 2010).

Puchong is a major town in the Petaling district of Selangor. The total population in Puchong is 335,419 and consists of 53% Malays, 29% Chinese, 16% Indians, and 2% from the other ethnic groups (Department of Statistics, 2010).

This study was conducted in four national primary schools located in Puchong. There were a few researches and no recent published study was conducted in Puchong regarding overweight/obese children. Using a list of primary schools obtained from the Ministry of Education (MOE), the four national primary schools were independently selected by a simple random sampling.

### **3.3 Respondents**

Standard 4 and standard 5 boys and girls primary school children who were overweight/obese and normal-weight children were chose as potential subjects in the study. The range age for the children was around 10 to 11 years old. All the information regarding subjects was kept anonymity and confidentiality.

### **3.4 Sample size**

Sample size was calculated using GPOWER Version 3.1 program to test the differences between the two groups. The minimum sample size calculated from the G\*power software was 86 children. The sample size was added 20% to avoid any missing data or unwilling participation. Hence, 103 children were recruited in this study for each of the overweight/obese and normal-weight group.

### 3.5 Sampling Design

The sampling method was based on multistage method. First, all the list of national primary schools in Puchong was obtained from the Ministry of Education (MOE). Simple random sampling was used to select schools from the list of national primary schools. The schools were selected based on the following inclusion criteria:

1. Consist at least 500 students on each of the national schools
2. Consist of male and female students

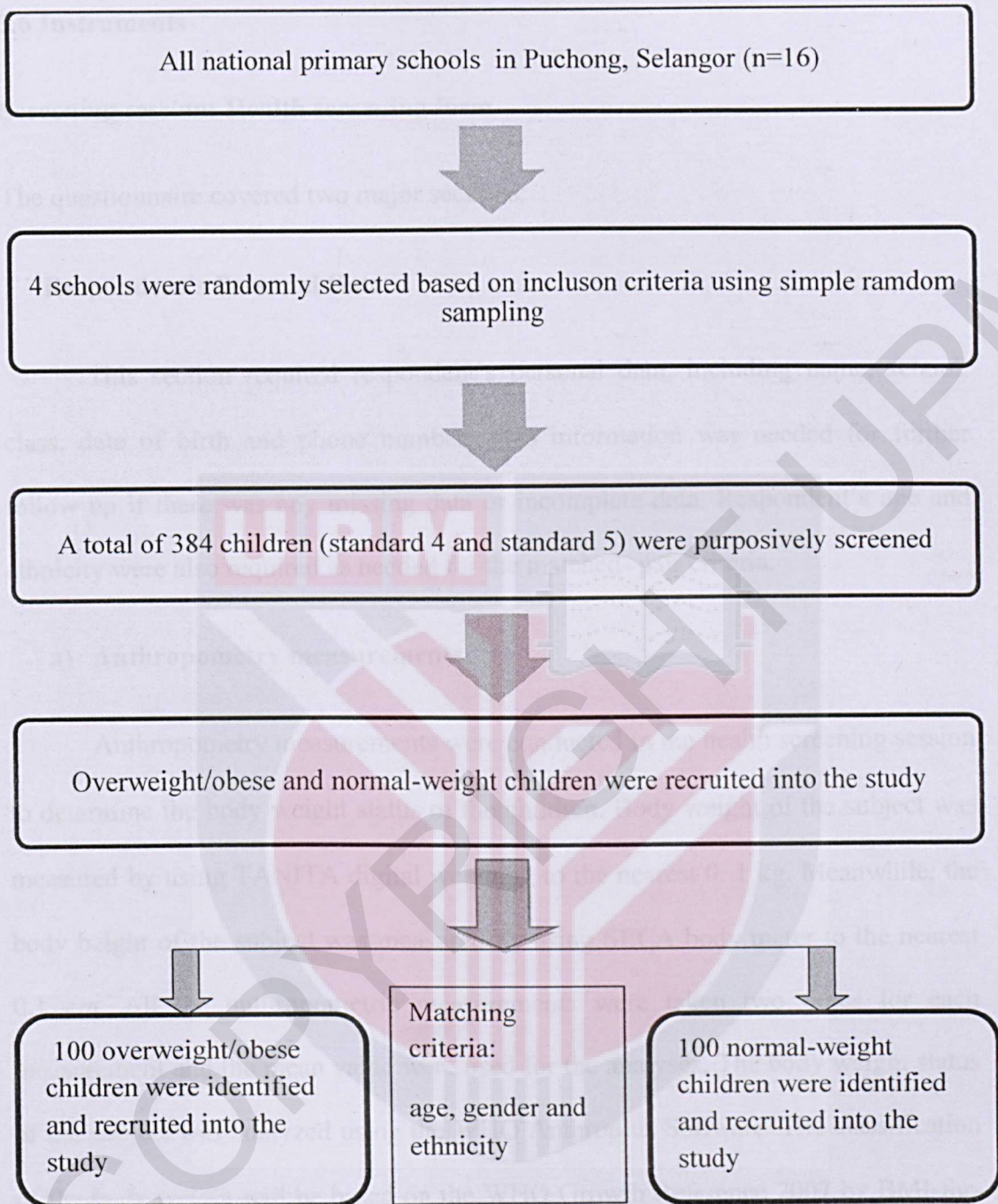
Four schools were selected from national primary schools namely SK Puchong Jaya, SK Puchong, SK Taman Perdana Putra, and SK Pusat Bandar Puchong. All of the standard 4 and 5 from each school were purposive selected and screened to categorise into two groups which was normal-weight and overweight/obese groups and were matched based on the age, gender and ethnicity. In order to select the respondents, there were inclusion and exclusion criteria that need to meet as the following:

Inclusion criteria of the subjects:

1. Overweight/obese and normal-weight children as defined using the WHO (2007) Growth Reference standard.
2. Male and female of Malaysian children.

Exclusion criteria of the subjects:

1. Children with special needs (e.g., Down syndrome or intellectual disorders)
2. Children on medication (e.g., steroid) which may affect their body weight status.
3. Children with physical disabilities.



**Figure 3.1: Flow chart of sampling design and respondents' selection**

### 3.6 Instruments

#### Screening session: Health screening form

The questionnaire covered two major sections:

##### Respondent's Personal Data

This section required respondent's personal data, including name, school, class, date of birth and phone number. This information was needed for further follow up if there was any missing data or incomplete data. Respondent's age and ethnicity were also required as needed for the matched- pair criteria.

##### a) Anthropometry measurements

Anthropometry measurements were conducted in the health screening session to determine the body weight status of the children. Body weight of the subject was measured by using TANITA digital weighing to the nearest 0.1 kg. Meanwhile, the body height of the subject was measured by using SECA body meter to the nearest 0.1 cm. All the anthropometric measurements were taken two times for each measurement and the mean value were used for the analyses. The body weight status of the subject was analyzed using the WHO Anthroplus Software. The classification of the body weight will be based on the WHO Growth Reference 2007 by BMI-for-age (z-score) for male and female children.

The questionnaire covered for 3 major sections:

**a) Socio-demographic data:**

Respondents were required to fill in his/her age, gender, ethnics, parent's occupation, parent's education level, and parent's income per month.

**b) Sleeping disturbances**

Sleeping disturbances among children was assessed using the Children Sleep Habit Questionnaire (CSHQ). It was developed and validated by Owen et al. (2000). The reliability and validity data for CSHQ has been collected on a sample of 495 elementary school children and on a clinical sample from pediatric sleep clinic and the reliability data was acceptable (range 0.62 to 0.79). CSHQ was a 34-items retrospective, parent-administered questionnaire designed to screen the most common sleep disturbances among children aged 4 to 12 years old. There were 8 domains with the different score. The domains were bedtime resistance (1-18 score), sleep onset delay (1-3 score), sleep duration (1-9 score), sleep anxiety (1-12 score), parasomnias (1-21 scores), sleep-disordered breathing (1-9 score) and daytime sleepiness (1-24 score). The overall score for CSHQ were 100 and a higher score were indicated of sleep disturbances. The mean score lower than 2.40 indicated no sleeping disturbances meanwhile more than 2.70 indicated have sleeping disturbances. The CSHQ were translated to three languages which were Bahasa Malaysia, Mandarin and Tamil and translated back to English version by the translator.

### c) Health-Related Quality of Life (HRQOL) (PAQ-C)

HRQOL is the subset of the quality of life in which related to the individual health which includes physical, mental and social well-being. HRQOL among children aged 2 to 18 years old was measured using Pediatric Quality of Life Inventory (PedsQOL). It consisted of parent-proxy and child-proxy reports. It was validated by Varni et al. (2001). The reliability and validity has been collected on a sample of 963 children and 1629 parents recruited from pediatric health care setting with total scale score: 0.08 child-self report; 0.90 parent-proxy report and it was valid to distinguishes between healthy children and children with acute or chronic health condition. It consists of 23-items which assessed 5 domains namely physical health, psychosocial health, emotional health, social health, and school functioning. Physical health consists of 8 items, psychosocial health consists of 23 items and emotional health, social health and school functioning consists of 5 items respectively. The best possible score on the PedsQL is 100 which indicated better HRQOL except for the psychosocial health score (153 score). The PedsQL was translated into three languages which were Bahasa Malaysia, Mandarin and Tamil and was translated back into the English version by the translator.

#### **d) Physical Activity Questionnaire for Children ( PAQ-C)**

Physical Activity Questionnaire for Children (PAQ-C) was used to measure physical activity score. PAQ-C was developed and validated by Kowalski et al. (1997). Reliability and validity of PAQ-C was examined on 43 boys and 41 girls aged 9 to 14 years old and the data showed valid measure of physical activity in children. PAQ-C consists of 10 items and the score was measured by adding all the total score. There was 5- likert scale for each item. A score 1 indicated that low physical activity, whereas a score of 5 indicated high physical activity. PAQ-C was translated into three languages which were Bahasa Malaysia, Mandarin and Tamil and it was translated back into the English version by the translator.

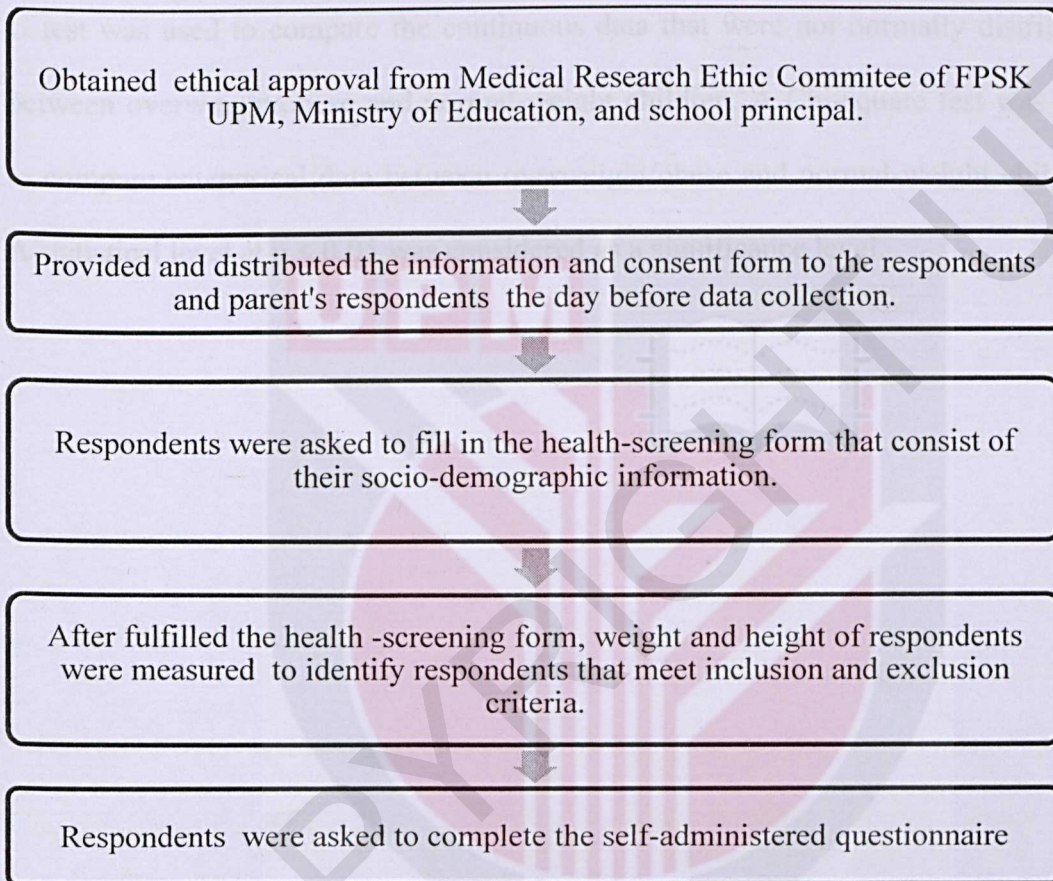
#### **3.7 Pre- testing**

The purpose of conducting the pre- testing was to ensure the questionnaire was understandable in terms of language and structure by respondents. The questions were modified based on the feedback after the pre-testing if needed. The ethical issue was considered to keep the anonymity and confidentiality of the subjects.

Pre-testing for the health screening form and questionnaire was carried out randomly selecting 5 students aged 10 and 11 years old from Sekolah Kebangsaan Puchong Jaya. It took about 10 minutes to explain about the study protocol and the questionnaire.

### 3.8 Study procedure

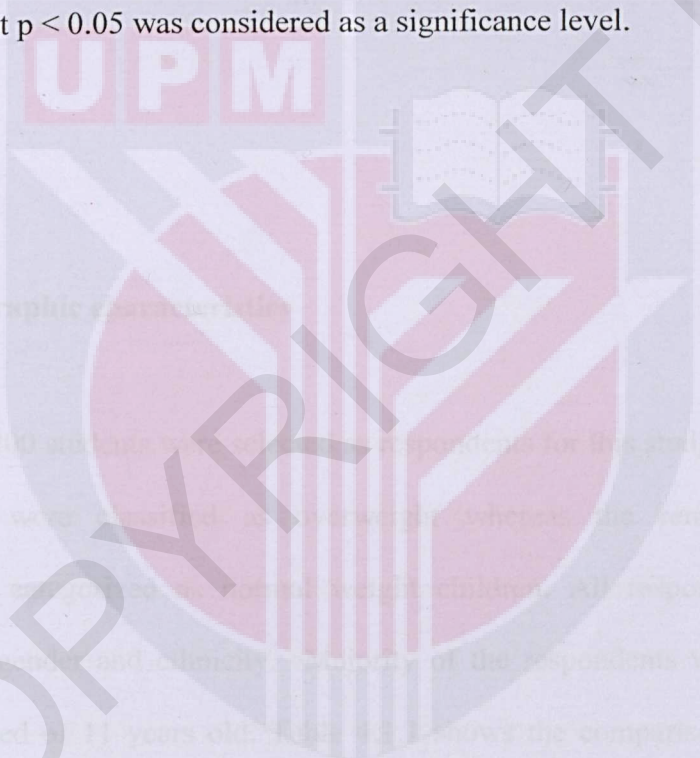
Data collection was conducted from October to November 2013 by using questionnaires. The questionnaires were written in 3 languages for better understanding to the respondents.



**Figure 3.2: Flow chart of study procedure**

### 3.9 Data analysis

Statistical analysis was performed using IBM SPSS Statistic 21. Independent sample *t*-test was used as to compare the continuous data that were normally distributed between overweight/obese and normal-weight children. A Mann Whitney U test was used to compare the continuous data that were not normally distributed between overweight/obese and normal-weight children. A Chi-square test was used to compare categorical data between overweight/obese and normal-weight children. A statistical level at  $p < 0.05$  was considered as a significance level.



4.1: Socio-demographic characteristics

A total of 200 students were recruited as respondents for this study. A total of 100 respondents were assigned as overweight/obese whereas the remaining 100 respondents were recruited as normal-weight children. All respondents were matched for age, gender and ethnicity. A total of the respondents were Malaysia girls with their aged 9-11 years old. This study involves the comparison of socio-demographic based on the matching criteria between overweight/obese and normal-weight children. Chi square test revealed no significant differences in age, gender and ethnicity between overweight/obese and normal-weight children.



Table 4.1.1: Comparison of socio-demographic (age, gender, & ethnicity) between overweight/obese (n=100) and normal-weight children (n=100)

| Socio-demographic | Body weight status (n%)  |                       | X <sup>2</sup> | p-value |
|-------------------|--------------------------|-----------------------|----------------|---------|
|                   | Overweight/obese (n=100) | Normal-weight (n=100) |                |         |
| Age (years)       |                          |                       |                |         |
| 10 (n=100)        | 35 (35)                  | 35 (35)               | 0.00           | 1.00    |
| 11 (n=100)        | 65 (65)                  | 65 (65)               |                |         |
| Gender            |                          |                       |                |         |
| Male (n=38)       | 12 (31.6)                | 12 (31.6)             | 0.00           | 1.00    |
| Female (n=112)    | 88 (78.4)                | 88 (78.4)             |                |         |
| Ethnicity         |                          |                       |                |         |
| Malays (n=183)    | 100 (100)                | 100 (100)             | 0.00           | 1.00    |

## CHAPTER 4

### RESULTS & DISCUSSION

#### 4.1: Socio-demographic characteristics

A total of 200 students were selected as respondents for this study. A total of 100 respondents were classified as overweight whereas the remaining 100 respondents were categorized as normal weight children. All respondents were matched for age, gender and ethnicity. Majority of the respondents were Malays girls with their aged of 11 years old. Table 4.1.1 shows the comparison of socio-demographic based on the matching criteria between overweight/obese and normal-weight children. Chi square test revealed no significant differences in age, gender, and ethnicity between overweight/obese and normal-weight children.

**Table 4.1.1: Comparison of socio-demographic (age, gender, & ethnicity) between overweight/obese (n=100) and normal-weight children (n=100)**

| Socio-demographic  | Body weight status n(%) |                       | X <sup>2</sup> | p-value |
|--------------------|-------------------------|-----------------------|----------------|---------|
|                    | Owt/obese (n=100)       | Normal-weight (n=100) |                |         |
| <b>Age (years)</b> |                         |                       |                |         |
| 10 (n=100)         | 25 (25)                 | 25 (25)               | 0.00           | 1.00    |
| 11 (n=100)         | 75 (75)                 | 75 (75)               |                |         |
| <b>Gender</b>      |                         |                       |                |         |
| Male (n=88)        | 44 (44)                 | 44(44)                | 0.00           | 1.00    |
| Female (n=112)     | 56 (56)                 | 56 (56)               |                |         |
| <b>Ethnicity</b>   |                         |                       |                |         |
| Malays (n=188)     | 94 (94)                 | 94 (94)               | 0.00           | 1.00    |
| Non-malays (n=12)  | 6 (6)                   | 6 (6)                 |                |         |

Comparison of household income between overweight/obese and normal-weight children showed that about 31.5 % of overweight/obese and 29.7 % of normal-weight children were come from high income family. Hence, majority of the respondents were in high socio-economic status family. The comparison of household income between overweight/obese and normal-weight children is tabulated in Table 4.1.2.

**Table 4.1.2: Comparison of household income (RM) between overweight/obese (n=100) and normal-weight children (n=100)**

| Characteristics                 | Median (IQR)         |                          | z-value | p-value |
|---------------------------------|----------------------|--------------------------|---------|---------|
|                                 | Owt/obese<br>(n=100) | Normal-weight<br>(n=100) |         |         |
| <b>Father's<br/>income (RM)</b> | 2750 (1800-4225)     | 2200 ( 1600- 4000)       | -0.87   | 0.38    |
| <b>Mother's<br/>income (RM)</b> | 1450 (0.00- 3162.5)  | 2000 (0.00 – 3500)       | -0.98   | 0.33    |

This study hypothesised that there was no significant differences between socio-demographic characteristics (household income) between overweight/obese and normal-weight children. The test revealed no significant difference in the father's and mother's income between overweight/obese children and normal-weight children as shown in Table 4.1.2.

It was in contrast to the previous study that showed a significant association between household income and high body weight status. Previous study showed a significant different between high household income with high body weight status among 668 Columbian children in Bucaramanga (Arbelaez et al., 2014). A possible explanation for these results may be due to the high food availability and high-calorie food consumptions among children. Children from high SES or high income family also will receive daily allowance (pocket money), thus they will easy to buy lunch and snacks that were in high calories (Arbelaez et al., 2014).

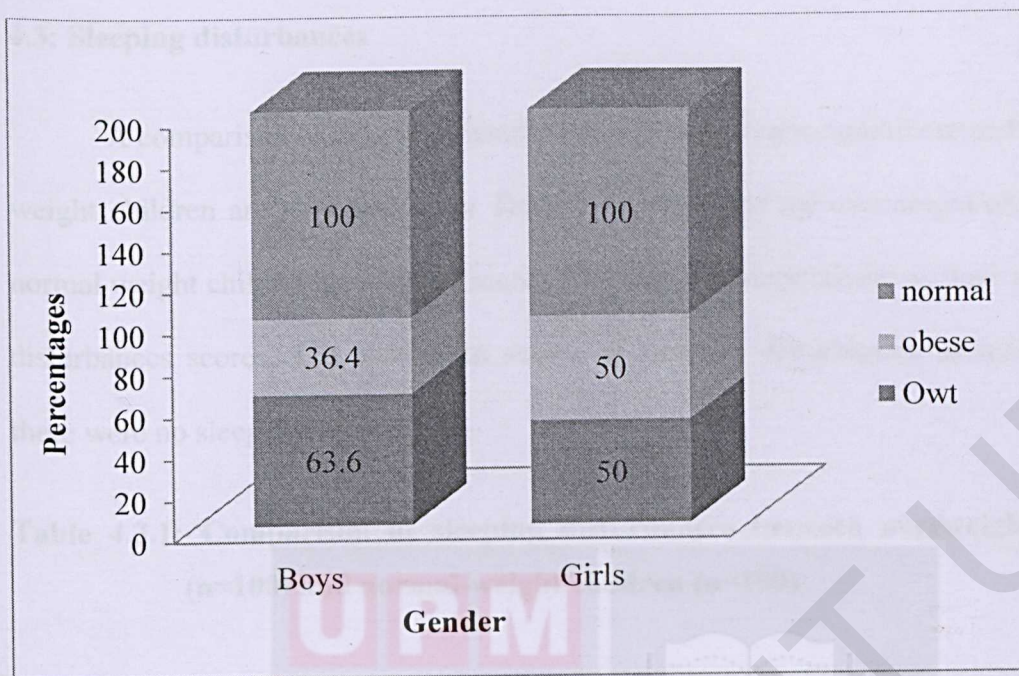
## 4.2: Body weight status

Table 4.2.1 shows comparison of weight, height and BMI-for age (z-score) between overweight/obese and normal-weight children. The mean of overweight/obese children were  $2.06 \pm 0.67 \text{ kg/m}^2$  which indicated that most of the overweight/obese children were having high body mass index.

**Table 4.2.1: Comparison of weight, height and BMI-for-age (z-score) between overweight/obese (n=100) and normal-weight children (n=100).**

| Characteristics       | Mean $\pm$ SD        |                          | t-value | p-value |
|-----------------------|----------------------|--------------------------|---------|---------|
|                       | Owt/obese<br>(n=100) | Normal-weight<br>(n=100) |         |         |
| Weight (kg)           | $51.07 \pm 10.60$    | $34.19 \pm 4.89$         | -3.69   | 0.00    |
| Height (cm)           | $143.96 \pm 7.32$    | $139.91 \pm 7.26$        | 3.94    | 0.00    |
| BMI-for-age (z-score) | $2.06 \pm 0.67$      | $-0.08 \pm 0.62$         | -12.21  | 0.00    |

An independent sample t-test revealed a significant difference in weight, height and BMI-for-age between overweight/obese and normal-weight children. Further analysis was done to compare the gender with BMI-for-age among overweight/obese and normal-weight children. Figure 4.2.1 shows the distribution of percentages of BMI-for-age by gender among overweight/obese and normal-weight children.



**Figure 4.2.1: Distribution of percentages of BMI-for-age by gender among overweight/obese (n=100) and normal-weight children (n=100)**

Majority of boys were categorized as overweight (63.6%) whereas about 50% of the girls were obese. However, the proportion was not significantly different between boys and girls among overweight/obese and normal-weight children.

A previous study conducted among primary schools children in Victoria, Australia stated that most girls were classified as overweight and obese with 21.3 % and 4.9 % respectively compared to the boys where only 19.2% were overweight and 3.8 % were obese respectively (William et al., 2003). The study also showed similar finding with the current study where there was no significant differences in mean body weight status between boys and girls.

### 4.3: Sleeping disturbances

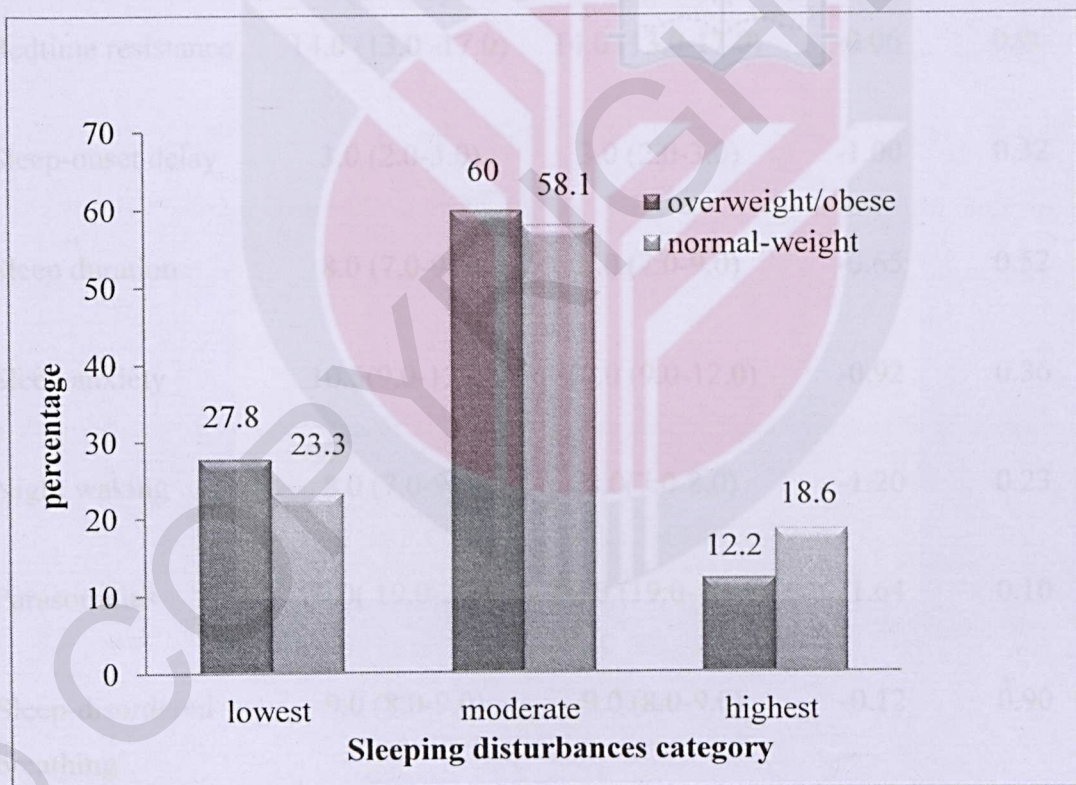
A comparison of sleeping disturbances between overweight/obese and normal weight children are tabulated as in Table 4.3.1. Most of the overweight/obese and normal weight children have mean scores 2.54 and 2.57 respectively as their sleeping disturbances scores. The low mean scores of sleeping disturbances indicated that there were no sleep disturbances.

**Table 4.3.1: Comparison of sleeping disturbances between overweight/obese (n=100) and normal-weight children (n=100)**

| Variable                    | Median (IQR)         |                          | z-value | p-value |
|-----------------------------|----------------------|--------------------------|---------|---------|
|                             | Owt/obese<br>(n=100) | Normal-weight<br>(n=100) |         |         |
| <b>Sleeping<br/>problem</b> | 2.54 (2.42-2.72)     | 2.57 (2.42 -2.66)        | -1.28   | 0.19    |

No significant difference in the sleeping disturbances of overweight/obese and normal-weight children ( $z = -1.28$ ,  $p = 0.19$ ) as show in Table 4.3.1. In contrast, to Somayyah et al. (2012) who found that sleep disturbances were significantly higher in Malaysian overweight/obese children aged 6 to 12 years old compared to normal-weight children. Sleep disturbances leads to increased appetite hormone, hence led to weight gain due to excessive food consumptions. Besides, sleep disturbances also leads to sleep disruption during the night that might lead to the increase intake of food at night. By increasing the food intake, it might affect the energy balance thus lead to excessive weight gain (Somayyah et al., 2012).

Figure 4.3.1 shows that the percentages of sleeping disturbances between overweight/obese and normal-weight children. Both of the overweight/obese and normal-weight children were in the moderate level of sleeping disturbances. Thus, it indicated about more than half of overweight/obese and normal-weight children do not have any sleeping disturbances. The finding also showed that about 18.6% of normal-weight children and 12.2% of overweight/obese were having sleep disturbances. The differences were not significant and a possible explanation of this results might be due to the environment factors such as watching television until midnight that will lead to sleeping disturbances.



**Figure 4.3.1: Percentages of sleeping disturbances between overweight/obese and normal-weight children.**

Table 4.3.2 shows the domains of the sleeping disturbances between overweight/obese and normal-weight children. No significant difference in the each of the domain of sleeping disturbances between overweight/obese and normal-weight children (Table 4.3.2).

**Table 4.3.2: Domains of the sleeping disturbances between overweight/obese (n=100) and normal-weight children (n=100)**

| Domains                    | Median (IQR)          |                          | z-value | p-value |
|----------------------------|-----------------------|--------------------------|---------|---------|
|                            | Owt/ obese<br>(n=100) | Normal-weight<br>(n=100) |         |         |
| Bedtime resistance         | 14.0 (13.0 -17.0)     | 14.0 (13.0-17.0)         | -0.06   | 0.96    |
| Sleep-onset delay          | 3.0 (2.0-3.0)         | 3.0 (2.0-3.0)            | -1.00   | 0.32    |
| Sleep duration             | 8.0 (7.0-9.0)         | 8.0 (7.0-9.0)            | -0.65   | 0.52    |
| Sleep anxiety              | 10.5(9.0-12.0)        | 10.0 (9.0-12.0)          | -0.92   | 0.36    |
| Night waking               | 8.0 (7.0-9.0)         | 8.0(7.0-8.0)             | -1.20   | 0.23    |
| Parasomnias                | 20.0( 19.0-21.0)      | 20.0 (19.0- 21.0)        | -1.64   | 0.10    |
| Sleep-disordered breathing | 9.0 (8.0-9.0)         | 9.0 (8.0-9.0)            | -0.12   | 0.90    |
| Daytime sleepiness         | 15.0 (13.0-17.0)      | 14.0 (13.0-17.0)         | -1.02   | 0.31    |

There were similarities between the daytime sleepiness in this study with a previous study conducted among 421 primary schools children aged 7 to 12 years old in Tehran that showed excessive daytime sleepiness were not significantly different (Amitehran et al.,2013). It might be due to the schools timing that affects the sleeping habits among children (Amitehran et al., 2013 & Somayyah et al., 2012).

#### 4.4: Health-related quality of life

A comparison of HRQOL between overweight/obese and normal-weight children was tabulated in Table 4.4.1. An independent sample *t*-test was conducted to compare the HRQOL reported by parents and children between overweight/obese and normal-weight children. It was hypothesised that there was no significant difference in HRQOL scores between overweight/obese and normal-weight children.

**Table 4.4.1: Comparison of HRQOL between overweight/obese (n=100) and normal-weight children (n=100).**

| HRQOL Score                    | Mean ± SD            |                          | t-value | p-value |
|--------------------------------|----------------------|--------------------------|---------|---------|
|                                | Owt/obese<br>(n=100) | Normal-weight<br>(n=100) |         |         |
| <b>Parent-proxy<br/>report</b> | 52.9 ± 8.38          | 50.8 ± 9.79              | 1.02    | 0.31    |
| <b>Child-proxy<br/>report</b>  | 64.1 ± 13.5          | 68.4 ± 12.8              | 2.35    | 0.02*   |

\*p < 0.05 was considered statistically significance.

As shown in table 4.4.1, the mean of HRQOL scores as reported by children was higher in normal-weight children but lower in parent-proxy report between overweight/obese and normal-weight children. It indicated that most of the children reported having better HRQOL but it was differ with their parents report. Nevertheless, the finding was inconsistent to the previous study conducted among 311 children aged 11 to 13 years from primary schools in Kuching, Sarawak that found HRQOL scores reported by parents and children were higher for normal-weight children as compared to the thin and obese children (Lee et al.,2012). Most of the parents were more concerned about their children's body weight. Therefore, they tend to perceive that the children's body mass index have an effects on the children's HRQOL (Varni et al.,2003).

The HRQOL scores were reported lower in the overweight children (Lee et al., 2012) and it was a contrast to the current study that showed parents of overweight children reported that their children have better HRQOL compare to the normal-weight children.

There was a significant differences in HRQOL scores between overweight/obese children and normal ( $t = 2.35, p=0.02$ ) reported by children. The finding was similar with previous study conducted in Kuala Lumpur that found the normal-weight children had significantly higher total score of HRQOL reported by the children as compared to the obese children (Hana et al., 2011). The results might be due to the high self-reports on HRQOL by the children because they might not have experienced the effects of BMI on their HRQOL (Lee et al.,2012).

However, there was no significant differences between HRQOL scores between overweight/obese and normal-weight children reported by parent ( $t = 1.02$ ,  $p=0.3$ ). The current finding was supported by the previous finding that found no significant difference in HRQOL reported by parents between overweight/obese and normal-weight children (Hana et al., 2011).

Majority of the overweight/obese children have a good HRQOL as reported by the children and their parents. About 48% of overweight/obese children have moderate level of HRQOL as reported by the children. Nevertheless, there were about 31% of overweight/obese children with low HRQOL as reported by the children. In contrast, parent-proxy report showed majority of overweight/obese children were reported to have better HRQOL by their parents. Figure 4.4.1 shows the percentages of HRQOL reported by the children.

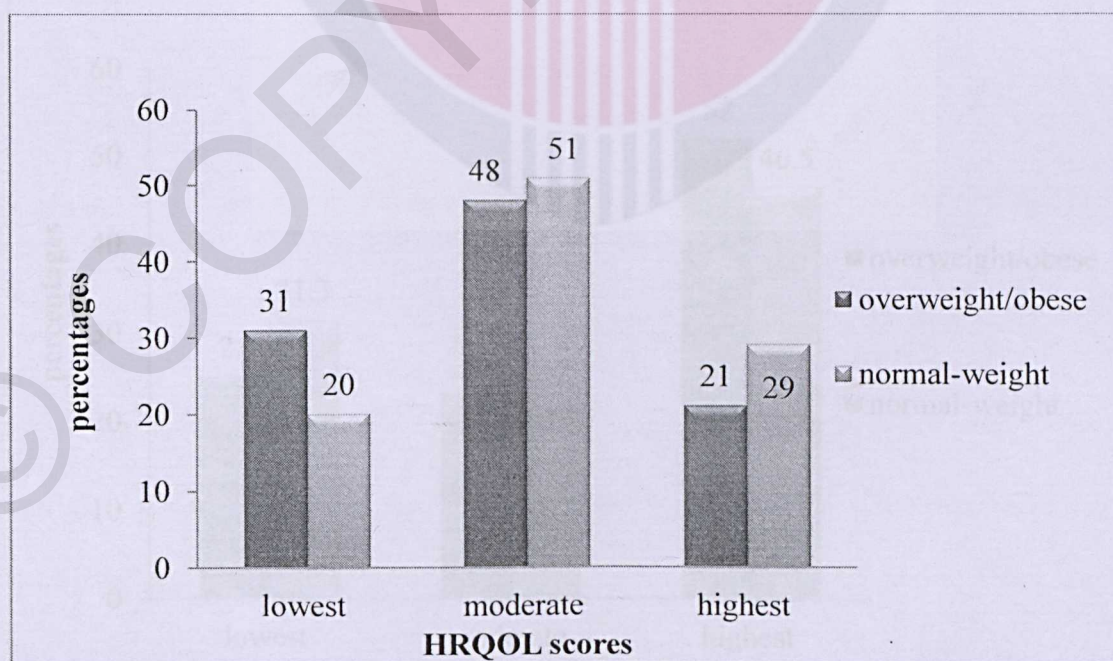
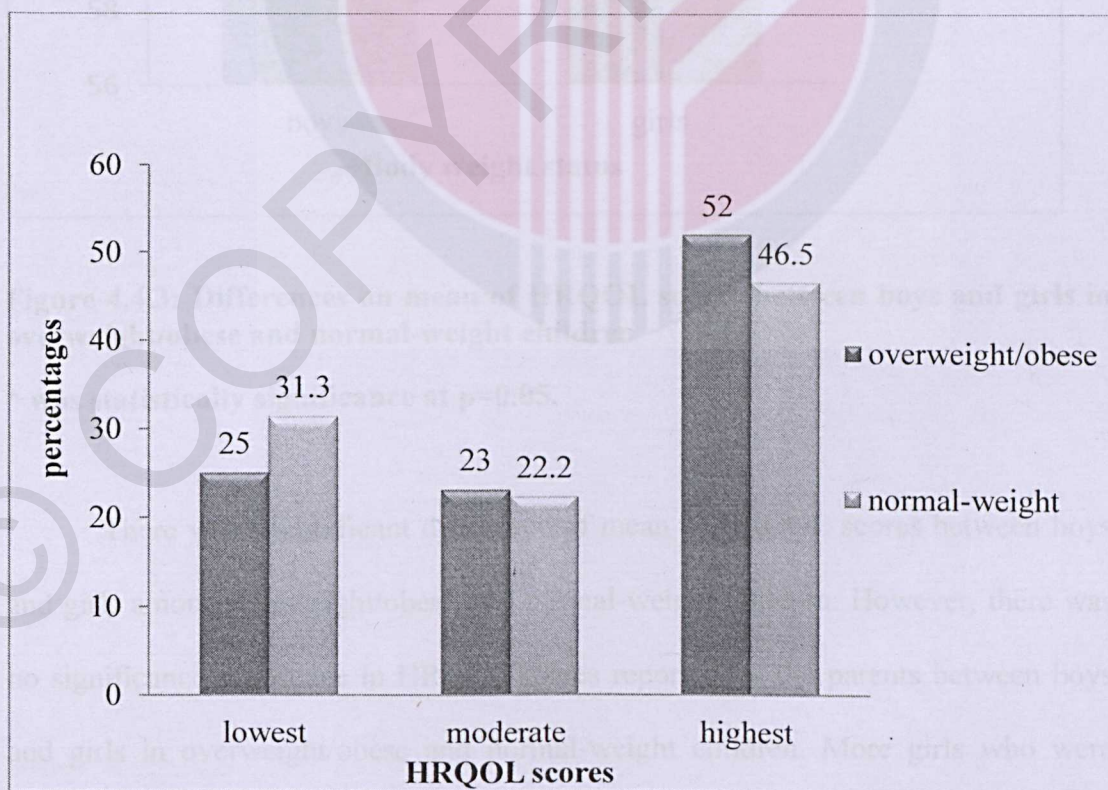


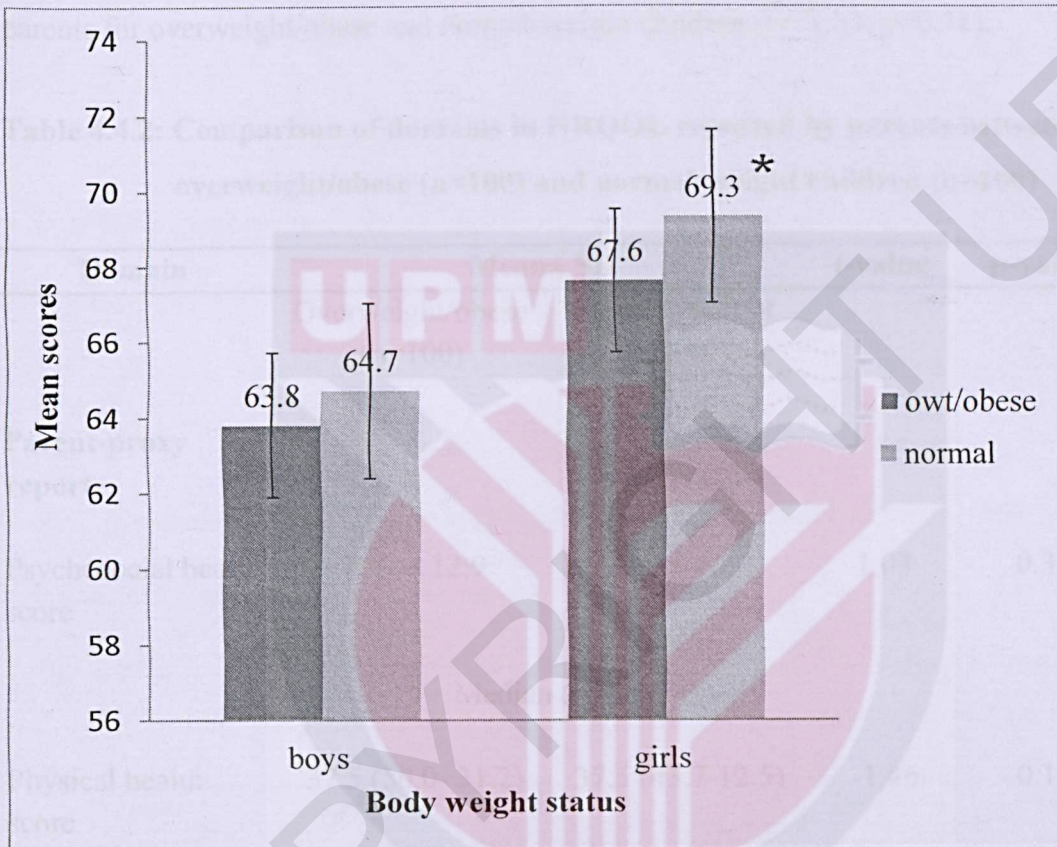
Figure 1.4.1: percentages of HRQOL scores reported by the children.

About 29% of normal-weight children reported that they have a good HRQOL meanwhile only 21% of overweight/obese children reported that they have a better HRQOL. Figure 4.4.2 shows that the percentages of the HRQOL reported by the parents. About 52% of parents who have overweight/obese children reported that their children have high HRQOL scores which indicated a good HRQOL. It was similar to the parents who have normal weight children where 46.5 % of them reported that their children were having better HRQOL scores. A possible explanation about these finding might be due to the better understanding between parents and children or positive evaluation of the HRQOL scores from parents compared to the evaluation by the children (Schwimmer et al., 2003). However, the finding also showed about 31.3 % of normal-weight children and 25% of overweight/obese children reported having low HRQOL as reported by their parents.



**Figure 4.4.2: Comparison of HRQOL scores reported by parents between overweight/obese (n=100) and normal-weight children (n=100)**

Further analysis of HRQOL scores were conducted between boys and girls among overweight/obese and normal-weight children. Figure 4.4.3 shows the comparison of HRQOL scores between boys and girls in overweight/obese and normal-weight children.



**Figure 4.4.3: Differences on mean of HRQOL scores between boys and girls in overweight/obese and normal-weight children**

\* was statistically significance at  $p=0.05$ .

There was a significant difference of mean of HRQOL scores between boys and girls among overweight/obese and normal-weight children. However, there was no significance difference in HRQOL scores reported by the parents between boys and girls in overweight/obese and normal-weight children. More girls who were normal-weight children reported that they had a better HRQOL compared to the boys. A possible explanation of this result might be due to the experienced of

healthier life that they might have compared to the boys. Expectations of HRQOL were learned individually and therefore were highly specific and varying between individuals (Lee et al., 2012)

There was no significant difference in psychosocial health scores reported by parents for overweight/obese and normal-weight children ( $t = 1.03, p=0.31$ ).

**Table 4.4.2: Comparison of domains in HRQOL reported by parents between overweight/obese (n=100) and normal-weight children (n=100)**

| Domain  | Mean± SD                 |                       | t-value | p-value |
|---|--------------------------|-----------------------|---------|---------|
|   | Overweight/obese (n=100) | Normal-weight (n=100) |         |         |
| <b>Parent-proxy report</b>                                    |                          |                       |         |         |
| Psychosocial health score                                     | 79.9 ± 12.9              | 77.9 ± 15.0           | 1.03    | 0.31    |
|   | Median (IQR)             |                       |         |         |
| Physical health score   | 37.5 (50.0- 31.2)        | 37.5 (43.7-12.5)      | -1.46   | 0.14    |
| Emotional health, social health, and school functioning score | 35.0 ( 45.0- 25.0)       | 30.0 (40.0-20.0)      | -1.51   | 0.13    |

However, the findings of the current study do not support the previous research that found significant difference in psychosocial health score between overweight/obese and normal-weight children aged 11 to 13 years old in Kuching, Sarawak (Lee et., al, 2012).

The test also revealed no significant differences in physical health, emotional health, social health and school functioning scores between overweight/obese and normal-weight children. In contrast with previous study conducted among children aged 8-11 years old in Kuala Lumpur stated that the physical health domains were significantly different between overweight/obese and normal-weight children (Hana et al.,2011).

Table 4.4.3 shows the domains of HRQOL reported by the children. An independent sample t-test was done to compare the domains of HRQOL between overweight/obese and normal-weight children. The mean of psychosocial health score was higher among normal-weight children as compared to the overweight/obese children. This indicates that normal-weight children have good psychosocial health.

**Table 4.4.3: Comparison of domains in HRQOL reported by children between overweight/obese (n=100) and normal-weight children (n=100)**

| Domain  | Mean± SD                    |                          | t-value | p-value |
|---|-----------------------------|--------------------------|---------|---------|
|   | Overweight/obese<br>(n=100) | Normal-weight<br>(n=100) |         |         |
| <b>Child-proxy report</b>                                     |                             |                          |         |         |
| Physical health score   | 64.9 ± 18.5                 | 69.2 ± 18.6              | 1.62    | 0.11    |
| Psychosocial health score                                     | 98.4 ± 20.7                 | 105.1 ± 19.6             | 2.35    | 0.02*   |
| Emotional health, social health, and school functioning score | 66.7 ± 22.9                 | 70.9 ± 22.8              | 1.28    | 0.20    |

\* was statistically significant at p<0.05

There was a significant differences for psychosocial health score for overweight/obese and normal-weight children ( $t = 2.35, p = 0.02$ ). This finding was in agreement with the previous study conducted among overweight/obese and normal-weight children aged 8 to 11 years at primary schools in Kuala Lumpur that also found a significant difference in psychosocial health domains between overweight/obese and normal-weight children (Hana et., al.,2011). The study also stated that there was no significant difference between overweight/obese and normal-weight children in physical health score (Hana et., al.,2011).

#### 4.5: Physical activity level

A comparison of physical activity level between overweight/obese and normal-weight children was tabulated in table 4.5.1.

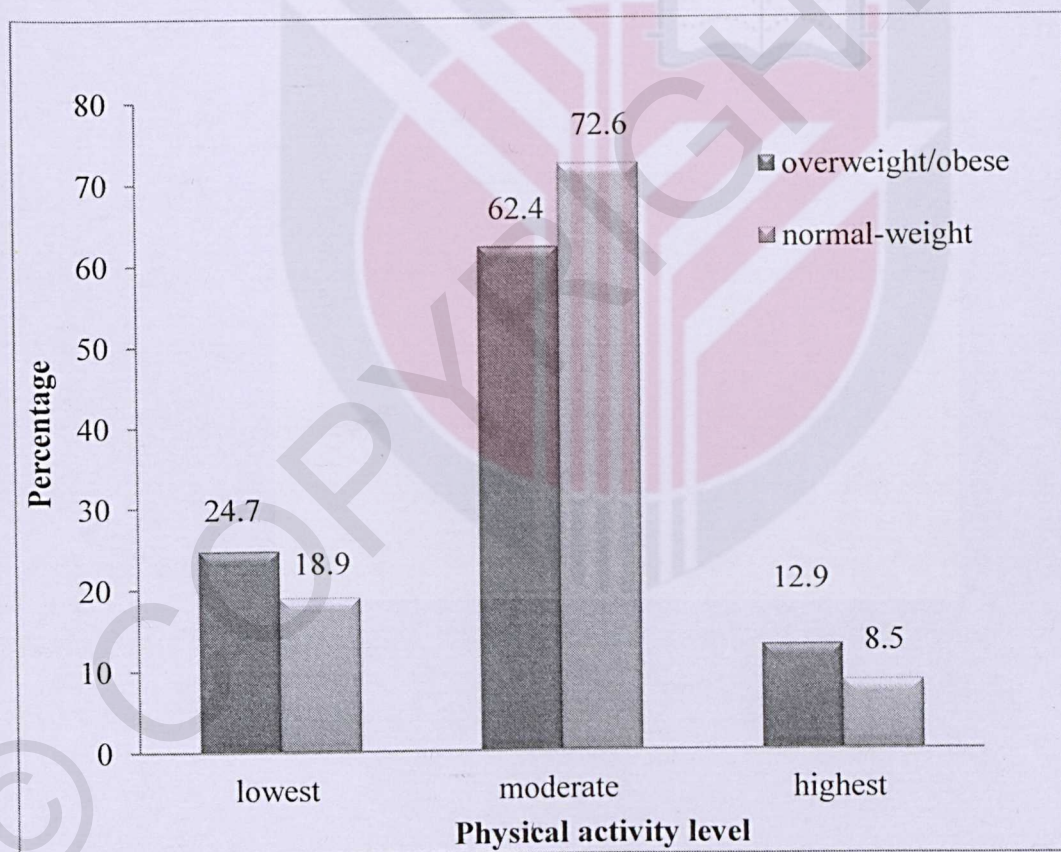
**Table 4.5.1: Comparison of physical activity level between overweight/obese (n=100) and normal-weight children (n=100)**

| Variable                | Median (IQR)      |                    | z-value | p-value |
|-------------------------|-------------------|--------------------|---------|---------|
|                         | Overweight/obese  | Normal-weight      |         |         |
| Physical activity level | 2.68 (2.35- 3.20) | 2.73 ( 2.44- 3.21) | -0.6    | 0.56    |

No significant difference in physical activity level of overweight/obese and normal-weight children ( $z = -0.6, p = 0.56$ ). It was similar to the previous study conducted among 164 Malaysian boys and girls aged 6-12 years old that also found

no significant difference in physical activity level between overweight/obese and normal-weight children (Somayyah et al., 2012).

Majority of the respondents were in moderate level of physical activity with 62.4 % of overweight/obese and 72.6 % of normal-weight children. Therefore, it was indicated that both overweight/obese and normal-weight children were at sedentary level of physical activity. Figure 4.5.1 illustrated the percentages of physical activity level between overweight/obese and normal-weight children.



**Figure 4.5.1: Percentages of physical activity level between overweight/obese (n=100) and normal-weight children (n=100)**

However, overweight/obese children reported that they have a higher physical activity level compared to the normal-weight children. The result were not consistent with a previous study that stated most of the overweight/obese children were less active due to inability to engage in higher intensities of physical activities (Ridger et al.,2014).

## CHAPTER 5

### CONCLUSION & RECOMMENDATIONS



#### 5.1: Conclusion

This cross-sectional study investigated the prevalence of sleep disturbances, HRQOL, and physical activity levels among overweight/obese and normal-weight children aged 10-11 years in Putrajaya, Selangor. Respondents were predominantly 5 days (94%) and aged 10 years with the range 10 years old (75%). Most of the respondents were from a low-income family where both father's and mother's income were below RM2000/month which indicated low socio-economic status in urban area. The study revealed that the socio-demographic characteristics were not significantly different between overweight/obese and normal-weight children.

Overweight/obese children have a higher mean of BMI as age as compared to the normal-weight children. This study found that there was a significant difference in body weight status between overweight/obese and normal-weight children. A further analysis was conducted to compare the body weight status with

## CHAPTER 5

### CONCLUSION & RECOMMENDATIONS

#### 5.1: Conclusion

This cross sectional comparison study was conducted to compare sleeping disturbances, HRQOL and physical activity level between overweight/obese and normal-weight children aged 10 to 11 years old in Puchong, Selangor. Respondents were predominantly Malays (94%) and girls (56%) with their aged 11 years old (75%). Most of the respondents were comes from a low income family where both father's and mother's had income approximately RM2000/month which indicated low socio-economic status in urban area. However, this study revealed that the socio-demographic characteristics were not significantly different between overweight/obese and normal-weight children.

Overweight/obese children have a higher mean of BMI-for-age as compared to the normal-weight children. This study found that there was a significantly differences in body weight status between overweight/obese and normal-weight children. A further analysis was conducted to compare the body weight status with

gender in overweight/obese and normal-weight children. Boys were predominantly overweight whereas girls were predominantly obese. However, this study revealed that there was no significant difference in body weight status between males and girls in both overweight/obese and normal-weight children.

In general, most of overweight/obese and normal-weight children did not have any sleeping disturbances. Nevertheless, this study also showed that normal-weight children had comparable sleeping disturbances to the overweight/obese children.

Overweight/obese children had a lower HRQOL compared to the normal-weight children as reported in children-proxy report. In contrast, to the parent-proxy report that found those overweight/obese children were reported to have a better HRQOL. HRQOL scores were even better among girls who were normal-weight as compared to girls who were overweight/obese children. There was a significant difference in HRQOL scores between overweight/obese and normal-weight children as children-proxy report in which overweight/obese had less HRQOL as compared to the normal-weight children. In children-proxy report, there was a significant difference in psychosocial health domain between overweight/obese and normal-weight children. Normal-weight children were reported to have a good psychosocial health compared to the overweight/obese children.

Physical activity level among overweight/obese and normal-weight children was in moderate levels indicated that both groups were practiced a sedentary physical activity. However, physical activity level did not differ between overweight/obese and normal-weight children as this study showed no significant

differences in physical activity level between overweight/obese and normal-weight group.

In conclusion, almost of the population does not have any sleep disturbances and were in sedentary physical activity level. HRQOL score were low among overweight/obese children compared to the normal-weight children as reported by the children. Girls who were normal-weight were even better in HRQOL scores as compared to girls who were overweight/obese children. Normal-weight children also have a good psychosocial health compare to the overweight/obese children.

## **5.2: Limitation of study**

There were limitations that need warrant future consideration in this study. First, this study cannot determine the causal relationship due to the cross-sectional comparative study. This study also not includes the sleeping duration between overweight/obese and normal-weight children. Sleeping duration is important to determine the differences of sleeping disturbances between overweight/obese and normal-weight children as it can become one of the factors of sleeping disturbances among children. The environmental factors such as watching television, playing video games and hang out with peers also not take into the consideration while conducting the study. Diet intake also was not conducted in this study between both overweight/obese and normal-weight children as well as parent-children agreement for HRQOL.

### 5.3 Recommendation

There are some recommendations for the future research to improve this study. For example, sleeping duration also should be included in the study to determine the differences of sleeping duration between overweight/obese and normal-weight status. The environmental factors also should be asked in the questionnaire to determine the physical activity level between both groups and diet intake needs to be conducted in future research to know the overall lifestyle between overweight/obese and normal-weight children. In addition, the agreement between parent and children for HRQOL also should be conducted in future research.

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**APPENDICES**





s.k

Pengarah  
Jabatan Pendidikan Negeri Selangor



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**BORANG BI: PENERANGAN DAN PERSETUJUAN RESPONDEN**

Sila baca maklumat berikut dengan teliti. Sekiranya anda mempunyai sebarang  
kemungkinan kepada penyakit:

**1. TAJUK KAJIAN**

Perbandingan kesihatan mental dan fizikal hidup dan faktor-faktor yang berbeza dalam  
kandungan berlebihan dan kekurangan yang berbeza dalam norma

**2. PENGENALAN**

Kajian ini bertujuan untuk mengenalpasti kesihatan mental dan fizikal kesihatan berbeza  
dengan faktor biologi. Kajian ini akan dijalankan di Universiti Putra Malaysia dengan kuib  
hidup di antara jenis-kelas yang berbeza dalam norma yang berbeza badan normal  
Segala maklumat yang berkaitan dengan kajian ini akan disimpan dengan perincian dan perincian antara  
kesihatan berbeza dengan faktor biologi dan faktor biologi berbeza badan normal dengan  
kandungan berat badan normal

**APPENDIX II**

**3. APAKAH YANG PERLU**

Anda akan diminta untuk mengisi maklumat mengenai maklumat mengenai anda dan grafik  
aktiviti kesihatan dan kesihatan berbeza dengan faktor biologi dan faktor biologi berbeza badan  
badan dan faktor biologi berbeza badan normal

**4. SIFAT KAJIAN DAN BUKLAH MENYERTAKAN ILMU**

Kajian ini adalah kajian biologi dan faktor biologi dan faktor biologi berbeza badan normal akan  
mengumpul maklumat biologi dan faktor biologi berbeza badan normal yang tidak terdapat  
pada hari pengumpulan data yang dikumpulkan mengenai faktor biologi



**BORANG B1: PENERANGAN DAN PERSETUJUAN RESPONDEN**

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

**1. TAJUK KAJIAN**

Perbandingan kesihatan berkaitan dengan kualiti hidup dan faktor-faktor yang berkaitan antara kanak-kanak berlebihan berat badan dengan kanak-kanak yang berat badan normal.

**2. PENGENALAN**

Kajian ini bertujuan untuk menentukan hubungan dan perbandingan mengenai kesihatan berkaitan dengan kualiti hidup. Kajian ini juga akan menentukan hubungan faktor-faktor tersebut dengan kualiti hidup di antara kanak-kanak berlebihan berat badan dengan kanak-kanak yang berat badan normal. Segala maklumat yang berkenaan akan digunakan untuk menentukan hubungan dan perbezaan antara kesihatan berkaitan dengan kualiti hidup antara kanak-kanak berlebihan berat badan/obes dengan kanak-kanak berat badan normal.

**3. APAKAH YANG PERLU ANDA LAKUKAN?**

Anda akan diberikan borang soal selidik untuk mendapatkan maklumat mengenai sosio-demografi, aktiviti fizikal dan kesihatan berkaitan dengan kualiti hidup. Selain itu, maklumat penting seperti berat badan dan tinggi anda akan direkodkan untuk pengiraan BMI bagi tujuan penyelidikan.

**4. SIAPA YANG TIDAK BOLEH MENYERTA KAJIAN INI?**

Kanak-kanak yang berumur di bawah 10 atau berumur 11 ke atas, mengalami kecacatan mental atau menghidap penyakit kronik tidak boleh menyertai kajian ini. Selain itu, kanak-kanak yang tidak hadir pada hari pengumpulan data juga dikecualikan daripada kajian 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 Helaian 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)



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SELANGOR, MALAYSIA

**BORANG B2: PERMBAHASAN DAN PERSETUJUAH IBURAP/PEJAGA**

Sila baca maklumat berikut dengan teliti. Jika anda mempunyai sebarang pertanyaan, sila hubungi kami pada nombor telefon berikut.

**1. TAJUK KAJIAN**

Perbandingan ketibaan...  
kanak berkebiasan ber...

**2. PENGENALAN**

Kajian ini bertujuan untuk...  
dengan kualiti hidup...  
hidup di antara...  
Sebagai maklumat...  
fungsi dan peranan...  
anak-anak berkebiasan ber...

**APPENDIX III**

**3. APAKAH YANG PERLU DIBERIKAN?**

Anda akan diberikan...  
Kesejahteraan...  
dan keselamatan...  
DM.

**4. SILA NYATA JIKA ANDA BUKAN MENYERTAI KAJIAN INI?**

Anda adalah orang yang berumur di bawah 10 atau kurang...  
Anda adalah orang yang mempunyai masalah...  
Anda adalah orang yang mempunyai masalah...  
Anda adalah orang yang mempunyai masalah...



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SELANGOR, MALAYSIA**

## **BORANG B2: PENERANGAN DAN PERSETUJUAN IBUBAPA/PENJAGA**

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

### **1. TAJUK KAJIAN**

Perbandingan kesihatan berkaitan dengan kualiti hidup dan faktor-faktor yang berkaitan antara kanak-kanak berlebihan berat badan dengan kanak-kanak yang berat badan normal.

### **2. PENGENALAN**

Kajian ini bertujuan untuk menentukan hubungan dan perbandingan mengenai kesihatan berkaitan dengan kualiti hidup. Kajian ini juga akan menentukan hubungan faktor-faktor tersebut dengan kualiti hidup di antara kanak-kanak berlebihan berat badan dengan kanak-kanak yang berat badan normal. Segala maklumat yang berkenaan akan digunakan untuk menentukan hubungan dan perbezaan antara kesihatan berkaitan dengan kualiti hidup antara kanak-kanak berlebihan berat badan atau obes dengan kanak-kanak berat badan normal.

### **3. APAKAH YANG PERLU ANDA LAKUKAN?**

Anda akan diberikan borang soal selidik untuk mendapatkan maklumat sosio-demografi, tabiat tidur dan kesihatan berkaitan dengan kualiti hidup anak anda. Anak anda juga akan diberikan borang soal selidik dan maklumat penting seperti berat badan dan tinggi anak anda akan direkodkan bagi tujuan pengiraan BMI.

### **4. SIAPA YANG TIDAK BOLEH MENYERTA KAJIAN INI?**

Kanak-kanak yang berumur di bawah 10 atau berumur 11 ke atas, mengalami kecacatan mental atau menghidap penyakit kronik tidak boleh menyertai kajian ini. Selain itu, kanak-kanak yang tidak hadir pada hari pengumpulan data juga dikecualikan daripada kajian ini.

**9. Persetujuan**

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

beralamat.....

.....dengan ini secara sukarela bersetuju membenarkan \*anak / jagaan saya  
.....menyertai penyelidikan berasaskan borang soal selidik tersebut di  
atas.

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.

\*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)



JABATAN PEMAKANAN & DIETETIK

FAKULTI PERUBATAN DAN SAINS KESEHATAN



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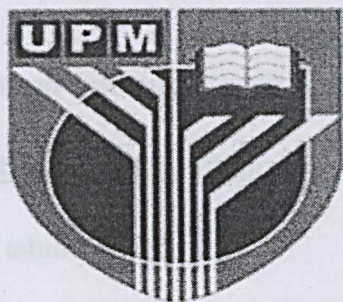
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**APPENDIX IV**

PENYELIDUNG: DR. AZNEEN BINTI HUR MOHAMAD

SUPERVISOR: DR. FARAKATUN NISAK MOHD YUSOF

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JABATAN PEMAKANAN & DIETETIK  
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**SARINGAN KESIHATAN**

PENYELIDIK: NUR AZLEEN BT NOR MOHAMAD

SUPERVISOR: DR. BARAKATUN NISAK MOHD YUSOF

Arahan: Sila nyatakan dan bulatkan jawapan anda.

a) **Butiran- butiran responden:**

Umur: \_\_\_\_\_ tahun

Tarikh lahir (hh/bb/thn): \_\_\_\_\_

Bangsa:

- a) Malay
- b) Cina
- c) India
- d) Lain-lain ( sila nyatakan ) : \_\_\_\_\_

a) **Ukuran Antropometri (Diisi oleh penyelidik):**

|             | Bacaan I | Bacaan II | Purata |
|-------------|----------|-----------|--------|
| Tinggi (cm) |          |           |        |
| Berat (kg)  |          |           |        |

b) **Index Jisim Tubuh (IJT) (Diisi oleh penyelidik):**

- Klasifikasi IJT untuk umur:
- Kekurangan berat badan
  - Berat badan normal
  - Berlebihan berat badan
  - Obes

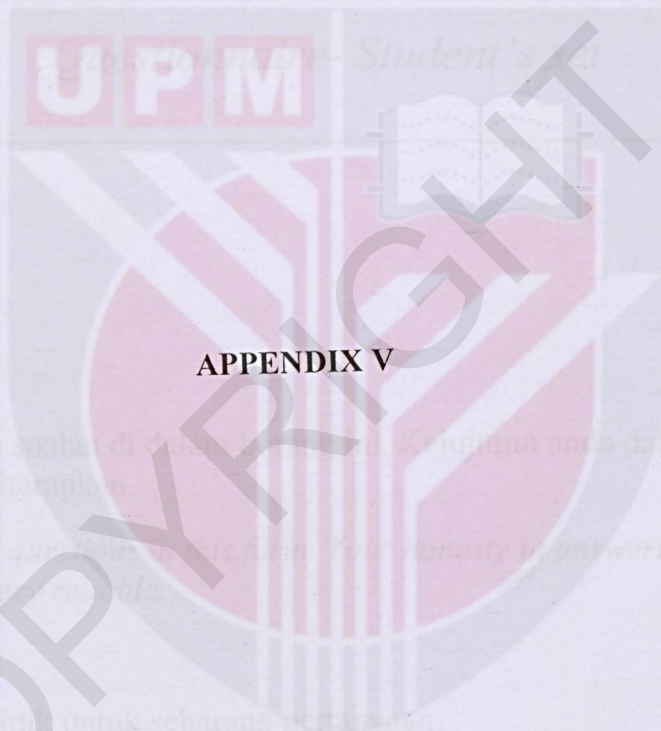


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SELANGOR DARUL EHSAN

NAMA PENYELIDIK: NUR AZLEEN BT NOR MOHAMAD

NAMA SUPERVISOR: DR. BARAKATUN NISAK MOHD YUSOF

BORANG SOAL SELIDIK – SET MURID



APPENDIX V

Arahan :

Instructions:

1. Sila jawab semua soalan di dalam borang ini. Kejujuran anda dalam menjawab soal selidik ini amat diharapkan.

Please answer all questions in this form. Your honesty in answering this questionnaire is very important.

2. Sila rujuk penyelidik untuk sebarang pertanyaan.

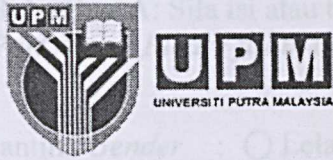
Please refer to the researcher for any questions.

Semua maklumat yang diberikan adalah sulit dan hanya untuk tujuan penyelidikan sahaja.

All the information given will remain confidential and only for research purposes.

Segala kerjasama anda amat dihargai dan difahamkan dengan ucapan terima kasih.

Your cooperation is highly appreciated and thank you.



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43400 UPM SERDANG,  
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NAMA PENYELIDIK: NUR AZLEEN BT NOR MOHAMAD  
NAMA SUPERVISOR: DR. BARAKATUN NISAK MOHD YUSOF

## BORANG SOAL SELIDIK – SET MURID

### *Questionnaire- Student's set*

Arahan :

*Instructions:*

1. Sila jawab semua soalan di dalam borang ini. Kejujuran anda dalam menjawab soal selidik ini amat diharapkan.

*Please answer all questions in this form. Your honesty in answering this questionnaire is very reliable.*

2. Sila rujuk penyelidik untuk sebarang pertanyaan.

*Please refer to the researcher for any questions.*

3. Segala maklumat yang diberikan adalah sulit dan hanya untuk tujuan penyelidikan sahaja.

*All the information given will remain confidential and only for research purposes.*

**Segala kerjasama anda amat dihargai dan didahulukan dengan ucapan terima kasih.**

*Your cooperation is highly appreciated and thank you.*

- **Bahagian A:** Sila isi atau tanda pernyataan berkenaan (/)

**Part A** : Please fill in the form (/).

1. Jantina *Gender* :  Lelaki *Male*     Perempuan *Female*
2. Kumpulan etnik/ bangsa *Ethnicity/race* :  Melayu *Malay*  
 Cina *Chinese*  
 India *Indian*  
 Lain- lain *Others* (nyatakan *please state:.....*)
3. Tarikh lahir (hari/ bulan/ tahun) :  /  /   
*Date of birth*

(PedsQL™ 4.0 Generic Core Scales – Varni, J. W.)

- **Bahagian B:** Sila bulatkan jawapan anda pada ruangan yang disediakan bagi setiap soalan.  
*Please circle your answers in the space provided for each question.*

**Dalam sebulan yang lepas, berapa banyakkah masalah ini telah berlaku pada diri anda...**  
*In the past one month, how much of a problem has you had with...*

0 = Tidak pernah *Never*

1 = Hampir tidak pernah *Almost never*

2 = Kadang-kadang *Sometimes*

3 = Seringkali *Often*

4 = Hampir selalu *Almost always*

| No | Kenyataan   | Skala |   |   |   |   |
|----|---|-------|---|---|---|---|
| 1  | Saya berasa sukar untuk berjalan lebih daripada satu blok<br><i>It is hard for me to walk more than one block</i>           | 0     | 1 | 2 | 3 | 4 |
| 2  | Saya berasa sukar untuk berlari<br><i>It is hard for me to run</i>  | 0     | 1 | 2 | 3 | 4 |
| 3  | Saya berasa sukar untuk melakukan aktiviti sukan dan bersenam<br><i>It is hard for me to do sports activity or exercise</i> | 0     | 1 | 2 | 3 | 4 |

|    |  |   |   |   |   |   |
|----|--|---|---|---|---|---|
| 4  | Saya berasa sukar untuk mengangkat sesuatu yang berat<br><i>It is hard for me to lift something heavy</i>                                  | 0 | 1 | 2 | 3 | 4 |
| 5  | Saya berasa sukar untuk mandi dengan sendiri<br><i>It is hard for me to take a bath or shower by myself</i>                                | 0 | 1 | 2 | 3 | 4 |
| 6  | Saya berasa sukar untuk melakukan tugasan rumah<br><i>It is hard for me to do chores around the house</i>                                  | 0 | 1 | 2 | 3 | 4 |
| 7  | Saya terluka atau sakit<br><i>I hurt or ache</i>   | 0 | 1 | 2 | 3 | 4 |
| 8  | Saya berasa kurang bertenaga<br><i>I have low energy</i>   | 0 | 1 | 2 | 3 | 4 |
| 9  | Saya berasa takut<br><i>I feel afraid or scared</i>  | 0 | 1 | 2 | 3 | 4 |
| 10 | Saya berasa sedih atau murung<br><i>I feel sad or blue</i>   | 0 | 1 | 2 | 3 | 4 |
| 11 | Saya berasa marah<br><i>I feel angry</i>   | 0 | 1 | 2 | 3 | 4 |
| 12 | Saya mempunyai masalah gangguan tidur<br><i>I have trouble in sleeping</i>   | 0 | 1 | 2 | 3 | 4 |
| 13 | Saya risau tentang apa yang akan terjadi pada diri saya<br><i>I worry about what will happen to me</i>                                     | 0 | 1 | 2 | 3 | 4 |
| 14 | Saya mempunyai masalah bergaul dengan remaja lain<br><i>I have trouble getting along with other kids</i>                                   | 0 | 1 | 2 | 3 | 4 |
| 15 | Remaja lain tidak mahu berkawan dengan saya<br><i>Other kids do not want to be my friend</i>   | 0 | 1 | 2 | 3 | 4 |
| 16 | Remaja lain mengganggu saya<br><i>Other kids tease me</i>  | 0 | 1 | 2 | 3 | 4 |
| 17 | Saya tidak boleh melakukan hal-hal yang remaja seusia dengan saya dapat lakukan<br><i>I cannot do things that other kids my age can do</i> | 0 | 1 | 2 | 3 | 4 |
| 18 | Saya berasa sukar untuk bersaing dengan rakan saya<br><i>It is hard to keep up when I play with other kids</i>                             | 0 | 1 | 2 | 3 | 4 |
| 19 | Saya berasa sukar untuk menumpukan perhatian semasa di dalam kelas<br><i>It is hard to pay attention in class</i>                          | 0 | 1 | 2 | 3 | 4 |

|    |   |   |   |   |   |   |
|----|---|---|---|---|---|---|
| 20 | Saya lupa tentang sesuatu perkara<br><i>I forget things</i>   | 0 | 1 | 2 | 3 | 4 |
| 21 | Saya mempunyai masalah menyiapkan kerja sekolah<br><i>I have trouble keeping up with my schoolwork</i>                                  | 0 | 1 | 2 | 3 | 4 |
| 22 | Saya tidak hadir ke sekolah kerana berasa kurang sihat<br><i>I miss school because of not feeling well</i>                              | 0 | 1 | 2 | 3 | 4 |
| 23 | Saya tidak hadir ke sekolah kerana pergi berjumpa doktor atau pergi ke hospital<br><i>I miss school to go to the doctor or hospital</i> | 0 | 1 | 2 | 3 | 4 |

• **Bahagian C:** Sila isi atau tanda pernyataan berkenaan (/)

*Part C : Please fill in the form (/).*

1. Adakah anda melakukan sebarang aktiviti berikut pada 7 hari yang lepas (minggu lepas)? Jika ya, berapa kali?(Bulatkan sekali sahaja untuk setiap baris)

*Physical activity in your spare time: Have you done any of the following activities in the past 7 days (last week)? If yes, how many times? (Mark only one per row.)*

| Soalan<br><i>Question</i>                             | No<br><i>No</i> | 1-2 hari<br><i>1-2 days</i> | 3-4 hari<br><i>3 days</i> | 5-6 hari<br><i>5-6 days</i> | 7 hari dan<br>selebihnya<br><i>7 day or<br/>more</i> |
|---|-----------------|-----------------------------|---------------------------|-----------------------------|--|
| Melompat<br><i>Skipping</i>                           |                 |                             |                           |                             |  |
| Berjalan untuk senaman<br><i>Walking for exercise</i> |                 |                             |                           |                             |  |
| Mengayuh basikal<br><i>Bicycling</i>                  |                 |                             |                           |                             |  |
| Berjoging atau berlari<br><i>Jogging or running</i>   |                 |                             |                           |                             |  |
| Senaman aerobic<br><i>Aerobics</i>                    |                 |                             |                           |                             |  |
| Berenang<br><i>Swimming</i>                           |                 |                             |                           |                             |  |
| Besbol, softball<br><i>Baseball, softball</i>         |                 |                             |                           |                             |  |
| Menari<br><i>Dance</i>                                |                 |                             |                           |                             |  |
| Bola sepak<br><i>Football</i>                         |                 |                             |                           |                             |  |
| Badminton<br><i>Badminton</i>                         |                 |                             |                           |                             |  |

|                                     |  |  |  |  |  |
|-------------------------------------|--|--|--|--|--|
| Bola tampar<br><i>Volleyball</i>    |  |  |  |  |  |
| Bola keranjang<br><i>Basketball</i> |  |  |  |  |  |
| Lain-lain: _____                    |  |  |  |  |  |
| Others: _____                       |  |  |  |  |  |

2. Dalam 7 hari yang lepas, berapa kerapkah anda sangat aktif (bermain, berlari, melompat, membalung dengan kuat) dalam waktu pendidikan jasmani? (Pilih satu sahaja)  
*In the last 7 days, during your physical education (PE) classes, how often were you very active (playing hard, running, jumping, throwing)? (Check and tick one only.)*

|   |  |
|---|--|
| Saya tidak mengambil bahagian dari waktu pendidikan jasmani<br><i>I don't do PE</i> |  |
| Jarang sekali<br><i>Hardly ever</i>   |  |
| Kadang kala<br><i>Sometimes</i>   |  |
| Kerap kali<br><i>Quite often</i>  |  |
| Selalu<br><i>Always</i>   |  |

3. Dalam 7 hari yang lepas, apa yang anda lakukan kebanyakan masanya semasa waktu rehat? (Pilih satu sahaja)  
*In the last 7 days, what did you do most of the time at recess? (Check and tick one only.)*

|  |  |
|--|--|
| Duduk (bercakap, membaca, membuat kerja rumah)<br><i>Sat down (talking, reading, doing schoolwork)</i> |  |
| Berdiri atau berjalan-jalan<br><i>Stood around or walked around</i>                                    |  |
| Berlari atau bermain sedikit<br><i>Ran or played a little bit</i>                                      |  |
| Berlari sekeliling dan bermain lebih sedikit<br><i>Ran around and played quite a bit</i>               |  |
| Berlari dan bermain dengan kuat kebanyakan masanya.<br><i>Ran and played hard most of the time</i>     |  |

4. Dalam 7 hari yang lepas, apa yang biasa anda lakukan semasa waktu makan tengah hari? (Pilih satu sahaja)  
*In the last 7 days, what did you normally do at lunch (besides eating lunch)? (Check and tick one only.)*

|  |  |
|--|--|
| Duduk (bercakap, membaca, membuat kerja rumah)<br><i>Sat down (talking, reading, doing schoolwork)</i> |  |
| Berdiri atau berjalan-jalan<br><i>Stood around or walked around</i>                                    |  |
| Berlari atau bermain sedikit<br><i>Ran or played a little bit</i>                                      |  |
| Berlari sekeliling dan bermain lebih sedikit<br><i>Ran around and played quite a bit</i>               |  |
| Berlari dan bermain dengan kuat kebanyakan masanya.<br><i>Ran and played hard most of the time</i>     |  |

5. Dalam 7 hari yang lepas, berapa hari/ah anda melakukan aktiviti sukan, menari, atau bermain permainan secara sangat aktif sebaik sahaja selepas waktu persekolahan? (Pilih satu sahaja)  
*In the last 7 days, on how many days right after school, did you do sports, dance, or play games in which you were very active? (Check and tick one only.)*

|  |  |
|--|--|
| Tidak<br><i>None</i>   |  |
| Sekali pada minggu lepas<br><i>1 time last week</i>              |  |
| 2 atau 3 kali pada minggu lepas<br><i>2 or 3 times last week</i> |  |
| 4 atau 5 kali pada minggu lepas<br><i>4 or 5 times last week</i> |  |
| 6 atau 7 kali pada minggu lepas<br><i>6 or 7 times last week</i> |  |

6. Dalam 7 hari yang lepas, berapa petang/ah anda melakukan aktiviti sukan, menari, atau bermain permainan secara sangat aktif? (Pilih satu sahaja)  
*In the last 7 days, on how many evenings did you do sports, dance, or play games in which you were very active? (Check and tick one only.)*

|  |  |
|--|--|
| Tidak<br><i>None</i>   |  |
| Sekali pada minggu lepas<br><i>1 time last week</i>              |  |
| 2 atau 3 kali pada minggu lepas<br><i>2 or 3 times last week</i> |  |
| 4 atau 5 kali pada minggu lepas<br><i>4 or 5 times last week</i> |  |
| 6 atau 7 kali pada minggu lepas<br><i>6 or 7 times last week</i> |  |

7. Pada hujung minggu yang lepas (Sabtu dan Ahad), berapa kalikah anda melakukan aktiviti sukan, menari, atau bermain permainan secara sangat aktif? (Pilih satu sahaja)  
*On the last weekend, how many times did you do sports, dance, or play games in which you were very active? (Check and tick one only.*

|  |  |
|--|--|
| Tidak<br><i>None</i>   |  |
| Sekali pada minggu lepas<br><i>1 time last week</i>              |  |
| 2 atau 3 kali pada minggu lepas<br><i>2 or 3 times last week</i> |  |
| 4 atau 5 kali pada minggu lepas<br><i>4 or 5 times last week</i> |  |
| 6 atau 7 kali pada minggu lepas<br><i>6 or 7 times last week</i> |  |

8. Yang manakah di antara yang berikut terbaik menggambarkan diri anda pada 7 hari yang lepas?  
*Which one of the following describes you best for the last 7 days? Read all five statements before deciding on the one answer that describes you.*

|   |  |
|---|--|
| Semua atau kebanyakan masa lapang saya telah digunakan untuk melakukan perkara-perkara yang melibatkan sedikit usaha fizikal.<br><i>All or most of my free time was spent doing thing that involve little physical effort.</i>  |  |
| Saya kadang-kadang sahaja (1-2 kali minggu lepas) melakukan perkara-perkara fizikal dalam masa lapang saya (seperti permainan sukan, berlari, berenang, mengayuh basikal, melakukan aerobic)<br><i>I sometimes (1-2 times last week) did physical things in my free time (eg. played sports, went running, swimming, bike riding and did aerobic)</i> |  |
| Sya kerap (3-4 kali minggu lepas) melakukan perkara-perkara fizikal dalam masa lapang saya.<br><i>I often (3-4 times last week) did physical things in my free time.</i>  |  |
| Saya agak kerap (5-6 kali minggu lepas) melakukan perkara-perkara fizikal dalam masa lapang saya.<br><i>I quite often (5-6 times last week) did physical things in my free time.</i>  |  |
| Saya sangat kerap ( 7 kali lebih minggu lepas) melakukan perkara-perkara fizikal dalam masa lapang saya<br><i>I very often (7 or more times last week) did physical things in my free time</i>  |  |

9. Bulatkan berdasarkan kekerapan anda melakukan aktiviti fizikal (seperti bersukan, bermain permainan, menari, atau sebarang aktiviti fizikal lain) untuk setiap hari sepanjang minggu lepas.

*Mark how often you did physical activity (like playing sports, games, doing dance, or any other physical activity) for each day last week.*

|                           | Tidak<br><i>None</i> | Sangat sedikit<br><i>Little bit</i> | Sedikit<br><i>Medium</i> | Kadang-kala<br><i>often</i> | Kerap kali<br><i>Very often</i> |
|---------------------------|----------------------|-------------------------------------|--------------------------|-----------------------------|---------------------------------|
| Isnin<br><i>Monday</i>    |                      |                                     |                          |                             |                                 |
| Selasa<br><i>Tuesday</i>  |                      |                                     |                          |                             |                                 |
| Rabu<br><i>Wednesday</i>  |                      |                                     |                          |                             |                                 |
| Khamis<br><i>Thursday</i> |                      |                                     |                          |                             |                                 |
| Jumaat<br><i>Friday</i>   |                      |                                     |                          |                             |                                 |
| Sabtu<br><i>Saturday</i>  |                      |                                     |                          |                             |                                 |
| Ahad<br><i>Sunday</i>     |                      |                                     |                          |                             |                                 |

10. Adakah anda sakit pada minggu lepas atau terdapat sebarang hal yang menghalang anda daripada melakukan aktiviti fizikal secara normal?

*Were you sick last week, or did anything prevent you from doing your normal physical activities? (Check one.)*

Ya

Yes

Jika Ya, apa yang menghalang anda? \_\_\_\_\_

*if yes, please state:* \_\_\_\_\_

Tidak

No

Sekian, terima kasih

Thank you



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SELANGOR DARUL HJSAH

NAMA PENYELIDIK: NUF AZLEEN BT NOR MOHAMMAD  
NAMA SUPERVISOR: DR. BARAKATUN NISAK MOHD NISAF



**APPENDIX VI**

*Analisa Instruksi:*

1. Sila jawab semua soalan di dalam borang ini dengan jujur. Kejujuran anda dalam menjawab soal selidik ini amat dihargai.

*Please answer all questions in this form. Your honesty in answering this questionnaire is appreciated.*

2. Sila rujuk penyelidik untuk sebarang pertanyaan.

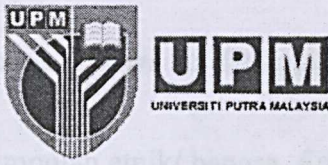
*Please refer to researcher for any questions.*

Segala maklumat yang diberikan adalah sulit dan hanya untuk tujuan penyelidikan.

*All the information given will remain confidential and only for research purposes.*

Segala kerjasama anda amat dihargai dan didahului dengan ucapan terima kasih.

*Your cooperation is highly appreciated and thank you.*



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NAMA PENYELIDIK: NUR AZLEEN BT NOR MOHAMAD

NAMA SUPERVISOR: DR. BARAKATUN NISAK MOHD YUSOF

## BORANG SOAL SELIDIK – SET IBUBAPA

### Questionnaire – Parents' set

#### Arahan *Instructions:*

1. Sila jawab semua soalan di dalam borang ini. Kejujuran anda dalam menjawab soal selidik ini amat diharapkan.

*Please answer all questions in this form. Your honesty in answering this questionnaire is very reliable.*

2. Sila rujuk penyelidik untuk sebarang pertanyaan.

*Please refer to the researcher for any questions.*

3. Segala maklumat yang diberikan adalah sulit dan hanya untuk tujuan penyelidikan sahaja.

*All the information given will remain confidential and only for research purposes.*

**Segala kerjasama anda amat dihargai dan didahulukan dengan ucapan terima kasih.**

*Your cooperation is highly appreciated and thank you.*

- **Bahagian A:** Sila isi atau tanda pernyataan berkenaan (/)  
**Part A** : Please fill in the form (/).

1. Jantina *Gender* :  Lelaki *Male*  Perempuan *Female*

2. Kumpulan etnik/ bangsa *Ethnicity/race* :  Melayu *Malay*

Cina *Chinese*

India *Indian*

Lain- lain *Others* (nyatakan *please state*:.....)

3. Umur *Age*: \_\_\_\_\_

4. Latarbelakangsosio-demografi :

*Socio-demographic background* :

|   | Bapa(Father)  | Ibu(Mother)   |
|---|---|---|
| a) Taraf pendidikan<br><i>Educational level</i>                         | <input type="radio"/> Tiada bersekolah formal<br>( <i>No formal schooling</i> )<br><input type="radio"/> Sekolah rendah (UPSR)<br><input type="radio"/> Sekolah Menengah Bawah (PMR)/SRP<br><input type="radio"/> Sekolah Menengah Atas (SPM)/ MCE<br><input type="radio"/> Pre-Universiti (STPM/ Diploma/ <i>A level</i> )<br><input type="radio"/> Bachelor Muda( <i>Bachelor /Degree</i> )<br><input type="radio"/> Ph D/ Sarjana( <i>Master</i> ) | <input type="radio"/> Tiada bersekolah formal<br>( <i>No formal schooling</i> )<br><input type="radio"/> Sekolah rendah (UPSR)<br><input type="radio"/> Sekolah Menengah Bawah (PMR)/SRP<br><input type="radio"/> Sekolah Menengah Atas (SPM)/ MCE<br><input type="radio"/> Pre-Universiti (STPM/ Diploma/ <i>A level</i> )<br><input type="radio"/> Bachelor Muda( <i>Bachelor /Degree</i> )<br><input type="radio"/> Ph D/ Sarjana( <i>Master</i> ) |
| b) Pekerjaan<br><i>Occupation</i>                                       |   |   |
| c) Jumlah Pendapatan Sebulan (RM)<br><i>Total household income (RM)</i> |   |   |

(PedsQL™ 4.0 Generic Core Scales – Varni, J. W.)

- **Bahagian B:** Sila bulatkan jawapan anda pada ruangan yang disediakan bagi setiap soalan.  
*Please circle your answers in the space provided for each question.*

**Dalam sebulan yang lepas, berapa banyakkah masalah ini telah berlaku pada diri ANAK anda...**

*In the past one month, how much of a problem has your CHILD had with...*

0 = Tidak pernah *Never*1 = Hampir tidak pernah *Almost never*2 = Kadang-kadang *Sometimes*3 = Seringkali *Often*4 = Hampir selalu *Almost always*

| No | Kenyataan   | Skala |   |   |   |   |
|----|---|-------|---|---|---|---|
|    |   | 0     | 1 | 2 | 3 | 4 |
| 1  | Berjalan lebih daripada satu blok<br><i>Walking more than one block</i>                       | 0     | 1 | 2 | 3 | 4 |
| 2  | Berlari<br><i>Running</i>   | 0     | 1 | 2 | 3 | 4 |
| 3  | Melakukan aktiviti sukan dan bersenam<br><i>Participating in sports activity and exercise</i> | 0     | 1 | 2 | 3 | 4 |
| 4  | Mengangkat sesuatu yang berat<br><i>Lifting something heavy</i>                               | 0     | 1 | 2 | 3 | 4 |
| 5  | Mandi dengan sendiri<br><i>Taking a bath or shower by him or herself</i>                      | 0     | 1 | 2 | 3 | 4 |
| 6  | Melakukan tugas rumah<br><i>Doing chores around the house</i>                                 | 0     | 1 | 2 | 3 | 4 |
| 7  | Terluka atau sakit<br><i>Having hurts or aches</i>  | 0     | 1 | 2 | 3 | 4 |
| 8  | Kurang bertenaga<br><i>Low energy level</i>   | 0     | 1 | 2 | 3 | 4 |
| 9  | Berasa takut<br><i>Feeling afraid or scared</i>   | 0     | 1 | 2 | 3 | 4 |
| 10 | Sedih atau murung<br><i>Feeling sad or blue</i>   | 0     | 1 | 2 | 3 | 4 |
| 11 | Marah<br><i>Feeling angry</i>   | 0     | 1 | 2 | 3 | 4 |
| 12 | Masalah gangguan tidur<br><i>Trouble sleeping</i>   | 0     | 1 | 2 | 3 | 4 |

|    |  |   |   |   |   |   |
|----|--|---|---|---|---|---|
| 13 | Risau tentang apa yang akan terjadi pada dirinya<br><i>Worrying about what will happen to him or her</i>   | 0 | 1 | 2 | 3 | 4 |
| 14 | Bergaul dengan kanak-kanak lain<br><i>Getting along with other kids</i>  | 0 | 1 | 2 | 3 | 4 |
| 15 | Kanak-kanak lain tidak mahu berkawan dengannya<br><i>Other kids not wanting to be his or her friends</i>   | 0 | 1 | 2 | 3 | 4 |
| 16 | Kanak-kanak lain mengganggunya<br><i>Geeting teased by other children</i>  | 0 | 1 | 2 | 3 | 4 |
| 17 | Tidak boleh melakukan hal-hal yang kanak-kanak seusianya dapat lakukan<br><i>Not able to do things that other children his or her age can do</i> | 0 | 1 | 2 | 3 | 4 |
| 18 | Berasa sukar untuk bersaing dengan rakannya<br><i>Keeping up when playing with other children</i>  | 0 | 1 | 2 | 3 | 4 |
| 19 | Menumpukan perhatian semasa di dalam kelas<br><i>Paying attention in the class</i>   | 0 | 1 | 2 | 3 | 4 |
| 20 | Lupa tentang sesuatu perkara<br><i>Forgetting things</i>   | 0 | 1 | 2 | 3 | 4 |
| 21 | Menyiapkan kerja sekolah<br><i>Keeping up with school work</i>   | 0 | 1 | 2 | 3 | 4 |
| 22 | Tidak hadir ke sekolah kerana berasa kurang sihat<br><i>Missing school because of not feeling well</i>   | 0 | 1 | 2 | 3 | 4 |
| 23 | Tidak hadir ke sekolah kerana pergi berjumpa doktor atau pergi ke hospital<br><i>Missing school to go to the doctor or hospital</i>              | 0 | 1 | 2 | 3 | 4 |

- **Bahagian C:** Sila isi atau tanda pernyataan berkenaan (/)  
*Part C : Please fill in the form (/).*

### Waktu Tidur Malam

Sila nyatakan waktu tidur malam anak anda: \_\_\_\_\_

#### **Bedtime**

Write in child's bedtime: \_\_\_\_\_

| No | Soalan<br>Question  | Biasanya<br>Usually<br>(5-7) | Kadang-kadang<br>Sometimes<br>(2-4) | Jarang<br>Rarely<br>(0-1) |
|----|---|------------------------------|-------------------------------------|---------------------------|
| 1  | Anak saya pergi ke katil pada waktu yang sama di waktu malam<br><i>Child goes to bed at the same time at night</i>  |                              |                                     |                           |
| 2  | Anak saya tidur lena dalam tempoh masa 20 minit selepas<br><i>Child falls asleep within 20 minutes after going to bed</i>   |                              |                                     |                           |
| 3  | Anak saya tidur bersendirian di atas katilnya.<br><i>Child falls asleep alone in own bed</i>  |                              |                                     |                           |
| 4  | Anak saya tidur di atas katil saya atau di katil bersama adik-beradiknya<br><i>Child falls asleep in parent's or sibling's bed</i>                                      |                              |                                     |                           |
| 5  | Anak saya perlu dibuai oleh ibu bapa sebelum tidur<br><i>Child falls asleep with rocking or rhythmic movements</i>  |                              |                                     |                           |
| 6  | Anak saya memerlukan benda khas untuk tidur (anak patung, selimut khas, dan lain-lain)<br><i>Child needs special object to fall asleep(doll, special blanket, etc.)</i> |                              |                                     |                           |
| 7  | Anak saya perlu diteman oleh ibu/bapa semasa tidur<br><i>Child needs parent in the room to fall asleep</i>  |                              |                                     |                           |
| 8  | Anak saya bersedia untuk tidur<br><i>Child is ready to go to bed at bedtime</i>   |                              |                                     |                           |
| 9  | Anak saya enggan untuk tidur<br><i>Child resists going to bed at bedtime</i>  |                              |                                     |                           |
| 10 | Anak saya susah untuk tidur (menangis, tak nak tidur) ketika waktu tidur<br><i>Child struggles at bedtime (cries, refuses to stay in bed, etc.)</i>                     |                              |                                     |                           |
| 11 | Anak saya takut tidur dalam gelap.<br><i>Child is afraid of sleeping in the dark</i>  |                              |                                     |                           |
| 12 | Anak saya takut tidur bersendirian.<br><i>Child is afraid of sleep alone</i>  |                              |                                     |                           |

**Kelakuan Tidur**

Sila nyatakan jumlah waktu tidur biasa anak anda bagi setiap hari: \_\_\_\_\_ jam  
 \_\_\_\_\_ minit

**(Gabungkan kedua-dua jumlah tidur waktu malam dengan waktu siang)**

**Sleep Behavior**

*Child's usual amount of sleep each day: \_\_\_\_\_ hours and \_\_\_\_\_ minutes*

*(Combining nighttime sleep and naps)*

| No | Soalan<br><i>Question</i>  | Biasanya<br><i>Usually</i><br>(5-7) | Kadang-kadang<br><i>Sometimes</i><br>(2-4) | Jarang<br><i>Rarely</i><br>(0-1) |
|----|--|-------------------------------------|--|----------------------------------|
| 13 | Anak saya tidur terlalu sedikit.<br><i>Child sleeps too little</i>   |                                     |  |                                  |
| 14 | Anak saya tidur terlalu banyak<br><i>Child sleeps too much</i>   |                                     |  |                                  |
| 15 | Anak saya tidur dengan secukupnya<br><i>Child sleeps the right amount</i>  |                                     |  |                                  |
| 16 | Jumlah waktu tidur anak saya adalah lebih kurang sama pada setiap hari<br><i>Child sleeps about the same amount each day</i>   |                                     |  |                                  |
| 17 | Anak saya kencing malam semasa tidur.<br><i>Child wets the bed at night</i>  |                                     |  |                                  |
| 18 | Anak saya bercakap-cakap semasa tidur<br><i>Child talks during sleep</i>   |                                     |  |                                  |
| 19 | Anak gelisah dan banyak bergerak selama tidur<br><i>Child is restless and moves a lot during sleep</i>   |                                     |  |                                  |
| 20 | Anak saya berjalan semasa tidur<br><i>Child sleepwalks during the night</i>  |                                     |  |                                  |
| 21 | Anak saya berpindah tempat tidur (ke bilik/katil ibubapa atau adik-beradik) ketika waktu tidur<br><i>Child moves to someone else's bed during the night (parent, brother, sister, etc)</i> |                                     |  |                                  |
| 22 | Anak saya menagdu sakit badan semasa tidur. Jika Ya, tolong nyatakan bahagian yang sakit _____<br><i>Child reports body pains during sleep. If so, where?</i><br>_____                     |                                     |  |                                  |
| 23 | Anak saya menggesel-gesel giginya semasa tidur<br><i>Child grinds teeth during sleep (your dentist may have told you this)</i>   |                                     |  |                                  |
| 24 | Anak saya berdengkur dengan kuat.<br><i>Child snores loudly</i>  |                                     |  |                                  |
| 25 | Anak saya seakan-akan berhenti nafas semasa tidur.<br><i>Child seems to stop breathing during sleep</i>  |                                     |  |                                  |
| 26 | Anak saya berdengkur dan/atau mencungap-cungap semasa tidur.<br><i>Child snorts and/or gasps during sleep</i>  |                                     |  |                                  |

|    |  |  |  |  |
|----|--|--|--|--|
| 27 | Anak saya mengalami masalah tidur sekiranya tidur di tempat lain (misalnya menginap di rumah saudara-mara atau pergi melancong)<br><i>Child has trouble sleeping away from home (visiting relatives, vacation)</i> |  |  |  |
| 28 | Anak saya mengadu tentang masalah tidur<br><i>Child complains about problems sleeping</i>  |  |  |  |
| 29 | Anak saya terjaga dari tidur dalam keadaan menjerit-jerit, berpeluh-peluh dan ketakutan.<br><i>Child awakens during night screaming, sweating, and inconsolable</i>  |  |  |  |
| 30 | Anak saya terjaga dari mimpi yang menakutkan.<br><i>Child awakens alarmed by a frightening dream</i>   |  |  |  |

### Terjaga Semasa Waktu Tidur Malam

#### *Waking During the Night*

| No | Soalan<br><i>Question</i>  | Biasanya<br><i>Usually</i><br>(5-7) | Kadang-kadang<br><i>Sometimes</i><br>(2-4) | Jarang<br><i>Rarely</i><br>(0-1) |
|----|--|-------------------------------------|--|----------------------------------|
| 31 | Anak saya terjaga sekali sahaja dari tidur malamnya.<br><i>Child awakes once during the night</i>                            |                                     |  |                                  |
| 32 | Anak saya terjaga lebih daripada sekali dari tidur malamnya<br><i>Child awakes more than once during the night</i>           |                                     |  |                                  |
| 33 | Anak saya kembali tidur selepas bangun tanpa bantuan dari sesiapa<br><i>Child returns to sleep without help after waking</i> |                                     |  |                                  |
| 34 | Tulis bilangan kekerapan bangun pada waktu malam<br><i>Write the number of minutes a night waking usually lasts:</i>         |                                     |  |                                  |

**Bangun pagi**

Sila nyatakan waktu biasa anak anda bangun pagi: \_\_\_\_\_

**Morning Waking**

Write in the time of day child usually wakes in the morning: \_\_\_\_\_

| No | Soalan<br>Question   | Biasanya<br>Usually<br>(5-7) | Kadang-<br>kadang<br>Sometimes<br>(2-4) | Jarang<br>Rarely<br>(0-1) |
|----|--|------------------------------|---|---------------------------|
| 35 | Anak saya bangun sendiri.<br><i>Child wakes up by him/herself</i>  |                              |   |                           |
| 36 | Anak saya bangun dengan bantuan jam penggera<br><i>Child wakes up with alarm clock</i>   |                              |   |                           |
| 37 | Anak saya bangun dengan emosi yang tidak stabil<br>(muram).<br><i>Child wakes up in negative mood</i>  |                              |   |                           |
| 38 | Anak saya perlu dikejutkan/dibangunkan oleh orang<br>dewasa atau adik-beradiknya<br><i>Adults or siblings wake up child</i>                                    |                              |   |                           |
| 39 | Anak saya susah untuk bangun dari tidur pada waktu<br>pagi<br><i>Child has difficulty getting out of bed in the morning</i>                                    |                              |   |                           |
| 40 | Anak saya mengambil masa yang lama untuk "sedar"<br>selepas bangun dari tidur pada waktu pagi<br><i>Child takes a long time to become alert in the morning</i> |                              |   |                           |
| 41 | Anak saya bangun awal pada waktu pagi<br><i>Child wakes up very early in the morning</i>   |                              |   |                           |
| 42 | Anak saya mempunyai selera makan yang baik pada<br>waktu pagi<br><i>Child has a good appetite in the morning</i>   |                              |   |                           |

**Mengantuk Pada Waktu Siang****Daytime Sleepiness**

| No | Soalan<br>Question  | Biasanya<br>Usually<br>(5-7) | Kadang-<br>kadang<br>Sometimes<br>(2-4) | Jarang<br>Rarely<br>(0-1) |
|----|---|------------------------------|---|---------------------------|
| 43 | Anak saya tidur sekejap pada waktu siang.<br><i>Child naps during the day</i>                                 |                              |   |                           |
| 44 | Anak saya tertidur semasa bermain<br><i>Child suddenly falls asleep in the middle of active<br/>behaviour</i> |                              |   |                           |
| 45 | Anak saya kelihatan letih<br><i>Child seems tired</i>   |                              |   |                           |

Sepanjang minggu lepas, adakah anak anda kelihatan mengantuk atau tertidur semasa melakukan perbuatan berikut:

*During the past week, your child has appeared very sleepy or fallen asleep during the following :*

| <b>Soalan<br/>Question</b>                | <b>Tidak mengantuk<br/>Not sleepy</b> | <b>Sangat mengantuk<br/>Very sleepy</b> | <b>Tertidur<br/>Fall sleep</b> |
|---|---------------------------------------|---|--------------------------------|
| Bermain seorang diri<br><i>Play alone</i> |                                       |   |                                |
| Menonton televisyen<br><i>Watching TV</i> |                                       |   |                                |
| Menaki kenderaan<br><i>Riding in car</i>  |                                       |   |                                |
| Semasa makan<br><i>Eating meals</i>       |                                       |   |                                |

Sekian, terima kasih

Thank you

## EXTENDEND ABSTRACT

### COMPARISON STUDY ON SLEEPING DISTURBANCES, HEALTH-RELATED QUALITY OF LIFE AND PHYSICAL ACTIVITY LEVEL BETWEEN OVERWEIGHT/OBESE AND NORMAL-WEIGHT CHILDREN

NUR AZLEEN BT NOR MOHAMAD

Childhood obesity is considered as a one of the major issue in developed countries. Overweight is defined as between 1SD to 2SD based on the z-score meanwhile above the 85<sup>th</sup> percentile for the percentile. Obese is defined as above 2 SD for z-score and greater than 95<sup>th</sup> for percentile. In Malaysia, lifestyle and disease pattern changed in tandem to rapid development led to the growing problems of childhood obesity. About 6.1% of children aged below 18 years in Malaysia were obese and the prevalence was higher in urban area. National Health Morbidity Survey (NHMS) also stated that about 6.3% children aged 10 to 14 years old were overweight in Malaysia. Sleep is the basic fundamental need of every human being. Sleep disturbances is defined as a poor sleep behaviour that leads to the poor quality of sleep. Sleep disruption during the night led to excessive daytime sleepiness which decreased physical activity and thus increased the probability to become obese. In Malaysia, about 41.5% Malaysian children who were obese were having sleeping disturbances. Similarly, overweight/obese children also reported to have poor HRQOL. Indeed, they were more likely to have impaired HRQOL 5.5 times greater than normal-weight children.

A previous study among 6 to 12 years-old Malaysian children found that overweight/obese children had higher risk of having sleep disturbances as compared to the normal weight children. The HRQOL has been found to correlate with body weight status. Previous study found that there was a relationship between HRQOL and body weight status among adolescents aged <20 years old. Nevertheless, there was a limited study conducted to compare the sleeping disturbances and HRQOL on the specific children aged 10 to 11 years

old who were overweight/obese and normal-weight children in Selangor area. Thus, this study was conducted to compare sleeping disturbances, HRQOL, and physical activity level between overweight/obese and normal-weight children.

The sampling design in this study was a cross-sectional comparative study conducted in four primary schools located at Puchong, Selangor. The sampling method for this study was based on the multistage sampling method. Four primary schools were selected using simple-random sampling while the respondents were selected using the purposive sampling. The instruments that were used in this study consist of two parts namely health screening form and self-administered questionnaire. Health screening form consists of anthropometry measurements and personal information. Self-administered questionnaire covered socio-demographic, sleeping disturbances, HRQOL and physical activity level part. The sleeping disturbances were assessed using Children Sleep Habit Questionnaire, the HRQOL was assessed using Paediatric Quality of Life Inventory and physical activity level was assessed using Physical Activity Questionnaire for Children. Statistical analysis was performed using IBM SPSS Statistics. Independent sample *t*-test, A Mann Whitney U test and Chi-square were used to compare the data between overweight/obese and normal-weight children. A statistical level of  $p < 0.05$  was considered as a significance level.

A total of 200 students were selected as respondents for this study. A total of 100 respondents were classified as overweight whereas the remaining 100 respondents were categorized as normal-weight children. All respondent were matched for age, gender, and ethnicity. Majority of the respondents were Malays girls with their aged of 11 years old. Chi square test revealed no significant differences in age, gender, and ethnicity between overweight/obese and normal-weight children. Comparison of household income between overweight/obese and normal-weight children showed that about 31.5 % of overweight/obese and 29.7 % of normal-weight children were come from high income family.

The mean of BMI- for-age among overweight/obese children were  $2.06 \pm 0.67 \text{ kg/m}^2$  which indicated that most of the overweight/obese children were having high body mass index. An independent sample t-test revealed a significant difference in weight, height and BMI-for-age between overweight/obese and normal-weight children. Further analysis was done to compare the gender with BMI-for-age among overweight/obese and normal-weight children. Majority of boys were categorized as overweight (63.6%) whereas about 50% of the girls were obese. However, the proportion was not significantly different between boys and girls among overweight/obese and normal-weight children ( $p > 0.05$ ).

Both of the overweight/obese and normal-weight children were in moderate level of sleeping disturbances. It was indicated that about half of overweight/obese and normal-weight children do not have any sleeping disturbances. A Mann Whitney U test revealed no significant difference in sleeping disturbances of overweight/obese and normal-weight children. The test also revealed no significant differences in the each of the domain of sleeping disturbances between overweight/obese and normal-weight children.

About 48% of overweight/obese had moderate level of HRQOL and 31% of overweight/obese children had low HRQOL as reported in children-proxy report. However, the finding also showed that 31.3% of normal-weight children reported having low HRQOL by their parents. An independent sample *t*-test revealed that there was a significant difference in HRQOL scores for overweight/obese children and normal-weight children reported by children ( $p < 0.05$ ). However, there was no significant difference between HRQOL scores between overweight/obese and normal-weight children reported by the parents. There were no significant differences in each of the HRQOL domains reported by the parents but there was a significant difference of psychosocial health domains between overweight/obese and normal-weight children reported by the children.

Majority of the respondents were in moderate level of physical activity with 62.4 % of overweight/obese and 72.6 % of normal-weight children. Therefore, it was indicated that both overweight/obese and normal-weight children were at sedentary of physical activity. The test showed no significant differences in physical activity level between overweight/obese and normal-weight children.

In conclusion, respondents were predominantly Malay (94%) and girls (56%) with the aged 11 years old. Most of the respondents were comes from a moderate income family where both father's and mother's had income more than RM2000/month which indicated moderate socio-economic status in urban area. In general, most of overweight/obese and normal-weight children do not have any sleeping disturbances. Surprisingly, some of the normal-weight children were having sleeping disturbances. Overweight/obese children had a lower HRQOL compared to the normal-weight children as reported in children-proxy report. In contrast, to the parent-proxy report that found those overweight/obese children were reported to have a better HRQOL. HRQOL scores were even better among girls who were normal-weight children as compared to girls who were overweight/obese children. There was a significant difference in HRQOL scores between overweight/obese and normal-weight children as children-proxy report in which overweight/obese had less HRQOL as compared to the normal-weight children. In children-proxy report, there was a significant difference in psychosocial health domain between overweight/obese and normal-weight children in which normal-weight children have a good psychosocial health compared to the overweight/obese children. Physical activity level among overweight/obese and normal-weight children was in moderate levels indicated that both groups were practice a sedentary physical activity. However, physical activity level were not differ between overweight/obese and normal-weight children as this study showed no significant differences in physical activity level between overweight/obese and normal-weight group.