



UNIVERSITI PUTRA MALAYSIA

***ASSOCIATION BETWEEN CHILDREN AND PARENTAL
SOCIODEMOGRAPHIC FACTORS, PARENTAL PERCEPTION AND
FEEDING PRACTICES WITH BODY WEIGHT STATUS AMONG
PRIMARY SCHOOL CHILDREN IN SEREMBAN, NEGERI SEMBILAN***

NURUL ATIQA BINTI BAHAROM

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BY

NURUL ATIQA BINTI BAHAROM

**A project submitted as partial fulfilment of the requirement for the degree of
Bachelor of Science (Nutrition and Community Health) from the Faculty of
Medicine and Health Sciences, Universiti Putra Malaysia**

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Abstract

ASSOCIATION BETWEEN CHILDREN AND PARENTAL SOCIODEMOGRAPHIC FACTORS, PARENTAL PERCEPTION AND FEEDING PRACTICES WITH BODY WEIGHT STATUS AMONG PRIMARY SCHOOL CHILDREN IN SEREMBAN, NEGERI SEMBILAN

Nurul Atiqah binti Baharom

Childhood obesity has risen on an alarming level and gives a global threat around the world including Malaysia. According to the National Health and Morbidity Survey (NHMS), the prevalence of childhood obesity increased from 6.1% in 2013 to 11.9% in 2015. One of the contributing factors of obesity in children are the parents. The objective of this study is to determine the children sociodemographic factors, parental sociodemographic factors, perception, feeding practices and their association with body weight status of children. A cross-sectional study was done in primary schools in Seremban, Negeri Sembilan involving 225 children and their parents. A set of self-administered questionnaires was distributed to the parents via their children. Anthropometric measurements were done on the children to obtain their weight and height to determine their BMI-for-age. The results showed that among fathers, perceived parent weight and perceived child weight of fathers have a significant correlation with child's BMI ($r=0.151$; 0.486 $p<0.05$). Among mothers, there is a significant correlation between perceived child weight and child's BMI ($r=0.562$, $p<0.05$). There is also a significant association between mothers' BMI and child's BMI ($r=0.289$, $p<0.05$). For feeding practices, a negative and significant correlation was found between mothers' pressure to eat and child's BMI ($r=-0.190$, $p<0.05$). In conclusion, how parents perceived their weight and their actual BMI have influence their child's body weight status. Also, pressure to eat by parents associates with lower BMI in children.

Abstrak

HUBUNGAN ANTARA FAKTOR SOSIODEMOGRAFI KANAK-KANAK DAN IBU BAPA, PERSEPSI DAN AMALAN PEMAKANAN IBU BAPA DENGAN STATUS BERAT BADAN KALANGAN KANAK-KANAK SEKOLAH RENDAH DI SEREMBAN, NEGERI SEMBILAN

Nurul Atiqah binti Baharom

Obesiti kanak-kanak telah meningkat pada tahap yang membimbangkan dan memberi ancaman global di seluruh dunia termasuk Malaysia. Menurut Kajian Kesihatan dan Morbiditi Nasional (NHMS), kelaziman obesiti kanak-kanak meningkat daripada 6.1% pada tahun 2013 kepada 11.9% pada tahun 2015. Salah satu faktor penyumbang obesiti pada kanak-kanak adalah ibu bapa. Objektif kajian ini adalah untuk menentukan faktor sosiodemografi kanak-kanak, faktor sosiodemografi ibu bapa, persepsi, amalan pemakanan dan kaitannya dengan status berat badan kanak-kanak. Kajian keratan rentas telah dilakukan di sekolah rendah di Seremban, Negeri Sembilan yang melibatkan 225 kanak-kanak dan ibu bapa mereka. Satu set soal borang soal selidik telah diberikan kepada ibu bapa melalui anak-anak mereka. Ukuran antropometri dilakukan pada kanak-kanak untuk mendapatkan berat dan ketinggian mereka bagi menentukan BMI mereka untuk usia. Hasil kajian menunjukkan bahawa dalam kalangan bapa, tanggapan berat ibu bapa dan berat badan kanak-kanak mempunyai hubungan yang signifikan dengan BMI kanak-kanak ($r = 0.151$; 0.486 $p < 0.05$). Dalam kalangan ibu, terdapat hubungan yang signifikan antara persepsi mereka terhadap berat badan kanak-kanak dan BMI kanak-kanak ($r = 0.562$, $p < 0.05$). Terdapat juga hubungan yang signifikan antara BMI ibu dan BMI kanak-kanak ($r = 0.289$, $p < 0.05$). Untuk amalan makan, hubungan negatif dan signifikan didapati antara tekanan untuk makan dalam kalangan ibu dan BMI kanak-kanak ($r = -0.190$, $p < 0.05$). Kesimpulannya, persepsi ibu bapa terhadap berat badan mereka dan BMI sebenar mereka mempengaruhi status berat badan anak mereka. Juga, tekanan untuk makan oleh ibu bapa memberi kesan kepada BMI yang lebih rendah pada kanak-kanak.

CHAPTER 1

INTRODUCTION

1.1 Background

According to World Health Organization (WHO, 2013), a child is a person who is 19 years or younger unless national law defines a person to be an adult at an earlier age. However, in these guidelines when a person falls into the 10 to 19 age category, they are referred to as an adolescent.

Childhood obesity has risen on an alarming level and gives a global threat around the world (Naidu et al., 2013). Obesity among children is not a new issue in Malaysia. The issue of overweight and obese children is on the rise in Malaysia (Muda & Karim, 2001). The statistics of obese children in Asia and Malaysia is increasing every year. In Asia, more than half (≈ 18 million in 2010) of the affected children are obese (De Onis, Blössner, & Borghi, 2010). The prevalence of childhood obesity in Malaysia has increased over the past years. National Health and Morbidity Survey (NHMS) reported that the prevalence of childhood obesity increased from 6.1% in 2013 to 11.9% in 2015. The highest prevalence of obesity among Malaysian children occurs in the urban area. Besides, Chinese children at the age between 5-9 years old recorded a higher prevalence of obesity (Institute for Public Health, 2015) compared to other ethnic groups.

Body Mass Index (BMI) is a simple index of weight-for-height that is commonly used to classify body weight status. It can be used to determine childhood overweight and obesity. For children, BMI is age and sex-specific and is often referred to as BMI-for-age. A child's weight status is determined using an age- and sex-specific percentile for BMI. This is because children's body composition varies as they age and varies between boys and girls (Centers for Disease Control and Prevention [CDC], 2016). BMI at or above the 95th percentile is classified as obese for children of the same age and sex (CDC, 2016) while WHO (2007) growth reference for BMI-for age (5-19) classifies obesity at the $>+2SD$ cut-off point from the chart. Underweight or thinness is classified at $\geq -3SD$ - $\leq -2SD$.

There are many factors that are associated to obesity among children. These factors work in a combination. The reported causes of childhood obesity are diet and lack of exercise along with sedentary lifestyle. However, there are also other factors including family, psychological and socioeconomic factors. According to Carnell and Wardle (2007), the rising trend of childhood obesity has been accompanied by an increased focus on the role of parents in aetiology and counteractive action.

Parental sociodemographic factors such as ethnicity, education level, household income and occupation can be related to childhood obesity. A review study done by Towns and D'Auria (2009) reported that parents' education level does not have so much influence on their child's weight. However, Parikka et al. (2015) found that parental education has a high association with overweight in children where in younger boys, both paternal and maternal education are inversely associated with their child's BMI (b-coefficient paternal -0.21 ; maternal -0.17 ; $p < 0.001$).

Moreover, child's weight may be influenced by parental perceptions. For example, children who parents perceived as "too fat" were more likely to become obese in their adulthood (Robinson & Sutin, 2016). Parental perception of child overweight was described as parental admission of their child's overweight status or concerns about current and future health problems related with child overweight (Towns & D'Auria, 2009). While, feeding practices is the way parents use to directly influence their children eating using specific goal-directed behaviour. Modelling eating behaviours, restricting certain types of food, pressuring children to eat and rewarding positive behaviours with food are the common feeding practices. This might include attempts to increase or decrease intake of certain foods (Shloim, Edelson, Martin, & Hetherington, 2015).

There are several studies that have been conducted to investigate the association of these parental factors and childhood obesity around the world. However, there is a limited study on parental factors association with childhood obesity in Negeri Sembilan. Hence, the aim of this study is to determine association between parental sociodemographic factors, perception of their child body weight status and feeding practices with obese primary school children in Negeri Sembilan.

1.2 Problem statement

Obesity is a growing problem in Malaysia. National Health and Morbidity Survey (2015) reported the national prevalence of childhood obesity in Malaysia (BMI for age $>+2SD$) was 11.9%. In Negeri Sembilan, the prevalence was 12.5%. Furthermore, it was higher in urban area rather than rural.

The rising trend of childhood obesity is coincide with increased focus on the role of parents in aetiology and counteractive action (Wardle & Carnell, 2007). Studies

have been conducted to investigate the association between parental sociodemographic factors, perception and feeding practices with their child's body weight status. Huffman, Kanikireddy and Patl (2010) stated that parental socio-economic status may be associated with children's health outcomes including their eating habits and body weight.

Parental perception on their children weight status has risk on their child weight status. Mothers who underestimated the weight status of their child tend to have children with higher risk of being overweight compared to mothers who correctly perceived their child weight status (Vallejo, Cortes-Rodríguez, & Colin-Ramirez, 2015).

Based on a review study by Shloim et al. (2015), specific feeding practices of parents link to their children's BMI. As such restriction has been found to be linked with pressure to eat. Besides that, restrictive/controlling feeding practices were associated with higher child BMI, whereas pressure to eat was associated with lower child BMI.

Lee and Manan (2014) stated that children's food intake could also be affected by their parents' beliefs, attitudes and practices in child feeding because parents' decision on the choices of food served at home or eaten outside, allocation of portion size and will affect eating environment of the family and children's dietary habits. However, this study only limits to the students and parents in rural area. It gave information and idea on the relationship of nutritional status of children living in the rural areas, as well as the relationship between nutritional status and parental child feeding beliefs, attitudes and practices. Thus, another study needs to be conducted among children and parents in urban areas.

Many foreign studies have done to see the maternal feeding practices and their relationship with child's BMI. However, studies in Malaysia in finding the feeding practices of both parents is still limited. Hence, a study need to be done in Malaysia especially in Negeri Sembilan to explore the parental perception and feeding practices and their correlation with child's body weight status (BMI-for-age).

1.3 Significance of study

The study would benefit in several aspects. Firstly, it will add to the body of knowledge of the students in Universiti Putra Malaysia mainly in the Faculty of Medicine and Health Sciences (FHMS). The study will also provide results of the association between parental sociodemographic factors, perception on child's weight and feeding practices on obese children on specific locations in Malaysia and to be proposed, in Negeri Sembilan.

The findings of this study will contribute to the society that parents play an important role in determining their child's body weight status. Besides that, it will add to the existing information on how parental education economic status, perception and feeding practices would affect childhood obesity. The result of this study is useful for future intervention on improving children body weight status from home.

1.4 Conceptual framework

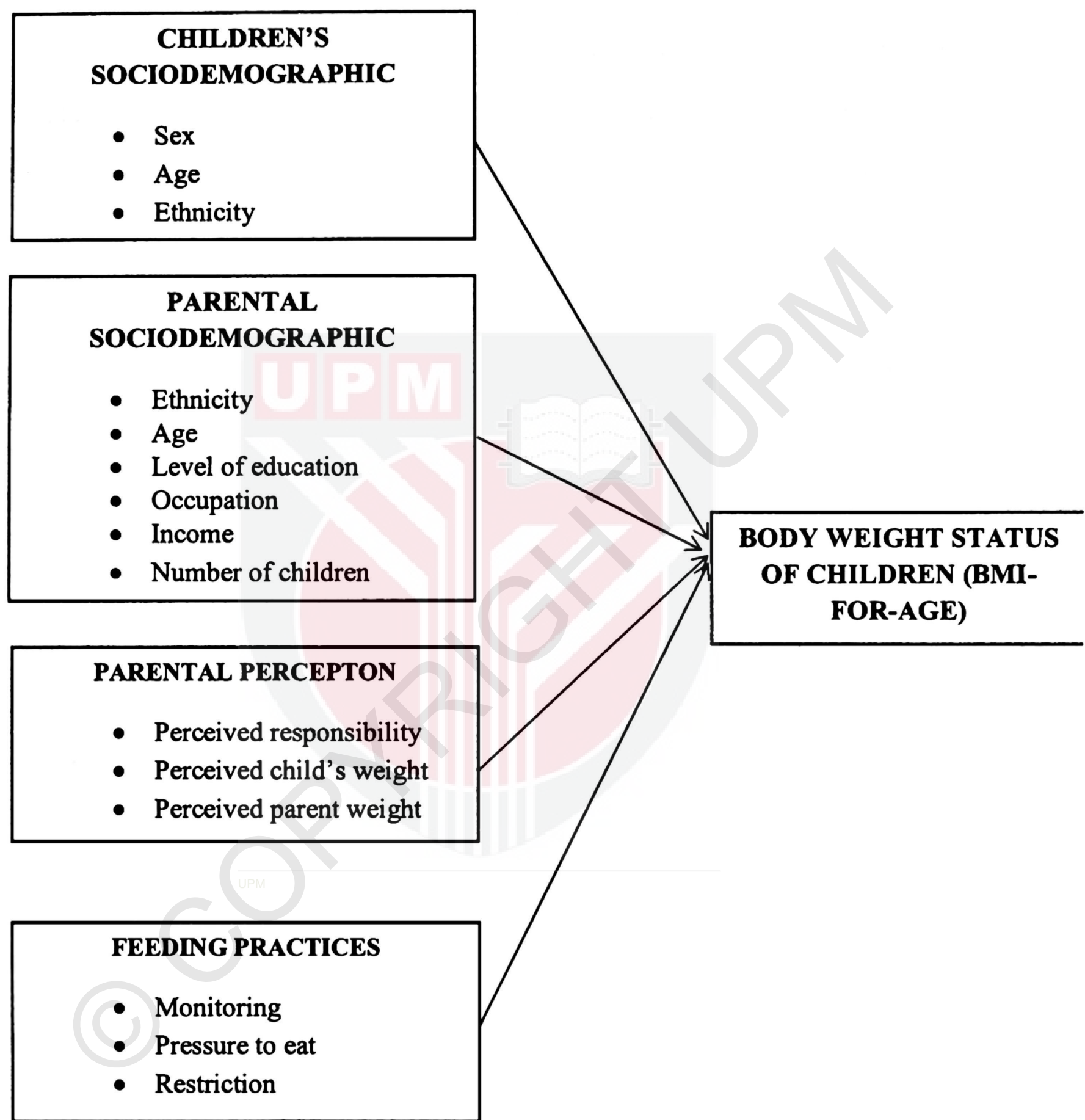


Figure 1.1: Association between children sociodemographic factors, parental sociodemographic factors, perception and feeding practices with body weight status of children

Figure 1.1 shows the conceptual framework of this study. The children sociodemographic factors (sex, age, ethnicity), parental sociodemographic (sex, ethnicity, age, level of education, income and number of children), perception (perceived responsibility, perceived child's weight and parent perceived weight) and feeding practices (monitoring, pressure to eat and restriction) will be studied to determine their association with body weight status of children. The independent variables of this study will be children sociodemographic (age, sex, ethnicity), parental sociodemographic (sex, ethnicity, age, level of education, income and number of children), perception (perceived responsibility, perceived child's weight and perceived parent weight) and feeding practices (monitoring, pressure to eat and restriction) whereas the dependent variable will be body weight status of children.

1.5 Research question

What is the association between children sociodemographic factors, parental sociodemographic factors, perception, feeding practices with body weight status among primary school children in Seremban, Negeri Sembilan?

1.6 Objectives

General objective

The general objective of this study is to determine the children sociodemographic factors, parental sociodemographic factors, perception, feeding practices and their association with body weight status of children.

Specific objectives

The specific objectives of this study are:

- 1) To determine the children and parental sociodemographic factors.

- 2) To determine the parental perception (perceived responsibility, parents' weight, child's weight)
- 3) To determine the parental feeding practices (monitoring, restriction, pressure to eat) on their children.
- 4) To assess the body weight status of the children.
- 5) To determine the association between children sociodemographic factors, parental sociodemographic factors, perception, feeding practices and body weight status among primary school children.

1.7 Hypothesis

Alternative hypothesis

- 1) There is an association between children and parental sociodemographic factors with body weight status among children.
- 2) There is an association between parental perception (perceived responsibility, parents' weight, child's weight) with body weight status among children.
- 3) There is an association between parental feeding practices (monitoring, restriction, pressure to eat) with body weight status among children.

CHAPTER 2

LITERATURE REVIEW

2.1 Prevalence of children's body weight status

The number of overweight and obesity among children is increasing every year. De Onis et al. (2010) reported that a national survey from 144 countries found out that in 2010, 43 million children are overweight and obese. The worldwide prevalence of overweight and obese children increased from 4.2% in 1990 to 6.7% in 2010. The number is expected to increase to 9.1% in 2020. Even though the prevalence of overweight and obese is lower in Asia and Africa compared to other continents, but the number of affected children is higher in Asia.

In Asia, the epidemic obesity is caused by rapid nutrition and physical activity transition. There is high availability of energy-dense and unhealthy food in Asia. Besides that, the low level of physical activity of the children and sedentary lifestyle of the children in Asia increase their risk of being overweight and obese. In 2015, over 42 million children under the age of five is estimated to be overweight. Almost half of all overweight children under 5 lived in Asia and one quarter lived in Africa (WHO, 2015). The prevalence is generally higher in urban than in rural areas. This situation is also the same for Malaysia where the prevalence is higher in urban than rural area.

According to the Department of Statistics Malaysia (2017), there is 7.7 million of population aged 0-14 years old in 2017. In Malaysia, childhood obesity is the

highest among children aged 5-9 years (14.8%) followed by 10-14 years old children (14.4%). Besides that, the highest prevalence of obesity by ethnic is Chinese (13%) and by sex, boys have higher percentage of obesity (13.6%) compared to girls (10.0%) (National Health and Morbidity Survey, 2015). In other SEA countries, the prevalence of overweight children in Indonesia in 2016 was reported 20.4% (Syahrul et al., 2016). A study conducted by Borges (2015) found that in Portugal, there is a higher prevalence of obesity among children aged 6-8 years old (27.7%) followed by aged 9-13 years old (12.8%) and 14-18 years old (10.1%) ($p < 0.001$). This shows the differences of prevalence of childhood obesity in Asia and European country. As compared to other developing countries, Malaysia recorded highest prevalence of childhood obesity compared to Indonesia and Portugal. Besides that, higher prevalence of obesity are in the age group 9-11 years old in this country.

2.2 Parental factors related to children body weight status

Scaglioni, Salvioni and Galimberti (2008) reviewed that parents play a significant role in determining the child nutritional behaviour including food intake and they create environment that can affect body weight status of their child.

Parental sociodemographic

A research done by Norimah et al. (2014) determined the socio-demographic factors related to food habits among preschool children in Peninsular Malaysia found that there is a significant association between parents' education level and income with their child food intake. Siriphakhamongkhon, Sawangdee, Pattaravanich, & Mongkolchati (2016) stated that there was a significant association between parental socioeconomic status with overweight and obese children. Besides that, they reported that the risk of being overweight among children is lower in children from two-parents families have compared to children with single-parent families. Some demographic

factors that associated with overweight/obese were being a girl, had more siblings, having a higher- educated father, or having a father who worked as a business owner, in government or agriculture (Siriphakhamongkhon et al., 2016)

Previous studies have been done to determine the association of parent's education and child's weight. However, mixed results were found. Parikka et al. (2015) conducted a study among Finland community and found parental education have high association with overweight in children. A study in Columbia and Kenya by Muthuri et al. (2016) also found a positive association between maternal education and child overweight (OR=1.9,4.8) and a negative association between paternal education and child's overweight in Brazil (OR=0.55) and USA (OR=0.54) On the other hand, a study done by Baughcum, Chamberlin, Deeks, Powers and Whitaker (2000) in the USA found that low maternal education have a significant association with incorrect classification of overweight in child (OR=6.2) and Genovesi et al. (2005) found higher maternal education to be significantly associated with lower child's weight ($p=0.01$) and more accurate perceptions of child's weight ($p=0.008$).

Doustmohammadian, Abdollahi, Bondarianzadeh, Houshiarrad and Abtahi (2012) conducted a cross-sectional study in Iran and found that parent's weight status, education and father's job showed significant association with weight status in adolescents. Parents with tertiary education are more likely to have overweight and obese children (OR:1.6, $p=0.01$). The argument was higher education parents are more likely to have better nutritional status as they may be having higher income thus a higher availability and intake of food at the household level. However, the result is contradict with a study by Jalali-farahani, Chin, Mohd Nasir, & Amiri (2017) as they found parents level of education and income have no significant association with BMI-for-age.

Parental perception of their child's weight

Parental perception of the body weight is defined as parental recognition of body size, physical appearance, functional abilities, psychosocial effects and health effects related to body weight (Mareno, 2014). A study conducted by Noor, Khairani, Shamsul, Leelavathi and Fatimah (2008) compared parents' perception on their child weight status with the actual weight status of their child. Also, they study the association between their nutrition and obesity knowledge. The information asked was the socio-demographic, rate of their perception on the child's weight status and additional questions on nutrition and obesity. This study found that majority of parents (62.3%) perceived their child to be having normal weight and 22.1% of them felt that their child was under-weight. A total of 14.7% of the parents perceived their child as overweight and only 1% as obese. A total of 38.2% of the parents had incorrect perception where they underestimate their child weight status. The parents however had good mean score of the knowledge on nutrition and obesity which was 78.5 ± 14.4 . The result is comparable with previous studies as most of them found the parents of over-weight children often underestimate their child weight and have lowest accuracy in estimating them. Towns and D'Auria (2009) reported that parental perceptions of their child's overweight found that parents' education have no association on their child's BMI classification. However, parents with good knowledge on nutrition and obesity are more probable to have a lower prevalence of overweight children.

Another study conducted among mother and children aged 6-18 years old by Borges (2015) reported that 33.2% of parents misclassified their child's weight and the misclassification was higher in the younger children's group (54.8%). Most of them classify their children in lower weight (32.1%). Besides that, overweight and low education among the mothers can be the contributing factor to misperception of BMI.

However, there are recognized problems of over-reported heights and under-reported weight which underestimate the extent of obesity within the sample. The result of underestimation of child's weight was reported also by Gerards et al. (2014) in a study of parental perception of child's weight status and subsequent BMI-z change. Similar results were reported by Towns and D'Auria (2009) where 33% of parents misclassified overweight child as 'about the right weight'.

A study among the Chinese American on the relationship between parental perceptions and feeding practices, feeding styles and level of acculturation and weight status of the school children found that parental perception of child weight is significantly correlated with child's actual weight (BMI percentile) ($r = 0.242$) (Pai, 2013). However, there is no clear evidence on what other factors that might have influence of parental feeding style and feeding practices on child weight.

Parental feeding practices

Feeding practices the way parents use directly influence their children's eating including attempts to increase or decrease certain food intake (Shloim et al., 2015). Children eating pattern and feeding practices by parents has a significant association child's BMI (Jansen et al., 2012). A study conducted by Lee and Wan (2014) showed that children's food intake could be affected by their parents' beliefs, attitudes and practices in child feeding because parents' decision on the choices of food served at home or eaten outside, allocation of portion size will affect eating environment of the family and children's dietary habits. A review done by Shloim et al. (2015) reported that the parenting styles, feeding styles, feeding practices associated with the weight status in 4–12 Year-Old children. They stated that authoritative parenting which is child centred and involvement produced normal BMI in their children whereas uninvolved and over protective parents are associated with higher child BMI. They

also stated that BMI was linked to specific feeding practices such as restriction and pressure to eat.

Tschann et al. (2015) conducted a study to examine parental feeding practice and its association with children's weight status in Mexican American families. The study found that pressure to eat among both parents predicted lower weight status of children. Besides that, they found restriction of both fathers and mothers predicted higher weight status of children at Year 1 but at Year 2, the effect was only seen among fathers. A significant association was found between restriction and pressure to eat with child's BMI ($r=0.50$; -0.34 , $p<0.001$).

The higher parental control and responsibility in feeding practices may contribute to lower BMI in children (Carnell & Wardle, 2007; Karp et al., 2014). This was cross-sectional study and randomized control trial (RCT) respectively. Both studies used child feeding questionnaire (CFQ) as one of their instruments. All the components of CFQ that represents parental feeding practices were individually correlates to child's BMI. Parental pressure to eat towards their child were significantly correlated with child's BMI ($r= -0.15$, $p<0.01$,) (Carnell & Wardle, 2007). Karp et al. (2014) reported that parental concern about the child's weight gives the strongest association with child's BMI.

2.3 Consequences of childhood obesity

Childhood obesity is shown to lead to adult obesity its related comorbidities (Rajalakshmi, E. Elks, & Ong, 2012) The severity of comorbidities will develop continuously to adulthood. Overweight during adolescence was associated with increased hypertension, total serum cholesterol levels, LDL cholesterol levels and low HDL cholesterol levels as adults aged 27–31 years (Rajalakshmi et al., 2012)

Childhood obesity does not only lead to health problems during adulthood but also during childhood. The prevalence of type 2 diabetes among children and adolescent in the world are increasing and it is associated to the parallel increase prevalence of childhood obesity (Lee, 2009). Besides that, childhood obesity increase the risk factor of developing high blood pressure, dyslipidaemia, early puberty, menstrual irregularities, metabolic syndrome and psychological problems (Lee, 2009; Rajalakshmi et al., 2012; Reilly, 2003).

Lee (2009) stated that obese children may experience psychological implications more than medical implications. They tend to be discriminated and often being looked negatively. Obese children also frequently associated with having low quality of life such as having low self-esteem and depression as the result of impaired social and psychological functioning (Lee, 2009; Rajalakshmi et al., 2012).

2.4 Intervention of childhood obesity

Preventive intervention has limited impact on childhood obesity compared to management intervention. This is because of the large number of co-morbidities related to obesity (Wafa et al., 2011). Successful treatment of childhood obesity might be useful as secondary prevention, by reducing the impact of childhood obesity on obesity and its co-morbidities later in life.

Berge and Everts (2011) reported that intervention of childhood obesity involving family are successful and has been proven in many studies. An intervention that involved physical exercise & nutrition course for children with family behaviour therapy by Reinehr, Brylak, Alexy, Kersting and Andler (2003) involving single group, measuring pre and post within one year had produce successful weight loss in 63% of the children. Besides that, a randomized controlled trial by Janicke et al. (2008)

found that intervention programs that involved parents-only and families lead to significantly greater weight loss in obese children aged 8 to 14 years old ($d=-0.730$, -0.423).

Cao, Wang and Chen (2015) conducted a randomized control trial to evaluate the effectiveness of a family-individual-school-based comprehensive intervention model. The study involved 14 primary school children in Shanghai, China which 1,287 of students are placed in the intervention group and 1,159 in the control group. The result found there is a declined in the prevalence overweight/obesity declined from 28.92% in 2011 to 24.77% in 2014, in the intervention group compared with the control group with a declined from 30.71% to 30.68%). Hence, it can be concluded that family-based intervention is effective for controlling childhood obesity and overweight.

CHAPTER 3

METHODOLOGY

3.1 Study design

This is a cross-sectional study design which to study the association between independent variable and dependent variable.

3.2 Study location

This study was conducted at a primary school in Seremban, Negeri Sembilan. Negeri Sembilan is a state located on the western coast in Malaysia. Seremban is the capital of Negeri Sembilan. The population of Seremban is about 372,917. It was selected as the study location due to lack of study regarding this topic have been done in Seremban. There is a total of 72 government primary schools in Seremban. Four primary schools were selected using simple random sampling.

3.3 Study duration

This study was conducted from January 2018 to February 2018.

3.4 Sampling

3.4.1 Study population

The study population were the primary school children standard 3,4 and 5 and their parents.

3.4.2 Selection criteria

Subjects were selected based on inclusion and exclusion criteria showed in Table 3.1.

Table 3.1: Inclusion and exclusion criteria of the subjects

Inclusion	Exclusion
Children	
- Malaysian citizen - Able to read and write in Malay - Age 9 to 11 years old	Children with physical and mental disabilities
Parents	
- Malaysian citizen - Able to write and read in Malay - Mother, Father or Guardian	- Parents with disabilities - Single parents

3.4.3 Sampling frame

The sampling frame were the list of primary schools in Seremban, Negeri Sembilan and the list of students in the selected primary schools.

3.4.4 Sampling method

The sampling method of this study is multistage random sampling. All the primary schools in Seremban undergo simple random sampling and four primary schools were selected as shown in Figure 3.1. Then, a total of 225 students standards 3,4 and 5 were randomly selected to participate in this study along with their parents. Students were selected randomly by the school principals according to their class.

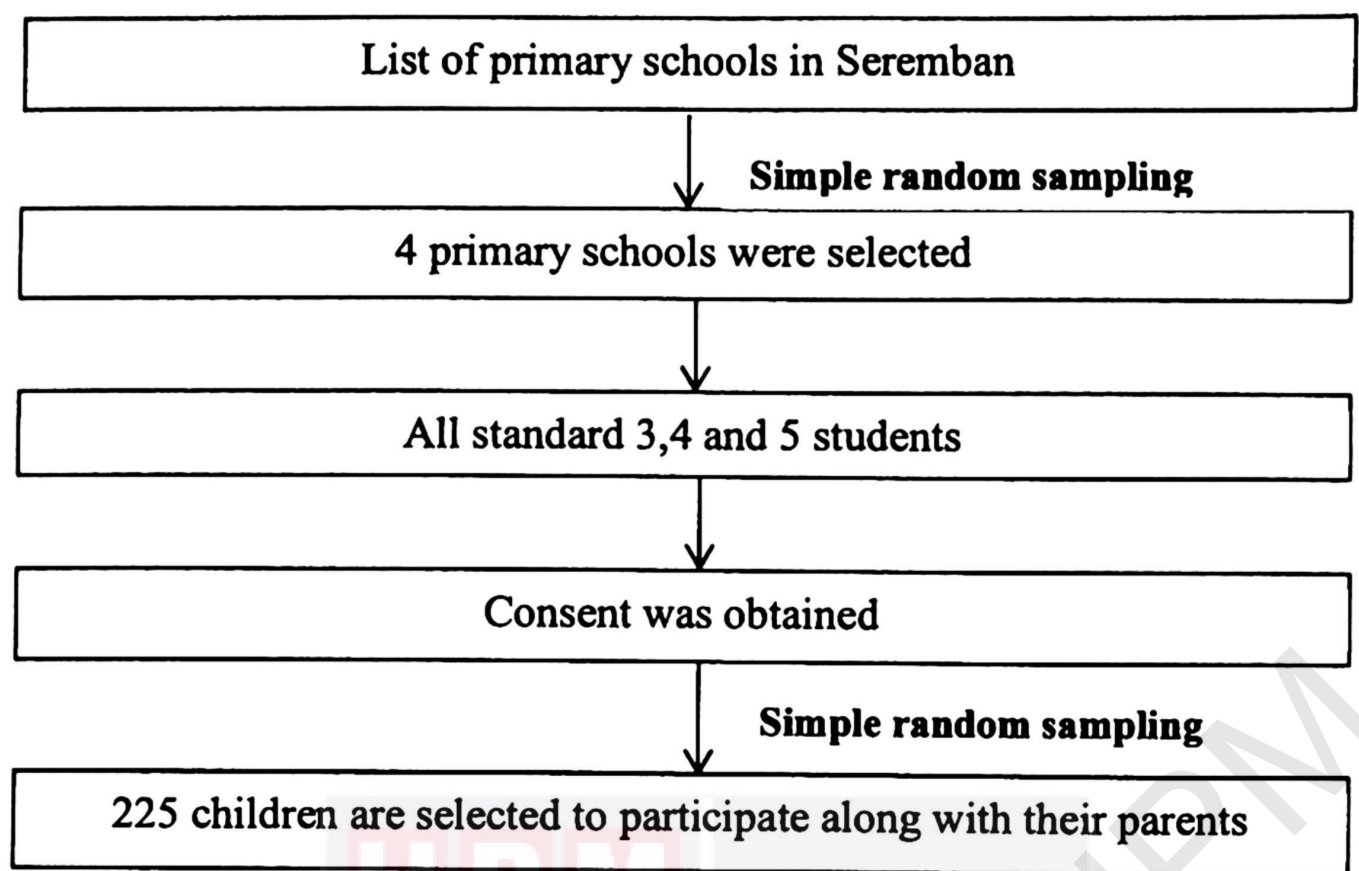


Figure 3.1: Flow chart of sampling design and selection of study subjects

3.4.5 Sample size estimation

The sample size needed for this study were determined using the following formula by Hulley, Cummings. Browner, Grady and Newman (2013).

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

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

$$Z\alpha = 1.96$$

$$Z\beta = 0.84$$

Table 3.2: Sample size calculation based on previous study

CORRELATION STUDIES	CORRELATION	SAMPLE SIZE, n
Relationship of Chinese American Parental Perceptions and Feeding Practices, Feeding Styles and Level of Acculturation to Their School-Age Child’s Weight Status. (Pai, 2013)	This result showed that Parental perception of child weight (PCW) is significantly and positively correlated with child’s actual weight BMI percentile. (r= 0.24, p< .001).	$C = 0.5 * \ln [(1 + r)/(1 - r)]$ $= 0.5 * \ln [(1 + 0.24)/(1 - 0.24)]$ $= 0.24$ $N = [(Z\alpha + Z\beta) / C]^2 + 3$ $= [(1.96+ 0.84)/0.24]^2+3$ $=139$

Table 3.2: Sample size calculation based on previous study (Cont.)

CORRELATION STUDIES	CORRELATION	SAMPLE SIZE, n
		<u>Additional adjustment for sample size</u> 1) Adjust for estimated sample effect n*DEFF, DEFF=1.3 Therefore, $N=139 * 1.3$ $=180.7$ $= \sim 181$ 2) Adjust for expected response rate n/response rate, response rate=0.8 $N= 181/0.8$ $= 225$ Total sample size = 225

A total of 225 students and their parents were selected in the study.

3.5 Study Instrument

A set of self-administered questionnaires was used for data collection. The questionnaire was given in dual languages which are English and Malay. It consists of 5 sections, which are Section A and B are on children’s and parents’ socio-demographic background respectively, Section C on parental perception, Section D on parental feeding practices and Section E on the children’s anthropometric information. The children were required to answer the items in Section A while their parents were required to answer all the items in Section B, C, and D in the questionnaire. Meanwhile, Section E were filled by the researcher.

Section A and B: Socio-demographic background

Section A consist of the sociodemographic background of the children including age, sex, ethnicity and date of birth. Section B is on the personal information of the parents such as age, sex, ethnicity, level of education, occupation, total household monthly income and number of children.

Section C: Parental perception

This item was measured using Child Feeding Questionnaire (CFQ) (Birch et al.2001). The CFQ consists of 31 items, only 26 will be used in this study (Perception-11 items and Feeding Practices-15 items). There are four factors that assess parents' perception. However, only three of them were adopted in this study. The first one is Perceived Responsibility (PR), consisting of 3 items assessing parents' perceptions of their responsibility for child feeding. The second factor is Perceived Child Weight (PCW), consisting of 5 item assessing parents' perceptions of their child's weight status history from the first year of birth until recently. The third factor is Parent Perceived Weight (PPW) consisting 3 items of their weight history including their childhood days. All the responses will be in form of Likert Scale 1-5 where for 1 indicates "Never" and 5 indicates "Always" for Perceived Responsibility (PR). For Parent Perceived Weight (PPW) and Perceived Child Weight, the Likert Scale 1 indicates "Markedly underweight" and 5 indicates "Obese".

Section D: Feeding practices

There are three factors used to assess parents' feeding practices. The first factor is Restriction (RST) that consists of 8 items that measure the extent to which parents limit their child's access to foods. The second factor is Pressure to Eat (PE), consisting of 4 items that assess parents' tendency to pressure their children to eat more food and the last factor is Monitoring (MN) which consists of 3 items assessing the extent to

which parents supervise their child’s eating. The total three factors are 15 items. All the response is in form of Likert Scale 1-5 where 1 indicates “Disagree” and 5 indicates “Agree”. Also, it includes Likert Scale from “Never” to “Always”.

Section E: Anthropometric measurement

The children anthropometric information was taken and filled by the researcher. Children’s weight was measured using TANITA digital weigh scale to nearest to the 0.1kg whereas their height was using SECA body meter to the nearest 0.1 meter. The measurement of weight and height were done twice, and the average number will be taken. BMI-for-age was calculated using WHO Anthroplus Version 1.0.4 Software. The body weight status was determined by referring the WHO Growth Reference (2007).

Table 3.3: WHO growth reference

Categories	BMI z-score
Severe thinness	<-3SD
Thinness	≥-3SD – <-2SD
Normal	≥-2SD – ≤ +1SD
Overweight	>+1SD
Obese	>+2SD

3.6 Pre-testing

Pre-testing was conducted on 10 randomly selected respondents from Seremban which are parents of school children. The participants have similar characteristics with the study sample, but they are excluded from the actual data collection. The purpose of conducting pre-testing is to test the instrument that will be used in this study. Besides, it is to ensure the instruction and questions in the instrument can be understood by respondents and to estimate the time needed for respondents to finish

answering the questionnaire. The feasibility of the questionnaire was re-assessed after the pretesting.

3.7 Data collection

The data collection was conducted from 15th January 2018 to 9th February 2018. Prior to the data collection, approval was obtained from The Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia (JKEUPM). The approval of the study protocol was then obtained from the Ministry of Education, Malaysia and Department of Education, Negeri Sembilan. During the data collection, anthropometric measurement was done on the school children to measure their weight and height. An envelope containing information sheet was given to the subjects (parents) via their children for them to read through and understand the purpose of this study. Then, the self-administered questionnaire was answered by the subjects. The questionnaire was collected a week after the distribution.

3.8 Data analysis

All the items in the Child Feeding Questionnaire were analysed using mean score. Data analysis will be conducted using SPSS IBM 22. For descriptive statistics, categorical result is presented as frequency and percentage whereas the continuous result is presented as mean and standard deviation. One-way Anova were used to analyse the difference of mean score between groups. Pearson Correlation and Chi-Square were used to analyse the correlation between the independent and dependent variable. Significance level was set at $p < 0.05$.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Sociodemographic characteristics of children in the study

Among all children participated in the study, 53.3% were male and 46.7% were female. The mean age was 9.88 ± 0.84 years. Forty two percent of them were 9 years old whereas 10 years old and 11 years old were 28.0% and 30.2% respectively. Majority of the participants are Malay which were 88.9%. Indians were 6.7% and 4.4% were Chinese and other races.

Table 4.1: Distribution of children by sociodemographic characteristics

Variables	n (%)	Mean $\pm$ SD
Sex		
Male	120 (53.3)	
Female	105 (46.7)	
Age		
9 years old	94 (41.8)	9.88 ± 0.84
10 years old	63 (28)	
11 years old	68 (30.2)	
Ethnicity		
Malay	200 (88.9)	
Chinese	5 (2.2)	
Indian	15 (6.7)	
Others	5 (2.2)	

Body weight status of children

The body weight status of the children showed that majority of the subjects were normal weight (60.9%). A total of 12.4% were obese and 11.1% were overweight.

Table 4.2: Distribution of table by body weight status.

Variables	n (%)	Mean $\pm$ SD
Severe thinness	6 (2.7)	
Thinness	14 (6.2)	
Normal	137 (60.9)	
Overweight	25 (11.1)	
Obese	28 (12.4)	
Severely obese	15 (6.7)	
Body mass index (BMI)		18.06 $\pm$ 4.87

4.2 Sociodemographic characteristic of parents

The sociodemographic of parents consists of the age, ethnicity, education level, monthly income, occupation and number of children of father and mother. The mean age of fathers was 42.79 ± 6.50 while mothers was 40.13 ± 6.01 . Majority of the respondents were Malay $\approx 90\%$ of both parents. Majority of the parents were graduated from institute of higher learning and secondary school. The monthly income was categorized into 3 which are less than RM4000, RM 4000-RM6999 and more than or equal to RM 7000. For father, majority of them have income less than RM4000 (55.3%) and while most mothers did not generate income themselves (51.6%).

The occupational level is classified based on the categories on Malaysia Standard Classification of Occupation (2008) and grouped into professionals, associate professionals and non-professionals. Professionals consists of managers and professionals while associate professionals consist of technicians and associate professionals, clerical support workers and service and sales workers. Most of the fathers have professional occupation (40.7%) followed by non-professional (35.4%). However, for mothers, majority of the them are not working because they are housewives (51.8%) followed by professionals (30.5%). The mean number of children of both parents were 3.59 ± 1.352 . The sociodemographic characteristics are presented in Table 4.3.

Table 4.3: The sociodemographic characteristic of the parents

Variables	n (%)	Mean ± SD
Parent's age		
Father		42.79 ± 6.50
Mother		40.13 ± 6.01
Fathers' ethnicity		
Malay	202(89.7)	
Chinese	4(1.8)	
Indian	15(6.7)	
Others	4(1.8)	
Mothers' ethnicity		
Malay	203(90.2)	
Chinese	3(1.3)	
Indian	15(6.7)	
Others	4(1.8)	
Father's education level (N=221)		
No schooling	4(1.8)	
Primary school	6(2.7)	
Secondary school	92(41.6)	
Institute of higher learning	119(53.8)	
Mother's education level (N=223)		
No schooling	4(1.8)	
Primary school	3(1.3)	
Secondary school	104(46.6)	
Institute of higher learning	112(50.2)	
Father's monthly income (N=215)		
<RM4000	119(55.3)	
RM4000-RM6999	55(25.6)	
≥RM7000	41(19.1)	
Mother's monthly income (N=219)		
No income	113(51.6)	
<RM4000	45(20.5)	
RM4000-RM6999	40(18.3)	
≥RM7000	21(9.6)	
Fathers' occupation (N=209)		
Professionals	85(40.7)	
Associate professionals	50(23.9)	
Non-professionals	74(35.4)	

Table 4.3: The sociodemographic characteristic of the parents (Cont.)

Variables	n (%)	Mean ± SD
Mothers' occupation (N=220)		
Professionals	67(30.5)	
Associate professionals	30(13.6)	
Non-professionals	9(4.1)	
Not working	114(51.8)	
Total number of children (Both parents) (N=220)		3.59 ± 1.35

Perceived body weight status of parents

The perceived body weight status of parents is shown in Table 4.4. Majority of father perceived themselves as normal weight (41.3%) followed by overweight (39.3%) while among mothers, most of them perceived themselves as overweight (36.5%), followed by normal weight (36.0%). The mean for perceived body mass index (BMI) are 26.68±10.29 and 27.18±7.46 for fathers and mothers respectively.

Table 4.4: Perceived body weight status of respondents

Variables	n (%)	Mean ± SD
Body weight status of father (N=201)		
Underweight	6(3.0)	
Normal	83(41.3)	
Overweight	79(39.3)	
Obese	33(16.4)	
Body mass index (BMI) kg/m ²		26.68±10.29
Body weight status of mother (N=197)		
Underweight	8(4.1)	
Normal	71(36.0)	
Overweight	72(36.5)	
Obese	46(23.4)	
Body mass index (BMI) kg/m ²		27.18±7.46

4.3 Scoring of parental perception and feeding practices (Father)

The factors of parental perception and feeding practices were derived from the Child Feeding Questionnaire (CFQ) by Birch et al. (2001). The factor score is obtained

by calculating the mean score for each factor. The scoring showed that the among fathers, the highest score is the perceived responsibility 3.99 ± 0.92 followed by pressure to eat 3.77 ± 0.81 . Perceived parent weight and perceived child weight have mean score of 3.11 ± 0.78 and 3.00 ± 0.32 respectively. In feeding practices, restriction have the second highest mean score which is 3.71 ± 0.60 followed by monitoring 3.61 ± 0.86 .

Table 4.5: The scoring of parental perception and feeding practices (Father)

Factors	Mean ± SD
Perception	
Perceived responsibility	3.99±0.92
Perceived parent weight	3.11 ±0.78
Perceived child’s weight	3.00±0.32
Feeding practices	
Restriction	3.71±0.60
Pressure to eat	3.77±0.81
Monitoring	3.61±0.86

4.4 Scoring of parental perception and feeding practices (Mother)

The scoring of perception and feeding practices of mothers is higher compared to fathers. The highest was perceived responsibility with mean score of 4.49 ± 0.64 followed by pressure to eat 3.87 ± 0.79 and monitoring 3.86 ± 0.81 . Perceived parent weight and perceived child weight have mean score of 3.57 ± 6.57 and 3.00 ± 0.29 respectively.

Table 4.6: The Scoring of parental perception and feeding practices (Mother)

Factors	Mean ± SD
Perception	
Perceived responsibility	4.49 ±0.64
Perceived parent weight	3.57±6.57
Perceived child's weight	3.00±0.29
Feeding practices	
Restriction	3.84±0.56
Pressure to eat	3.87±0.79
Monitoring	3.86±0.81

4.5 Association between children sociodemographic factors and parental sociodemographic factors with child's body weight status

Table 4.7 shows the association between children sociodemographic factors and their body weight status. Sex and age of the shows no significant association with body weight status. However, a study by Hassan, El-masry, Farid and Khalil (2016) found that age of the child is significantly correlated with their BMI ($r=0.535$, $p<0.001$). The inconsistent finding may be due to the difference in age distribution of participants where the previous study involved children with age range between 5-18 years old. The wide range of age may be the reason of higher BMI of the children as childhood obesity rate increases with age. According to Kranjac and Wagmiller, (2018), obesity rates increase as children grow older, and age is the single largest predictor of obesity in children.

Table 4.8 shows the association between parental sociodemographic with child's body weight status among fathers. Age, level of education, occupation, income

and number of children have no significant association with child's body weight status. The result is consistent with a study conducted by Spruijt-Metz, Lindquist, Birch, Fisher and Goran (2002) and Hassan et al. (2016). However, Doustmohammadian, Abdollahi, Bondarianzadeh, Houshiarrad and Abtahi (2012) found that father's occupation and education have significant association with weight status of their children. The difference in result may be due to higher distribution of fathers who work as farmers in the study. Hence, their children were more involved in doing physical activity.

Table 4.9 shows the association between parental sociodemographic with child's body weight status among mothers. All the factors showed no significant association with the child's body weight status. The results is consistent with a study by (Hassan et al., 2016) where they found maternal education and occupation has no significant association with child's BMI. Besides that, the result of the occupation is also consistent with a study by Jalali-farahani et al., (2017). Muthuri et al., (2016) discussed the difference findings of maternal education and their relationship with child overweight in some countries. Low economic countries like Columbia and Kenya more overweight if their mothers had attained a higher education level (positive association). However, in high income countries such as USA and Germany, there is a negative association between education and overweight children. This suggests that low education parents perceived their child to be having healthy weight although they are overweight. Hence, they practice unhealthy diet compared to higher education parents. The differences may explain the education level of the parents in Malaysia.

Table 4.7: Association between children sociodemographic factors and their body weight status

Characteristics	Severe thinness / thinness	Normal	Overweight /Obese/ Severely obese	χ^2	p	r	p
Sex							
Male	11(55.0)	68(49.6)	41(60.3)	2.099	0.350		
Female	9(45.0)	69(50.4)	27(39.7)				
Age						0.86	0.199

Table 4.8: The association between parental sociodemographic with child's body weight status (Father)

Characteristics	Severe thinness / thinness	Normal	Overweight /Obese/ Severely obese	χ^2	p	r	p
Age						-0.008	0.908
Level of education							
No schooling/Primary school	1(5.0)	6(4.4)	3(4.6)	2.753	0.600		
Secondary school	9(45)	51(37.5)	32(49.2)				
Institute of higher learning	10(50)	79(58.1)	30(46.2)				

Table 4.8: The association between parental sociodemographic with child's body weight status (Father) (Cont.)

Characteristics	Severe thinness / thinness	Normal	Overweight /Obese/ Severely obese	χ^2	<i>p</i>	<i>r</i>	<i>p</i>
Occupation							
Professionals	9(47.4)	51(41.1)	25(37.9)	0.626	0.960		
Associate professionals	4(21.1)	30(24.2)	16(24.2)				
Non-professionals	6(31.6)	43(34.7)	25(37.9)				
Income							
<RM4000	18(52.6)	73(56.6)	36(53.7)	3.130	0.536		
RM4000-RM6999	3(15.8)	35(27.1)	17(25.4)				
RM7000- ≥RM10 0000	6(31.6)	21(16.3)	14(20.9)				
Total number of children							
<3 children	5(25)	21(15.6)	19(27.9)	2.579	0.275		
≥3 children	15(75)	114(84.4)	49(72.1)				

Table 4.9: The association between parental sociodemographic with child’s body weight status (Mother)

Characteristics	Severe thinness / thinness	Normal	Overweight /Obese/ Severely obese	χ^2	p	r	p
Age						0.001	0.983
Level of education							
No schooling/Primary school/ Secondary school	9(45.0)	67(49.3)	35(52.2)	0.359	0.836		
Institute of higher learning	11(55.0)	69(50.7)	32(28.6)				
Occupation							
Professionals	5(25)	37(40.8)	25(37.9)	4.048	0.400		
Associate professionals/ Non-professionals	2(10)	25(18.7)	12(18.2)				
Not working	13(65)	72(53.7)	29(43.9)				
Income							
No income	13(65.0)	72(54.1)	28(42.4)	6.158	0.188		
≤RM6999	4(20.0)	49(36.8)	32(48.5)				
≥RM7000	3(15.0)	12(9.0)	6(9.1)				
Total number of children							
<3 children	5(25)	21(15.6)	13(24.5)	2.579	0.275		
≥3 children	15(75)	114(84.4)	40(75.5)				

The mean parental score of parental perception and feeding practices are shown in Table 4.11 according to child's body weight status. The father's perception and perceived feeding practices will be discussed first. Perceived responsibility has the highest mean score among children who have severe thinness and thinness. The perceived parent weight is highest among overweight, obese and severely obese children and perceived child weight is highest among the overweight and obese group. Only perceived child weight shows a significance difference in mean score. For feeding practices, the highest mean score of restriction is among severe thinness and thinness while pressure to eat have highest score among normal children and lowest among obese. Monitoring is highest among normal weight of children. There is significant difference ($p < 0.05$) of the mean score for pressure to eat.

Among mothers, the overweight/obese/severely obese children have the highest mean score for perception. There is a significant difference for the mean score of perceived child weight ($p < 0.05$). For feeding practices, restriction and pressure to eat have their highest mean score is among normal weight children. Monitoring on the other hand have its highest mean score among thinness children. However, only pressure to eat have a significant difference of the mean score ($p < 0.05$). The result of both father and mother are consistent with a study by Carnell and Wardle (2007) where pressure to eat gives the highest mean score with significant value ($p = 0.003$). This suggest that parents mostly use pressure to eat to their child who have lower BMI.

Table 4.10: Mean parental perception and feeding practices score by child body weight status

Factors	Severe thinness /thinness	Normal	Overweight /Obese/ Severely obese	<i>p</i>
Father's perception				
Perceived responsibility	4.18	4.02	3.89	0.420
Perceived parent weight	2.92	3.12	3.17	0.446
Perceived child weight	2.80	2.95	3.19	0.000
Father's feeding practices				
Restriction	3.73	3.71	3.56	0.938
Pressure to eat	3.71	3.88	3.56	0.025
Monitoring	3.48	3.64	3.61	0.739
Mother's perception				
Perceived responsibility	4.47	4.48	4.52	0.897
Perceived parent weight	2.81	3.07	4.80	0.194
Perceived child weight	2.73	2.95	3.21	0.000
Mother's feeding practices				
Restriction	3.76	3.86	3.85	0.748
Pressure to eat	3.70	4.01	3.62	0.002
Monitoring	3.88	3.86	3.87	0.987

Table 4.11 shows the association between of both parent’s BMI and child’s BMI. There is a significant correlation between mothers’ BMI and child’s BMI ($p<0.05$). However, there is no significant association between fathers’ BMI and child’s BMI. The result is consistent with a study by Jalali-farahani et al. (2017) where BMI of mother is significantly associated with child’s BMI ($r=0.29$, $p<0.05$). Besides that, this result shows similarity to a study by Pai (2013) where parent’s actual weight was significantly correlated with child’s BMI ($p< .001$, $r=.168$).

Environment plays an important role in contributing child’s body weight status. Most mothers are housewives. Hence, it suggests that they play an important role as a caregiver and the main person who feeds and control their child’s diet. This is supported by Syahrul et al. (2016) which stated that overweight and obese children were influenced by genes and their environment. Other studies also mentioned that parents weight have significant influence in their child’s weight especially the overweight parents. Children with overweight parents are more overweight compared to their counterparts with normal parents (Bahreynian et al., 2017; Tschann et al., 2015). This is because overweight parents are considered a risk factor for overweight and obesity of their children. Furthermore, children usually imitate their parent in term of eating habits and they share the same and family lifestyle that could have an influence on their eating behaviour.

Table 4.11: The association between parent’s BMI and child’s BMI.

Parent’s BMI	<i>r</i>	<i>p</i>
Father	0.032	0.649
Mother	0.289	0.000*

* Statistical test is significant at $p<0.05$

4.6 Association between parental perception and feeding practices with child’s BMI

The association of perception and feeding practices of father and child’s BMI were tested using bivariate correlation and it is shown in Table 4.12. There is a significant association between perceived parent weight and perceived child weight ($p<0.05$) and child’s BMI. A study by (Pai, 2013) also found a significant association between parental perception of child’s weight and child’s actual BMI ($r=0.242,p<0.001$). The regression analysis of the study also finds that parental perception of their child’s weight is the strongest predictor of child’s actual weight. This is because how parent perceived their child’s weight can reflects the eating behaviour of

the whole family. According to Borges (2015), parental perception of a child being overweight is becoming an important factor that leads the family readiness to change and modify the environment and lifestyles of the family and their child. However, perceived responsibility of father has negative and insignificant association with child's BMI.

All the factors in feeding practices (restriction, pressure to eat, monitoring) are not significantly associated with child's BMI. However, a study by Tschann et al. (2015) found that feeding practices among fathers are significantly associated with child's BMI. The difference may be due to the role of father of in the Mexican American families in feeding their child differ from Malaysian population. A higher positive involvement was practiced by the Mexican-American population and it has been linked to a lower BMI in children (Tschann et al., 2015).

Table 4.12: The association between parental perception, feeding practices (father) and child's BMI.

Characteristics	<i>r</i>	<i>p</i>
Perception		
Perceived responsibility	-0.075	0.265
Perceived parent weight	0.151	0.030*
Perceived child weight	0.486	0.000*
Feeding practices		
Restriction	-0.08	0.903
Pressure to eat	-0.122	0.068
Monitoring	-0.025	0.705

* Statistical test is significant at $p<0.05$

Table 4.13 shows the association of mother's perception and feeding practices with child's BMI. Perceived child weight is significantly associated with child's BMI ($r=0.562$, $p<0.05$) while perceived parent weight has positive association but not significant. Perceived responsibility however shows negative association with child's BMI. The result of association of perceived parent weight is consistent with the study

by Pai (2013) where parental perception of their own weight is not significantly correlated with child’s actual weight. This may be because parent’s perception of their own weight is only correlated with their perception of their child weight but not their actual as they may wrongly perceived.

For feeding practices of mother, pressure to eat have negative and significant correlation ($p<0.05$) while restriction and monitoring shows no significant association with child’s BMI. The result is consistent with a study by Kaphingst, Persky and Lachance (2012) which showed that pressure to eat have a negative and significant association with child’s BMI ($r=-0.37, p<0.01$). Also, a study by Carnell and Wardle (2007) shows similar pattern ($r=-0.15, p<0.05$). The negative and significant association indicates that parents who pressure their children to eat tend to have children with low BMI. Tschann et al. (2015) mentioned that parents’ use of pressure to eat predicted lower weight status. This may cause by lower food intake as parents pressure their children to eat. Besides that, higher pressure was associated with an overall healthier food- selection pattern suggests that the reasons parents are pressuring children at home (Kaphingst et al., 2012)

Table 4.13: The association between parental perception, feeding practices (mother) and child’s BMI.

Characteristics	<i>r</i>	<i>p</i>
Perception		
Perceived responsibility	-0.33	0.624
Perceived parent weight	0.117	0.089
Perceived child weight	0.562	0.000*
Feeding practices		
Restriction	-0.052	0.441
Pressure to eat	-0.190	0.004*
Monitoring	-0.003	0.968

* Statistical test is significant at $p<0.05$

CHAPTER 5

CONCLUSIONS, LIMITATION AND FUTURE RECOMMENDATION

The overall results showed that among fathers, perceived parent weight and perceived child weight have a significant association with child's BMI ($r=0.151$; 0.486 $p<0.05$). Among mothers, there is a significant association between perceived child weight and child's BMI ($r= 0.562$, $p<0.05$). There is also a significant association between mothers' BMI and child's BMI ($r=0.289$, $p<0.05$). For feeding practices, a negative and significant correlation was found between mothers' pressure to eat and child's BMI ($r= -0.190$, $p<0.05$).

As a conclusion, mothers play more important role in contributing to their child's body weight status. Besides that, parents BMI especially mother have a significant association with their child BMI. Also, how parent perceived their weight influence their child BMI. However, sociodemographic factor does not have a significant relation with a child's body weight status. Lastly, among feeding practices, pressure to eat by parents have a significant association with their child body weight status.

There are some limitations of the study. Firstly, this study is a cross-sectional study. It cannot determine the cause and effect. Besides that, the data is self-reported by the parents. Hence, there might be biases and under-reporting especially on the perceived weight status. Lastly, the outcome of this study might not be representative

of the people in Seremban, Negeri Sembilan as only 4 schools in Seremban were selected to participate in the study.

In the future, it is recommended to include parents in the study to minimize underreporting occur. Also, the findings of this study suggest that parents can be included in obesity prevention programs in the future. Next, other parts of Seremban might be as well included so that the result can be representative of the population in Seremban, Negeri Sembilan.



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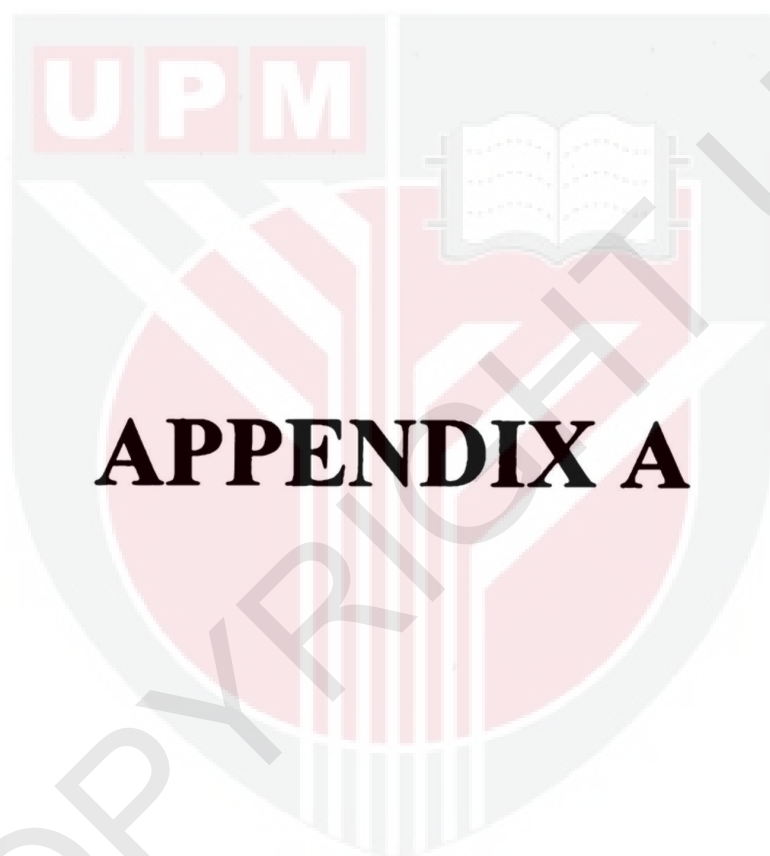
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APPENDIX A

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**ETHICS COMMITTEE FOR RESEARCH INVOLVING HUMAN SUBJECTS
(JKEUPM)
UNIVERSITI PUTRA MALAYSIA**

Research title	: Association Between Children and Parental Sociodemographic Factors, Perception and Feeding Practices with Body Weight Status Among Primary School Children in Negeri Sembilan
Study Site	: Negeri Sembilan
JKEUPM Ref No.	: JKEUPM-2017-228
Researcher	: Nurul Atiqah bt Baharom
Supervisor	: Dr. Nurzalinda Zalbahar

Documents received and reviewed with reference to the above study:

1. Ethics Application Form, Version 1 dated 8/11/2017
2. Respondent Information Sheet & Guardian's/Parent's Consent (English), Version 2 dated 8/12/2017
3. Respondent Information Sheet & Guardian's/Parent's Consent (Malay), Version 2 dated 8/12/2017
4. Respondent Information Sheet & Consent (English), Version 2 dated 8/12/2017
5. Respondent Information Sheet & Consent (Malay), Version 2 dated 8/12/2017
6. Proposal (English), Version 2 dated 8/12/2017
7. Questionnaire (English)-Father's/ Guardian Set, Version 2 dated 8/12/2017
8. Questionnaire (Malay)-Father's/ Guardian Set, Version 2 dated 8/12/2017
9. Questionnaire (English)-Mother's/Guardian Set, Version 2 dated 8/12/2017
10. Questionnaire (Malay)- Mother's/Guardian Set, Version 2 dated 8/12/2017
11. Curriculum Vitae of:
 - a. Dr. Nurzalinda Zalbahar

The University Research Ethics Committee, Universiti Putra Malaysia (JKEUPM) operates in accordance to the ICH-GCP Guidelines.

Decision by JKEUPM:

☒

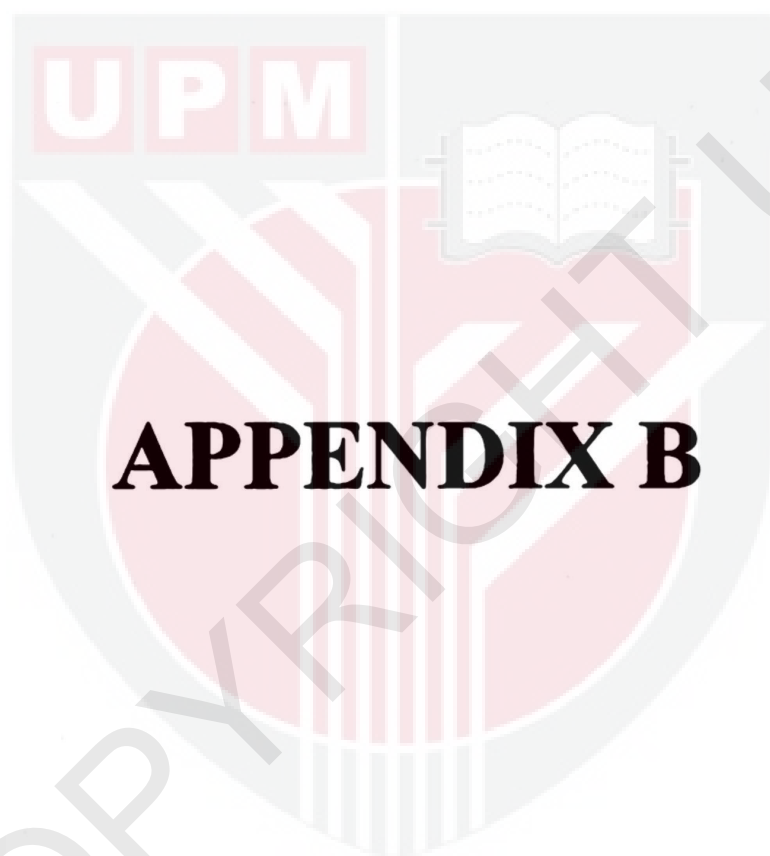
Approved

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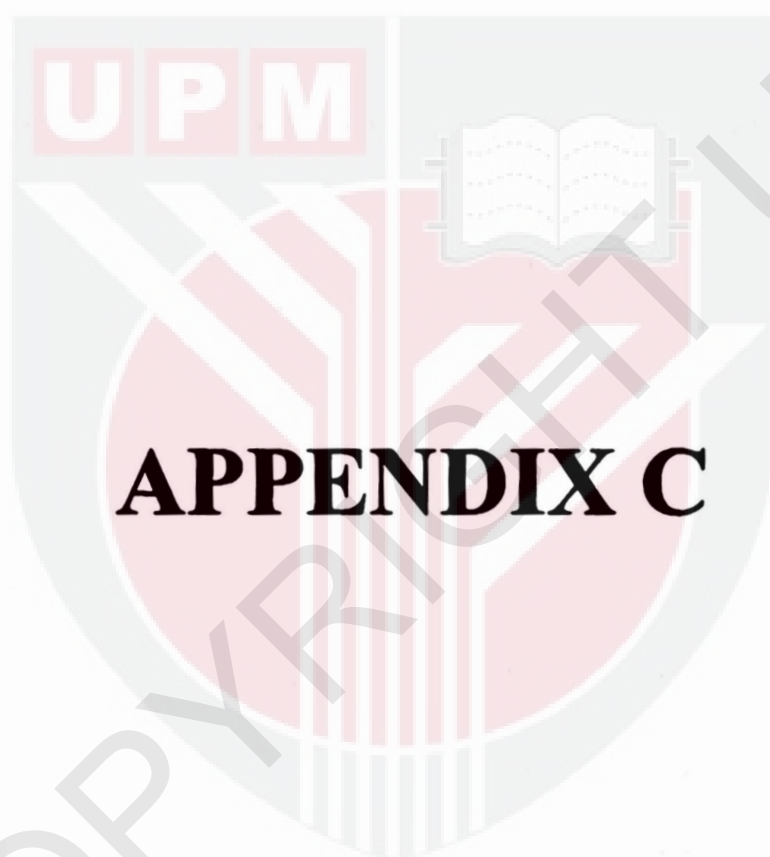
Permission **MUST BE OBTAINED** from the respective hospitals/ institutions before conducting the research

☐

Disapproved

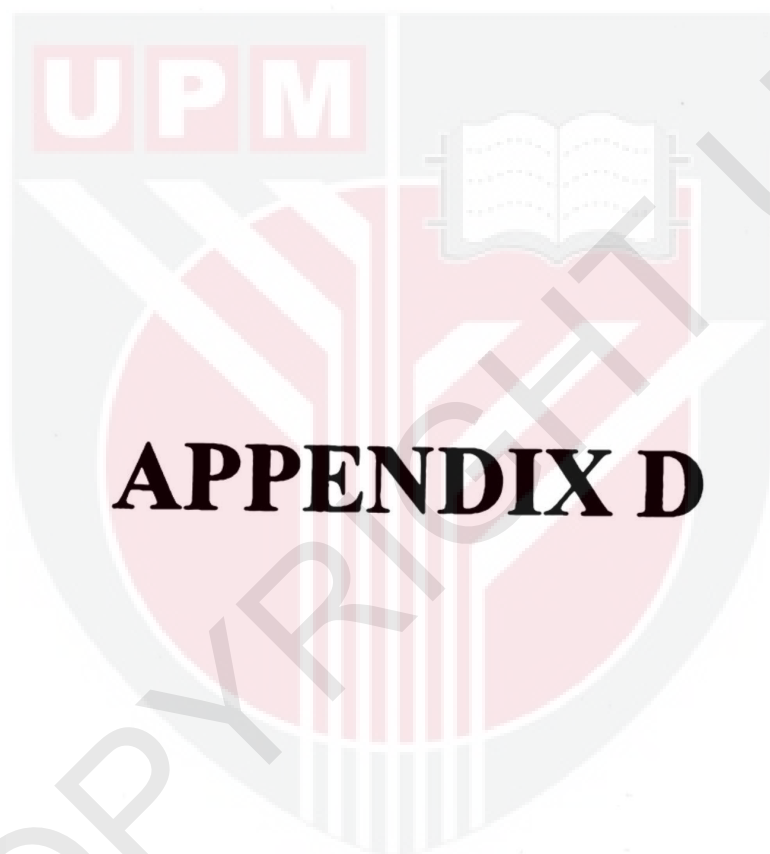


APPENDIX B



APPENDIX C

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APPENDIX D



BORANG 2.4: PENERANGAN DAN PERSETUJUAN RESPONDEN

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

1.TAJUK KAJIAN

Hubungan antara faktor sosiodemografi ibu bapa dan kanak-kanak, persepsi dan amalan pemakanan dengan status berat badan dalam kalangan kanak-kanak sekolah rendah di Negeri Sembilan

2. PENGENALAN

Trend obesiti dalam kalangan kanak-kanak semakin meningkat kebelakangan ini. Terdapat pelbagai faktor yang menyumbang kepada berat berlebihan kanak-kanak seperti kurang aktiviti fizikal dan amalan pemakanan yang tidak sihat. Walau bagaimanapun, untuk kanak-kanak, kebanyakan faktor ini bermula di rumah. Ibu bapa memainkan peranan penting dalam menentukan status berat badan anak mereka. Persepsi ibu bapa terhadap berat badan anak mereka mungkin mempengaruhi corak pemakanan mereka di rumah. Selain itu, amalan pemakanan oleh ibu bapa mungkin menjadi salah satu sebab obesiti kanak-kanak.

Terdapat banyak kesan obesiti dalam kalangan kanak-kanak. Kanak-kanak yang obes mempunyai risiko menjadi obes pada masa dewasa mereka. Selain itu, kanak-kanak obes mempunyai risiko yang lebih tinggi dalam menghadapi penyakit tidak berjangkit seperti penyakit kardiovaskular, kencing manis dan hipertensi berbanding kanak-kanak yang mempunyai berat badan yang normal. Di samping itu, kanak-kanak yang obes cenderung mempunyai masalah psikologi di sekolah disebabkan oleh imej badan mereka.

Walaupun bagaimanapun, kajian yang dilakukan di Malaysia terutamanya di Negeri Sembilan untuk melihat hubungan antara faktor-faktor dalam kalangan ibu bapa dan obesiti kanak-kanak masih kurang. Sebuah kajian penting untuk dijalankan supaya intervensi dan program untuk mendidik ibu bapa mengenai obesiti dalam kalangan kanak-kanak dapat dijalankan pada masa akan datang.

3. APAKAH YANG PERLU ANDA LAKUKAN?

Anda akan dikehendaki mengisi satu set borang soal selidik mengenai latar belakang sosiodemografi anda, persepsi mengenai status berat badan dan amalan pemakanan anda.

4. SIAPA YANG TIDAK BOLEH MENYERTAI KAJIAN INI?

Pelajar yang mempunyai keperluan khas termasuk kecacatan (contohnya: Down-Syndrome dan kecacatan mental) dan pelajar mengambil ubat-ubatan yang mungkin memberi kesan kepada status berat badan mereka.

5. APAKAH FAEDAH MENYERTAI KAJIAN INI?

a) KEPADA ANDA SEBAGAI PESERTA?

Anda akan dapat mengetahui status berat badan anak anda pada akhir kajian ini jika anda berminat.

b) KEPADA PENYELIDIK?

Hasil kajian boleh digunakan oleh penyelidik dan pakar bidang kesihatan untuk membangunkan intervensi yang dapat mendidik ibu bapa dalam menguruskan amalan pemakanan mereka untuk mencegah obesiti kanak-kanak. Selain itu, hasil kajian berguna untuk dijadikan data asas bagi kajian pada masa hadapan.

6. ADAKAH IA BERISIKO?

Kajian ini tidak akan membawa risiko kerana hanya penilaian fizikal yang minimum yang akan dilakukan pada anak anda.

7. ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Semua maklumat yang dikumpulkan serta identiti anda akan kekal sulit dan digunakan untuk tujuan akademik sahaja.

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

Jika anda mempunyai pertanyaan mengenai kajian ini, anda boleh menghubungi Nurul Atiqah binti Baharom di 017-6219870 (H/P) atau email ke tqa.baharom@gmail.com atau penyelia penyelidik Dr. Nurzalinda Zalbahar di 03-86092960 (pejabat) atau e-mel kepada nurzalinda@upm.edu.my

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



APPENDIX E

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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).

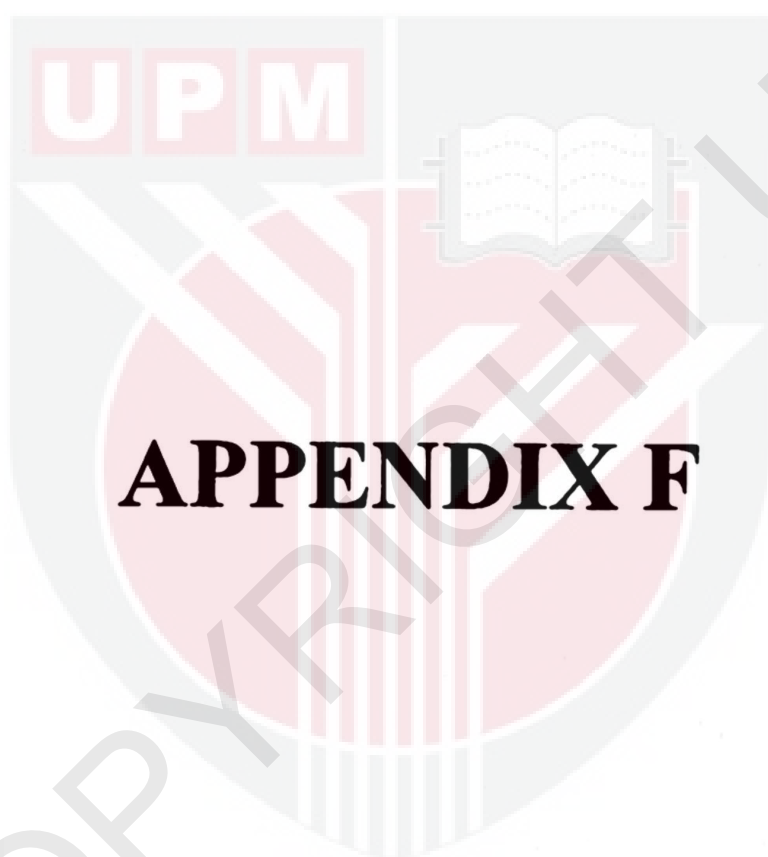
*potong yang tidak berkenaan

Tandatangan Tandatangan
(Responden) (Saksi)

Tarikh : Nama :
No. K/P:

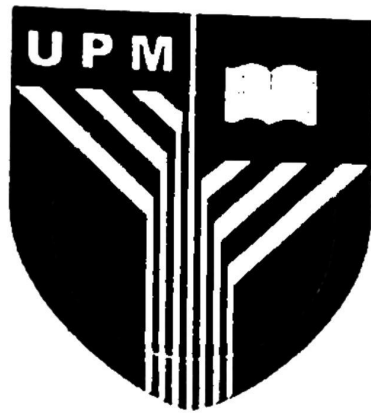
Saya mengesahkan bahawa saya telah menerangkan kepada responden ini sifat dan tujuan penyelidikan yang tersebut di atas.

Tarikh Tandatangan
(Penyelidik)



APPENDIX F

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

BORANG SOAL SELIDIK- SET BAPA/ PENJAGA
QUESTIONNAIRE – FATHER'S / GUARDIAN SET

Tajuk Kajian
Research Title

Hubungan antara faktor sosiodemografi kanak-kanak dan ibu bapa, persepsi dan amalan pemakanan dengan status berat badan kalangan kanak-kanak sekolah rendah di Negeri Sembilan

Association between children and parental sociodemographic factors, perception and feeding practices with body weight status among primary school children in Negeri Sembilan

Penyelidik: Nurul Atiqah binti Baharom (176434)

B.S (Pemakanan dan Kesihatan Komuniti)

Nota: Segala maklumat yang diberikan adalah sulit dan untuk tujuan penyelidikan sahaja. Kejujuran dan keikhlasan anda dalam memberi maklumat amatlah diharapkan. Penyertaan dan kerjasama anda sangat dihargai. Terima kasih.

Note: All information provided is confidential and for research purposes only. Your honesty and sincerity in providing information is desirable. Your participation and cooperation is highly appreciated. Thank you.

Arahan: Sila jawab Seksyen A, B, C dan D sahaja.
Instructions: Please answer Section A, B, C and D only.

SEKSYEN A: INFO SOSIODEMOGRAFI KANAK-KANAK
SECTION A: Children Sociodemographic Information

Sila isikan / tandakan (✓) pada jawapan yang paling sesuai.
Please fill in / tick (✓) on the most appropriate answer.

1.	Umur/Age	___ tahun/ years old
2.	Jantina/Sex	() Lelaki/ Male () Perempuan/ Female
3.	Etnik/ Ethnicity	() Melayu /Malay () Cina/Chinese () India/ Indian () Lain-lain, sila nyatakan/ Others, please specify/: _____
4.	Tarikh lahir/ Date of birth	_____
5.	Sekolah/ School	_____
7.	Kelas/Class	_____

SEKSYEN B: INFO SOSIODEMOGRAFI IBU BAPA
SECTION B: PARENT'S SOCIODEMOGRAPHIC BACKGROUND

Fill in the blank or tick (/) for the questions below. This information refers to the parents'.
 Isi kotak kosong atau tandakan (/) untuk soalan di bawah. Maklumat ini merujuk kepada ibu bapa.

1.	Hubungan dengan murid/ <i>Relationship with student</i>	() Bapa/ <i>Father</i> () Ibu/ <i>Mother</i> () Penjaga/ <i>Guardian</i>
2.	Umur/ <i>Age</i>	____ tahun/ <i>years old</i>
3.	Etnik/ <i>Ethnicity</i>	() Melayu/ <i>Malay</i> () Cina/ <i>Chinese</i> () India/ <i>Indian</i> () Lain-lain, sila nyatakan/ <i>Others, please specify</i> : _____
4.	Tahap Pendidikan/ <i>Level of education</i>	() Tidak bersekolah/ <i>No schooling</i> () Sekolah rendah/ <i>Primary school</i> () Sekolah menengah/ <i>Secondary school</i> () Institut pengajian tinggi/ <i>Institute of higher learning</i>
5.	Pekerjaan (nyatakan)/ <i>Occupation (specify)</i>	_____
6.	Jumlah pendapatan bulanan isi rumah/ <i>Total household monthly income</i>	() <RM999 () RM6000-RM6999 () RM1000-RM1999 () RM7000-RM7999 () RM2000-RM2999 () RM8000-RM8999 () RM3000-RM3999 () RM9000-RM9999 () RM4000-RM4999 () ≥ RM10 000 () RM5000-RM5999
7.	Jumlah anak/ <i>Number of children</i>	_____
8.	Berat/ <i>Weight</i>	_____ kg
9.	Tinggi/ <i>Height</i>	_____ cm

SEKSYEN C: PERSEPSI
SECTION C: PERCEPTION

Sila jawab semua soalan di bawah dan bulatkan HANYA SATU jawapan.
Please answer all the questions below and circle ONLY ONE answer.

No.		Tidak pernah/ <i>Never</i>	Jarang/ <i>Seldom</i>	Separuh masa/ <i>Half of the time</i>	Kebanyakan masa/ <i>Most of the time</i>	Selalu/ <i>Always</i>
1	Apabila anak anda berada di rumah, adakah anda bertanggungjawab untuk memberi makan kepadanya? <i>When your child is at home, are you responsible for feeding him/her?</i>	1	2	3	4	5
2	Berapakerapkah anda bertanggungjawab untuk menentukan saiz hidangan anak anda? <i>Are you responsible for deciding what your child's portion sizes are?</i>	1	2	3	4	5
3	Adakah anda bertanggungjawab untuk menentukan sama ada anak anda makan makanan yang betul? <i>Are you responsible for deciding if your child has eaten the right kind of foods?</i>	1	2	3	4	5

Untuk soalan C (4-11), sila rujuk skala di bawah dan tandakan $\checkmark$:
For question C (4-11), please refer to below scale and tick $\checkmark$:

- 1: Kurang berat badan yang ketara/ *Markedly underweight*
- 2: Kurang berat badan/ *Underweight*
- 3: Normal/*Normal*
- 4: Lebih berat badan/ *Overweight*
- 5: Obes/*Obese*

Sila jawab soalan C (4-8) mengenai status berat anak anda.
Please answer question C (4-8) about your child's weight status.

No.		1	2	3	4	5
4	Tahun pertama anak anda <i>First year of life</i>					
5	Semasa kecil (1-3 bulan) <i>As a toddler (1-3 years old)</i>					
6	Semasa pra-sekolah <i>As a pre-schooler</i>					
7	Dari tadika hingga darjah 2 <i>From kindergarten through standard 2</i>					
8	Pada masa kini <i>At present</i>					

Sila jawab soalan C (9-11) mengenai status berat anda.
Please answer question C (9-11) about your weight status.

No.		1	2	3	4	5
9	Semasa zaman kanak-kanak anda (umur 5-10 tahun) <i>During your childhood (5-10 years old)</i>					
10	Semasa anda remaja (umur 10-19) <i>During your adolescent (age 10-19)</i>					
11	Pada masa kini <i>At present</i>					

SEKSYEN D: AMALAN PEMAKANAN
SECTION D: FEEDING PRACTICES

Sila jawab semua soalan di bawah dan bulatkan HANYA SATU jawapan.
Please answer all the questions below and circle ONLY ONE answer.

No.		Tidak setuju/ <i>Disagree</i>	Kurang setuju/ <i>Slightly disagree</i>	Neutral/ <i>Neutral</i>	Agak setuju/ <i>Slightly agree</i>	Setuju/ <i>Agree</i>
1	Saya perlu memastikan anak saya tidak makan terlalu banyak makanan manis (gula-gula, ais-krim atau kek) <i>I must make sure that my child does not eat too many sweets (candy, ice-cream or cake).</i>	1	2	3	4	5
2	Saya perlu memastikan anak saya tidak makan makanan yang tinggi lemak. <i>I must make sure that my child does not eat too many high-fat foods.</i>	1	2	3	4	5
3	Saya perlu memastikan anak saya tidak mengambil makanan kegemarannya terlalu banyak. <i>I must make sure that my child does not eat too much of her favourite foods.</i>	1	2	3	4	5
4	Saya sengaja menyimpan beberapa makanan daripada jangkauan anak saya. <i>I intentionally keep some foods out of my child's reach.</i>	1	2	3	4	5
5	Saya menawarkan makanan yang manis (gula-gula, ais krim atau kek) kepada anak saya sebagai ganjarannya berkelakuan baik. <i>I offer sweets (candy, ice-cream or cake) to my child as a reward for good behaviour.</i>	1	2	3	4	5
6	Saya menawarkan makanan kegemaran kepada anak saya sebagai pertukarannya berkelakuan baik. <i>I offer my child her favourite foods in exchange for good behaviour.</i>	1	2	3	4	5

No.		Tidak setuju/ <i>Disagree</i>	Kurang setuju/ <i>Slightly disagree</i>	Neutral/ <i>Neutral</i>	Agak setuju/ <i>Slightly agree</i>	Setuju/ <i>Agree</i>
7	Jika saya tidak membimbing atau mengawal pengambilan makanan anak saya, dia akan makan terlalu banyak makanan ringan. <i>If I did not guide or regulate my child's eating, she would eat too many junk foods.</i>	1	2	3	4	5
8	Jika saya tidak membimbing atau mengawal pengambilan makanan anak saya, dia akan makan terlalu banyak makanan kegemarannya. <i>If I did not guide or regulate my child's eating, she would eat too much of her favourite foods.</i>	1	2	3	4	5
9	Anak saya harus sentiasa menghabiskan semua makanan di atas pingganinya. <i>My child should always eat all the food on her plate.</i>	1	2	3	4	5
10	Saya perlu lebih waspada untuk memastikan anak saya makan yang cukup. <i>I must be especially careful to make sure my child eats enough.</i>	1	2	3	4	5
11	Sekiranya anak saya berkata "Saya tidak lapar", saya cuba memastikan dia makan juga. <i>If my child says, "I am not hungry", I try to get her to eat anyway.</i>	1	2	3	4	5
12	Jika saya tidak membimbing atau mengawal pengambilan makanan anak saya, dia akan makan lebih sedikit daripada yang sepatutnya. <i>If I did not guide or regulate my child's eating, she would eat much less than she should.</i>	1	2	3	4	5

No.		Tidak pernah/ Never	Jarang/ Rarely	Kadang-kadang/ Sometimes	Kerap/ Mostly	Selalu/ Always
13	Berapa kerapkah anda mengawasi (gula-gula, ais krim, kek) yang dimakan anak anda? <i>How much do you keep track of the sweets (candy, ice cream, cake) that your child eats?</i>	1	2	3	4	5
14	Berapa kerapkan anda mengetahui makanan ringan yang dimakan oleh anak anda? <i>How much do you keep track of the snack food that your child eats?</i>	1	2	3	4	5
15	Berapa kerapkah anda mengetahui makanan yang tinggi lemak yang dimakan oleh anak anda? <i>How much do you keep track of the high fat foods that your child eats?</i>	1	2	3	4	5

SEKSYEN E: Ukuran antropometri (Diisi oleh penyelidik)

SECTION E: Anthropometric measurement (Filled in by researcher)

No.	Measurement	Readings		
		1	2	Average
1	Weight (kg)			
2	Height (cm)			
3	BMI (kg/m ²)			

Terima kasih atas kerjasama anda

Thank you for your cooperation



APPENDIX G



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

BORANG SOAL SELIDIK- SET IBU/ PENJAGA
QUESTIONNAIRE – MOTHER'S / GUARDIAN SET

Tajuk Kajian
Research Title

Hubungan antara faktor sosiodemografi kanak-kanak dan ibu bapa, persepsi dan amalan pemakanan dengan status berat badan kalangan kanak-kanak sekolah rendah di Negeri Sembilan

Association between children and parental sociodemographic factors, perception and feeding practices with body weight status among primary school children in Negeri Sembilan

Penyelidik: Nurul Atiqah binti Baharom (176434)

B.S (Pemakanan dan Kesihatan Komuniti)

Nota: Segala maklumat yang diberikan adalah sulit dan untuk tujuan penyelidikan sahaja. Kejujuran dan keikhlasan anda dalam memberi maklumat amatlah diharapkan. Penyertaan dan kerjasama anda sangat dihargai. Terima kasih.

Note: All information provided is confidential and for research purposes only. Your honesty and sincerity in providing information is desirable. Your participation and cooperation is highly appreciated. Thank you.

Arahan: Sila jawab Seksyen A, B, C dan D sahaja.
Instructions: Please answer Section A, B, C and D only.

SEKSYEN A: INFO SOSIODEMOGRAFI KANAK-KANAK
SECTION A: Children Sociodemographic Information

Sila isikan / tandakan (✓) pada jawapan yang paling sesuai.
Please fill in / tick (✓) on the most appropriate answer.

1.	Umur/Age	___ tahun/ years old
2.	Jantina/Sex	() Lelaki/ Male () Perempuan/ Female
3.	Etnik/ Ethnicity	() Melayu / Malay () Cina/Chinese () India/ Indian () Lain-lain, sila nyatakan/ Others, please specify/: _____
4.	Tarikh lahir/ Date of birth	_____
5.	Sekolah/ School	_____
7.	Kelas/Class	_____

SEKSYEN B: INFO SOSIODEMOGRAFI IBU BAPA
SECTION B: PARENT'S SOCIODEMOGRAPHIC BACKGROUND

Fill in the blank or tick (/) for the questions below. This information refers to the parents'.
 Isi kotak kosong atau tandakan (/) untuk soalan di bawah. Maklumat ini merujuk kepada ibu bapa.

1.	Hubungan dengan murid/ <i>Relationship with student</i>	() Bapa/ <i>Father</i> () Ibu/ <i>Mother</i> () Penjaga/ <i>Guardian</i>
2.	Umur/ <i>Age</i>	____ tahun/ <i>years old</i>
3.	Etnik/ <i>Ethnicity</i>	() Melayu/ <i>Malay</i> () Cina/ <i>Chinese</i> () India/ <i>Indian</i> () Lain-lain, sila nyatakan/ <i>Others, please specify</i> /: _____
4.	Tahap Pendidikan/ <i>Level of education</i>	() Tidak bersekolah/ <i>No schooling</i> () Sekolah rendah/ <i>Primary school</i> () Sekolah menengah/ <i>Secondary school</i> () Institut pengajian tinggi/ <i>Institute of higher learning</i>
5.	Pekerjaan (nyatakan)/ <i>Occupation (specify)</i>	_____
6.	Jumlah pendapatan bulanan isi rumah/ <i>Total household monthly income</i>	() <RM999 () RM6000-RM6999 () RM1000-RM1999 () RM7000-RM7999 () RM2000-RM2999 () RM8000-RM8999 () RM3000-RM3999 () RM9000-RM9999 () RM4000-RM4999 () ≥ RM10 000 () RM5000-RM5999
7.	Jumlah anak/ <i>Number of children</i>	_____
8.	Berat/ <i>Weight</i>	_____ kg
9.	Tinggi/ <i>Height</i>	_____ cm

SEKSYEN C: PERSEPSI
SECTION C: PERCEPTION

Sila jawab semua soalan di bawah dan bulatkan HANYA SATU jawapan.
Please answer all the questions below and circle ONLY ONE answer.

No.		Tidak pernah/ Never	Jarang/ Seldom	Separuh masa/ Half of the time	Kebanyakan masa/ Most of the time	Selalu/ Always
1	Apabila anak anda berada di rumah, adakah anda bertanggungjawab untuk memberi makan kepadanya? <i>When your child is at home, are you responsible for feeding him/her?</i>	1	2	3	4	5
2	Berapakerapkah anda bertanggungjawab untuk menentukan saiz hidangan anak anda? <i>Are you responsible for deciding what your child's portion sizes are?</i>	1	2	3	4	5
3	Adakah anda bertanggungjawab untuk menentukan sama ada anak anda makan makanan yang betul? <i>Are you responsible for deciding if your child has eaten the right kind of foods?</i>	1	2	3	4	5

Untuk soalan B (4-11), sila rujuk skala di bawah dan tandakan √ :
For question B (4-11), please refer to below scale and tick √ :

- 1: Kurang berat badan yang ketara/ *Markedly underweight*
- 2: Kurang berat badan/ *Underweight*
- 3: Normal/*Normal*
- 4: Lebih berat badan/ *Overweight*
- 5: Obes/*Obese*

Sila jawab soalan C (4-9) mengenai status berat anak anda.
Please answer question C (4-9) about your child's weight status.

No.		1	2	3	4	5
4	Tahun pertama anak anda <i>First year of life</i>					
5	Semasa kecil (1-3 bulan) <i>As a toddler (1-3 years old)</i>					
6	Semasa pra-sekolah <i>As a pre-schooler</i>					
7	Dari tadika hingga darjah 2 <i>From kindergarten through standard 2</i>					
8	Pada masa kini <i>At present</i>					

Sila jawab soalan C (9-11) mengenai status berat anda.
Please answer question C (9-11) about your weight status.

No.		1	2	3	4	5
9	Semasa zaman kanak-kanak anda (umur 5-10 tahun) <i>During your childhood (5-10 years old)</i>					
10	Semasa anda remaja (umur 10-19) <i>During your adolescent (age 10-19)</i>					
11	Pada masa kini <i>At present</i>					

SEKSYEN D: AMALAN PEMAKANAN
SECTION D: FEEDING PRACTICES

Sila jawab semua soalan di bawah dan bulatkan HANYA SATU jawapan.
Please answer all the questions below and circle ONLY ONE answer.

No.		Tidak setuju/ <i>Disagree</i>	Kurang setuju/ <i>Slightly disagree</i>	Neutral/ <i>Neutral</i>	Agak setuju/ <i>Slightly agree</i>	Setuju/ <i>Agree</i>
1	Saya perlu memastikan anak saya tidak makan terlalu banyak makanan manis (gula-gula, ais-krim atau kek) <i>I must make sure that my child does not eat too many sweets (candy, ice-cream or cake).</i>	1	2	3	4	5
2	Saya perlu memastikan anak saya tidak makan makanan yang tinggi lemak. <i>I must make sure that my child does not eat too many high-fat foods.</i>	1	2	3	4	5
3	Saya perlu memastikan anak saya tidak mengambil makanan kegemarannya terlalu banyak. <i>I must make sure that my child does not eat too much of her favourite foods.</i>	1	2	3	4	5
4	Saya sengaja menyimpan beberapa makanan daripada jangkauan anak saya. <i>I intentionally keep some foods out of my child's reach.</i>	1	2	3	4	5
5	Saya menawarkan makanan yang manis (gula-gula, ais krim atau kek) kepada anak saya sebagai ganjarannya berkelakuan baik. <i>I offer sweets (candy, ice-cream or cake) to my child as a reward for good behaviour.</i>	1	2	3	4	5
6	Saya menawarkan makanan kegemaran kepada anak saya sebagai pertukarannya berkelakuan baik. <i>I offer my child her favourite foods in exchange for good behaviour.</i>	1	2	3	4	5

No.		Tidak setuju/ <i>Disagree</i>	Kurang setuju/ <i>Slightly disagree</i>	Neutral/ <i>Neutral</i>	Agak setuju/ <i>Slightly agree</i>	Setuju/ <i>Agree</i>
7	Jika saya tidak membimbing atau mengawal pengambilan makanan anak saya, dia akan makan terlalu banyak makanan ringan. <i>If I did not guide or regulate my child's eating, she would eat too many junk foods.</i>	1	2	3	4	5
8	Jika saya tidak membimbing atau mengawal pengambilan makanan anak saya, dia akan makan terlalu banyak makanan kegemarannya. <i>If I did not guide or regulate my child's eating, she would eat too much of her favourite foods.</i>	1	2	3	4	5
9	Anak saya harus sentiasa menghabiskan semua makanan di atas pingganinya. <i>My child should always eat all the food on her plate.</i>	1	2	3	4	5
10	Saya perlu lebih waspada untuk memastikan anak saya makan yang cukup. <i>I must be especially careful to make sure my child eats enough.</i>	1	2	3	4	5
11	Sekiranya anak saya berkata "Saya tidak lapar", saya cuba memastikan dia makan juga. <i>If my child says, "I am not hungry", I try to get her to eat anyway.</i>	1	2	3	4	5
12	Jika saya tidak membimbing atau mengawal pengambilan makanan anak saya, dia akan makan lebih sedikit daripada yang sepatutnya. <i>If I did not guide or regulate my child's eating, she would eat much less than she should.</i>	1	2	3	4	5

No.		Tidak pernah/ Never	Jarang/ Rarely	Kadang-kadang/ Sometimes	Kerap/ Mostly	Selalu/ Always
13	Berapa kerapkah anda mengawasi (gula-gula, ais krim, kek) yang dimakan anak anda? <i>How much do you keep track of the sweets (candy, ice cream, cake) that your child eats?</i>	1	2	3	4	5
14	Berapa kerapkan anda mengetahui makanan ringan yang dimakan oleh anak anda? <i>How much do you keep track of the snack food that your child eats?</i>	1	2	3	4	5
15	Berapa kerapkah anda mengetahui makanan yang tinggi lemak yang dimakan oleh anak anda? <i>How much do you keep track of the high fat foods that your child eats?</i>	1	2	3	4	5

SEKSYEN E: Ukuran antropometri (Diisi oleh penyelidik)
SECTION E: Anthropometric measurement (Filled in by researcher)

No.	Measurement	Readings		
		1	2	Average
1	Weight (kg)			
2	Height (cm)			
3	BMI (kg/m ²)			

Terima kasih atas kerjasama anda
Thank you for your cooperation