UNIVERSITI PUTRA MALAYSIA

ANALYSIS OF ACCEPTANCE OF PRINTED EDUCATIONAL MATERIAL FOR THE MANAGEMENT OF CHILDHOOD OBESITY

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Table of Contents

Abbreviations

Abbreviations	Meaning
WHO	World Health Organization
CDC	Centre for Disease Control and Prevention
ST-NEPCO	Stage Based Tailored, Nutrition Education Package for Childhood Obesity
PEMAT-P	The Patient Education Materials Assessment Tool-Printed Materials
BMI	Body Mass Index
SOC	Stage of Changes

List of tables

List of figures

Appendices

Abstract

Analysis of acceptance of printed educational material for the management of childhood obesity

Nurfarhana Sahira binti Rosly

The prevalence of childhood obesity keeps increasing every year. It is found that educational materials are important to enhance understanding and increase knowledge especially among children. The acceptance of printed educational material for the management of childhood obesity is a comprehensive study to see the importance of educational materials for childhood obesity management. Thus, this cross-sectional study involving children aged 7 to 12 years old at 4 districts of Selangor (Hulu Selangor, Hulu Langat, Petaling and Klang) aimed to determine the knowledge change, stage of changes and understandability of Stage-based Tailored Nutrition Education Package for Childhood Obesity (ST-NEPCO). ST-NPECO were developed in 2014 by Nor Baizura et. al. that focus on contents regarding management of childhood obesity. Consent for this study were obtained from the parent itself by providing them with *google form*. Explanation of the study and a section on agreement to participate in this study also provided. Sociodemographic background was obtained from parents through online questionnaire. Pre- and post-questionnaire were also distributed online through *Whatsapp* application to test differences of knowledge and Stage of Changes after the subjects watched video explanation using ST-NEPCO from *youtube*. A series of question adapted from the Patient Education Materials Assessment Tool (PEMAT-P) were used to determine understandability of the printed educational materials. Height and weight were self-reported and Body Mass Index status were classified based on BMI-for-age (WHO, 2007). A total of 30 children had participated in the study. Majority of the

subject were male and all (n=30) were Malay. The knowledge changes were determined by difference marks of post-questionnaire as compared to pre-questionnaire and SOC change also determine based on classification on SOC of the subjects before and after watching the video. There were increase trend found for knowledge change and Stage of Changes (increase SOC of the subjects from pre- to post-) of the subject in term of pre- and post-questionnaire and it was found that there was no association between knowledge changes (fat, fruits and vegetables and physical activity) with sociodemographic of the subjects. More than half of the subject (66.7%) have high understandability of the printed educational material. Thus, Educational materials was important to enhance knowledge of children especially for childhood obesity management.

Abstrak

Analisis penerimaan bahan Pendidikan bercetak untuk pengurusan kanak-kanak obesity

Kelaziman obesiti dikalangan kanak-kanak terus meningkat setiap tahun. Bahan pendidikan amatlah penting untuk meningkatkan pemahaman dan meningkatkan pengetahuan terutama dalam kalangan kanak-kanak. Penerimaan bahan pendidikan bercetak untuk pengurusan obesiti kanak-kanak adalah kajian komprehensif untuk melihat kepentingan bahan pendidikan untuk pengurusan obesiti dikalangan kanak-kanak. Oleh itu, kajian keratan rentas ini yang melibatkan kanak-kanak berumur 7 hingga 12 tahun di 4 daerah di Selangor (Hulu Selangor, Hulu Langat, Petaling dan Klang) bertujuan untuk menentukan perubahan pengetahuan, tahap perubahan dan kefahaman ”Stage-based Tailored Nutrition Education Package for Childhood Obesity” (ST-NEPCO). ST-NPECO dicipta pada tahun 2014 oleh Nor Baizura et. al. yang menumpukan pada kandungan mengenai pengurusan obesiti dikalangan kanak-kanak. Persetujuan untuk kajian ini diperoleh daripada ibu bapa sendiri dengan memberikan mereka *google form.* Penjelasan secara terperinci dan bahagian persetujuan untuk turut serta dalam kajian ini juga diberikan. Latar belakang sosiodemografi diperoleh daripada ibu bapa melalui soal selidik dalam talian. Pra dan pasca soal selidik juga diedarkan secara dalam talian melalui aplikasi Whatsapp untuk menguji perbezaan pengetahuan dan Tahap Perubahan setelah subjek menonton penjelasan video menggunakan ST-NEPCO dari *youtube*. Satu siri soalan yang diadaptasi dari “Patient Education Materials Assessment” (PEMAT-P) digunakan untuk menentukan kefahaman tentang bahan-bahan pendidikan bercetak. Tinggi dan berat badan dilaporkan sendiri oleh subjek dan status Indeks Jisim Tubuh dikelaskan berdasarkan *BMI-for-age* (WHO, 2007). Seramai 30 kanak-kanak telah mengambil bahagian dalam kajian ini. Majoriti subjek adalah lelaki dan semua (n = 30) berbangsa

Melayu. Perubahan pengetahuan ditentukan oleh markah perbezaan pasca soal selidik berbanding dengan pra-soal selidik dan perubahan SOC juga ditentukan berdasarkan klasifikasi SOC subjek sebelum dan sesudah menonton video. Terdapat peningkatan trend yang terdapat untuk perubahan pengetahuan dan Tahap Perubahan (peningkatan SOC mata pelajaran dari sebelum ke pasca-) subjek dalam istilah sebelum dan selepas soal selidik dan didapati bahawa tidak ada hubungan antara perubahan pengetahuan (lemak, buah-buahan dan sayur-sayuran dan aktiviti fizikal) dengan sosiodemografi subjek. Lebih daripada separuh subjek (66.7%) mempunyai kefahaman yang tinggi terhadap bahan pendidikan bercetak. Oleh itu, bahan pendidikan penting untuk meningkatkan pengetahuan kanak-kanak terutamanya untuk pengurusan obesiti dikalangan kanak-kanak.

CHAPTER 1

INTRODUCTION

1.0 Background

The Centre for Disease Control and Prevention (CDC) defined 85th to less than 95th percentile as overweight and more than 95th percentile as obesity using BMI-for-age (2000) for children and teens age 2 to 20 years old. Whereas, World Health Organization (WHO) defined overweight at 97th percentile and obesity at 99th percentile as the cut-off point based on BMI-for-age growth chart for children aged 0-5 years old (2006). Meanwhile, children age 5-19 years old defined as overweight when BMI-for-age greater than 1SD (equivalent to BMI 25kg/m² at 19 years old) and obesity as BMI-for-age greater than 2SD (equivalent to BMI 30kg/m² at 19 years old) above WHO Growth Reference median (2007).

The prevalence of childhood obesity has increased and become one of major public health issues in many countries. Skinner, Perrin, & Skelton (2016) reported that for the past 18 years the prevalence of obesity and morbid obesity among children in the United State from 1999 to 2016 was continuously increased, even though many efforts at public health or individual care levels were conducted. Based on Global Health Observatory (GHO) data from World Health Organization (2016), number of obese and overweight children under 5 years old in Africa increase by 45% and 33% in Asia since 2000. Meanwhile, a meta-analysis study conducted by Mazidi, Banach, & Kengne (2018) among Asia found that Malaysia had experiences a similar rise in the prevalence of childhood obesity.

Malaysian National Health and Morbidity Survey (2015) reported that prevalence of obesity among children was 11.9%. Based on demographic, the prevalence of obesity was slightly higher among children in the urban areas (12.1%) as compared to children in the rural areas (11.2%) and there is significant difference of obesity among gender which is boys (13.6%) and girls (10.0%). The highest prevalence of obesity by age group was noted among children aged 5 to 9 years old (14.8%) followed by children aged 10 to 14 years old (14.4%). The results showed that developing country such as Malaysia have risen case of childhood obesity. Another national study, SEANUTS reported that the prevalence of overweight and obesity among 7 to 12 years old of six region in Malaysia (Northern, East, Central, Southern, Sabah and Sarawak) were 14.4% and 20.1%, respectively (Poh et.al., 2018). Moreover, Malaysian National Health and Morbidity survey (2019) reported that the prevalence of overweight for children age 5 to 17 years old are 29.8% which 15.0% overweight and 14.8% obese. A study found that childhood obesity is indeed correlated with physical defects and inability to work which has a strong tendency to follow through adulthood. Thus, it is reasonable to assume that most obese children and adolescents will become obese adults and have a large lifelong exposure (Robert et. al., 1997). It was documented by previous studies that childhood obesity was associated with co-morbidities such as type 2 diabetes and hypertension. Most of obese children are characterized by tissue- specific resistance to insulin actions, increased mechanical stress on joint and cardiac impairment which can be seen as an impaired tolerance to insulin, varying degrees of hypertension, dyslipidemia, orthopedic compliments and early atherogenesis (Weiss & Kaufman, 2008).

Education on lifestyle modification is a crucial part in nutrition counselling for overweight and obese children. One of the important steps in lifestyle modification is to increase individual awareness and knowledge about obesity in a bigger picture such as health complications that may

develop in their later life. Rauf et al. (2018) found that increase level of awareness towards healthy lifestyle among society resulting a better care of health.

1.1 Problem statement

One of the main factors that contributed to obesity is imbalance of energy in (energy intake) and energy out (energy expenditure) over a period of time (Ailshul, 1975). Davison et al (2001) highlighted several risk factors of childhood obesity, which are dietary intake, frequency of physical activity and sedentary lifestyle. Meanwhile, a study by Bhadoria et al. (2015) showed that high consumption of fast food, sugary beverages, large portion size, snacking and long duration of screen time are the causes of obesity among children. Most of these food items are high in energy, but low nutritional value.

Childhood obesity is known to be a predictor of obesity during adulthood and later lifestyle problems. Frank et al. (2010) states that combination of childhood obesity and health problems such as glucose intolerance and hypertension are causing increased rates of premature death in adults. Furthermore, a study reported that the prevalence of metabolic syndrome among overweight and obese children in Malaysia was 10.0% (Fadzlina et al., 2014). There are several health problems associated with childhood obesity such as hyperlipidemia, high blood pressure, insulin resistance which the cause diabetes, high waist circumference and high percentage of body fat.

A study showed that knowledge, attitude and practices toward healthy diet and physical activity among overweight and obese children aged 8 to 11 years old in an international school at Putrajaya were low (Shah et al., 2018). Meanwhile, a study conducted by Blasingame (2017)

among low-income families found that behavioral changes happen when they increase in awareness and knowledge on better lifestyle to manage obesity (dietary changes, increase physical activities, sleep improvement). Therefore, to promote behavioral changes among obese children, increase awareness and enhance knowledge about obesity and weight management is crucial as a step of practicing healthy lifestyle skills.

Several studies proved that educational materials are important for a better understanding especially among young children (Ramos et al., 2019). Printed educational materials have been used to improve knowledge, satisfaction, and adherence to treatment, as well as stimulate patients' self-care. The use of educational materials developed by health professionals as a reinforcement tool for verbal communication is recommended. The education material can have a positive impact on patient education and show potential for supporting patients in addressing doubts that may arise when they are not interacting with the health care provider (Hoffman et., 2004).

There is study that use printed educational materials in managing childhood obesity. A study from Blasingame (2017) uses pre- and post- questionnaire to measure scores of knowledge regarding healthy behavior which use handouts and podium presentation as materials to deliver the knowledge among obese children. Acceptance of printed educational materials was important to be determined due to know the suitability and understandability of the printed educational materials with target audiences (children, adult, elderly) in many aspects such as the words and graphic used in the printed educational materials for an effective deliver of the content (Sarah J et al.,2013)

1.2 Research question

1. What is the changes (pre and post) of knowledge and Stage of Changes among primary school children at Selangor?

2. What is the association between socio-demographic with acceptance of knowledge among primary school children at Selangor?

3. How is the acceptance of ST-NEPCO among primary school children at Selangor?

1.3 Objectives

1.3.1 General objectives

To determine the change (pre and post) of knowledge related to childhood obesity and SOC, the association of socio-demographic with knowledge changes and understandability of printed educational material among primary school children at Selangor.

1.3.2 Specific objectives

1. To determine sociodemographic characteristic, knowledge (fat, fruit and vegetable and physical activity) and SOC (fat, fruit and vegetable intakes and physical activity) of primary school children.
2. To determine changes in knowledge (fat, fruit and vegetable and physical activity) and SOC (fat, fruit and vegetable intakes and physical activity) among primary school children.
3. To determine association between sociodemographic characteristic and change in knowledge among primary school children.

4. To determine association between sociodemographic characteristic and change in SOC among primary school children.
5. To determine the understandability of printed educational material among primary school children.

1.4 Research hypothesis

1. The change (pre and post) of knowledge and SOC related to childhood obesity will increase among primary school children at Selangor.
2. There are associations of socio-demographic characteristic with change in knowledge among primary school children at Selangor.
3. There are association between socio-demographic characteristic with SOC among primary school children at Selangor.

1.5 Conceptual framework

Figure 1.5 shows the conceptual framework of this study. It consists of two phase which is development of printed educational material ST-NEPCO and evaluation of acceptance among obese children.

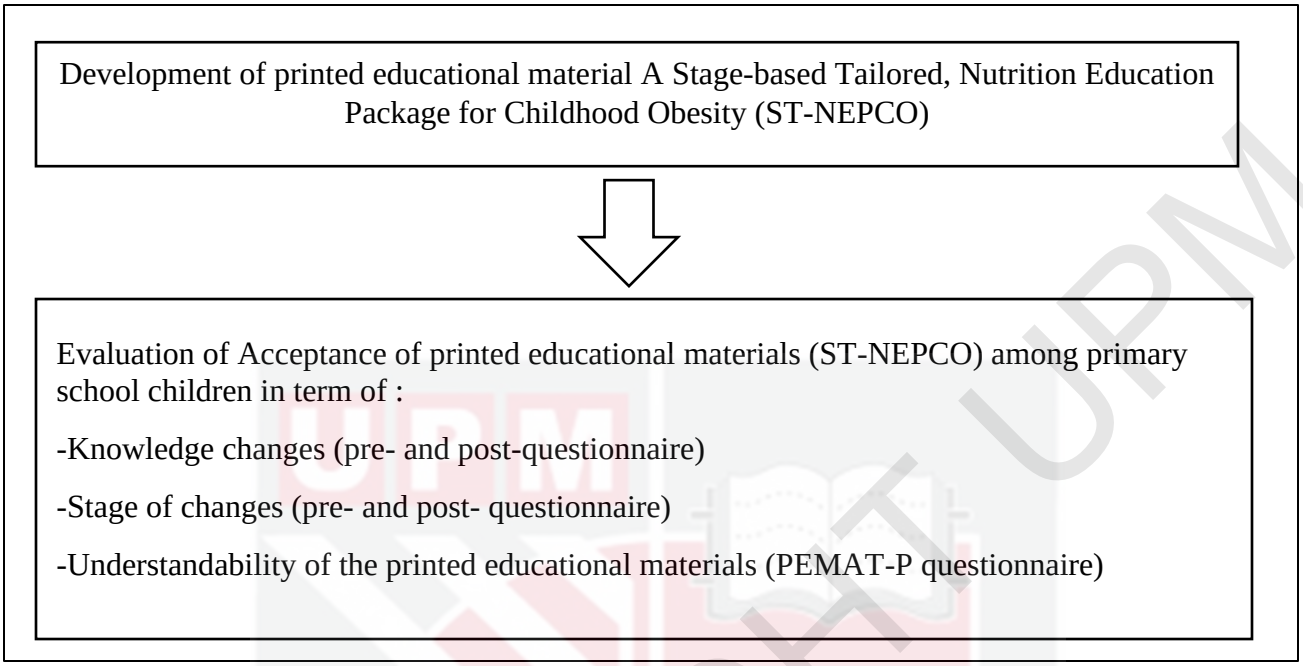

Figure 1.5

1.6 Significance of study

A good educational material during counselling is important for the children to understand clearly and in order for a great chance to assess their stage of change toward their knowledge, attitude and practices on childhood obesity. The purpose for this study is to determine the acceptance, knowledge change use printed educational material which then stage of change among primary school children in Selangor. From this study, we can assess the acceptance and how printed educational materials help the primary school children in term of knowledge and stage of changes improvement. From that, we can see the importance of knowledge in handling prevalence of childhood in Malaysia that keep increase every year.

An effective educational tool also important for dietitian/nutritionist especially during counselling session as it help for a better explanation and better understanding for the patient especially children. Moreover, it helps the dietitian/nutritionist as a guideline to conduct the counselling session to give maximum effectiveness of the counseling to the children. Thus, finding from this study can be utilized in any program for individual and group nutritional counselling.

CHAPTER 2

LITERATURE REVIEW

2.1 Childhood obesity contributing factors

2.1.1 Excessive energy and fat intake

Previous study shown that portion size increased over years contributes to increase trend of overweight and obesity especially among children. A study by Hetherington (2019) stated that consumption of high energy density foods in large portions have been proposed to cause weight gain in short term. Furthermore, a time-series study on portion sizes by Van der Bend et al. (2017) found that portion size of Australian children aged 2 to 16 years old increase over years (2007 to 2017) with decreased of fruits and vegetables consumption which then resulting increase in weight status among the children. This study also shows data from 2011 to 2012, found that 26% of Australian children aged 5 to 17 years old were overweight and obese, and the increment was correlated with increase in portion size. Similarly, Harnack, Jeffery, & Boutelle (2000) conducted a study to determine the energy intake trends in United State found that there is increase trend of portion size from 1970 to 1995 for carbohydrate, protein and total fat resulting high total energy intake. Consistently, Usselman (2017) found that there is significant increase in weight due to big portion size. Thus, consistent with trends in overweight and obesity, most of the ecologic data over the past several decades suggested that high portion size contributed to high energy intake and resulting increases in average body weight.

World Health Organization (WHO) suggested that limiting portion size would help to reduce the risk of overweight and obesity in children as it may play a role in the obesity epidemic (2014). A study by Torbahn et al. (2017) which analyze the association of portion size and BMI

found that reduction of portion size help to reduce BMI. Furthermore, another study also stated that nutrition education on replacing of high-energy density food portion size with adequate amount of low-energy density food to achieve daily requirement would help in weight reduction (Rolls, 2014). These consistent findings show that portion size might be one of the factors for overweight and obesity especially among children.

2.1.2 Low consumption of fruits and vegetables

There are many studies showed that high consumption of fruits and vegetables intake help in reducing childhood obesity as it help to keep longer satiety and reduce hunger feeling (Flood Obbagy & Rolls, 2009). A study by Matthews, Wien, & Sabaté (2011) showed that specific groups of plant-based foods may have protective role in overweight and obesity. Therefore, recommended plant-based foods as a sensible approach on obesity prevention in children and adolescents is important method. In addition, parental behavior on increasing vegetables and fruits intake; reducing fat and sugary beverages intake among children are associated with reduction of percentage of children weight that keep increasing every years (Epstein et al., 2001). A cross-sectional among Mediterranean's population study by Bes-Rastrollo et al. (2006) found that reduction of weight gains happen when the intake of fibers, fruits and vegetables increase. Meanwhile, a study conducted among secondary school children also found that high consumption of plant-based food associated with lower BMI and waist circumferences (P.K.Newby,2009).

However, there are several studies contradicted with these findings. Rippe & Angelopoulos (2016) suggested that high consumption of fruits may be related to pro-obesity as fruits contains sugars that can attributed to obesity. Furthermore, most fruits consists of simple sugars such as

glucose and fructose (Lee, 2015). Thus, study from Sharma, Chung, Kim, & Hong (2016) showed that the benefits of fruits in reducing overweight and obesity is still in dispute as high consumption of it may contributed to obesity over a long period. A study also found that starchy vegetables such as potatoes are associated with weight gains (Bertoia et al., 2015).

2.1.3 Low physical activities

World Health Organization (2013) recommends at least 60 minutes of moderate to vigorous intensity physical activities daily for children and teens age 5 to 17 years old. Meanwhile, Malaysian Dietary Guidelines for Children and Adolescents (2014) encouraged especially for overweight and obese children to participate in aerobic activity for at least 3 to 5 day/week with duration of 30 to 40 minutes/day. Physical activity greater than 60 minutes help for additional health benefits and this recommendation applied to all healthy children. A study by Kelley, Kelley, & Pate (2017) found that there is an inverse association between physical activity and obesity, particularly during childhood phase. This finding is supported by Trost, Kerr, Ward, & Pate (2001), which conducted a study among middle school children and found that daily physical activities of non-obese children was higher as compared to obese children. Therefore, they concluded physical inactivity is the main factor to the childhood obesity.

Furthermore, study by Pinto et al. (2018) stated that physical activities is important for childhood obesity prevention as well as treatment. It gives several benefits towards the improvement of body composition, cardiorespiratory fitness, lipid metabolism and insulin sensitivity. Moreover, Centers for Disease Control and Prevention (2010) stated that physical activity beneficial in balancing energy as it helps to balanced up with energy consumed (from diet)

and thus help to prevent the risk of becoming overweight and obesity. An intervention study among third and fourth grade students in United States showed that reducing sedentary activities have been shown to BMI improvements (Robinson, Nited, & Has, 2019). Furthermore, there are multiple health benefits gained from regular physical activity, such as building strong bones and muscles, increasing muscle strength and stamina, reducing stress and anxiety, enhancing self-esteem and reducing the risk of developing risk factors for chronic disease (Kohl et al., 2013)

2.2 Childhood obesity and health impacts

Centers for Disease Control and Prevention (CDC) states that childhood obesity may cause several health risks as it may affect the body in several ways. Childhood obesity commonly related to several health risk such as high blood pressure and high cholesterol which then can cause cardiovascular disease (CVD), type 2 diabetes, breathing difficulties such as asthma and sleep apnea, fatty liver disease and joint problems. Furthermore, study by Jalalinia et al. (2014) also suggest that overweight, obesity and their effect on health risk must be prioritized as one of most important in public health.

There would be significant increase of obesity-related morbidity and mortality due to increase of obesity number (Finucane et al., 2011). A study from Visscher & Seidel (2001) and Ng, Fleming, & Robinson (2014) suggest that obesity is a main public health problem which cause decreased life expectancy in young age group as large BMI itself is a strong predictor for overall mortality. A study by Bridger (2009) states that childhood obesity which commonly characterized by excessive fat might are one of the cause for cardiovascular complication. They also characterized with excess body fat percentage (Daniel & Scott, 1992) and waist circumference

(Dietz, 1998) with usually high triglycerides level and low high-density lipoprotein cholesterol levels for lipid profile (Morrison, Barton, Biro, Daniels, & Sprecher, 1999)

Furthermore, a study by Bhadoria et al. (2015) states that childhood obesity might expose children to type 2 diabetes as large waist circumference is one of the risk factor for type 2 diabetes mellitus. A study also state that rates of Type 2 diabetes mellitus among children increase dramatically parallel with the incidence of rising in childhood obesity cases, and obesity is prominent in most cases of youth diagnosed with this disease (Pulgaron & Delamater, 2014). The origin of Type 2 Diabetes and Coronary Heart Disease occurs in infancy, with childhood obesity bein g an important factor (Bhadoria et al., 2015)

2.3 Nutritional education in childhood obesity management

2.3.1 Dietary intervention

A study conducted among overweight and obese primary school children which consist of half-day childhood obesity awareness program. The program consists of several activities such as introduction to healthy plate, quiz and games related to healthy eating behavior and physical activities. They found that knowledge, attitude and practices toward healthy diet were poor among the obese students and the result state that this program did not show significant improvement. However, this study also state that program related to food and physical activities is important to be carried out at school especially among overweight and obese children (Shah et al., 2018). Furthermore, a study by Hetherington (2019) which conduct a program represents a guideline-orientated behavior modification out-patient treatment for overweight and obese children and

adolescents found that there is reduction of portion size and eating rates in 1 year interval which then resulting in reduction of BMI among the patients.

2.3.2 Physical activity intervention

Success rate of an intervention program that consist combination of nutritional intervention with physical activities is higher when compared to nutritional intervention alone (McCambridge et al., 2006). An intervention study by Salimin, Elumalai, Shahril, & Subramaniam (2015) among 40 obese students in SJKT Barathi Hutan Melintang, Perak which consists of several program for 8 weeks related to physical activities shows a positive result with show reduction of BMI and 2 of the students show significant BMI reduction (obese class 1 to pre obese).

Another study by Fang et al. (2019) that made an intervention study among 388 children aged 7 to 15 years old which contains several component of physical activity intervention for 12 weeks (enhancement of physical activities, extracurricular activities especially of overweight and obese subjects, physical activities at homes and also education related to health for both students and also parents) found that it is effective as the intervention group show on reduction of BMI, skinfold thickness and a better fasting glucose reading.

2.3.3 Behavior changes

There are several studies discuss on behavior changes as childhood obesity management (Blasingame ,2017; Cason-Wilkerson, Goldberg, Albright, Allison, & Haemer, 2015). A study by Blasingame (2017) which conducts an educational lecture about health living and choices using

both handouts and podium presentation show an improvement in score using pre- and post-questionnaire which assumed on improvement on awareness and knowledge about childhood obesity. Empirical evidence show that improvement can be seen when education is combined with behavioral changes. Furthermore, a study which conduct education intervention toward low income families found that there is changes related to physical activities and dietary choice among the parents and also the children (Cason-Wilkerson, Goldberg, Albright, Allison, & Haemer, 2015).

CHAPTER 3

METHODOLOGY

3.1 Study design

This cross-sectional study aimed to assess the acceptance of printed educational materials for managing childhood obesity by determine the changes of knowledge and stage of changes using pre- and post-questionnaire and understandability of the printed educational materials.

3.2 Study location

This study was conducted among children aged 7 to 12 years old in 4 district of Selangor which were Hulu Selangor, Petaling, Hulu Langat and Klang. Selangor is a state on the west coast of Peninsular Malaysia, encircling the capital Kuala Lumpur and this state have a total population od\f 6,448,400 (2018). This state also consists a total of 9 district which is Gombak, Hulu Langat, Hulu Selangor, Klang, Kuala Langat, Kuala Selangor, Petaling, Sabak Bernam and Sepang.

3.3 Sampling design

Figure 3.3 shows sampling design for this study, which is purposive sampling. Selangor was selected purposely, and a statement also flow on the research was distribute through *Whatsapp* and primary school children who fulfilled the inclusion criteria were selected

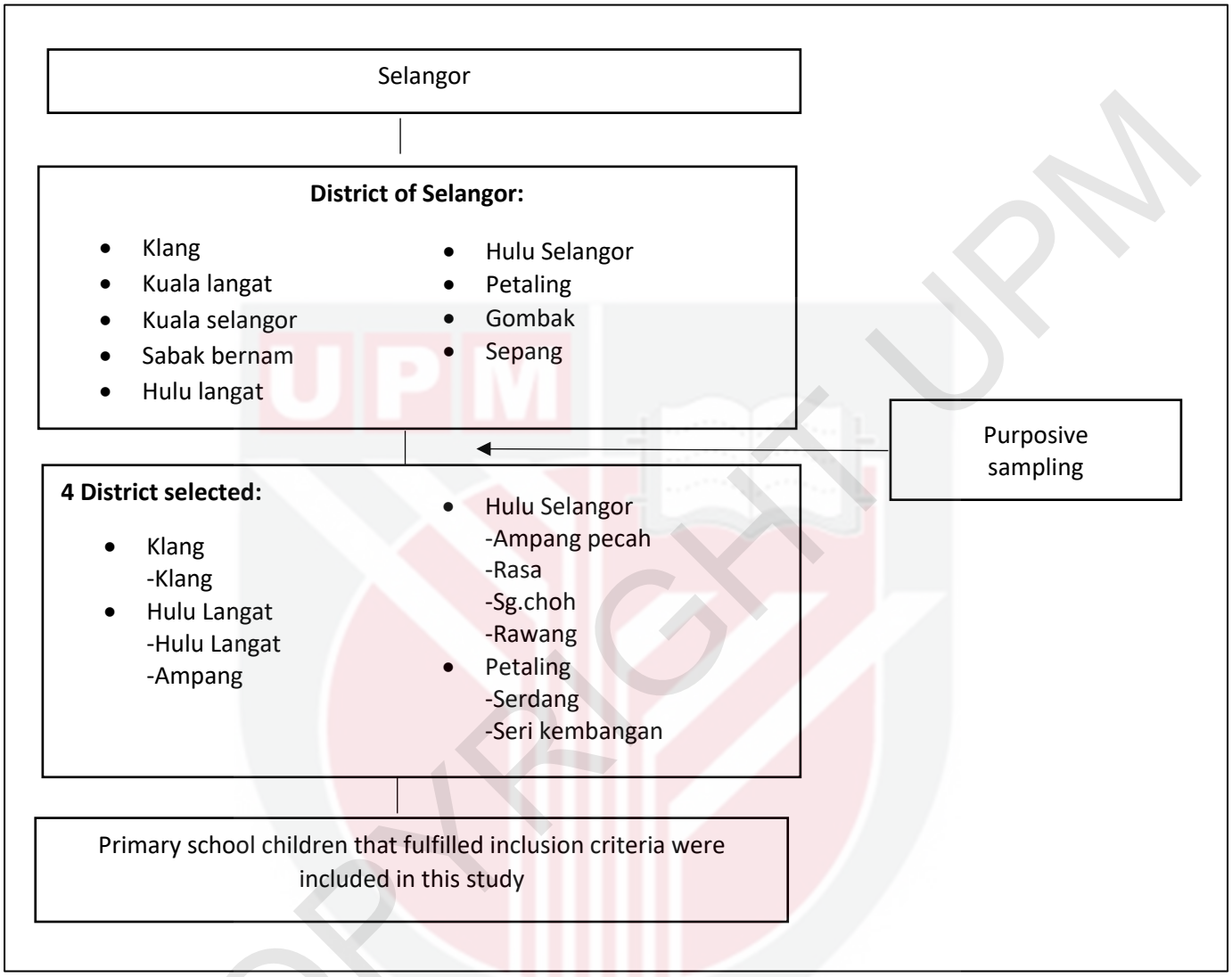

Figure 3.3

3.4 Sample size determination

Total sample size was based on literature review in the several studies:

Title & Author	Study about	Total sample size
Knowledge, attitude and practice regarding healthy diet and physical activity among overweight or obese children (Shah et. al.,2018)	Pre and post questionnaire were given to the subjects to assess the knowledge, attitude, and practice change. A half day childhood obesity awareness program was conducted to encourage the practice of healthy diet and physical activity, and persuade against unhealthy food consumption and sedentary lifestyle	30 overweight and obese children aged 8 to 11 years old in an international school in Putrajaya.
Addressing childhood obesity with education (Blasingame,2017)	Pre and post questionnaire given to the subject to measure increased scores of knowledge on healthy behavior Educational lecture on healthy living and choices (handouts and podium)	15 consist of 18 to 19 years old in Florence, Alabama

Thus, 30 overweight and obese children were the sample size for this study.

3.5 Subjects

Subjects for this study were primary school children in Selangor. Students that meet the criteria of inclusion were invited to participate in the study. Inclusion and exclusion criteria of subjects are shown in the table.

Inclusion criteria	Exclusion criteria
Children aged 7 to 12 years old	Do not have permission from parents/ guardians

Table 3.5: Inclusion and exclusion criteria for subjects

3.6 Measures

3.6.1 Socio-demographic status

The socio-demographic questionnaire was self-administered by the parent through *Google form* which consists of 19 items (name, age, date of birth, sex, ethnicity, religion, name of school, current class, children's weight and height, parent's educational status, family monthly income, educational level of parent, occupation of parent, current health status of both parent and child)

3.6.2 Stage of Changes (SOC)

Several question regardless about readiness to change according to the questionnaire was self-administered by the subjects through *google form* in order to asses SOC of the subjects. Stage of Changes questionnaire were adapted from Kristal et al. (1999) for fat, fruits and vegetables (Cullen et al.,1997) and physical activity (Marcus & Forsyth ,2003).

3.6.3 Knowledge changes

The questionnaire was self-administered by the subjects through *Google form* and it consists of several question regarding three factors that contribute to childhood obesity which is fat intake, fruits and vegetables intake and physical activities The pre and post questionnaire have the same question in order to assess the mean changes of knowledge before and after video session using Stage-based Tailored, Nutrition Education Package For Childhood Obesity (ST-NEPCO) through *youtube.* Fat consist of nine question, fruits and vegetables with four question and physical activity have five question.

3.6.4 Understandability of ST-NEPCO

Several question about feedback toward the educational materials was self-administered by the subject through *Google form.* It consists of 10 items related to the feedback of printed educational materials. This questionnaire was adapted from the Printed Education Materials Assessment Tools (PEMAT-P) by J. Sarah, S. Michael & B. Cindy (2013).

Scoring system:

-Sum the total points by scoring yes=1 and no=0
-Divide the sum by the total possible points
-Multiple the result by 100 and present the result as percentage (%)

3.7 Study approvals

Ethical approval of the study which entitled "Analysis of acceptance of printed education materials for the management of childhood obesity" was obtained from the Ethics Committee of Research Involving Human Subjects, Universiti Putra Malaysia (JKEUPM). Information sheets on the study was distributed to the subject's parents or guardians to inform about the purpose and details of the study and in order to obtain permission.

3.8 Pre-testing

Before conducting the actual data collection, a pre-testing was conducted in June 2020 in order to test clarity, understanding of the questionnaires and time taken to complete the questionnaires on the self-administered online questionnaire. A total of 3 subjects which was 10% from actual subjects for this study. Any confusion or unsuitable question was identified and corrected in and used in the actual data collection.

3.9 Data collection procedures

Data collection was conducted from April 2020 until June 2020. Potential subjects were approached through *whatsapp* by providing a brief information about the study and consent form that filled by parents through *google form*. Subjects that have permission and fulfilled inclusion criteria were given an ID number to fill the sociodemographic status and all the questionnaire. The subject was given self-administered pre-questionnaire to assess their knowledge toward factor of childhood obesity and stage of change questionnaire to assess their stage of change through

Google form. A video session was conducted using printed materials which is ST-NEPCO through *Youtube* Then, post-questionnaire also given through *Google form* to assess their mean difference of knowledge and awareness. These steps were repeated for fats, fruits and vegetables and physical activity. Lastly, the feedback form regarding feedback on the printed educational materials given through *google form*. The data collection was conducted fully through online platform due to pandemic outbreak covid-19 and several application such as google form and *youtube* were used to deliver the questionnaire and explain the content of ST-NEPCO.

All primary school children that contacted via call and *whatsapp* were invited to participate in this study. A total of 54 parent were contacted through phone and *whatsapp*. Only 30 were included in the study due to completion of all online form and excluding subjects who are not given permission by parent or not responding well to all online questionnaire.

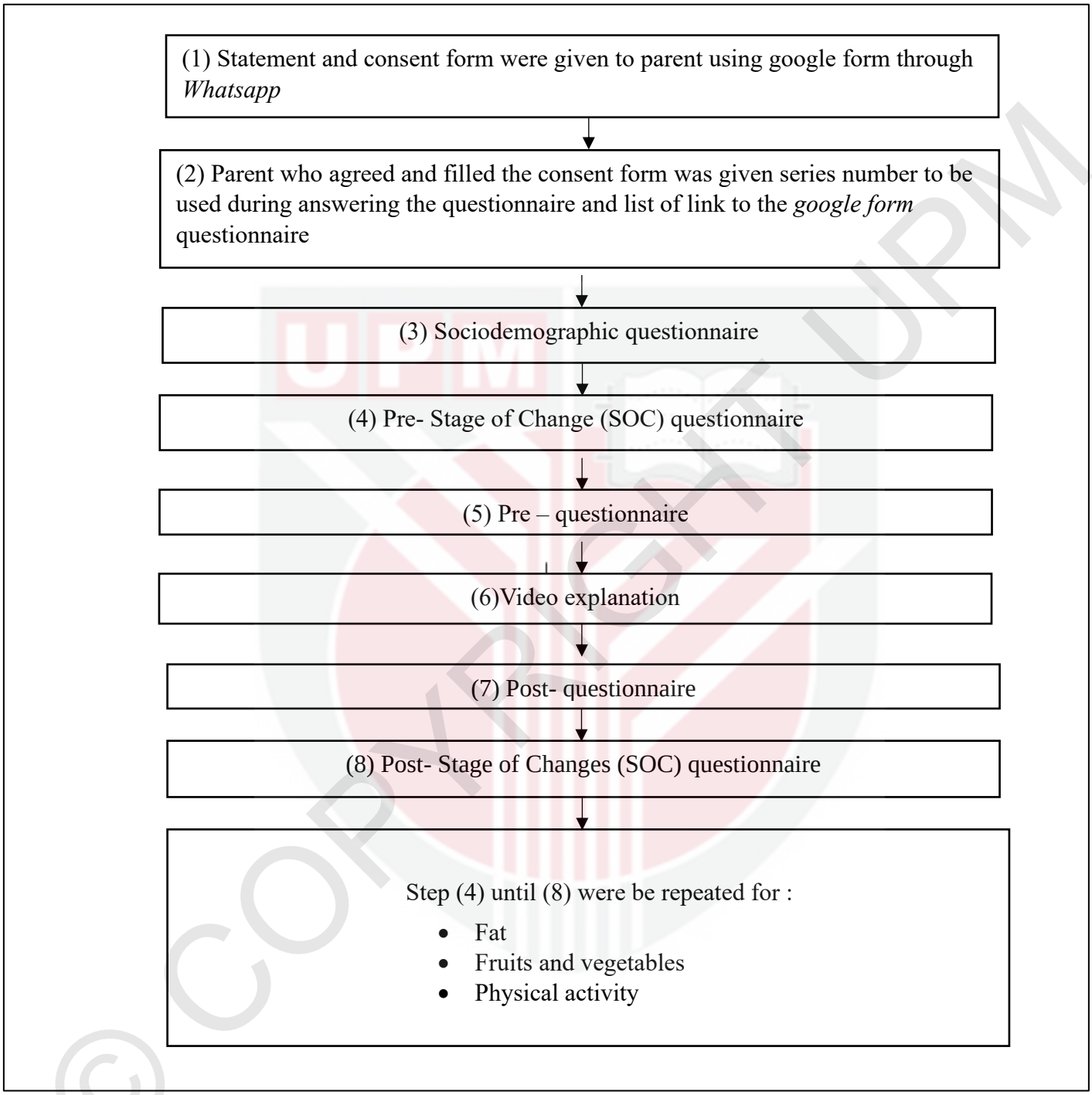

Figure 3.9

3.10 Data Analysis

Data obtained from the study was analyzed using IBM SPSS Statistics version 23 with the significance level set at $p<0.05$. Analysis on descriptive data was carried out using univariate analysis. Finding on the categorical variables was presented in frequency and percentage, while the result for continuous variables presented as means and standard deviations. The mean difference of knowledge using pre and post-questionnaire analyzed using paired sample t-test and analysis of correlation between sociodemographic with knowledge change and SOC analyzed using Fisher's exact test due to small sample size.

CHAPTER 4

RESULTS

4.1 Subject sociodemographic

4.1.1 Sociodemographic of subject

In term of age, majority of subjects were 10 and 12 years old (26.7% respectively). Most of the subjects were boys (60%) as compared to girls were involved in this study and dominated by Malays (100%). Furthermore, more than half of the subjects (63.3%) from primary school in Hulu Selangor district, followed by Hulu Langat (16.7%) and Petaling (13.3%).

In addition, majority of the parents were married (81.3%), followed by single parent (12.5%). Half of the student's family income was below RM4360 (50.0%) which classified as B40 and minority with family income of more than RM 9620 (15.6%) which classified as T20 based on Household Income Amenities Survey (2019). Other than that, most of the father had attained degree (34.4%) and foundation/diploma/matriculation (34.4%) for mother's educational status.

Table 4.1.1: Sociodemographic characteristic of subjects (n=30)

Variables	n(%)	Mean ± SD
Age(year)		9.97 ± 1.608
7	1 (3.3)	
8	7(23.3)	
9	3(10.0)	
10	8(26.7)	
11	3(10.0)	
12	8(26.7)	
Gender	18(60.0)	
Boys	12(40.0)	
Girls		
Ethnicity		
Malays	30(100)	
District		
Hulu Langat	5(16.7)	
Hulu Selangor	19(63.3)	
Klang	2(6.7)	
Petaling	4(13.3)	
Parent's marriage status		
Married	26(81.3)	
Single parent	4(12.5)	
Family monthly's income		
<RM4850 (B40)	16(50)	
RM4850-RM10,959 (M40)	9(28.1)	
>RM10,960 T(20)	5(15.6)	
Father's educational status		
Secondary school	8(25.0)	
Foundation/Diploma/Matriculation	9(28.1)	
Degree	11(34.4)	
Master	2(6.3)	
Mother's educational status		
Primary school	1(3.1)	
Secondary school	9(28.1)	
Foundation/Diploma/Matriculation	11(34.4)	
Degree	8(25.0)	
Master	1(3.1)	

4.1.2 Body Mass Index

The mean weight of boys (33.27 ± 8.53) was slightly higher as compared to girls (27.50 ± 7.98). In addition, boys also slightly taller (1.38 ± 0.10) than girls (1.31 ± 0.15). Overall, boys had higher mean for weight and height as compared to girls. The mean BMI-for-age z-score (WHO, 2007) for both genders were within normal range with boys (0.39 ± 0.70) and girls (0.08 ± 0.29), respectively.

Table 4.1.2(a) : Body Mass Index of subjects based on gender (n=30)

	All (mean ± SD)	**Boys (mean ± SD)**	**Girls (mean ± SD)**
Weight (kg)	30.96 ± 8.67	33.27 ± 8.53	27.50 ± 7.98
Height (m)	1.35 ± 0.13	1.38 ± 0.10	1.31 ± 0.15
BMI	0.27 ± 0.58	0.39 ± 0.70	0.08 ± 0.29

BMI: Body Mass Index

Most of the subjects have normal BMI-for-age z-score (80.0%) followed by overweight (13.3%) and obese (6.7%). There were just only male for obese status (11.1%) with no female and more male in term of overweight (16.7%) as compared to female (8.3%). As for normal BMI-for-age z-score, male have percentage of 72.2% while female have percentage of 91.7%.

Table 4.1.2(b) : Classification of BMI-for-age z-score of subjects(n=30)

	Boys n(%)	Girls n(%)	All n(%)
BMI- for- age z score			
Normal	13(72.2)	11(91.7)	24(80.0)
Overweight	3(16.7)	1(8.3)	4(13.3)
Obese	2(11.1)	0	2(6.7)

4.1.3 Changes in knowledge

As shown in Table 4.1.3, changes in fat was statistically significant increase in the score from pre-test (27.92 ± 6.40) to post-test (30.70 ± 6.69), t=3.509, p<0.05. For fruits and vegetables, there was statistically significant increase in the score form pre-test (16.17 ± 3.01) to post-test (17.11 ± 3.25), t=3.159, p<0.05. There was statistically significant increase also for fat as the score from pre-test (19.40 ± 8.85) to post-test (23.50 ± 5.85), t=4.846, p<0.05.

Table 4.1.3: Changes in knowledge (pre- and post- questionnaire)

Item	Pre (Mean ± SD)	Post (Mean ± SD)	t-value	p-value
Fat	27.92 ± 6.40	30.70 ± 6.69	3.509	0.001**
Fruits and Vegetables	16.17 ± 3.01	17.77 ± 3.25	3.159	0.004**
Physical activity	19.40 ± 8.85	23.50 ± 5.85	4.846	0.000**

*Paired t-test *p<0.05 **p<0.01

4.1.4 Changes in Stage of Change (SOC)

As shown in Table 4.1.4(a) , at pre of the study, most of the subjects were pre-contemplation and contemplation (80.0%). Meanwhile, at end of the study, more than half of the participant remained as pre-contemplation and contemplation 73.4%. Percentage of preparation was increased from 20.0% to 26.7%. As for fruits and vegetables, the SOC at pre (26.7%) to post (43.4%) for preparation stage was increased. The trend also similar for physical activity which decrease for pre contemplation (6.7% to 0) and increase for contemplation (43.3% to 23.3%) and action (23.3% to 26.7%). This indicated that the changes in SOC for preparation were increased from pre to post for fat, fruits and vegetables and physical activity.

Table 4.1.4(a) : Difference of Stage of Changes (SOC) of subjects

Item	Pre-SOC n (%)	Post-SOC n (%)
Fat		
Pre-contemplation	4(13.3)	2(6.7)
Contemplation	20(66.7)	20(66.7)
Preparation	6(20.0)	8(26.7)
Fruits and Vegetables		
Pre-contemplation	5(16.7)	0
Contemplation	17(56.7)	17(56.7)
Preparation	8(26.7)	13(43.3)
Physical activity		
Pre-contemplation	2(6.7)	0
Contemplation	13(43.3)	15(50.0)
Preparation	8(26.7)	7(23.3)
Action	7(23.3)	8(26.7)

As shown in table 4.1.4(b), majority of subjects were on same or regress stage for pre- and post-questionnaire which were fat (86.%7), fruits and vegetable intakes (66.7%) and physical activity (86.7%). In the other hand, there were several subjects that increase in term of SOC which were 13.3% for fat, 33.3% for fruits and vegetable intakes and 10.0% for physical activity.

Table 4.1.4(b) : Changes in SOC (pre- and post- questionnaire)

Item	SOC n (%)
Fat	
Same/regress	26(86.7)
Increase	4(13.3)
Fruits and Vegetables	
Same/regress	20(66.7)
Increase	10(33.3)
Physical activity	
Same/regress	26(86.7)
Increase	3(10.0)

4.1.5 Correlation between sociodemographic characteristic and change in knowledge

In this study, there were no significant association between sociodemographic characteristic (gender, BMI, age and parent's educational status) and knowledge change of fat (Table 4.1.5(a)) , fruits and vegetables (Table 4.1.5(b)) and physical activity (Table 4.1.5(c)).

Table 4.1.5(a): Correlation between sociodemographic characteristic and knowledge change in knowledge for fat

Variable	Knowledge change		p-value
	Decrease n(%)	Increase n(%)	
Gender			1.000
Boy	3(60.0)	15(60.0)	
Girl	2(40.0)	10(40.0)	
Body Mass Index			3.159
Normal	5(100.0)	19(76.0)	
Overweight and obesity	0	6(24.0)	
Age(year)			0.129
7-9	0	11(44.0)	
10-12	5(100.0)	14(56.0)	
Father's educational status			0.287
Primary/secondary school	0	8(32.0)	
Diploma/degree/master	5(100.0)	17(68.0)	
Mother's educational status			0.640
Primary/secondary school	1(20.0)	9(36.0)	
Diploma/degree/master	4(80.0)	16(64.0)	

*Fisher's exact test
*p<0.05 **p<0.01

Table 4.1.5(b): Correlation between sociodemographic characteristic and knowledge change in knowledge for fruit and vegetable intakes

Variable	Knowledge change		p-value
	Decrease n(%)	Increase n(%)	
Gender			0.660
Boy	3(50.0)	15(62.5)	
Girl	3(50.0)	9(37.5)	
Body Mass Index			1.000
Normal	5(83.3)	19(79.2)	
Overweight and obesity	1(16.7)	5(20.8)	
Age(year)			1.000
7-9	2(33.3)	9(37.5)	
10-12	4(66.7)	15(62.5)	
Father's educational status			1.000
Primary/secondary school	1(16.7)	7(29.2)	
Diploma/degree/master	5(83.3)	17(70.8)	
Mother's educational status			0.633
Primary/secondary school	1(16.7)	9(37.5)	
Diploma/degree/master	2(83.3)	15(62.5)	

*Fisher's exact test
*p<0.05 **p<0.01

Table 4.1.5(c): Correlation between sociodemographic characteristic and knowledge change in knowledge for fats

Variable	Knowledge change		p-value
	Decrease n(%)	Increase n(%)	
Gender			1.000
Boy	2(50.0)	16(61.5)	
Girl	2(50.0)	10(38.5)	
Body Mass Index			0.557
Normal	4(100.0)	20(76.9)	
Overweight and obesity	0	6(23.1)	
Age(year)			0.268
7-9	0	11(42.3)	
10-12	4(100.0)	15(57.7)	
Father's educational status			1.000
Primary/secondary school	1(25.0)	7(26.9)	
Diploma/degree/master	3(75.0)	19(73.1)	
Mother's educational status			0.272
Primary/secondary school	0	10(38.5)	
Diploma/degree/master	4(100.)	16(61.5)	

*Fisher's exact test
*p<0.05 **p<0.01

4.1.6 Correlation between sociodemographic characteristic and SOC

In this study, there were no significant association between sociodemographic characteristic (gender, BMI, age and parent's educational status) and SOC change of fat (Table 4.1.6(a)) , fruits and vegetables (Table 4.1.6(b)) and physical activity (Table 4.1.6(c)).

Table 4.1.6(a): Correlation between sociodemographic characteristic and SOC changes for fat

Variable	SOC changes		p-value
	Regress/same n(%)	Increase n(%)	
Gender			0.531
Boy	16(61.5)	2(50.0)	
Girl	10(38.5)	2(50.0)	
Body Mass Index			0.612
Normal	21(80.8)	3(75.0)	
Overweight and obesity	5(19.2)	1(25.0)	
Age(year)			1.000
7-9	10(38.5)	1(25.0)	
10-12	16(61.5)	3(75.0)	
Father's educational status			0.550
Primary/secondary school	*8(30.8)*	0	
Diploma/degree/master	*18(69.2)*	4(100.0)	
Mother's educational status			0.272
Primary/secondary school	10(38.5)	0	
Diploma/degree/master	16 (61.5)	4(100.0)	

*Fisher's exact test
*p<0.05 **p<0.01

Table 4.1.6(b): Correlation between sociodemographic characteristic and SOC changes for fruit and vegetable intakes

Variable	SOC changes		p-value
	Regress/same n(%)	Increase n(%)	
Gender			0.118
Boy	14(70.0)	4(40.0)	
Girl	6(30.0)	6(60.0)	
Body Mass Index			0.065
Normal	12(70.0)	10(100.0)	
Overweight and obesity	6(30.0)	0	
Age(year)			0.108
7-9	5(25.0)	6 (60.0)	
10-12	15 (75.0)	4(40.0)	
Father's educational status			0.682
Primary/secondary school	6 (30.0)	2(20.0)	
Diploma/degree/master	14 (70.0)	8(80.0)	
Mother's educational status			0.231
Primary/secondary school	5(25.0)	5(50.0)	
Diploma/degree/master	15(75.0)	5(50.0)	

*Fisher's exact test
*p<0.05 **p<0.01

Table 4.1.6(c): Correlation between sociodemographic characteristic and SOC changes for physical activity

Variable	SOC changes		p-value
	Regress/same n(%)	Increase n(%)	
Gender			1.000
Boy	16 (61.5)	2 (50.0)	
Girl	10(38.5)	3 2(50.0)	
Body Mass Index			0.612
Normal	21 (80.8)		
Overweight and obesity	5(19.2)	2(66.7)	
		1(33.3)	
Age(year)			0.708
7-9	9 (34.6)		
10-12	17(65.4)	1 (33.3)	
		2 (66.7)	
Father's educational status			0.663
Primary/secondary school	*8(30.8)*		
Diploma/degree/master	*18(69.2)*	0	
		3(100.0)	
Mother's educational status			
Primary/secondary school	*10(38.5)*	0	0.272
Diploma/degree/master	*16(61.5)*	4(100.0)	

*Fisher's exact test
*p<0.05 **p<0.01

4.1.7 Feedback on educational tools (ST-NEPCO)

From Table 4.1.7(a), all of the subject (100.0%) agreed that the material uses illustrations and photographs that are clear and uncluttered, the material's visual aids have clear tiles or captions and the content covered presents relevant information on healthy eating for obese children. This is followed by 90.0% of subject agreed that the material uses visual aids whenever they could make content more easily understood and applicability of the package in individual nutritional counselling practice. Furthermore, about 26 subjects (86.7%) agreed that illustration used have a suitable design for children and illustration and texts motivate the obese children to understand the proposed theme. Meanwhile, 83.3% of subject choose yes for instruction given and illustration presented are necessary for understanding the content and followed by the words and sentence used are understandable (76.7%)

Table 4.1.7(a): total number of scores for each item in feedback questionnaire

Item	Yes n (%)	No n (%)
The material uses illustrations and photographs that are clear and uncluttered	3*0(100.0)*	0
The material's visual aids have clear titles or captions	30(100.0)	0
The material uses visual aids whenever they could make content more easily understood	27(90.0)	3(10.0)
The content covered presents relevant information on healthy eating for obese children	30(100.0)	0
The words and sentence used are understandable	23(76.7)	7(23.3)
Illustration used have a suitable design for children	26(86.7)	4(13.3)

Instruction given and illustration presented are necessary for understanding the content	25(83.3)	5(16.7)
Illustration and texts motivate the obese children to understand the proposed theme	26(86.7)	4(13.3)
Applicability of the package in individual nutritional counselling practice	27(90.0)	3(10.0)

The table show on total marks for feedback on educational tools using Patient Education Materials Assessment Tool for Printable Materials (PEMAT-P) calculation. Based on the result, majority have result of 100% (66.7%) followed by 77.78% (10.0%) and 55.56%(10.0%) and the least is 88.8% and 66.67% (6.70%) respectively. Since most of the subject give high number of marks, this indicated that the printed education tools (ST-NEPCO) is understandable and actionable for majority of the subjects.

Table 4.1.7(b): Total scores of feedback of ST-NEPCO

Total score (%) for ST-NEPCO	n(%)
100.0	20 (66.7)
88.8	2(6.70)
77.78	3(10.0)
66.67	2(6.70)
55.56	3(10.0)

CHAPTER 5

DISCUSSION

5.1 Subject's characteristic

5.1.1 Sociodemographic of subjects

Among the age group, majority of subjects were from the older age group which is 10 years old and 12 years old. This could due to capability of older age group to answer the question which help them to answer it in lesser time taken and did not really need help from parent/ guardian compared to younger age group. Another reason can be due to accessibility of the older age group to electronic gadget since the study was conducted fully online.

There were slightly more boys compared to girls who participated in this study, which is quite consistent with the enrolment at primary level by gender (Ministry of Education, 2018) that shows total of boys was slightly higher compared to girls. Furthermore, all of the subjects were Malays which might due to ratio of Malays and non-Malays of primary school children and this might due to the use of Bahasa Malaysia language for the questionnaire and also video explanation. Furthermore, most of the subjects came from Hulu Selangor as compared to other districts. This is due to all the subject from Hulu Selangor were approached from researcher through online platform after low response from other district.

For the parent's social background. Majority of the parent was married as compared to single parent. Majority of the subject classified as B40 (<RM4850) and least classified as T20 (>10,960) which is consistent with survey from Household Income & Basic Amenities Survey Report (2019) that show income threshold for the B40 group have majority of households (2.91

million) compared to other. Majority of the father's educational status consist of degree and foundation/diploma/matriculation for mother's educational status.

5.1.2 Body Mass Index

Girls had lower weight as compared to boys. This might due to girls are tend to have issues with body image (Body composition and Body Mass Index) and also body dissatisfaction due to pattern of physical beauty pattern with influence of mass media, and thus take better care of their weight (Nurul-Fadhilah et al.,2013). The finding was consistent with the height that show girl have lower mean in term of height compared to boy. This can be influenced by ratio of age between boys and girls that participated in this study.

For the classification of BMI-for-age (World Health Organization,2007), it is found that 80.0% of the subject were normal, followed by 13.3% overweight and 6.7% obese. The proportion of subject who are overweight and obese in this study was higher compared to study by Naidu et al. (2013) that reported 7.8% children were overweight and obese in Selangor. This is kind of worrying since childhood obesity is a predictor of adult obesity and can cause metabolic syndrome (Quah et al., 2010) which supported by a study which state that prevalence of metabolic syndrome among overweight and obese children in Malaysia was 10.0%.

5.1.3 Change in Knowledge

There is statistically significance increase ($p<0.05$) reported for all three factor which is fats, fruits and vegetables and also physical activities. This means that most of the subject have a

higher or better mark in term of post-questionnaire compared to pre-questionnaire after watching video explanation on the Stage-based Tailored Nutrition Education Package for Childhood Obesity (ST-NEPCO). This finding is similar with study from Blasingame (2017) which found that there is overall improvement of test score in term of knowledge on nutritional status after using educational materials such as infographics and PowerPoint presentations.

This indicated that educational materials are important for a better understanding especially among young children (Ramos et al.,2019). Moreover, Hoffman et al. (2004) also state that educational materials is important as a reinforcement tool for verbal communication and help to improve knowledge, satisfaction, and adherence to treatment as well as stimulate patient's self-care. Thus, increasing knowledge and awareness through educational materials is important. This is supported by a study from Blasingame (2017) which found that behavioral changes happen when knowledge and awareness increase by living a better lifestyle in term of dietary changes, increase physical activities and sleep improvement to manage obesity.

5.1.4 change in SOC

Prochaska and DiClemente (1986) states that SOC are trans-theoretical model for behavioural changes. It is divided into five categories (pre-contemplation, contemplation, preparation, action, and maintenance). These SOC can be interpreted as educational materials which provided during nutritional counselling is important to enhance children understanding of nutrition information. SOC has been used in several childhood obesity interventions to reduce intake of fat, increase intake of fruits and vegetables and increase duration of physical activity to promote weight loss (Jury & Flett, 2010; Mason et al., 2008; Frenn et al., 2003)

There was statistically increase in term of SOC for pre- and post- of all factors (fats, fruits and vegetables and physical activity). This can be explained by the subject might increase in term of knowledge and awareness about childhood obesity which then resulting in progression of SOC from to pre-contemplation or preparation stage .

5.1.5 Correlation between sociodemographic characteristic and change in knowledge

From previous result, it is stated that the knowledge change of the subject from this study was increased in term of post-questionnaire as compared to pre-questionnaire. However, it was found that there is no statistically significant association of the change in knowledge with sociodemographic for age, gender, Body Mass Index (BMI) and parent's educational status for all three factors (fats, fruits and vegetables and physical activity).

In this study, the change in term of knowledge (fat, fruit and vegetables and physical activity) was not influenced or associated with sociodemographic characteristic (gender, Body Mass Index, age , father educational status and mother educational status). This might due to uneven distribution of upper age (10, 11 and 12 years old) which have more subjects as compared to lower age which were 7 to 9 years old. A study from T.Agis et. Al. (2007) found that higher age school children have lower opportunity in knowledge changes as compared to lower age school children for school-based intervention.

There is also no correlation found for change in knowledge with gender. A study found that gender did not associate or influence the score for the nutritional intervention (V. Leblanc, 2014). However, there is lack of study that explain on correlation between knowledge change with Body Mass Index because most of study focus on certain type of BMI such as intervention study on

obesity management that focus on overweight and obese children only (Shah et. al.,2018) and did not include normal BMI subjects.

There are also lacks of study discuss on parent's educational status with knowledge changes. A study from Li Z. & Qiu Z.(2018) states that there is association between family socioeconomic status with eagerness of children on learning knowledge which family with higher family's socioeconomic status have lower enthusiasms for children learning's ability but consideration on another factor such as environment must be considered.

5.1.6 Correlation between sociodemographic characteristic and change in SOC

There are increase in trend of SOC for fat, fruit and vegetable intakes and physical activity But it is found that there is no statistically correlation between sociodemographic characteristic (age, gender, Body Mass Index (BMI) , father's educational status and mother's educational status) with SOC changes (same/regress and increase). A study by A. Carissimi et. al. (2015) states that in term of gender, boys have higher self-efficacy (physical activity) as compared to girls. This study also found that subjects with higher age or higher BMI have lower self-efficacy (physical activity).

The results also show that there is no correlation of parent's educational status and SOC changes of the subjects. According to H.S Kim et. Al. (2015), parent (with any educational background) that involve in intervention program help to enhance efficacy of children toward dietary which then, help them to have a better stage toward healthier diet.

5.1.6 Acceptance of ST-NEPCO

The patient Education Materials Assessment Tools (PEMAT) is a method used in order to evaluate and compare the understandability and actionability of patient education materials (J. Sarah, S. Michael & B. Cindy ,2013). This assessment tools were used in several study for example understandability and actionability of web-based education materials on hypertension management (Ramadan Ab Hamid et al, 2020).

10 question were asked in this study (1 question on overall comment from the subjects) and the question was adapted from PEMAT-P which is for printed educational materials. The scoring system were calculated by answer yes=1 and no=0 and average of the answer were multiplied by 100 in order to get total marks of the educational materials (J. Sarah, S. Michael & B. Cindy ,2013).

In this study, majority of the subjects (66.7%) give high marks which is 100.0% for ST-NEPCO which indicated that they understand on the content and able to get what the educational materials intended to convey on. Moreover, all (n=30) of the subjects agreed on three items from the questionnaire which were the material uses illustration and photographs that are clear; uncluttered material's visual aids have clear titles and captions; the content covered presents relevant information on healthy eating for obese children.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Based on the finding obtained, there is significant increase of changes in term of knowledge and SOC for all topics covered in ST-NEPCO (fats, fruits and vegetables and physical activity). Meanwhile, sociodemographic of the subject was found to be not associated with knowledge changes and SOC of the subject in term of fat, fruits and vegetables and physical activity. Lastly, it is found that the acceptance of ST-NEPCO (printed educational materials) is high among subjects. Thus, finding from this study can be concluded that aids from printed educational materials is important to enhance knowledge and SOC especially among children.

6.2 Strength and Limitation

This study can serve as baseline study for future research since there are not many studies on printed educational tools for childhood obesity management. Furthermore, this study can fill the research gap since there is lack of study that assessing on association of knowledge change and SOC with sociodemographic. Plus, this study shown the understandability of ST-NEPCO as a potential educational tool for childhood obesity management.

Several limitations were found in this study. Firstly, this study has small sample size which might influence the association and result of this study. Moreover, the distribution of subjects in term of age also might influence the result. Secondly, this study was conducted among all primary school children without differentiated their BMI-for-age z score status which might affect the

result of the study because the printed educational materials ware intended to be used to obese children.

Lastly, there is high chance of bias since the online questionnaire were self-administered by the parents and subjects. A more appropriate procedure were planned at beginning of this study which to have screening of subjects at their school. Next, obese children which determined from the screening procedure will be approached on an educational session using ST-NEPCO and the questionnaire were self-administered by the subjects and monitored by researcher. However, due to pandemic Covid-19, screening procedure could not be conducted due to no access to school and online platform were used to replace the method.

6.3 Future recommendation

Since it is found that this printed educational material increase knowledge and also SOC of the subjects, ST-NEPCO were recommended to be a potential printed educational material to be used in the management of childhood obesity. It is recommended especially for health care practitioner (dietitian or nutritionist) during counselling session in enhancing knowledge and awareness for obese children. Moreover, this printed educational materials can be used as a guideline towards the session as it highlights on certain title for focus which help for a smooth session. Furthermore, appropriate graphic and content of ST-NEPCO that was found to have high understandability based on this study might help the obese children to have better understanding towards the word used in ST-NEPCO and focus during the session due to the colorful and interesting graphic.

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Robert c. w hitaker , m.d., m.p.h., j effrey a. w right , m.d., m argaret s. p epe , p h .d., k risty d. s eidel , m.s., and w illiam h. d ietz , m.d., p. h. . . (1997). predicting obesity in young adulthood from childhood, 869–873.

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Appendices
Appendix I : Ethical approval by JKEUPM

Ref. No: UPM/TNCPI/RMC/JKEUPM/1.4.18.2(JKEUPM)
Date: 18 Jun 2020

Dear Prof./Dr./Mr./Ms.,

APPLICATION FOR JKEUPM ETHICAL CLEARANCE: APPROVED

With reference to the above, I am pleased to inform you that your application for ethical clearance for the research project entitled **'Development and Evaluation of a Stage-Based Tailored, Nutrition Education Package for Childhood Obesity (ST-NEPCO)(7-11 Years Old) in Petaling District, Selangor'** has been approved.

Please note that the official letter of approval will be issued as soon as possible. However, the ethical clearance is considered effective from the date of this email, and you may now proceed with your research.

Kindly remind the ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.

Researchers should also complete a Study Final Report upon study completion. The form can be obtained from the Ethics Committee for Research Involving Human Subjects (JKEUPM) website (http://www.tncpi.upm.edu.my/faildokumen).

If you have any enquiries, please contact Ms. Nurulhasanah Ishak (03-97691605) or Ms. Nor Ellia Abd Ajis (03-97691244).

Note: Please use this reference number for any transaction. - **JKEUPM-2019-375**

Thank you.

Yours faithfully,

Prof. Dr. Zamberi Sekawi
Chair
Ethics Committee for Research Involving Human Subjects
Universiti Putra Malaysia

APPENDIX II : Participant information sheet and informed consent form (malay version)

HELAIAN MAKLUMAT UNTUK RESPONDEN

Sila baca maklumat berikut secara berhati-hati, jangan teragak-agak untuk berbincang sebarang soalan yang anda ada dengan penyelidik anda.

TAJUK KAJIAN

ANALISIS PENERIMAAN BAHAN PENDIDIKAN BERCETAK UNTUK PENGURUSAN KANAK-KANAK OBESITI

Nama penyelidik dan institusi:

Nurfarhana Sahira Binti Rosly
Pelajar Ijazah Sarjana Muda
Jabatan Pemakanan dan Dietetik
Fakulti Perubatan dan Sains Kesihatan
Universiti Putra Malaysia

PENGENALAN

Menurut Tinjauan Kesihatan dan Morbiditi Nasional Malaysia (NHMS) 2017, kelaziman keseluruhan berat badan berlebihan dan obesiti kanak-kanak di Malaysia pada tahun 2017 adalah 11.9%. Kelaziman adalah lebih tinggi pada lelaki, (13.6%) dan di kalangan kanak-kanak dibandar (12.1%). Pendidikan mengenai pengubahsuaian gaya hidup adalah bahagian penting dalam kaunseling pemakanan untuk kanak-kanak berlebihan berat badan dan obes. Maklumat barisan pengubahsuaian gaya hidup pertama adalah untuk meningkatkan kesedaran dan pengetahuan mereka tentang obesiti dalam gambaran yang lebih besar seperti penyakit kronik yang mungkin timbul dalam kehidupan kemudian mereka. Kenyataan ini sangat disokong oleh kajian yang mendapati peningkatan tahap kesedaran terhadap gaya hidup sihat di kalangan masyarakat menyebabkan penjagaan kesihatan yang lebih baik (Rauf et al., 2018). Selain itu, kajian mendapati obesiti pada masa kanak-kanak memang berkait rapat dengan kecacatan fizikal dan ketidakupayaan untuk bekerja yang mempunyai kecenderungan yang kuat untuk mengikuti masa dewasa. Oleh itu, adalah munasabah untuk mengandaikan bahawa kebanyakan kanak-kanak dan

remaja yang gemuk akan menjadi orang dewasa yang obes dan mempunyai pendedahan seumur hidup yang besar (Robert et al., 1997)

APA YANG PATUT ANDA LAKUKAN?

Jika anda membuat keputusan untuk mengambil bahagian dalam kajian ini, anda perlu mengisi borang maklumat serta akan diberikan beberapa soalan serta video dalam bentuk *goolgle drive* dan anak anda perlulah melengkapkan kesemua soalan dalam masa yang ditetapkan.

Ibu bapa/ penjaga:

a. Melengkapkan rekod maklumat diri dan keluarga

Kanak-kanak:

a. Menjawab beberapa soalan (Pre-soalan dan post-soalan) dalam bentuk online
b. Menjalani sesi pendidikan menggunakan alatan bercetak (video)

SIAPA YANG TIDAK PATUT MEMASUKI KAJIAN INI?

Kanak-kanak yang didiagnosis dengan asma kronik, kencing manis dan gangguan psikiatri (cth. skizofrenia, autisme teruk atau kecacatan mental, atau psikosis), atau keadaan perubatan serius lain.

APAKAH MANFAAT-MANFAAT KAJIAN INI?

(a) KEPADA ANAK ANDA SEBAGAI REPONDEN?

Anda akan mendapatkan maklumat berharga tentang status pemakanan anak anda dan anak anda akan menerima pendidikan mengenai pemakanan untuk pemilihan makanan serta gaya hidup yang lebih sihat dari segi pengambilan lemak, aktiviti fizikal serta pengambilan sayur-sayuran dan buah-buahan.

b) KEPADA PENYELIDIK?

Hasil kajian akan memberikan maklumat tentang keberkesanan bahan cetakan pendidikan untuk pengurusan pediatrik obesiti.

ADAKAH SEBARANG RISIKO?

Mungkin terdapat kesukaran dalam menjawab soalan yang diberikan. Bantuan ibu bapa/ penjaga amat diharapkan.

APAKAH KEMUNGKINAN APABILA KELUAR DARIPADA KAJIAN?

Anak anda dibenarkan untuk menarik diri daripada kajian ini pada bila-bila masa dan tidak perlu memberi sebarang alasan untuk menarik diri dan tidak ada sebarang kerugian atau denda terhadap anak anda dalam sebarang bentuk.

ADAKAH MAKLUMAT DAN IDENTITI ANAK SAYA KEKAL RAHSIA?

Semua maklumat adalah rahsia. Identiti anak anda tidak akan dipamerkan di dalam mana-mana laporan, pembentangan atau penerbitan. Kajian ini melihat maklumat secara menyeluruh daripada semua responden dan bukan jawapan individu.

SIAPA PERLU SAYA HUBUNGI JIKA SAYA MEMPUNYAI SOALAN SEPANJANG KAJIAN DIJALANKAN?

Jika anda ada sebarang pertanyaan berkenaan kajian in, sila hubungi Nurfarhana Sahira Binti Rosly di talian 017-2949848, atau email nurfarhana_sahira@yahoo.com. Jika perlu, anda boleh menghubungi penyelia saya, Dr. Nor Baizura Md Yusop di talian 03-97692479

FAKULTI PERUBATAN DAN SAINS KESIHATAN
FACULTY OF MEDICINE AND HEALTH SCIENCES
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
SELANGOR, MALAYSIA

PERSETUJUAN

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

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

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

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

*potong yang tidak berkenaan

Tandatangan …… Tandatangan ……
(Ibubapa/ Penjaga) *(Saksi)*

Tarikh :…… Nama :……

No. K/P: ……

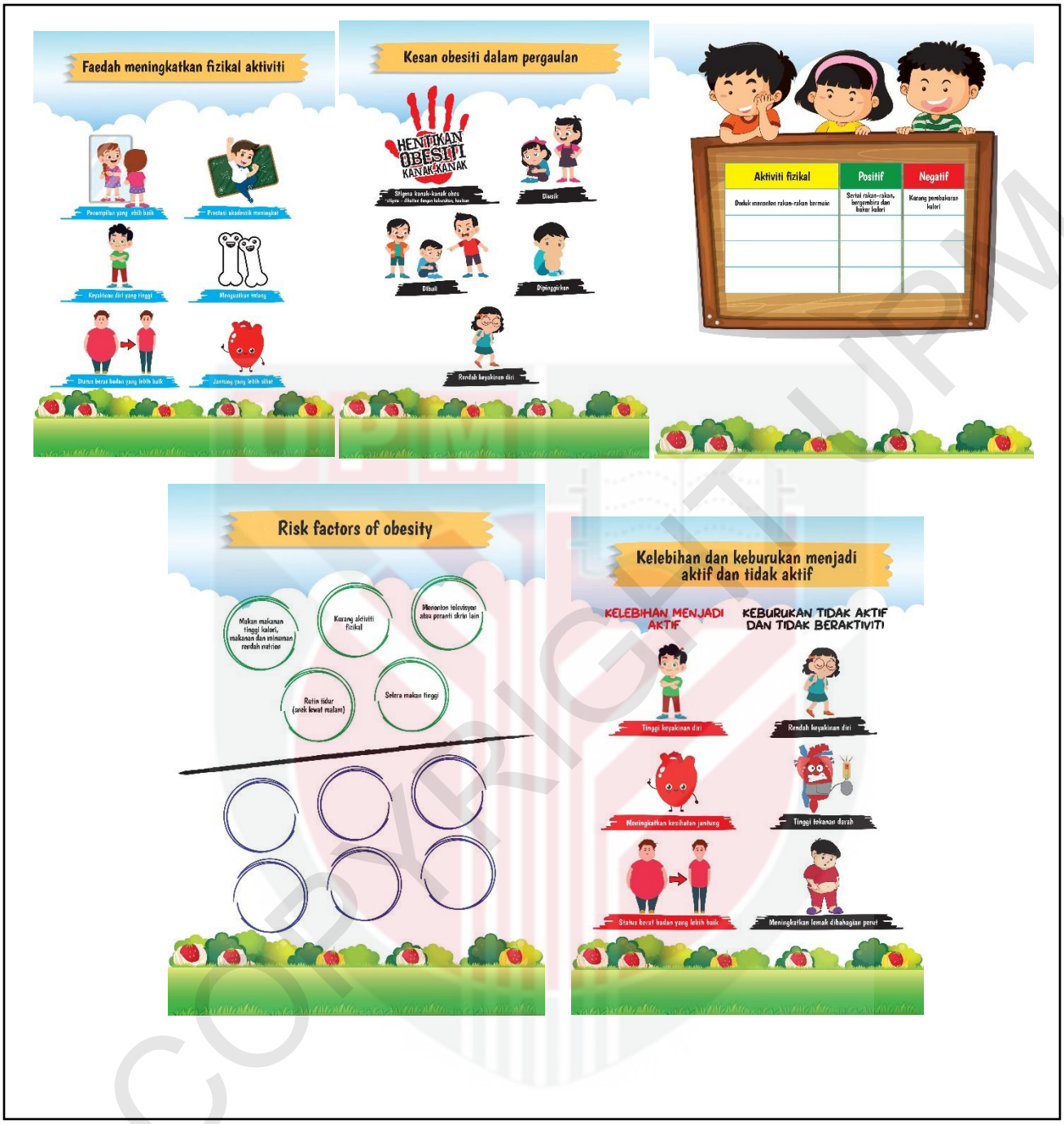
Saya mengesahkan bahawa saya telah menerangkan kepada ibubapa/penjaga responden mengenai sifat dan tujuan penyelidikan tersebut di atas.

Tarikh …… Tandatangan ……
(Penyelidik)

APPENDIX III: ST-NEPCO content (Malay version)

Fat

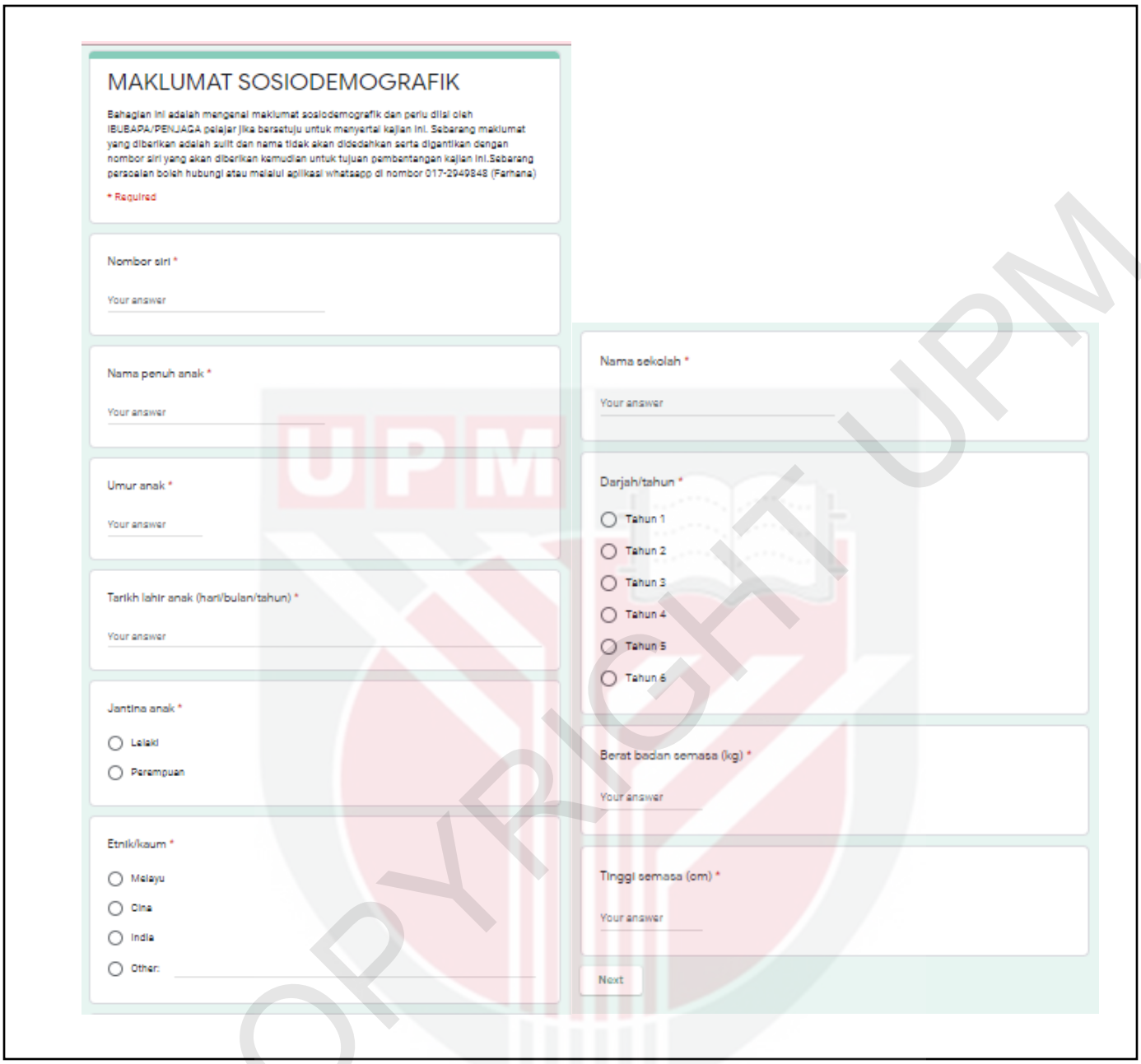
Fruits and vegetables



Physical activity

APPENDIX IV :Data collection form (Malay version)

Consent form



MAKLUMAT SOSIODEMOGRAFIK

Bahagian ini adalah mengenai maklumat sosiodemografik dan perlu diisi oleh IBU/BAPA/PENJAGA pelajar jika bersetuju untuk menyertai kajian ini. Sebarang maklumat yang diberikan adalah sulit dan nama tidak akan didedahkan serta digantikan dengan nombor siri yang akan diberikan kemudian untuk tujuan pembentangan kajian ini.Sebarang pertanyaan boleh hubungi atau melalui aplikasi whatsapp di nombor 017-2949848 (Farhana)

* Required

Nombor siri *

Your answer

Nama penuh anak *

Your answer

Umur anak *

Your answer

Tarikh lahir anak (hari/bulan/tahun) *

Your answer

Jantina anak *

- Lelaki
- Perempuan

Etnik/kaum *

- Melayu
- Cina
- India
- Other:

Nama sekolah *

Your answer

Darjah/tahun *

- Tahun 1
- Tahun 2
- Tahun 3
- Tahun 4
- Tahun 5
- Tahun 6

Berat badan semasa (kg) *

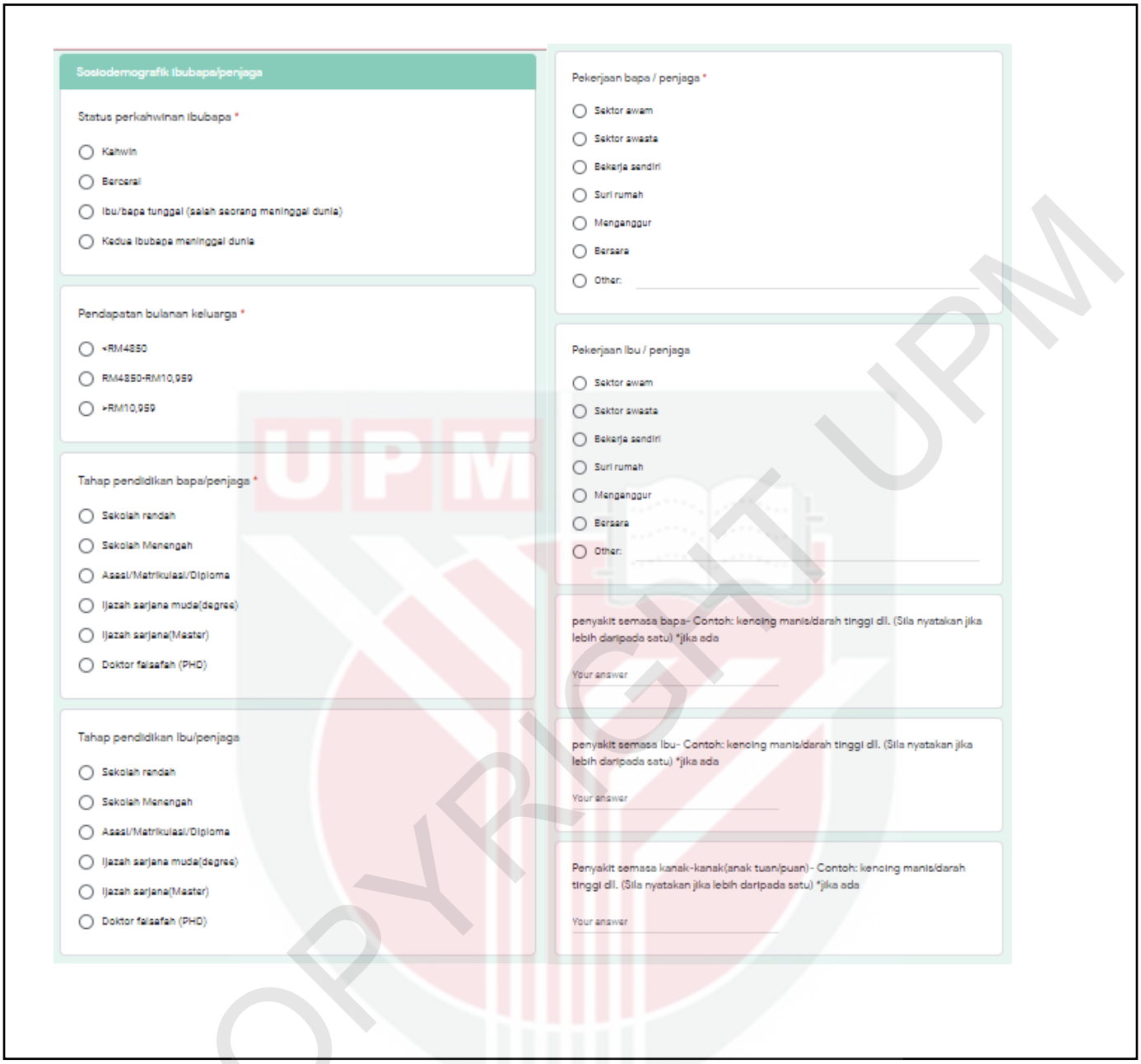
Your answer

Tinggi semasa (cm) *

Your answer

Next

Sociodemographic questionnaire



Sociodemographic questionnaire

Sociodemografik ibubapa/penjaga

Status perkahwinan ibubapa *
- Kahwin
- Bercerai
- Ibu/bapa tunggal (salah seorang meninggal dunia)
- Kedua ibubapa meninggal dunia

Pendapatan bulanan keluarga *
- <RM4850
- RM4850-RM10,959
- >RM10,959

Tahap pendidikan bapa/penjaga *
- Sekolah rendah
- Sekolah Menengah
- Asasi/Matrikulasi/Diploma
- Ijazah sarjana muda(degree)
- Ijazah sarjana(Master)
- Doktor falsafah (PHD)

Tahap pendidikan ibu/penjaga
- Sekolah rendah
- Sekolah Menengah
- Asasi/Matrikulasi/Diploma
- Ijazah sarjana muda(degree)
- Ijazah sarjana(Master)
- Doktor falsafah (PHD)

Pekerjaan bapa / penjaga *
- Sektor awam
- Sektor swasta
- Bekerja sendiri
- Suri rumah
- Menganggur
- Bersara
- Other:

Pekerjaan ibu / penjaga
- Sektor awam
- Sektor swasta
- Bekerja sendiri
- Suri rumah
- Menganggur
- Bersara
- Other:

penyakit semasa bapa- Contoh: kencing manis/darah tinggi dll. (Sila nyatakan jika lebih daripada satu) *jika ada

Your answer

penyakit semasa ibu- Contoh: kencing manis/darah tinggi dll. (Sila nyatakan jika lebih daripada satu) *jika ada

Your answer

Penyakit semasa kanak-kanak(anak tuan/puan)- Contoh: kencing manis/darah tinggi dll. (Sila nyatakan jika lebih daripada satu) *jika ada

Your answer

LEMAK (PRE-SOALAN)

Bahagian ini mengandungi 9 soalan dan mestilah diisi oleh ANAK TUAN/PUAN (yang berkenaan). Tuan/puan digalakkan untuk membantu jika anak tuan/puan menghadapi masalah untuk memahami soalan namun semua soalan perlu dijawab sendiri oleh ANAK TUAN/PUAN. Sila baca setiap arahan/soalan dengan teliti dan jawab setiap soalan.Jika ada sebarang pertanyaan, sila hubungi atau whatsapp ke nombor 017-2949848(Farhana)

* Required

Nombor siri *

Your answer

(1) Manakah antara pernyataan berikut benar mengenai kitaran obesiti dalam kalangan kanak-kanak? (Tandakan √ pada jawapan yang betul) (tandakan satu jawapan atau lebih) *

- ☐ Peningkatan pengambilan makanan segera (contohnya burger, air berkarbonat), bermain permainan video dan menonton televisyen akan meningkatkan risiko obesiti dalam kalangan kanak-kanak
- ☐ Gaya hidup tidak aktif seperti menonton televisyen tidak akan menyebabkan obesiti dalam kalangan kanak-kanak
- ☐ Penyakit berkaitan obesiti (Asma, kencing manis dan lain-lain.) tidak berkaitan dengan kesukaran untuk bersenam
- ☐ Kanak-kanak obes dengan peningkatan berat badan akan mudah penat untuk melakukan sebarang aktiviti seperti menaiki tangga
- ☐ kanak-kanak obes yang tidak menurunkan berat badan tidak akan menjadi dewasa obes

(2) Manakah di antara berikut merupakan komplikasi/kesan obesiti terhadap kanak-kanak ? (Tandakan √ di jawapan yang betul)(tandakan satu jawapan atau lebih) *

	Ya	Tidak pasti	Tidak
Penyakit jantung	☐	☐	☐
Kesukaran untuk tidur	☐	☐	☐
Kurang selera makan	☐	☐	☐
Demam panas	☐	☐	☐
Penyakit hati berlemak	☐	☐	☐
Muntah	☐	☐	☐
Sakit kepala	☐	☐	☐
Kecing manis	☐	☐	☐

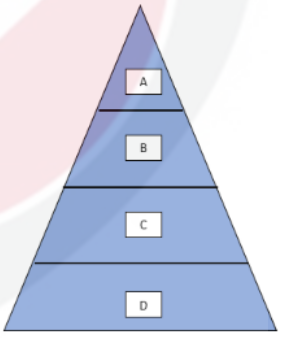
(3) Manakah antara penyataan berikut adalah benar mengenai keseimbangan tenaga?(Tandakan √ jawapan yang betul)(tandakan satu jawapan atau lebih) *

- ☐ Tenaga yang diperoleh dan tenaga yang dikeluarkan tidak akan memberi kesan kepada peningkatan berat badan
- ☐ Tenaga yang diperoleh haruslah seimbang dengan tenaga yang dikeluarkan
- ☐ Tenaga yang dikeluarkan melebihi tenaga yang diambil akan menyebabkan peningkatan berat badan
- ☐ Pengambilan tenaga yang melebihi pengeluaran tenaga akan menyebabkan peningkatan berat badan

(4) Manakah antara penyataan berikut benar mengenai kalori makanan segera? Tandakan √ di jawapan yang betul (tandakan satu atau lebih) *

- ☐ Melakukan aktiviti fizikal seperti bermain dan berbasikal akan membantu mengurangkan penggunaan tenaga
- ☐ Burger keju ganda dua (Double cheese Burger) mempunyai kalori yang lebih tinggi berbanding satu ketul ayam goreng
- ☐ Lebih banyak aktiviti fizikal diperlukan jika kurang pengambilan makanan berkalori dan lemak
- ☐ Pizza dan nugget bukan antara contoh makanan segera berkalori tinggi
- ☐ Mengurangkan pengambilan makanan segera adalah penting untuk mengurangkan risiko kanak-kanak obesiti

(5) Pilih contoh makanan yang betul berdasarkan abjad yang diletakkan dalam piramid makanan berikut:



Fat pre/post questionnaire

(5)(i) Contoh makanan A ialah: *

Nasi dan roti

Lobak merah dan pisang

Ayam dan susu

Garam dan minyak

(5)(ii) Contoh makanan B ialah: *

Nasi dan roti

Lobak merah dan pisang

Ayam dan susu

Garam dan minyak

(5)(iii) Contoh makanan C ialah: *

Nasi dan roti

Lobak merah dan pisang

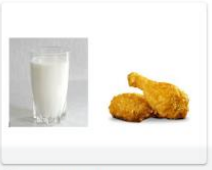
Ayam dan susu

Garam dan minyak

(5)(iv) Contoh makanan D ialah: *

Nasi dan roti

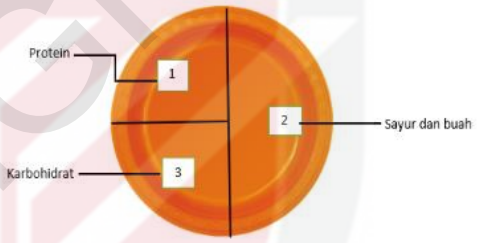
Lobak merah dan pisang



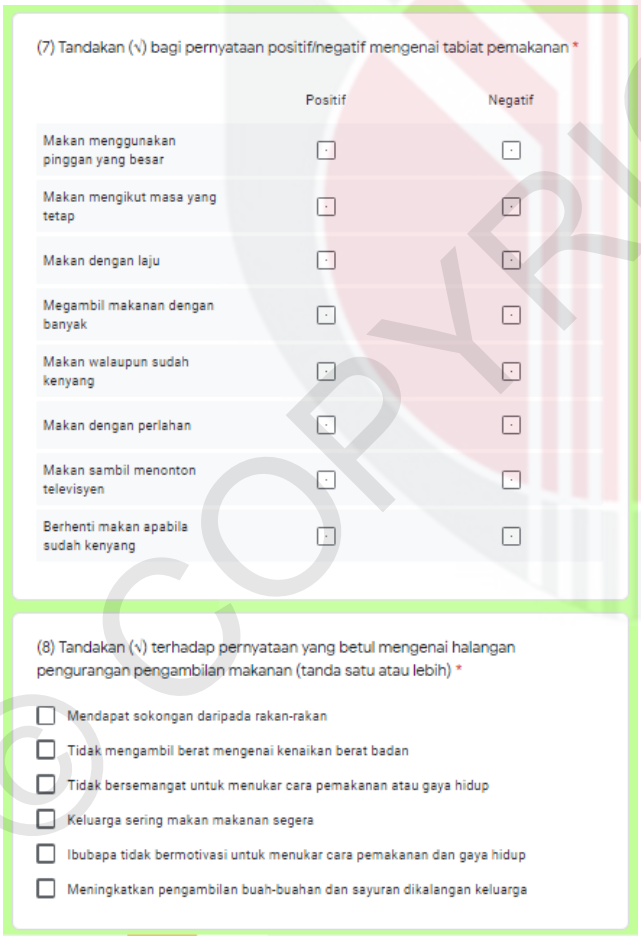
Ayam dan susu

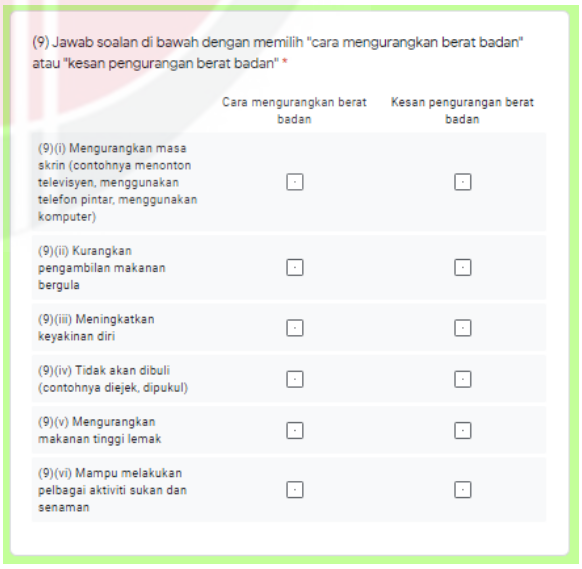
Garam dan minyak

(6) Berdasarkan gambarajah dibawah, pilih contoh makanan yang betul berdasarkan nombor yang dinyatakan di Pinggan Sihat Malaysia berikut :

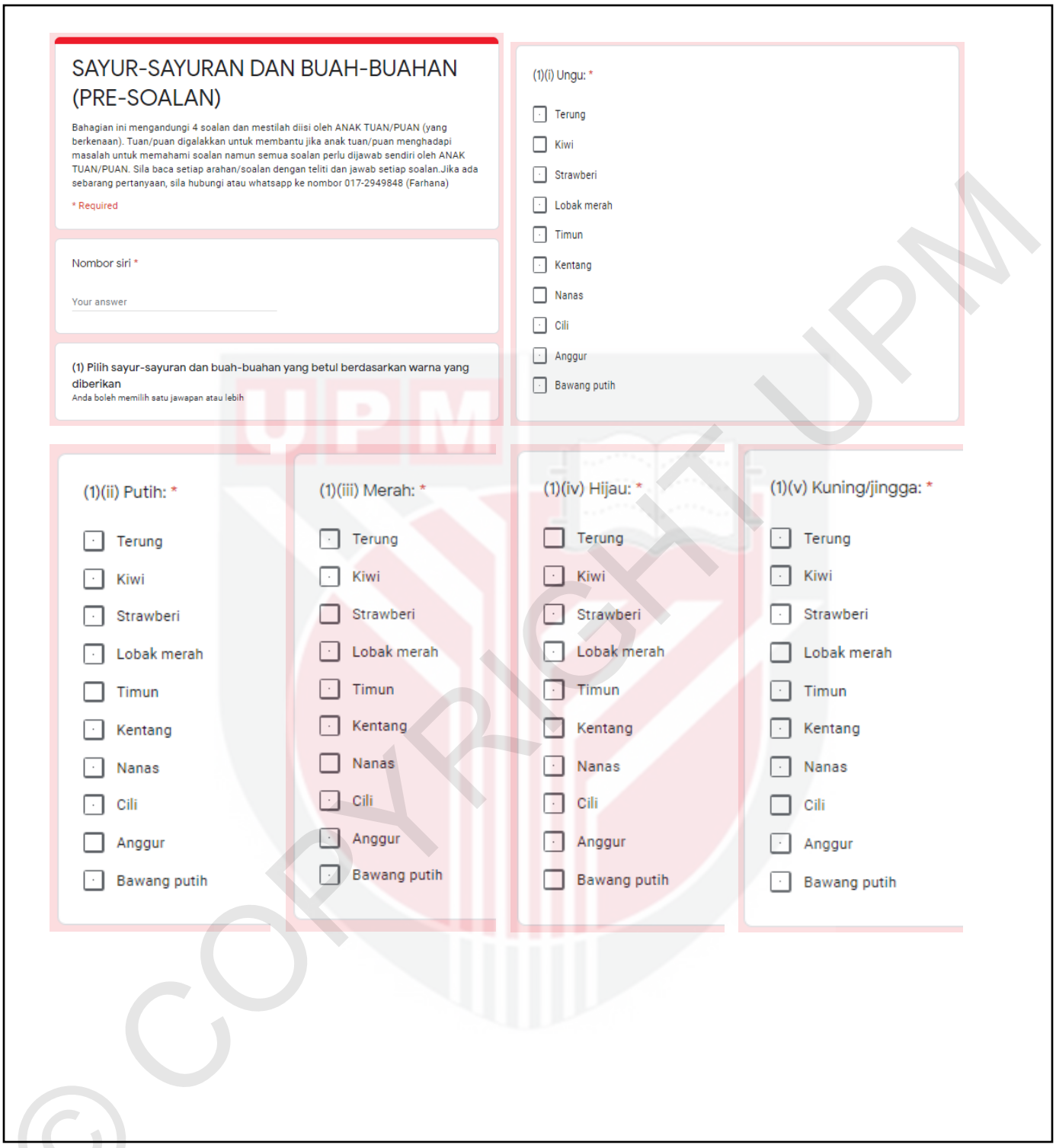


Fat pre/post questionnaire

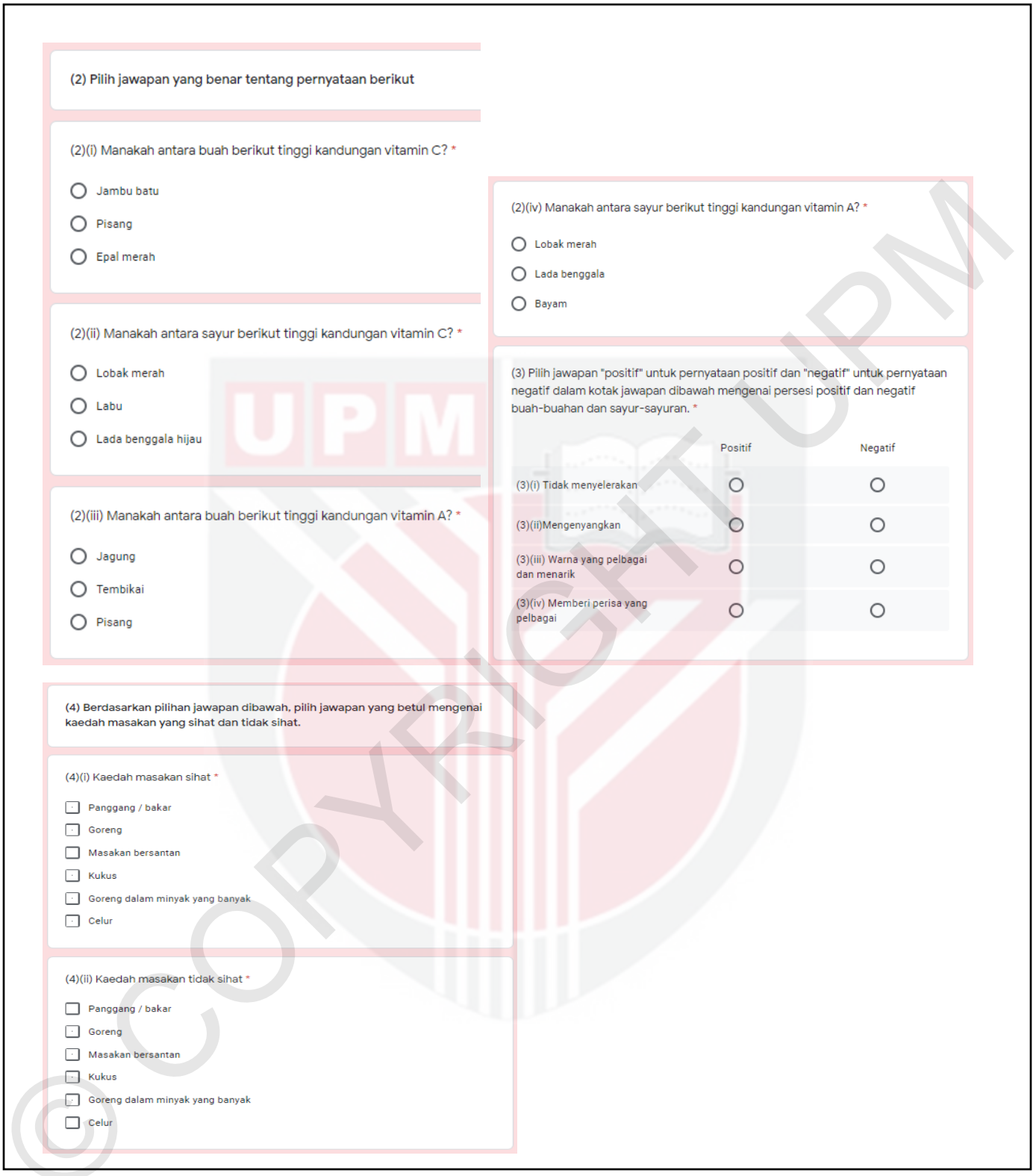




Fat pre/post questionnaire



Fruits and vegetables pre/post questionnaire



Fruits and vegetables pre/post questionnaire

AKTIVITI FIZIKAL (POST-SOALAN)

Bahagian ini mengandungi 6 soalan dan mestilah diisi oleh ANAK TUAN/PUAN (yang berkenaan). Tuan/puan digalakkan untuk membantu jika anak tuan/puan menghadapi masalah untuk memahami soalan namun sebarang bantuan untuk menjawab soalan adalah tidak dibenarkan. Sila baca setiap arahan/soalan dengan teliti dan jawab setiap soalan.Jika ada sebarang pertanyaan, sila hubungi atau whatsapp ke nombor 017-2949848 (Farhana)

* Required

Nombor siri *

Your answer

(1) Pilih pernyataan yang sesuai bagi faedah melakukan aktiviti fizikal dan kesan tidak melakukan aktiviti fizikal

(1)(i) Faedah melakukan aktiviti fizikal: * 6 points

- [ ] Penampilan yang lebih baik
- [ ] Diusik atau diejek di sekolah
- [ ] Prestasi akademik yang lebih baik
- [ ] Keyakinan diri yang lebih tinggi
- [ ] Buli
- [ ] Menguatkan tulang
- [ ] Memiliki berat badan yang lebih baik
- [ ] Kesihatan jantung yang lebih baik
- [ ] Tidak dapat menjalankan aktiviti sukan dengan baik
- [ ] Lebih cenderung untuk menjadi obes bila dewasa

(1)(ii) Kesan tidak melakukan aktiviti fizikal * 4 points

- [ ] Penampilan yang lebih baik
- [ ] Diusik atau diejek di sekolah
- [ ] Prestasi akademik yang lebih baik
- [ ] Keyakinan diri yang lebih tinggi
- [ ] Buli
- [ ] Menguatkan tulang
- [ ] Memiliki berat badan yang lebih baik
- [ ] Kesihatan jantung yang lebih baik
- [ ] Tidak dapat menjalankan aktiviti sukan dengan baik
- [ ] Lebih cenderung untuk menjadi obes bila dewasa

(2) Tandakan (√) pada pernyataan yang betul mengenai kesan obesiti terhadap fungsi sosial (bermaksud,pergaulan/interaksi bersama rakan-rakan,keluarga atau orang lain) * 6 points

- [ ] Stigma (prasangka pemikiran tidak baik terhadap sesuatu) kanak-kanak obes
- [ ] Dapat melakukan aktiviti fikizal bersama rakan-rakan
- [ ] Diusik oleh rakan
- [ ] Pengecualian sosial
- [ ] Kurang keyakinan diri
- [ ] Keyakinan diri yang tinggi
- [ ] Buli
- [ ] Dipinggirkan

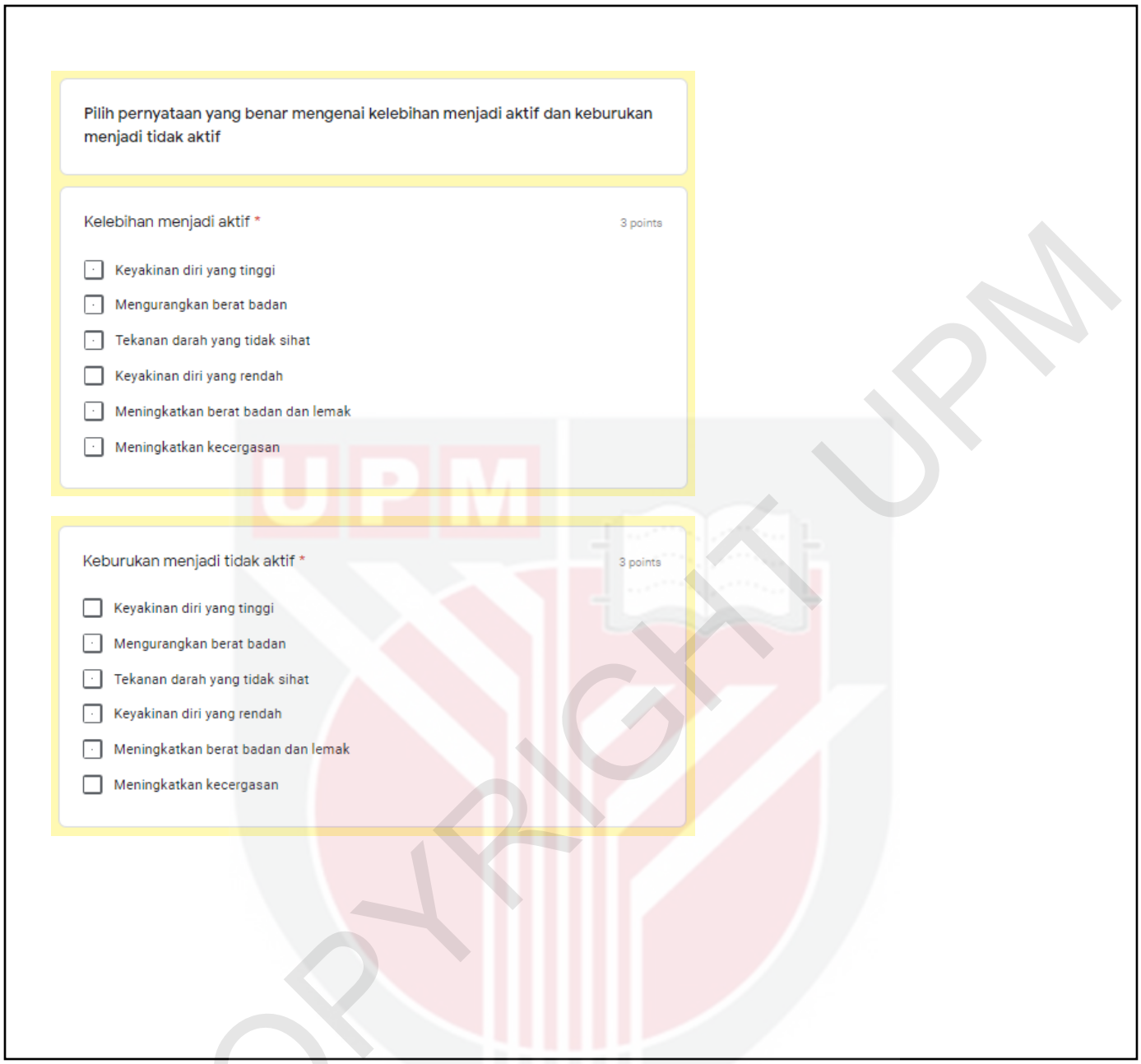
(3) Tandakan (√) pada pernyataan yang benar mengenai faktor yang meningkatkan risiko obesiti * 5 points

- [ ] Minum jus buah dan menikmati makanan sihat
- [ ] Bersukan bersama rakan-rakan
- [ ] Aktiviti fizikal yang tinggi
- [ ] Berjalan kesekolah setiap hari
- [ ] Aktiviti fizikal yang rendah
- [ ] Makan makanan yang tinggi kalori
- [ ] Selera yang tinggi semasa makan
- [ ] Minum jumlah air mineral yang betul setiap hari
- [ ] Snek lewat malam
- [ ] Menonton televisyen dan masa skrin yang tinggi

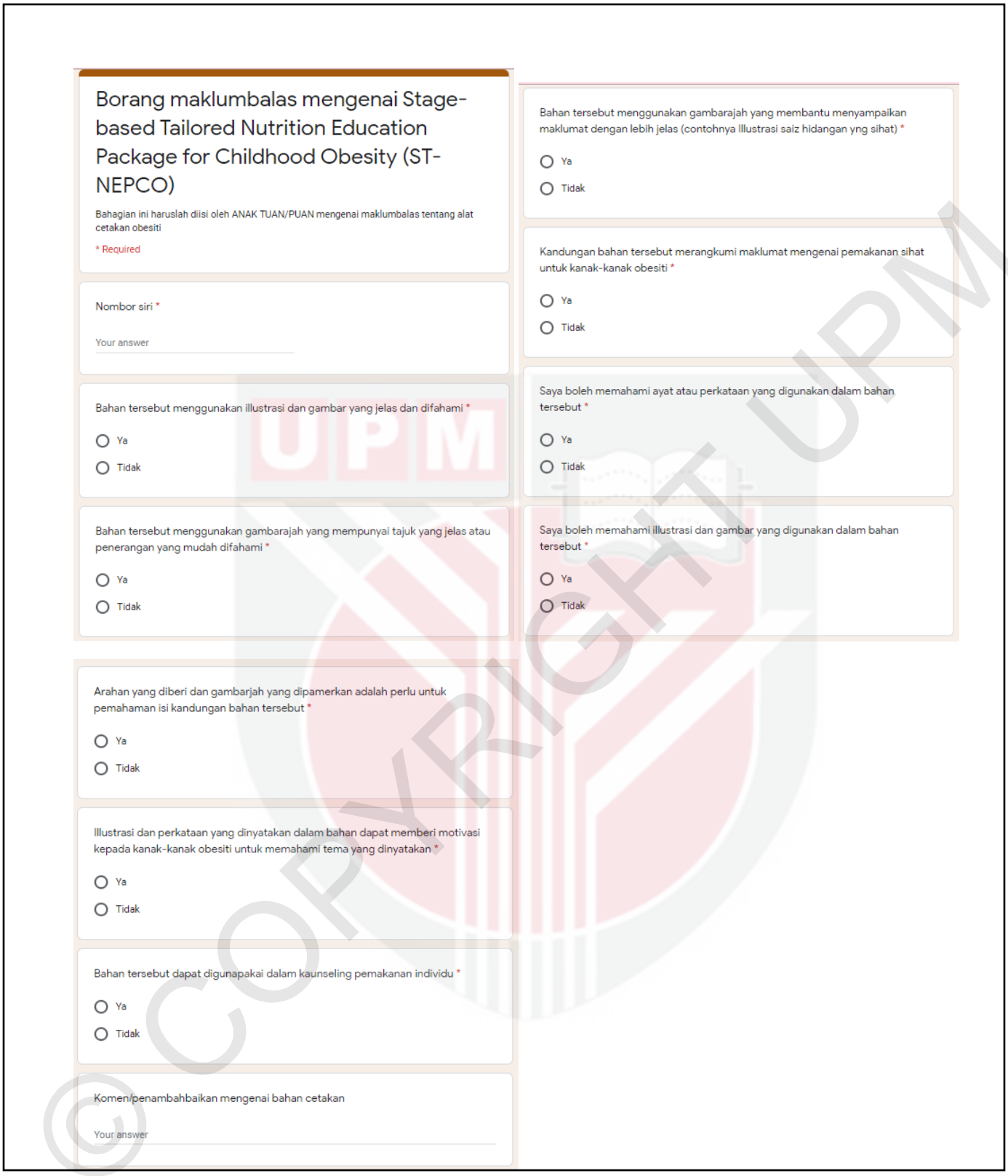
Pilih pernyataan yang positif mengenai persepsi terhadap aktiviti fizikal * 3 points

- [ ] Sertai rakan-rakan bermain dan membakar kalori (penggunaan tenaga yang lebih tinggi)
- [ ] Bermain permainan video di rumah adalah lebih baik berbanding melakukan aktiviti fizikal
- [ ] Aktiviti fizikal meletihkan dan membuang masa
- [ ] Aktviti fizikal dapat membantu seseorang memunyai gaya hidup sihat
- [ ] Aktiviti fizikal amat penting bagi mengimbangkan pengambilan dan pengurangan tenaga

Physical activity pre/post questionnaire



Physical activity pre/post questionnaire



Borang maklumbalas mengenai Stage-based Tailored Nutrition Education Package for Childhood Obesity (ST-NEPCO)

Bahagian ini haruslah diisi oleh ANAK TUAN/PUAN mengenai maklumbalas tentang alat cetakan obesiti

* Required

Nombor siri *

Your answer

Bahan tersebut menggunakan illustrasi dan gambar yang jelas dan difahami *

Ya
Tidak

Bahan tersebut menggunakan gambarajah yang mempunyai tajuk yang jelas atau penerangan yang mudah difahami *

Ya
Tidak

Arahan yang diberi dan gambarjah yang dipamerkan adalah perlu untuk pemahaman isi kandungan bahan tersebut *

Ya
Tidak

Illustrasi dan perkataan yang dinyatakan dalam bahan dapat memberi motivasi kepada kanak-kanak obesiti untuk memahami tema yang dinyatakan *

Ya
Tidak

Bahan tersebut dapat digunapakai dalam kaunseling pemakanan individu *

Ya
Tidak

Komen/penambahbaikan mengenai bahan cetakan

Your answer

Bahan tersebut menggunakan gambarajah yang membantu menyampaikan maklumat dengan lebih jelas (contohnya Illustrasi saiz hidangan yng sihat) *

Ya
Tidak

Kandungan bahan tersebut merangkumi maklumat mengenai pemakanan sihat untuk kanak-kanak obesiti *

Ya
Tidak

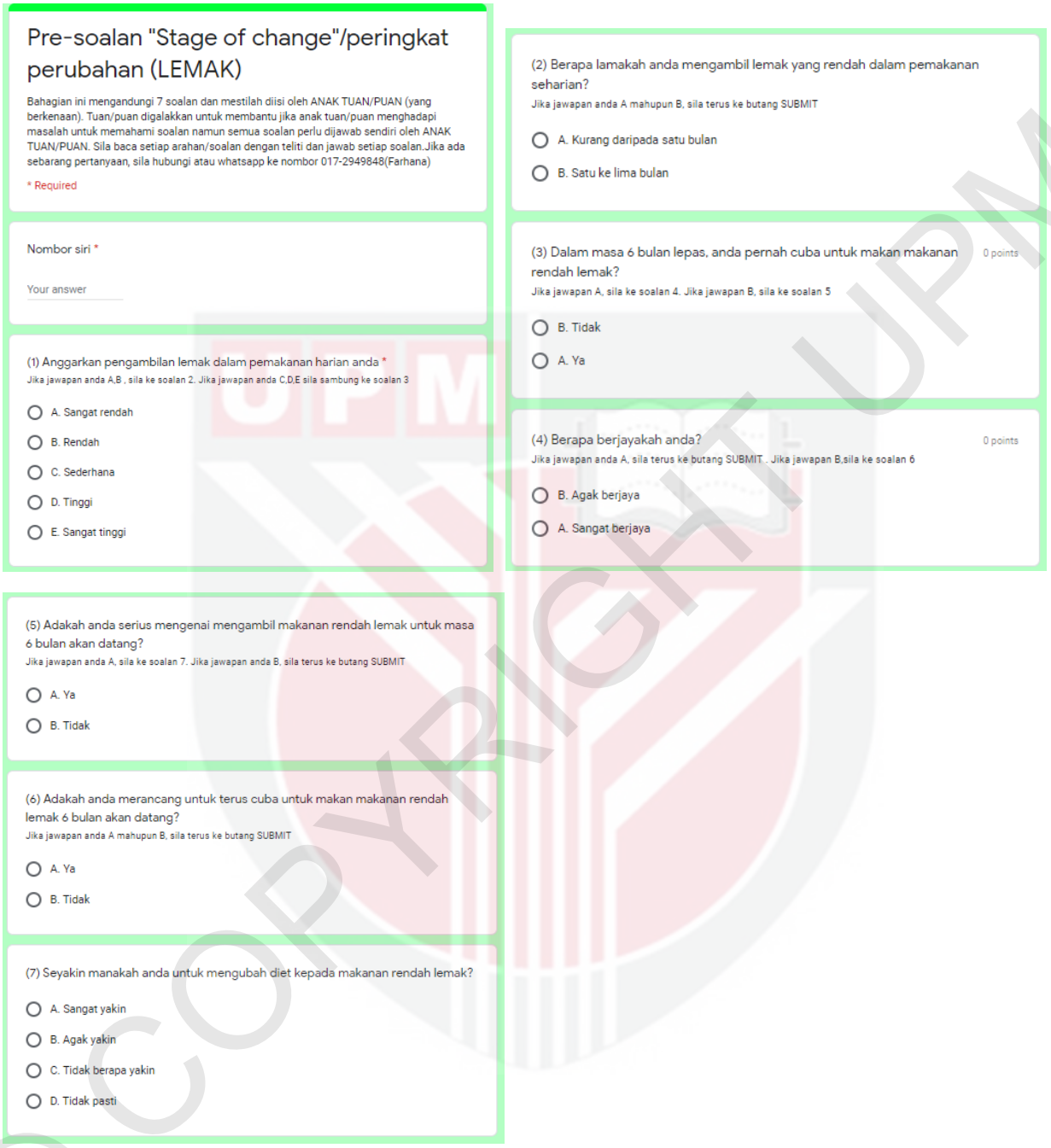
Saya boleh memahami ayat atau perkataan yang digunakan dalam bahan tersebut *

Ya
Tidak

Saya boleh memahami illustrasi dan gambar yang digunakan dalam bahan tersebut *

Ya
Tidak

Feedback questionnaire



Pre-soalan "Stage of change"/peringkat perubahan (LEMAK)

Bahagian ini mengandungi 7 soalan dan mestilah diisi oleh ANAK TUAN/PUAN (yang berkenaan). Tuan/puan digalakkan untuk membantu jika anak tuan/puan menghadapi masalah untuk memahami soalan namun semua soalan perlu dijawab sendiri oleh ANAK TUAN/PUAN. Sila baca setiap arahan/soalan dengan teliti dan jawab setiap soalan.Jika ada sebarang pertanyaan, sila hubungi atau whatsapp ke nombor 017-2949848(Farhana)

* Required

Nombor siri *

Your answer

(1) Anggarkan pengambilan lemak dalam pemakanan harian anda *

Jika jawapan anda A,B , sila ke soalan 2. Jika jawapan anda C,D,E sila sambung ke soalan 3

- A. Sangat rendah
- B. Rendah
- C. Sederhana
- D. Tinggi
- E. Sangat tinggi

(2) Berapa lamakah anda mengambil lemak yang rendah dalam pemakanan seharian?

Jika jawapan anda A mahupun B, sila terus ke butang SUBMIT

- A. Kurang daripada satu bulan
- B. Satu ke lima bulan

(3) Dalam masa 6 bulan lepas, anda pernah cuba untuk makan makanan rendah lemak? 0 points

Jika jawapan A, sila ke soalan 4. Jika jawapan B, sila ke soalan 5

- B. Tidak
- A. Ya

(4) Berapa berjayakah anda? 0 points

Jika jawapan anda A, sila terus ke butang SUBMIT . Jika jawapan B,sila ke soalan 6

- B. Agak berjaya
- A. Sangat berjaya

(5) Adakah anda serius mengenai mengambil makanan rendah lemak untuk masa 6 bulan akan datang?

Jika jawapan anda A, sila ke soalan 7. Jika jawapan anda B, sila terus ke butang SUBMIT

- A. Ya
- B. Tidak

(6) Adakah anda merancang untuk terus cuba untuk makan makanan rendah lemak 6 bulan akan datang?

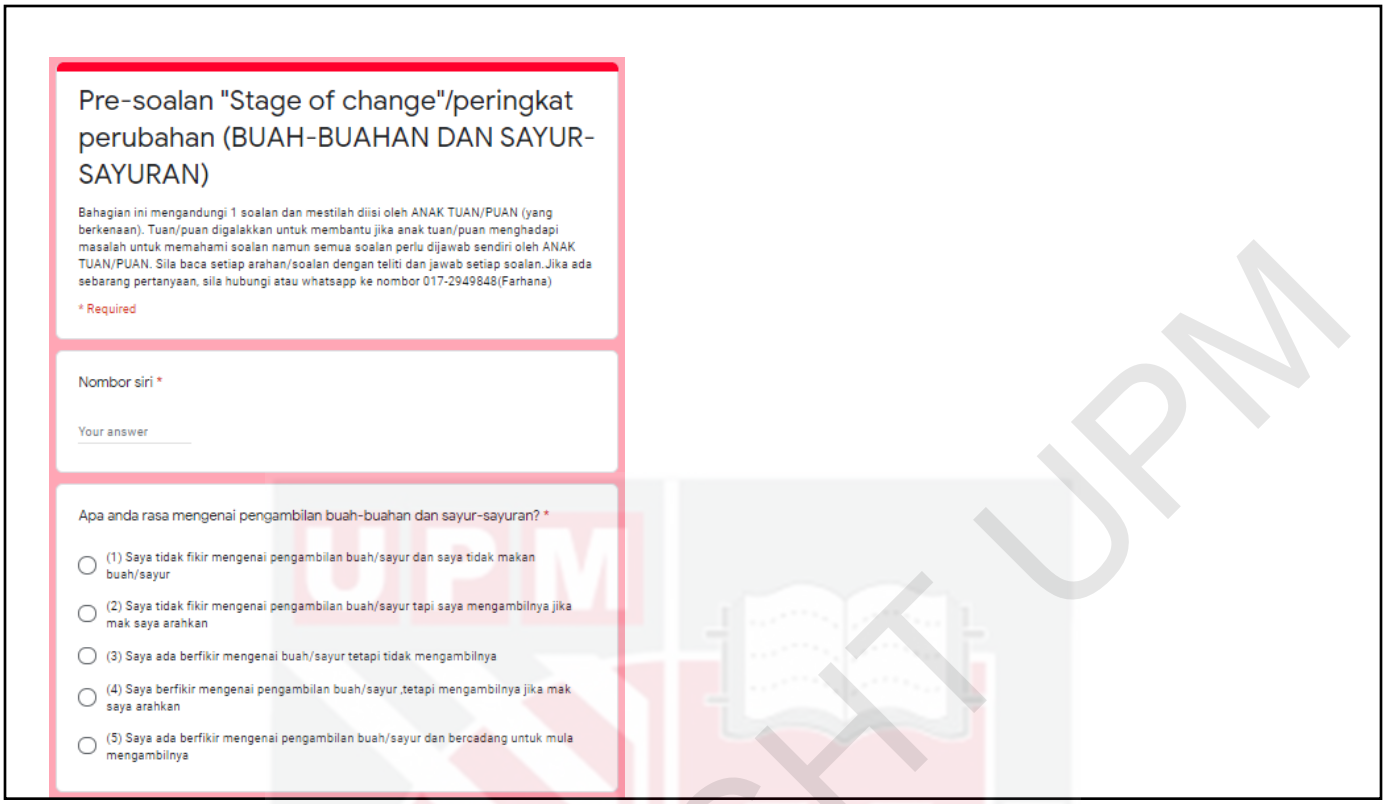
Jika jawapan anda A mahupun B, sila terus ke butang SUBMIT

- A. Ya
- B. Tidak

(7) Seyakin manakah anda untuk mengubah diet kepada makanan rendah lemak?

- A. Sangat yakin
- B. Agak yakin
- C. Tidak berapa yakin
- D. Tidak pasti

SOC questionnaire (Fat)



Pre-soalan "Stage of change"/peringkat perubahan (BUAH-BUAHAN DAN SAYUR-SAYURAN)

Bahagian ini mengandungi 1 soalan dan mestilah diisi oleh ANAK TUAN/PUAN (yang berkenaan). Tuan/puan digalakkan untuk membantu jika anak tuan/puan menghadapi masalah untuk memahami soalan namun semua soalan perlu dijawab sendiri oleh ANAK TUAN/PUAN. Sila baca setiap arahan/soalan dengan teliti dan jawab setiap soalan.Jika ada sebarang pertanyaan, sila hubungi atau whatsapp ke nombor 017-2949848(Farhana)

* Required

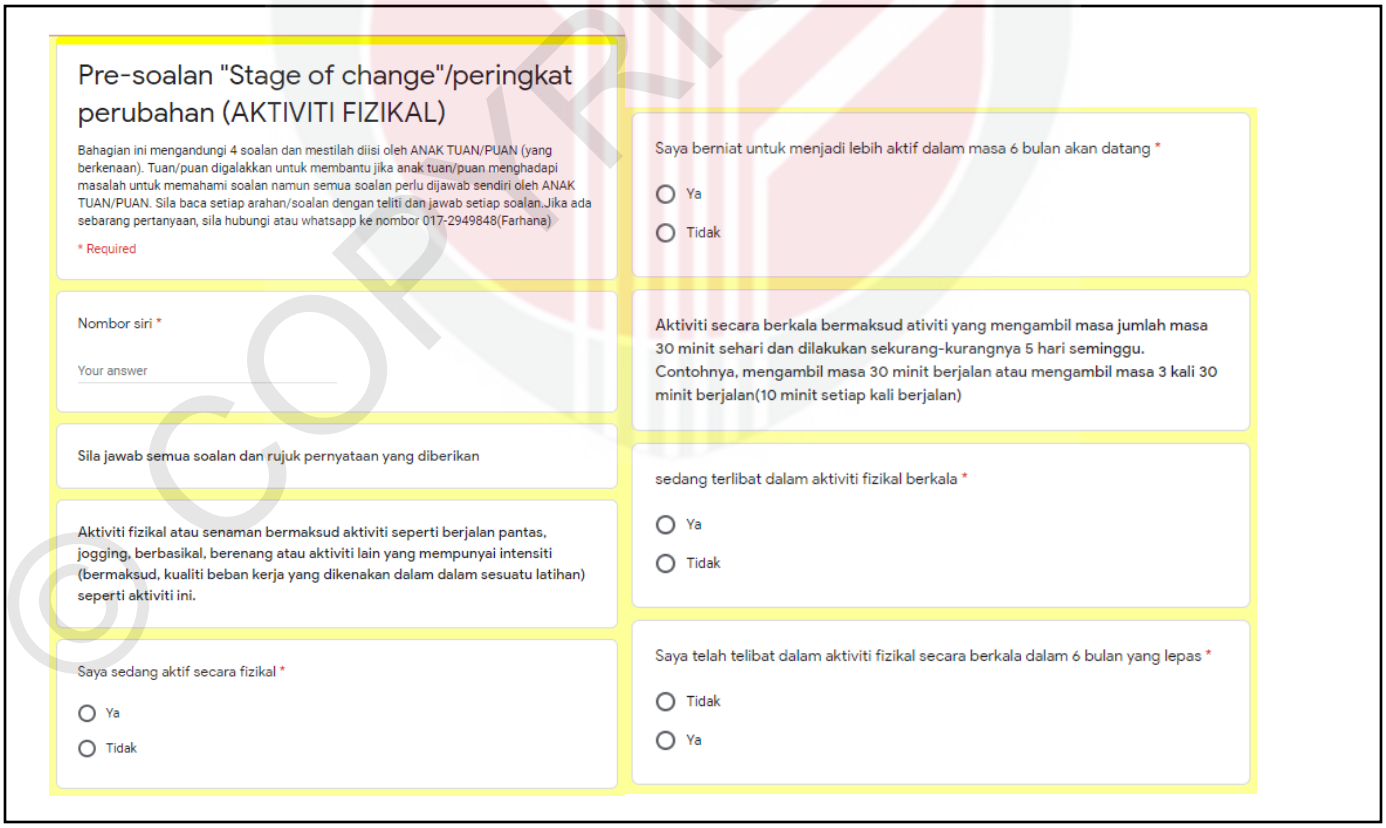
Nombor siri *

Your answer

Apa anda rasa mengenai pengambilan buah-buahan dan sayur-sayuran? *

- (1) Saya tidak fikir mengenai pengambilan buah/sayur dan saya tidak makan buah/sayur
- (2) Saya tidak fikir mengenai pengambilan buah/sayur tapi saya mengambilnya jika mak saya arahkan
- (3) Saya ada berfikir mengenai buah/sayur tetapi tidak mengambilnya
- (4) Saya berfikir mengenai pengambilan buah/sayur ,tetapi mengambilnya jika mak saya arahkan
- (5) Saya ada berfikir mengenai pengambilan buah/sayur dan bercadang untuk mula mengambilnya

SOC questionnaire (Fruits and vegetables)



Pre-soalan "Stage of change"/peringkat perubahan (AKTIVITI FIZIKAL)

Bahagian ini mengandungi 4 soalan dan mestilah diisi oleh ANAK TUAN/PUAN (yang berkenaan). Tuan/puan digalakkan untuk membantu jika anak tuan/puan menghadapi masalah untuk memahami soalan namun semua soalan perlu dijawab sendiri oleh ANAK TUAN/PUAN. Sila baca setiap arahan/soalan dengan teliti dan jawab setiap soalan.Jika ada sebarang pertanyaan, sila hubungi atau whatsapp ke nombor 017-2949848(Farhana)

* Required

Nombor siri *

Your answer

Sila jawab semua soalan dan rujuk pernyataan yang diberikan

Aktiviti fizikal atau senaman bermaksud aktiviti seperti berjalan pantas, jogging, berbasikal, berenang atau aktiviti lain yang mempunyai intensiti (bermaksud, kualiti beban kerja yang dikenakan dalam dalam sesuatu latihan) seperti aktiviti ini.

Saya sedang aktif secara fizikal *

- Ya
- Tidak

Saya berniat untuk menjadi lebih aktif dalam masa 6 bulan akan datang *

- Ya
- Tidak

Aktiviti secara berkala bermaksud ativiti yang mengambil masa jumlah masa 30 minit sehari dan dilakukan sekurang-kurangnya 5 hari seminggu. Contohnya, mengambil masa 30 minit berjalan atau mengambil masa 3 kali 30 minit berjalan(10 minit setiap kali berjalan)

sedang terlibat dalam aktiviti fizikal berkala *

- Ya
- Tidak

Saya telah telibat dalam aktiviti fizikal secara berkala dalam 6 bulan yang lepas *

- Tidak
- Ya

SOC questionnaire (Physical activity)