

# NATIONAL HEALTH AND MORBIDITY SURVEY 2017

# ADOLESCENT NUTRITION SURVEY

KEDAH



# **THE NATIONAL HEALTH AND MORBIDITY SURVEY 2017**

## **ADOLESCENT NUTRITION SURVEY 2017**

### **Contributors**

The following persons had contributed in the interpretation of findings, discussion on implication, conclusion and/or drawing recommendations for this report.

### **(In alphabetical order)**

Ainan Nasrina Ismail, Azli Baharudin, Chan Ying Ying, Chin Kim Ling, Cheong Siew Man, Fatimah Othman, Hazizi Abu Saad, Jamilah Ahmad, Junaidah Raib, Lai Wai Kent, Lalitha Palaniveloo, Ling Swee Nian, Mohd Azahadi Omar, Mahenderan a/l Appukutty, Mohamad Hasnan Ahmad, Mohamad Ihsan Tahir, Noor Ani Ahmad, Norlida Zulkafly, Nur Azna Mahmud, Nor Azian Mohd Zaki, Norazizah Ibrahim Wong, Noor Hasnani Ismail, Noor Ul-Aziha Muhammad, Nur Ili Mohamad Tarmizi, Nur Shahida Abdul Aziz, Poh Bee Koon, Rashidah Ambak, Rohana Ya'akof, Ruby Zainureen Zahedi, Ruhaya Salleh, Rusidah Selamat, Ruzita Abd Talib, Safiah Md Yusof, Sam Azura Ahmad, Shahrulnaz Norhazli Nazri, Syafinaz Sallehuddin, Subash Shander a/l Ganapathy, Suhaidi Sudin, Tan Beng Chin

### **Editorial Reviewers**

Noor Aliza Lodz

### **Editors**

Ruhaya Salleh, Tahir Aris, Muhammad Fadhli Mohd Yusoff

© 2017, Institute for Public Health, National Institutes of Health, Ministry of Health Malaysia, Kuala Lumpur.

Perpustakaan Negara Malaysia

Cataloging-in-Publication Data

National Health and Morbidity Survey 2017 (NMRR-16-698-30042)

ISBN 978-983-2387-44-2

MOH/S/IKU/76.18(RR)

**Suggested citation:**

Institute for Public Health (IPH) 2017. National Health and Morbidity Survey (NHMS) 2017: Adolescent Nutrition Survey 2017, Malaysia.

**Disclaimer:**

The views expressed in this report are those of the authors alone and do not necessarily represent the opinions of the other investigators participating in the survey, nor the view or policy of the Ministry of Health.

**Produce and Published by:**

The National Health and Morbidity Survey 2017: Adolescent Nutrition Survey 2017

Institute for Public Health

National Institutes of Health

Ministry of Health Malaysia

Jalan Bangsar

50590 Kuala Lumpur, Malaysia

Tel: +603-22979400 / 521

Fax: +603-22823114

Website: [www.iku.gov.my](http://www.iku.gov.my)

**Any enquiries about this report should be directed to:**

Principal Investigator

National Health and Morbidity Survey 2017: Adolescent Nutrition Survey 2017

Institute for Public Health

National Institutes of Health

Ministry of Health Malaysia

Jalan Bangsar

50590 Kuala Lumpur, Malaysia

Tel: +603-22979400

Fax: +603-22823114

Website: [www.iku.gov.my](http://www.iku.gov.my)

Published by Institute for Public Health, National Institutes of Health, Ministry of Health Malaysia.

## **Acknowledgement**

The authors would like to thank the Director General of Health Malaysia and the National Health and Morbidity Survey (NHMS) Steering Committee Team for supporting this research project via financial grant and technical support. The research team member also would like to express their gratitude to the Director General Education, Ministry of Education, Malaysia as well as Director of Nutrition and other staff at Nutrition Division, Food Safety & Quality Division and the Ministry of Health for the input given.

The Adolescent Nutrition Survey would not have been completed without the commitment and dedication shown by the Ministry of Education in conducting this study at selected schools nationwide. We specifically thanks the State Education Department, Principals, Headmasters, teachers, students and parents for their excellent cooperation and commitment throughout the study.

The authors wish to extend our gratitude to all research team members. We are deeply indebted to the staff the Institute for Public Health, State Health Department, State and Distrit Nutritionist and our committed research assistants who contributed greatly to this study. Without their support and commitment, this study would not have come this far.

## Table of Contents

<b>Acknowledgement .....</b>	<b>i</b>
<b>List of Tables .....</b>	<b>v</b>
<b>List of Appendices .....</b>	<b>ix</b>
<b>Executive Summary .....</b>	<b>x</b>
<b>1.0 Introduction.....</b>	<b>1</b>
1.1 Objectives.....	4
1.1.1 General Objectives .....	4
1.1.2 Specific Objectives.....	4
1.2 The NHMS 2017 Organisation Team.....	4
1.2.1 NHMS Steering Committee .....	4
1.2.2 Central Coordinating Team (CCT).....	5
1.2.3 Research Team Members.....	5
1.2.4 State Liaison Officers and Data Collection Team .....	5
<b>2.0 Methodology .....</b>	<b>7</b>
2.1 Target Population .....	7
2.2 Sampling Frame .....	7
2.3 Sample Size Determination.....	7
2.4 Sampling Design.....	8
2.5 Ethical Approval .....	9
2.6 Data Collection .....	9
2.7 Data Management .....	9
2.7.1 Data Operation Centre .....	9
2.7.2 Data Analysis .....	11
2.8 Survey Instruments .....	11
<b>3.0 Findings .....</b>	<b>12</b>
3.1 General Findings .....	12
3.2 Nutritional status among adolescents (Primary 4 to Secondary 5) in Kedah .....	15
3.2.1 Introduction.....	15
3.2.2 Objectives .....	15
3.2.3 Variable definition .....	15

3.2.4 Findings .....	15
3.2.4.1 Height-for-Age z-score .....	15
3.2.4.2 BMI-for-Age z-score .....	16
3.2.5 Conclusion .....	16
3.2.6 Recommendation .....	17
<b>3.3 Perception on body weight management among adolescents (Primary 4 to Secondary 5) in Kedah .....</b>	<b>21</b>
3.3.1 Introduction .....	21
3.3.2 Objective .....	21
3.3.3 Variable definition .....	21
3.3.4 Findings .....	22
3.3.5 Discussion/Conclusion .....	23
3.3.6 Recommendation.....	24
<b>3.4 Meal pattern among adolescents (Primary 4 to Secondary 5) in Kedah .....</b>	<b>44</b>
3.4.1 Introduction .....	44
3.4.2 Objective .....	44
3.4.3 Variable Definition .....	45
3.4.4 Findings .....	46
3.4.5 Discussions/Conclusion.....	46
3.4.6 Recommendation.....	47
<b>3.5 Physical activity among adolescents (Primary 4 to Secondary 5) in Kedah .....</b>	<b>118</b>
3.5.1 Introduction .....	118
3.5.2 Objectives.....	118
3.5.3 Variable definitions .....	118
3.5.4 Findings .....	119
3.5.5 Discussion.....	119
3.5.6 Conclusion.....	119
3.5.7 Recommendations .....	120
<b>3.6 Supplements intake among adolescents (Primary 4 to Secondary 5) in Kedah .....</b>	<b>127</b>
3.6.1 Introduction .....	127
3.6.2 Objectives.....	127
3.6.3 Findings .....	128

3.6.4 Discussions .....	128
3.6.5 Conclusions .....	128
3.6.6 Recommendation.....	128
<b>3.7 Food and nutrition labeling among adolescent (Secondary 1 to Secondary 5) in Kedah .....</b>	<b>147</b>
3.7.1 Introduction .....	147
3.7.2 Objective .....	147
3.7.3 Variable definitions .....	148
3.7.4 Findings .....	149
3.7.4.1 Prevalence of practise reading food labels when buying or receiving food/drink among adolescents in Kedah .....	149
3.7.4.2 Reasons for not reading food and nutrition labelling among adolescents in Kedah.....	149
3.7.4.3 Types of nutrition fact information (energy, carbohydrate/ sugar, fat, protein, sodium, vitamin, mineral and fiber content) that read from the food labels.....	149
3.7.4.4 Types of information (expiry date, nutrition claim, nutrition facts, halal logo, food ingredients and storage instruction read from the food labels. ....	150
3.7.4.5 Understanding of nutrition facts among adolescents in Kedah .....	150
3.7.4.6 Understanding of front of pack labelling among adolescents in Kedah ...	150
3.7.4.7 Understanding of the mostly and the least used ingredients based on the food ingredient list among adolescents in Kedah .....	150
3.7.5 Discussion/Conclusion.....	151
<b>Appendices .....</b>	<b>170</b>

## List of Tables

### **METHODOLOGY**

**Table 2.1** Distribution of Secondary and Primary Schools Sampled by State, NHMS 2017

### **FINDINGS**

**Table 3.1.1** Response Rate at Student Level for Adolescent Nutrition Survey by State, NHMS 2017

**Table 3.1.2** Comparison between NHMS 2017 respondents and national enrolment of school student in Malaysia 2017

### **NUTRITIONAL STATUS AMONG ADOLESCENTS (PRIMARY 4 TO SECONDARY 5) IN KEDAH**

**Table 3.2.1** Distribution of adolescents according to Height-For-Age (HAZ) Z-score by socio-demographic characteristics

**Table 3.2.2** Distribution of adolescents according to BMI-For-Age status by socio-demographic characteristics

### **PERCEPTION OF WEIGHT MANAGEMENT AMONG ADOLESCENTS (PRIMARY 4 TO SECONDARY 5) IN KEDAH**

**Table 3.3.1** Body weight perception among adolescents by socio-demographic characteristics

**Table 3.3.2** Body weight perception among adolescent by actual BMI for age status.

**Table 3.3.3** Action taken according to correctly perceived body weight among adolescents.

**Table 3.3.4** Action taken according to misperception of body weight among adolescents

**Table 3.3.5** Main factors that motivate to lose body weight among adolescents by socio-demographic characteristics

**Table 3.3.6** Main factor that motivate to increase body weight among adolescents by socio-demographic characteristics

**Table 3.3.7** Preferred option to lose body weight among adolescents by socio-demographic characteristics

**Table 3.3.8** Preferred option to increase body weight among adolescents by socio-demographic characteristics

### **MEAL PATTERN AMONG ADOLESCENTS (PRIMARY 4 TO SECONDARY 5) IN KEDAH**

**Table 3.4.1** Prevalence of breakfast per week among adolescents by socio-demographic characteristics and nutritional status

**Table 3.4.2** Source of food for breakfast among adolescents by socio-demographic characteristics and nutritional status



<b>Table 3.4.3</b>	Reasons for skipping breakfast among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.4</b>	Prevalence of lunch per week among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.5</b>	Source of food for lunch among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.6</b>	Reasons for skipping lunch among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.7</b>	Prevalence of dinner per week among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.8</b>	Source of food for dinner among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.9</b>	Reasons for skipping dinner among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.10</b>	Prevalence of eating and/or drinking during recess time per week among adolescents by socio-demographics and nutritional status
<b>Table 3.4.11</b>	Source of food during recess time among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.12</b>	Prevalence of afternoon tea per week among adolescents per week by socio-demographic characteristics and nutritional status
<b>Table 3.4.13</b>	Source of food for afternoon tea among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.14</b>	Prevalence of heavy meal after dinner per week among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.15</b>	Source of food for eating heavy meal after dinner among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.16</b>	Prevalence of fast food consumption per week among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.17</b>	Practice of bring food to school among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.18</b>	Type of food usually bring to school among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.19</b>	Practice of bring drinks to school among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.20</b>	Type of drinks usually bring to school among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.21</b>	Spending of pocket money among adolescents by socio-demographic characteristics and nutritional status

<b>Table 3.4.22</b>	Prevalence of eating out in a week among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.23</b>	Prevalence of consuming snack food in a week among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.24</b>	Type of snack foods usually consumed among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.25</b>	Prevalence of snack food and/or drinks usually bought out of school area in a week among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.26</b>	Type of snack food and/ or drinks usually bought out of school area among adolescents by socio-demographic characteristics and nutritional status
<b>Table 3.4.27</b>	Media sources which affected dietary pattern among adolescents by socio-demographic characteristics and nutritional status

#### **PHYSICAL ACTIVITY AMONG ADOLESCENTS (PRIMARY 4 TO SECONDARY 5) IN KEDAH**

<b>Table 3.5.1</b>	Mean total scores in PAQ-C among adolescents within last 7 days by socio-demographic characteristics and BMI - for - age status
<b>Table 3.5.2</b>	Distribution of adolescents according to physical activity level within last 7 days by socio-demographic characteristics and BMI - for - age status
<b>Table 3.5.3</b>	The five most preferred physical activities during spare time within the last 7 days based on the proportion of adolescents participated in it
<b>Table 3.5.4</b>	Level of participation in physical education (PE) classes among adolescents within last 7 days by socio demographic characteristics and BMI - for-age status
<b>Table 3.5.5</b>	Length of time spent per day on watching television, using computer and playing video games at weekends among adolescents by socio-demographic characteristics and BMI-for-age status
<b>Table 3.5.6</b>	Length of time spent per day on watching television, using computer and playing video games on schooling days among adolescents by socio-demographic characteristics and BMI-for-age status

#### **VITAMIN/MINERAL AND FOOD SUPPLEMENT INTAKES AMONG ADOLESCENTS (PRIMARY 4 TO SECONDARY 5) IN KEDAH**

<b>Table 3.6.1</b>	Prevalence of adolescents taking vitamin/ mineral supplements by socio-demographic characteristic
<b>Table 3.6.2</b>	Types of vitamin/ mineral usually consumed among adolescents by socio-demographic characteristics
<b>Table 3.6.3</b>	Reasons for taking vitamin/ mineral among adolescents by socio-demographic characteristics

<b>Table 3.6.4</b>	Frequency of taking vitamin/ mineral among adolescents by socio-demographic characteristics
<b>Table 3.6.5</b>	Prevalence of adolescents taking food supplements by socio-demographic characteristic
<b>Table 3.6.6</b>	Types of food supplement usually consumed among adolescents by socio-demographic characteristics
<b>Table 3.6.7</b>	Reasons for taking food supplements among adolescents by socio-demographic characteristics
<b>Table 3.6.8</b>	Frequency of taking food supplements among adolescents by socio-demographic characteristics

**FOOD AND NUTRITION LABELLING AMONG ADOLESCENTS (SECONDARY 1 TO SECONDARY 5) IN KEDAH**

---

<b>Table 3.7.1</b>	Prevalence of reading food and nutritional labelling when buying or receiving food/drink among adolescents
<b>Table 3.7.2</b>	Reason for not reading food label among adolescent
<b>Table 3.7.3a</b>	Prevalence of reading nutrition information (macronutrient) among those who read food label (Yes, always/ Yes, sometimes)
<b>Table 3.7.3b</b>	Prevalence of reading nutrition information (micronutrient/fiber) among those who read food label (Yes, always/ Yes, sometimes)
<b>Table 3.7.4</b>	Prevalence of reading food label among those who read food label (Yes, always/ Yes, sometimes)
<b>Table 3.7.5</b>	Prevalence of understanding on the interpretation calorie and sugar content on the nutrition labelling among adolescents
<b>Table 3.7.6</b>	Prevalence of understanding on correct interpretation of front of pack labelling for energy among adolescents
<b>Table 3.7.7</b>	Prevalence on the understanding of food ingredients among adolescents

**List of Appendices**

Appendix 1	Members of Steering Committee NHMS 2015-2018
Appendix 2	Terms of Reference for NHMS 2015-2018 Steering Committee
Appendix 3	List of members of Central Coordinating Committee
Appendix 4	Terms of Reference for NHMS 2017 Central Coordinating Team
Appendix 5	List of Research Team Members, NHMS 2017
Appendix 6	List of Data Collection Teams
Appendix 7	Questionnaires
Appendix 8	Consent Form
Appendix 9	List of Abbreviations

## Executive Summary

The Adolescent Nutrition Survey (ANS) is the second nation-wide study among adolescents in Malaysia after the Malaysia School-based Nutrition Survey (MSNS) 2012. There are three main scopes in this survey which are Adolescent Nutrition Survey (ANS), Habitual Food Intake and Dietary Intake. ANS consists of six topics such as nutritional status, body weight perception, meal pattern, physical activity, vitamin/mineral, food supplement intakes and food and nutrition labelling. This survey was conducted at 311 randomly selected schools in all states including three federal territories in Malaysia. This school-based survey was a cross-sectional study involving school-going adolescents aged Primary 4 To Secondary 5 attending school in Malaysia. A multistage stratified cluster sampling design was used to recruit national representative samples from students in Standard 4 to 6 (10-12 years of age) and Form 1 to 5 (13-17 years of age). The survey was conducted using self-administered questionnaires. Total response rates for self-administered questionnaire were 89.5% for ANS.

Based on the indicator height for age (HAZ), the prevalence of normal height ( $HAZ \geq -2SD$ ) was 92.2% and stunting was 7.8%. The prevalence of stunting was higher in rural areas (10.0%) as compared to urban areas (5.9%). In terms of BMI for age (BAZ), the prevalence of thinness was 6.4%, overweight was 15.4% and obesity was 15.5%.

Among those school-going adolescents who had actual normal weight, 49.8% correctly perceived their weight to be normal. Among those who were actually thin, 60.1% correctly perceived their weight to be thin, while among those who were actually overweight and obese, 43.3% and 13.6% correctly perceived themselves to be overweight and obese respectively. Health was the main reason among those who wanted to lose and gain weight; with 50.3% preferring exercise as an option to lose weight; 55.2% wanted to increase quantity of food to gain weight.

As for meal pattern, the prevalence of breakfast intake for seven days per week among adolescents was 27.2%. More than half, one to six days per week (63.1%) and some of them did not having breakfast in a week (9.7%). Among those who had breakfast, 59.7% had it at home. Boys (27.6%) reported having breakfast daily (seven days per week), higher than girls areas (26.8%). The two main reasons of skipping breakfast were no appetite (46.7%) and no time (30.3%).

The prevalence of having lunch seven days per week among school-going adolescents was 48.2%; 48.8% had lunch up to six days per week and 3.0% did not have lunch in a week. No appetite (50.4%) and no time (16.9%) were the two main reasons for skipping lunch. As for dinner, 49.7% of school-going adolescents had dinner seven days per week, 45.7% 1-6 days per week and 4.5% did not have dinner in a week. Only 6.4% took heavy meals after dinner seven days per week. There were 2.1% who had fast food daily and 12.5% did not have fast food. Social media (YouTube, Facebook, Instagram, etc.) and television were reported as the

main sources which affected dietary pattern in 34.4% and 41.0%. A percentage of 25.8% reported that their dietary patterns were not affected by any media sources.

The prevalence of physical activity among school-going adolescents in Kedah was 47.4%. Boys and younger adolescents were more active than girls and older adolescents. The most favourite activities during spare time were walking for exercise, jogging / running, badminton, tagging and cycling. More adolescents watched television, played computer or video games over the weekend compared to schooling days.

The prevalence of vitamin/minerals and food supplements intake among adolescence in Kedah was 44.3% and 31.0%. There was no significant difference of vitamin/mineral and food supplement intakes between boys and girls, ethnicity, school classes and localities. In average, the vitamin/mineral and food supplements were consumed everyday by 14.5% and 10.8% respectively. The most commonly consumed vitamin/ minerals and food supplements were Vitamin C 36.5% and Bee product 16.9%. The main reason for taking vitamin/minerals and food supplements was due to parent's advised 40.8 % and 30.0%.

Food and nutrition labelling use was assessed among secondary school-going adolescents; 35.4% always reading food and nutrition labelling. Another 51.4% reported as sometimes and only 13.2% never reading food label. They were more concerned about fat and total energy compared to other nutrients. 44.9% of adolescents both answered correctly on nutrition facts and 28.5% of adolescents answered correctly questions regarding the front of pack labelling and only 7.7% answered both correctly regarding the most and least ingredients based on the food ingredient list.

## 1.0 Introduction

Adolescence is a period of transition between childhood and adulthood. The World Health Organization (WHO) defines an adolescent as any person between ages 10 and 19 (WHO, 2014). Adolescence is a critical period because major biological and psychological changes occur during a very short period of time.

Adolescent health should be given attention because adolescents are the future generation of any country and their health statuses are critical for the well-being of society. Chronic malnutrition is one of the major health problems encountered by adolescents living in developing countries (World Health Organization, 2006). The high rate of malnutrition in girls not only contributes to increased morbidity and mortality associated with pregnancy and delivery but also to increased risk of delivering low birth-weight babies (World Health Organization, 2006). This contributes to the intergenerational cycle of malnutrition.

The nutritional issue in adolescents should be prioritized because growth during adolescence is at a fast pace. Adequate nutrition during adolescence is important to cover the deficits suffered during childhood. Moreover, extra micro and macro-nutrients are required to meet the demands of physical and cognitive growth, as well as provide adequate stores of energy for illnesses and pregnancy. To a more important extent, epidemiological evidence proved that there is a link between child and adolescent poor nutritional status and increased risk of various chronic diseases during adulthood (Case, Fertig, & Paxson, 2005).

Due to the targets of the first Millennium Development goal to "eradicate extreme poverty and hunger, the underweight prevalence in children was projected to decline from 26.5% in 1990 to 17.6% in 2015 across the world and specifically in developing regions; the prevalence was forecasted to decline from 30.2% to 19.3% (Onis, Blossner, Borghi, Frongillo, & Morris, 2004). Undernutrition rate in Malaysian children also showing a decreasing pattern. Data from the Third National Health and Morbidity Survey (NHMS III) 2006 in Malaysia found that the prevalence of underweight, stunted and thinness in children below 18 years old were 13.2%, 15.8% and 7.8% respectively (Institute of Public Health (IPH), 2008). However, these conditions were generally improved when NHMS 2015 showed that the prevalence of underweight, stunting and thinness were reduced to 13.0%, 13.4% and 7.8% respectively (IPH, 2015). NHMS 2011 reported that the national prevalence of thinness among adolescents specifically was 9.7% (IPH, 2011)

Recently, a systematic review reported that the prevalence of overweight and obesity among adolescents worldwide is high, and obesity is higher among boys (Bibiloni, Pons, & Tur, 2013) and Malaysia is showing a similar pattern as well. The prevalence of obesity among children was only 5.7% in the year 2006 (IPH, 2008) and it drastically increased to 11.9% in the year 2015 (IPH, 2015). NHMS in the year 2011 showed that the nationwide prevalence of obesity in adolescent age 10 – 17 was 5.7% (IPH, 2011).

High-calorie intake and sedentary lifestyle are two common behavioral factors related to childhood obesity. Childhood and adolescent obesity are an epidemic and should be given attention because they are associated with various medical chronic conditions in adulthood (Sahoo et al., 2015). Reading food labelling prior to food purchasing can help adolescents in making healthier choices on packaged snacks. However, use of nutritional labelling was found to be low among adolescents (Wojcicki & Heyman, 2012). Thus, Adolescent Nutrition Survey NHMS 2017 aims age 10 – 17 years old to continue exploring issues pertaining to nutrition related component in adolescents in Malaysian such as nutritional status, body weight perception, meal pattern, habitual food intake, dietary intake, physical activity level, vitamin/mineral and food supplement intake and food and nutrition labelling.

## References

1. Bibiloni, M. del M., Pons, A., & Tur, J. A. (2013). Prevalence of overweight and obesity in adolescents: A systematic review. *ISRN Obesity*, 2013, 392747. <https://doi.org/10.1155/2013/392747>
2. Case, A., Fertig, A., & Paxson, C. (2005). The lasting impact of childhood health and circumstance. *Journal of Health Economics*, 24(2), 365–389. <https://doi.org/10.1016/j.jhealeco.2004.09.008>
3. Institute for Public Health (IPH) 1996. The second National Health and Morbidity Survey (NHMS II) 1996, Health Related Behaviours. Ministry of Health, Malaysia.
4. Institute for Public Health (IPH) 2008. The third National Health and Morbidity Survey (NHMS III) 2006, Nutritional Status. Ministry of Health, Malaysia.
5. Institute for Public Health (IPH) 2011. The National Health and Morbidity Survey 2011 (NHMS 2011). Non-Communicable Diseases, Risk Factors & Other Health Problems; 2015.
6. Institute for Public Health (IPH) 2015. The National Health and Morbidity Survey 2015 (NHMS 2015). Vol. II. Non-Communicable Diseases, Risk Factors & Other Health Problems; 2015.
7. Onis, M. De, Blossner, M., Borghi, E., Frongillo, E. a, & Morris, R. (2004). Estimates of Global Prevalence of Childhood Underweight in 1990 and 2015. *Journal of the American Medical Association*, 291(21), 2600–6. <https://doi.org/10.1001/jama.291.21.2600>
8. Sahoo, K., Sahoo, B., Choudhury, A. K., Sofi, N. Y., Kumar, R., & Bhadoria, A. S. (2015). Childhood obesity: causes and consequences. *Journal of Family Medicine and Primary Care*, 4(2), 187–92. <https://doi.org/10.4103/2249-4863.154628>
9. Wojcicki, J. M., & Heyman, M. B. (2012). Adolescent nutritional awareness and use of food labels: results from the National Nutrition Health and Examination Survey. *BMC Pediatrics*, 12(1), 55. <https://doi.org/10.1186/1471-2431-12-55>
10. World Health Organization. (2006). Adolescent Nutrition: A Review of the Situation in Selected South-East Asian Countries. Regional Office for South-East Asia, New Delhi. New Delhi. <https://doi.org/10.3126/hprospect.v10i0.5656>



11. World Health Organization. (2014). Recognizing adolescence. Retrieved July, 23, 2017 from <http://apps.who.int/adolescent/second-decade/section2/page1/recognizing-adolescence.html>

## **1.1 Objectives**

### **1.1.1 General Objectives**

To determine the prevalence of nutritional status, body weight perception, habitual food intake, dietary intake, meal pattern, physical activity level, vitamin/mineral and food supplements and food and nutrition labelling among adolescents in Malaysia.

### **1.1.2 Specific Objectives**

1.1.2.1 To determine the prevalence of nutritional status among of adolescents (Standard 4 to Form 5) in Malaysia.

1.1.2.2 To assess self-perception on body weight and intentions on weight management among adolescents (Primary 4 to Secondary 5) in Malaysia.

1.1.2.3 To determine the meal pattern among of adolescents (Primary 4 to Secondary 5) in Malaysia.

1.1.2.4 To assess physical activity pattern of adolescents (Primary 4 to Secondary 5) in Malaysia.

1.1.2.5 To determine the pattern of use of vitamin/mineral and food supplements among adolescents (Primary 4 to Secondary 5) in Malaysia.

1.1.2.6 To determine the prevalence of reading food and nutrition labeling among adolescents (Secondary 1 to Secondary 5) in Malaysia.

## **1.2 The NHMS 2017 Organisation Team**

The organisation of NHMS 2017 was set up at various levels of the Ministry of Health and Ministry of Education in order to conduct this survey.

### **1.2.1 NHMS Steering Committee**

The NHMS Steering Committee, chaired by the Director-General of Health was set up at the national level to approve scopes of the NHMS 2015-2018 and to facilitate implementation of the survey. The members and terms of reference of this committee are shown in **Appendix 1** and **Appendix 2**.

### **1.2.2 Central Coordinating Team (CCT)**

A working committee within the Institute for Public Health was established to coordinate implementation of the survey according to the scheduled Gantt chart. The Operation Centre was set up and led by the CCT team for coordinating and monitoring progress of the survey.

The list of CCT members and terms of reference are shown in **Appendix 3** and **Appendix 4**. **Figure 1** detailed the organisation chart at the Institute for Public Health level. Adolescent Nutrition Survey was part of NHMS 2017 using the sample from primary and secondary schools.

### **1.2.3 Research Team Members**

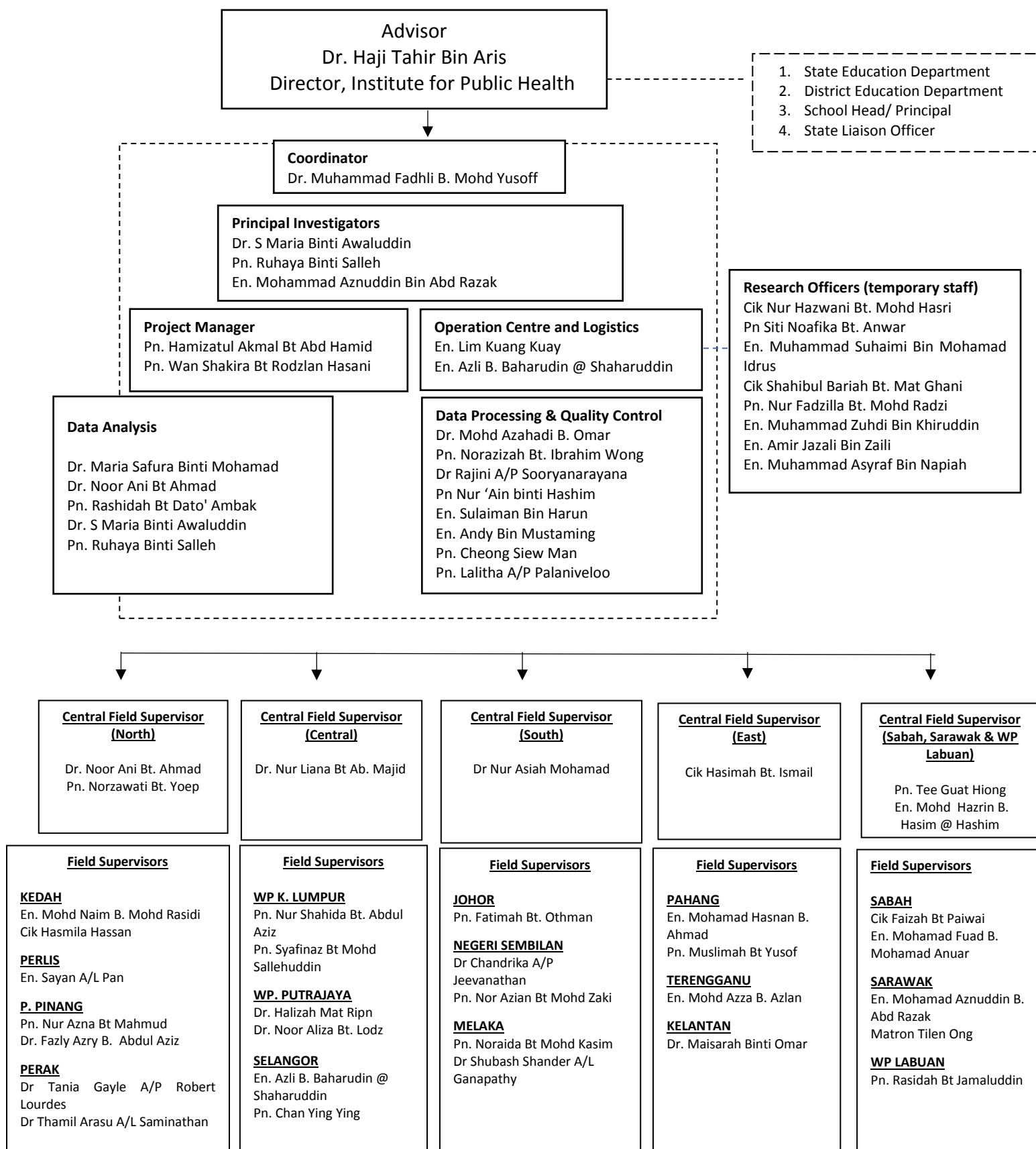
Research team members for each sub-scope were established and headed by a key-person (among IPH officers) together with the relevant stakeholders and universities. Research team members were responsible for the technical input in development of the questionnaire manual, variable definition, data analysis and writing of the final report.

The list of members for each research teams are shown in **Appendix 5**.

### **1.2.4 State Liaison Officers and Data Collection Team**

A State Liaison Officer (Nutritionist) was appointed in each State to facilitate planning and implementation of data collection within the States. The list of State Liaison Officers and Data Collection Teams are shown in **Appendix 6**.

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017



**Figure 1: Organisation chart for data collection teams NHMS 2017**

## 2.0 Methodology

### Methodology and Sampling Design

Three main scopes of research were incorporated in the survey, namely the Adolescent Nutrition Survey (ANS), Habitual food intake and Dietary Intake.

### 2.1 Target Population

Generally, the Adolescent Nutrition Survey 2017 was conducted at all 16 states including three federal territories in Malaysia. This school-based survey was a cross-sectional study involving school-going adolescents aged 10 to 17 years old attending public and private schools.

### 2.2 Sampling Frame

The sampling frame in this survey was a list of primary and secondary schools from the Ministry of Education. Students' enrolment data of 2016 from Standard 4 until Standard 6 (primary school) and Form 1 until Form 5 (secondary school) were used. There were 7926 primary schools and 2688 secondary schools in 2016. Both public and private schools were included in the sampling frame.

### 2.3 Sample Size Determination

Sample size was calculated using a single proportion formula for estimation of prevalence.

$$n_{SRS} \geq \frac{Z^2_{\alpha/2} (p)(1-p)}{e^2}$$

The sample size calculation was based on a few criteria as below:

1. Variance of proportion of the variable of interest (Based on Malaysia School-Based Nutrition Survey 2012)
2. Margin of error (e) (Between 0.01 to 0.05)
3. Confidence Interval of 95%

To ensure optimum sample size, a few adjustments were made as follows:

1. Adjusted n(srs) for the total number of target population (N) (based on the population size for schoolchildren in 2016)

$$n \geq \frac{n_{SRS}}{1 + \frac{n_{SRS}}{N}}$$

2. Adjusted for the design effect (deff) (based on previous survey: MSNS 2012), n(complex) = n \* deff
3. Adjusted the n(complex) taking into account expected non-response rate of 25%, n(adj) = n(complex) \* (1 + non-response rate)

4. The sample size was then adjusted according to the need of the analysis, whether the estimate was going to be done at the national or the state level.

Based on the requirements for the objectives and abovementioned considerations, the optimum sample size required was 30,496 respondents for secondary schools and 14,000 respondents for primary schools (**Table 2.1**).

**Table 2.1: Distribution of Secondary and Primary Schools Sampled by State, NHMS 2017**

No.	State	Secondary			Primary		
		Total Number of Schools	Number of Schools Sampled	Number of students sampled	Total Number of Schools	Number of Schools Sampled	Number of students sampled
1	Johor	306	14	1906	921	6	875
2	Kedah	219	14	1906	552	6	875
3	Kelantan	193	14	1906	423	6	875
4	Melaka	87	14	1906	236	6	875
5	Negeri Sembilan	139	14	1906	352	6	875
6	Pahang	209	14	1906	543	6	875
7	Pulau Pinang	141	14	1906	275	6	875
8	Perak	275	14	1906	852	6	875
9	Perlis	33	14	1906	73	6	875
10	Selangor	345	14	1906	727	6	875
11	Terengganu	162	14	1906	354	6	875
12	Sabah	246	14	1906	1,090	8	875
13	Sarawak	220	14	1906	1,274	7	875
14	WP Kuala Lumpur	133	14	1906	227	6	875
15	WP Labuan	19	8	1906	12	6	875
16	WP Putrajaya	11	8	1906	14	6	875
<b>Total</b>		<b>2,738</b>	<b>212</b>	<b>30,496</b>	<b>7,925</b>	<b>99</b>	<b>14,000</b>

## 2.4 Sampling Design

This survey implemented a multistage stratified cluster sampling design to ensure the nationally representative sample of Standard 4 to 6 (10-12 years of age) and Form 1 to 5 (13-17 years of age). Malaysia was stratified into 16 states (including Federal Territory of Kuala Lumpur, Putrajaya and Labuan). The first stage of sampling involved a random selection of school from the list of eligible schools provided by Ministry of Education. Schools were selected randomly with probability proportional to school enrolment size. A total of 311 schools were selected to participate in this survey. The second stage of sampling was the selection of the classes. All classes in each selected school were included in the sampling

frame. Systematic random sampling was used to select classes from each selected school. All students in the selected classes were eligible to participate in the survey. The third stage of sampling was applied for Habitual food intake module and Dietary Intake. Students were selected randomly from each selected class.

### **2.5 Ethical Approval**

This study was approved by the Ministry of Health, Research and Ethics Committee and Ministry of Education Ethics Committee. Approval was also obtained from the relevant Ministry of Education officials at the state and district levels including the selected school itself. Prior to the survey, several meetings with the relevant Ministry of Education officers and person in-charge at the selected school were carried out. The consent form was obtained from parents and the students.

### **2.6 Data Collection**

A total of 36 teams were set up; 4 teams for Sabah and Sarawak and 2 teams per state for the remaining states. They consist of a field supervisor, research assistants and a driver. The field supervisor was a permanent staff in Ministry of Health.

An initial data collection by the core team members was initiated to observe the flow of the data collection on 06 March 2017. The data collection training was conducted for Peninsular in Kuala Lumpur and Sabah, Sarawak and WP Labuan in Kuching, Sarawak simultaneously. Data collection was conducted from 26 March to 03 May 2017.

### **2.7 Data Management**

Quality check on data was conducted throughout the survey based on specific identification (ID) numbers; from the state ID until individual student ID (generated for the study). Upon completing the survey, each student placed his / her answer sheet in an envelope. All answer sheets from the same school were wrapped together to make a bundle. These bundles were collected by assigned drivers for schools in Peninsular Malaysia or using tracked postage for schools in Sabah, Sarawak and WP Labuan.

#### **2.7.1 Data Operation Centre**

An operation centre with several stations was set up to receive data “bundles” from the field:

Station 1: Respondent ID checking

Station 2: Scanning

Station 3: Verification

Station 4: Storage

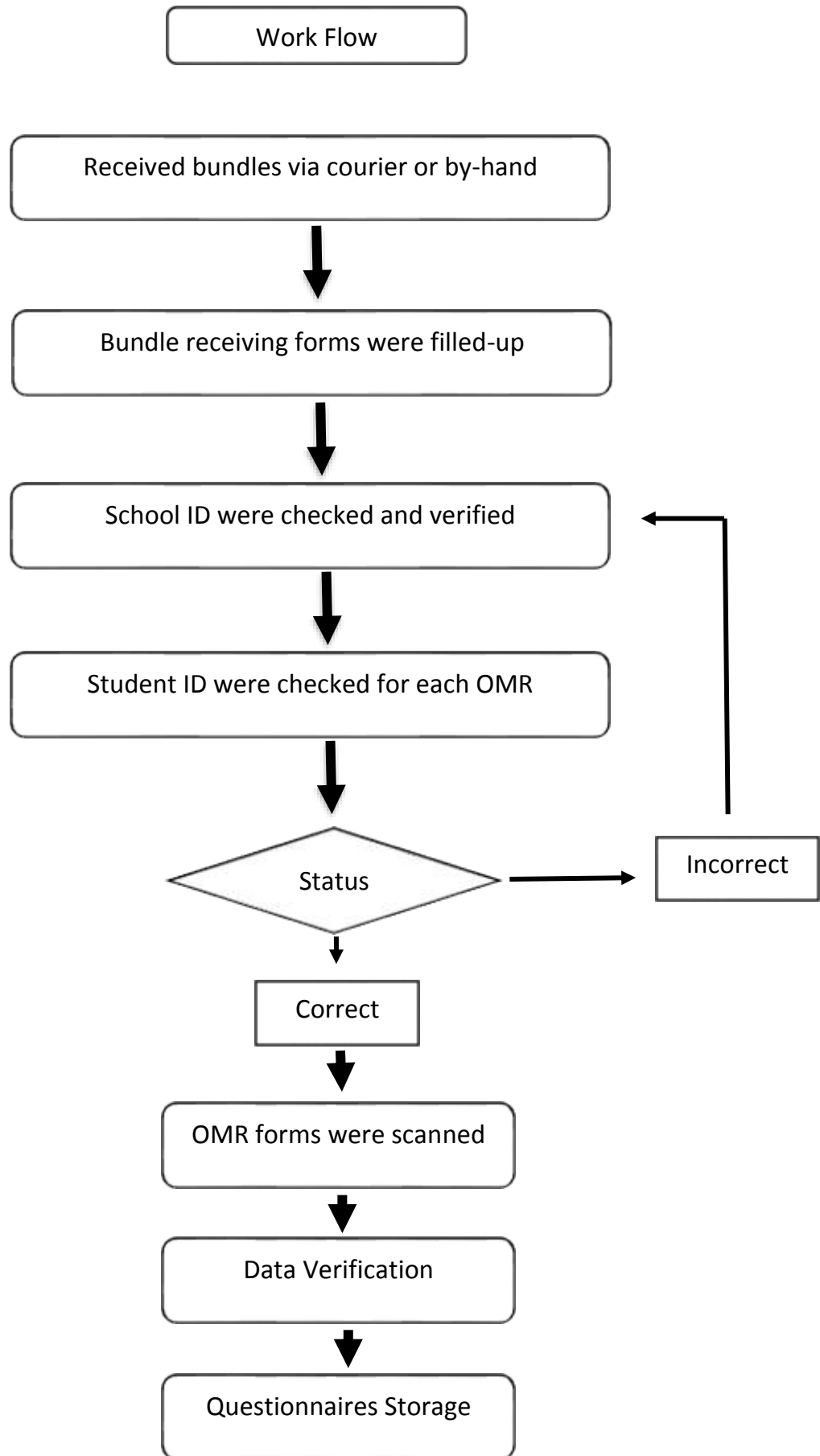


Figure 2: Work Flow of NHMS 2017



### 2.7.2 Data Analysis

The data set was checked, cleaned and edited for inconsistencies. Data analysis was done using SPSS version 21 by importing the raw dataset which normally in CSV form or excel. The analysis was done according to the objectives, and dummy tables prepared. Complex samples analysis procedures were used in the analysis and was carried out at 95% confidence interval. Finally, the data is representative of all students attending school from Standard 4 to Form 5 in Malaysia.

A weighting factor was applied to each student record to adjust the varying probabilities of selection and for the non-response. The weight used for estimation is given by:

$$W = W1 \times W2 \times W3 \times F \times PS$$

Where;

W1 = the inverse of the probability of selecting the school

W2 = the inverse of the probability of selecting the class within the school

W3 = the inverse of the probability of selecting the student within the class

F = the inverse of a school, class and student level non-response adjustment factor

PS = a post stratification adjustment factor calculated by class and gender

### 2.8 Survey Instruments

Validated self-administered questionnaires with computer-scanned answer sheets were used. Students' privacy was ensured as the answer sheet were anonymous. The majority of the students completed the survey within two class periods.

The ANS questionnaire contained sub topic which is nutritional status, body weight perception, meal pattern, physical activity level, Vitamin/Mineral and Food Supplement and Food and Nutrition Labelling.

### 3.0 Findings

#### 3.1 General Findings

A total of 40,087 questionnaires for adolescent nutrition survey were completed by the respondents. The school and the class response rate was 100% respectively, while the student response rate for adolescent nutrition survey was 89.5%. Overall, the response rate was 89.5% (**Table 3.1.1**).

**Table 3.1.1: Response Rate at Student Level for Adolescent Nutrition Survey by State, NHMS 2017**

State	Selected School	Eligible Student	Interviewed Student	Response Rate (%)
<b>Malaysia</b>	<b>311</b>	<b>44,773</b>	<b>40,087</b>	<b>89.5</b>
Johor	20	2,829	2,565	90.7
Kedah	20	2,790	2,490	89.2
Kelantan	20	2,776	2,464	88.8
Melaka	20	2,862	2,685	93.8
Negeri Sembilan	20	2,823	2,431	86.1
Pahang	20	2,822	2,563	90.8
Pulau Pinang	20	2,846	2,547	89.5
Perak	20	2,832	2,527	89.2
Perlis	20	2,869	2,496	87.0
Selangor	20	2,721	2,503	92.0
Terengganu	20	2,738	2,437	89.0
Sabah	22	2,855	2,437	85.4
Sarawak	21	2,791	2,534	90.8
WP Kuala Lumpur	20	2,699	2,410	89.3
WP Labuan	14	2,789	2,525	90.5
WP Putrajaya	14	2,731	2,473	90.6

Comparison of the total estimated population (weighted) with the national secondary school enrolment is shown in **Table 3.1.2** Geographic information system (GIS) on the mapping of selected primary and secondary schools is shown in **Figure 3**.

**Table 3.1.2: Comparison between NHMS 2017 respondents and national enrolment of school students in Malaysia 2017**

	NHMS 2017			School Enrolment 2017	
	n	Estimated Enrolment (weighted)	Prevalence (%)	Total Enrolment	Prevalence (%)
<b>MALAYSIA</b>	40087	3,480,500	100	3,480,439	100
<b>State</b>					
Johor	2565	439,369	12.6	439,406	12.6
Kedah	2490	250,426	7.2	250,388	7.2
Kelantan	2464	207,201	6	207,206	6
Melaka	2685	106,254	3.1	106,253	3.1
Negeri Sembilan	2431	139,235	4	139,242	4
Pahang	2563	174,713	5	174,721	5
Pulau Pinang	2547	178,446	5.1	178,453	5.1
Perak	2527	281,354	8.1	281,352	8.1
Perlis	2496	38,004	1.1	37,999	1.1
Selangor	2503	651,976	18.7	651,925	18.7
Terengganu	2437	158,658	4.6	158,645	4.6
Sabah	2437	331,295	9.5	331,298	9.5
Sarawak	2534	321,046	9.2	321,063	9.2
WP Kuala Lumpur	2410	177,937	5.1	177,902	5.1
WP Labuan	2525	9,604	0.3	9,602	0.3
WP Putrajaya	2473	14,982	0.4	14,984	0.4
<b>Sex</b>					
Male	19677	1,746,339	50.2	1,746,326	50.2
Female	20410	1,734,161	49.8	1,734,113	49.8
<b>Form</b>					
Standard 4	4617	448,352	12.9	448,329	12.9
Standard 5	4205	442,371	12.7	442,339	12.7
Standard 6	3777	443,262	12.7	443,262	12.7
Form 1	5702	450,996	13	451,024	13
Form 2	5499	426,921	12.3	426,908	12.3
Form 3	5834	431,004	12.4	431,043	12.4
Form 4	5536	414,703	11.9	414,653	11.9
Form 5	4917	422,891	12.2	422,881	12.2

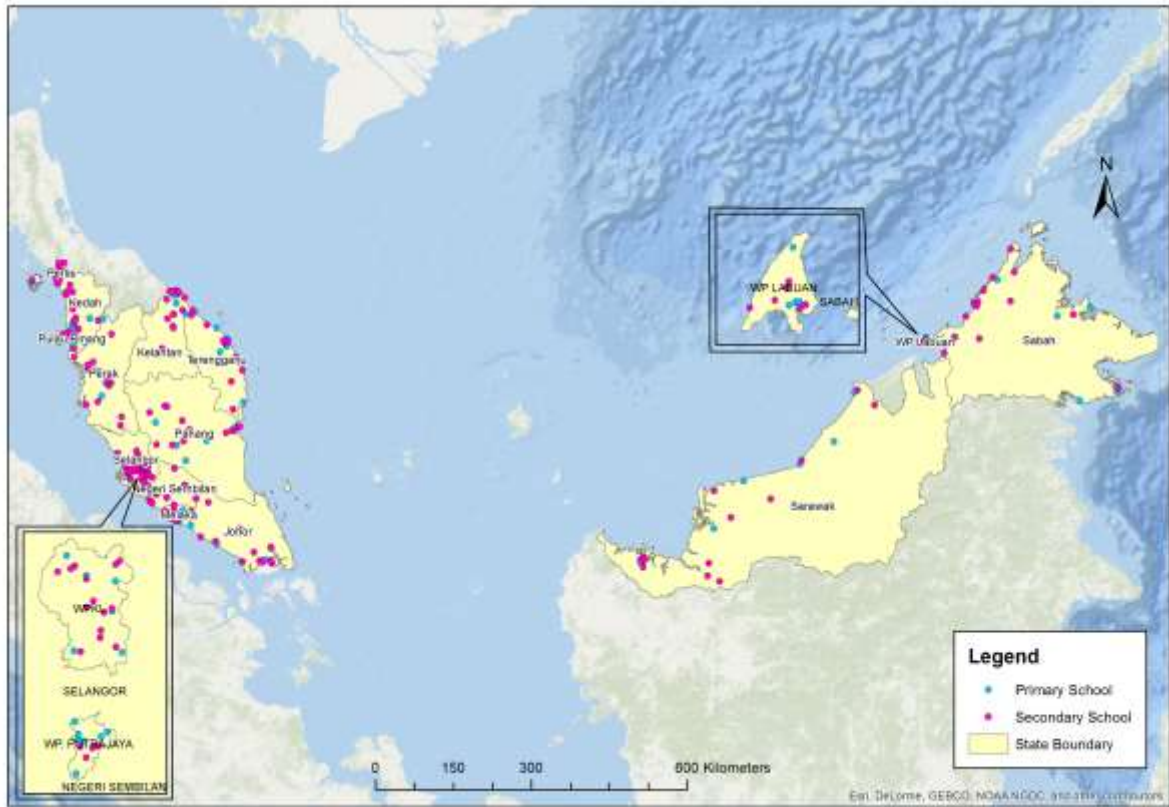


Figure 3: GIS mapping of the selected primary and secondary schools in Malaysia 2017

### 3.2 Nutritional status among adolescents (Primary 4 to Secondary 5) in Kedah

Contributors: Azli Baharudin, Junidah Raib, Chan Ying Ying, Poh Bee Koon, Tan Beng Chin, Suhaidi Sudin, Mohamad Hasnan Ahmad

#### 3.2.1 Introduction

Good nutritional status contributes to a healthy development of children. Anthropometric measurements are part of nutritional status components to assess body size and composition; and reflect adequate, inadequate or excessive food intake. It is also a reflection of individual activity level and disease states. Nutritional deprivation and excess may coexist, not only within the household or the community but also across the country. Performing simple body measurements also help to identify individuals, families or the community for intervention, which could improve not only nutritional status but also their health as a whole.

#### 3.2.2 Objectives

##### General objective:

To determine the nutritional status of adolescents (Primary 4 to Secondary 5).

##### Specific objective:

To determine the prevalence of stunting, thinness, normal weight, overweight, and obesity among adolescents (Primary 4 to Secondary 5) in Malaysia according to socio-demographic characteristics.

#### 3.2.3 Variable definition

The nutritional status of adolescents was identified based on the World Health Organization Growth Reference 2007 (WHO 2007)<sup>1</sup>. The major indices referred to were:

- a. Height-for-Age z-score (for adolescents between (Primary 4 to Secondary 5), and
- b. BMI-for-Age z-score (for adolescents between Primary 4 to Secondary 5)

#### 3.2.4 Findings

##### 3.2.4.1 Height-for-Age z-score

The finding of the survey showed that 92.2% (95% CI: 89.81, 94.01) of the adolescents had normal height-for-age status (HAZ:  $\geq -2SD$  to  $\leq +2SD$ ). The prevalence was higher than national level [91.8% (95% CI: 91.19, 92.29)]. Comparing between strata, rural area had higher percentage of total stunting [10.0% (95% CI: 7.09, 13.90)] compared to urban area [5.9% (95% CI: 4.52, 7.62%)]. In term of sexes, girls had higher percentage of total stunting [9.0% (95% CI: 6.32, 12.60)] compared to boys [6.7% (95% CI: 5.01, 8.83)]. Comparing class category, primary

level had higher percentage of total stunting [9.3% (95% CI: 6.65, 12.92)] compared to secondary level [6.9% (95% CI: 4.72, 10.03)].

#### 3.2.4.2 BMI-for-Age z-score

In terms of BMI-for-age status, the findings showed that 62.7% (95% CI: 59.70-65.57) of the population was in the normal range ( $\geq -2SD$  to  $\leq +1SD$ ). The prevalence was lower than national level [62.9% (95% CI: 61.84, 64.02)]. Comparing between the strata, the rural area had a slightly higher percentage of thinness [6.7% (95% CI: 5.31, 8.48)] compared to the urban area [6.1% (95% CI: 4.57, 8.00%)]. According to sexes, more boys [7.1% (95% CI: 5.61, 8.94)] were thinner than girls [5.7% (95% CI: 4.14, 7.74)]. In term of the class category, the secondary level had a slightly higher percentage of thinness [6.5% (95% CI: 5.33, 7.89)] compared to primary level [6.2% (95% CI: 4.30, 8.83)].

On the other hand, the prevalence of overweight in Kedah (BMI-for-age:  $\geq +1SD$  to  $\leq +2SD$ ) was 15.4% (95% CI: 13.89, 17.10). The state prevalence was lower than national prevalence [15.6% (95% CI: 15.06, 16.19)]. Between strata, urban strata showed slightly higher prevalence of overweight [15.6% (95% CI: 13.01, 18.50)] than rural strata [15.3% (95% CI: 13.86, 16.83)]. Comparing between sexes, girls had higher prevalence of overweight [15.8% (95% CI: 13.83, 18.07)] than boys [15.0% (95% CI: 13.08, 17.17)]. However, the prevalence of overweight was not much difference between primary level [15.5% (95% CI: 12.61, 18.98)] and secondary level [15.4% (95% CI: 13.74, 17.14)].

For the prevalence of obesity (BMI-for-age:  $> +2SD$ ), the state prevalence was 15.5% (95% CI: 13.84, 17.34), which the prevalence was higher than national prevalence [14.8 (95% CI: 14.00, 15.73)]. Between strata, urban strata showed higher prevalence of obesity [16.6% (95% CI: 14.31, 19.09)] than urban strata [14.4% (95% CI: 12.36, 16.61)]. Comparing between sexes, boys had higher prevalence of obesity [18.0% (95% CI: 15.20, 21.28)] than girl [13.0% (95% CI: 11.40, 14.86)]. In term of class category, 18.0% (95% CI: 15.87, 20.39) primary level were obese compared to 14.0% (95% CI: 12.21, 15.39) secondary level.

#### 3.2.5 Conclusion

The prevalence of stunted for adolescents aged 10 to 17 years in Kedah was 7.8%. On the other hand, the prevalence of overweight and obesity among this population were 15.4% and 15.5% respectively. In contrast, 6.4% of the population were found to be thinness. High demand for energy and nutrient are very important for physical growth and development at this age. However, the concept of healthy eating and living should be practiced at a younger age to ensure healthy physical and mental development. In consequences, it is hope reduce the prevalence of stunted, thinness, overweight and obesity.

### 3.2.6 Recommendation

Thinness, overweight and obesity is still a problem to be addressed for adolescents aged 10 to 17 years in Kedah. Various agencies have to take the initiative to set up a plan of action to overcome such problem. Healthy eating and living concept should be carried out at an earlier stage. It can be implemented by developing pro-health policies and regulation to create a health-promoting environment in the workplace, school, public area and even at home.

One of the suggested initiatives that involve collaboration between Ministry of Health and Ministry of Education is to empower Parental and Teacher Association in school to disseminate and implement healthy eating programs in schools. With that, it can give the concept of healthy eating and living to the children during schooling time, and further practice and implement it at home and daily life. Eventually, it hopes to reduce the prevalence of thinness, overweight and obesity in the country.

Anthropometry is the measurement of physical dimensions such as height or weight, as well as the fat mass composition of the human body to provide information about a person's nutritional status. An index is a combination of two anthropometric measurements or an anthropometric measurement plus age. Anthropometry is a practical and immediately applicable technique for assessing person's development patterns. An evaluation also provides useful insights into the nutrition and health situation of entire population groups.

### References

1. World Health Organization, & World Health Organization. (2007). Growth reference data for 5-19 years. Geneva: WHO.
2. WHO Child Growth Standards: Methods and development: Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age, World Health Organization, Switzerland, 2006

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.2.1: Distribution of adolescents according to Height-For-Age (HAZ) Z-score by sociodemographic characteristics**

Characteristic	Stunting (<-2SD)					Normal (≥-2SD)				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	190	19610	7.8	5.99	10.19	2299	230675	92.2	89.81	94.01
<b>Locality of School</b>										
Urban	75	7724	5.9	4.52	7.62	1205	123528	94.1	92.38	95.48
Rural	115	11887	10.0	7.09	13.90	1094	107147	90.0	86.10	92.91
<b>Sex</b>										
Boys	87	8274	6.7	5.01	8.83	1180	115743	93.3	91.17	94.99
Girls	103	11336	9.0	6.32	12.60	1119	114932	91.0	87.40	93.68
<b>Class</b>										
Standard 4	24	2888	9.1	6.61	12.43	255	28806	90.9	87.57	93.39
Standard 5	28	2941	9.2	7.15	11.88	267	28874	90.8	88.12	92.85
Standard 6	21	3087	9.6	5.82	15.45	203	29038	90.4	84.55	94.18
Form 1	19	1544	5.0	3.09	7.99	375	29349	95.0	92.01	96.91
Form 2	24	2180	7.2	3.62	13.63	303	28299	92.8	86.37	96.38
Form 3	18	1782	5.7	2.20	14.02	285	29448	94.3	85.98	97.80
Form 4	35	2750	9.1	6.48	12.60	346	27513	90.9	87.40	93.52
Form 5	21	2438	7.7	4.02	14.13	265	29348	92.3	85.87	95.98
<b>Class Category</b>										
Primary Level	73	8916	9.3	6.65	12.92	725	86718	90.7	87.08	93.35
Secondary Level	117	10694	6.9	4.72	10.03	1574	143958	93.1	89.97	95.28
<b>Ethnicity</b>										
Malay	168	17315	8.7	6.74	11.10	1815	182329	91.3	88.90	93.26
Chinese	17	1872	4.8	2.50	8.93	367	37361	95.2	91.07	97.50
Indian	4	344	4.4	1.31	14.01	78	7399	95.6	85.99	98.69
Bumiputera Sabah	-	-	-	-	-	2	229	100.0	100.00	100.00
Bumiputera Sarawak	-	-	-	-	-	1	104	100.0	100.00	100.00
Others	1	79	2.4	0.23	20.54	36	3253	97.6	79.46	99.77



NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.2.2: Distribution of adolescents according to BMI-For-Age status by sociodemographic characteristics (Cont.)

Characteristic	Thinness (< -2SD)					Normal BMI (≥ -2SD to ≤ +1SD)				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	160	15951	6.4	5.31	7.64	1560	156759	62.7	59.70	65.57
<b>Locality of School</b>										
Urban	75	7951	6.1	4.57	8.00	796	81073	61.8	57.01	66.40
Rural	85	8000	6.7	5.31	8.48	764	75686	63.6	60.63	66.53
<b>Sex</b>										
Boys	93	8784	7.1	5.61	8.94	760	74108	59.9	55.77	63.80
Girls	67	7167	5.7	4.14	7.74	800	82651	65.5	62.21	68.57
<b>Class</b>										
Standard 4	24	2729	8.6	5.33	13.63	178	20406	64.4	59.56	68.93
Standard 5	15	1681	5.3	3.58	7.83	165	18434	58.3	47.79	68.12
Standard 6	10	1497	4.7	2.37	8.97	131	18669	58.1	50.28	65.56
Form 1	27	2147	7.0	4.78	10.00	241	18824	60.9	55.67	65.95
Form 2	20	1840	6.0	4.13	8.74	218	20249	66.4	61.86	70.72
Form 3	14	1463	4.7	2.71	7.99	196	20150	64.5	59.77	69.00
Form 4	26	1990	6.6	4.76	9.02	245	19432	64.2	59.70	68.48
Form 5	24	2602	8.2	5.23	12.59	186	20597	64.8	57.50	71.47
<b>Class Category</b>										
Primary Level	49	5908	6.2	4.30	8.83	474	57508	60.3	54.14	66.07
Secondary Level	111	10043	6.5	5.33	7.89	1086	99251	64.2	61.67	66.61
<b>Ethnicity</b>										
Malay	128	12897	6.5	5.40	7.72	1250	125356	62.9	59.21	66.36
Chinese	14	1277	3.3	1.93	5.45	240	24877	63.4	61.06	65.69
Indian	12	1255	16.2	10.20	24.76	46	4251	54.9	41.73	67.43
Bumiputera Sabah	-	-	-	-	-	1	129	56.3	5.81	96.40
Bumiputera Sarawak	-	-	-	-	-	1	104	100.0	100.00	100.00
Others	6	522	15.7	4.59	41.73	22	2042	61.3	43.30	76.60

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.2.2: Distribution of adolescents according to BMI-For-Age status by sociodemographic characteristics

Characteristic	Overweight (> +1SD to ≤ +2SD)					Obese (> +2SD)				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	385	38583	15.4	13.89	17.10	382	38793	15.5	13.84	17.34
<b>Locality of School</b>										
Urban	197	20403	15.6	13.01	18.50	211	21719	16.6	14.31	19.09
Rural	188	18180	15.3	13.86	16.83	171	17074	14.4	12.36	16.61
<b>Sex</b>										
Boys	188	18589	15.0	13.08	17.17	224	22337	18.0	15.20	21.28
Girls	197	19994	15.8	13.83	18.07	158	16456	13.0	11.40	14.86
<b>Class</b>										
Standard 4	39	4429	14.0	10.61	18.19	38	4130	13.0	10.29	16.37
Standard 5	45	4566	14.4	11.52	17.95	68	6934	21.9	14.83	31.20
Standard 6	40	5828	18.1	12.50	25.58	43	6131	19.1	17.53	20.75
Form 1	73	5596	18.1	13.70	23.57	53	4326	14.0	9.43	20.29
Form 2	48	4481	14.7	11.57	18.50	41	3908	12.8	8.93	18.07
Form 3	48	5038	16.1	11.36	22.39	45	4580	14.7	11.26	18.88
Form 4	54	4350	14.4	10.38	19.58	56	4492	14.8	11.89	18.37
Form 5	38	4295	13.5	9.39	19.07	38	4292	13.5	9.99	17.99
<b>Class Category</b>										
Primary Level	124	14823	15.5	12.61	18.98	149	17196	18.0	15.87	20.39
Secondary Level	261	23760	15.4	13.74	17.14	233	21597	14.0	12.21	15.93
<b>Ethnicity</b>										
Malay	294	29700	14.9	12.97	17.04	309	31492	15.8	14.00	17.77
Chinese	67	6649	16.9	14.62	19.56	63	6428	16.4	12.64	20.97
Indian	18	1722	22.2	14.41	32.69	6	515	6.7	4.06	10.72
Bumiputera Sabah	1	100	43.7	3.60	94.19	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	5	412	12.4	5.72	24.71	4	357	10.7	5.39	20.20

### 3.3 Perception on body weight management among adolescents (Primary 4 to Secondary 5) in Kedah

**Contributors:** Nur Shahida Abdul Aziz, Safiah Md.Yusof, Rohana Yaakof, Ruby Zainureen, Noor Ani Ahmad, Norlida Zulkafly, Rashidah Ambak

#### 3.3.1 Introduction

Body weight perception refers to the personal evaluation of one’s weight as “underweight” or “normal weight” or “overweight” irrespective of actual body mass index. Adolescent estimation of weight status may reflect an adolescent’s perception of where they are on the spectrum of body weight relative to their peers.

#### 3.3.2 Objective

##### General objective:

To assess self-perception on body weight and intentions on weight management among Malaysian adolescents aged 10 to 17 years

##### Specific Objectives

- I. To determine body weight perception among adolescents
- II. To determine body weight perception among adolescents in comparison to actual BMI- for-age status
- III. To describe intended action on their perceived body weight status
- IV. To describe motivating factors to change their body weight.
- V. To identify preferred options to change their body weight.

#### 3.3.3 Variable definition

- **Body weight perception:** An interpretation or impression; an opinion or belief
- (Ref: Collins English Dictionary – Complete and Unabridged, 12th Edition 2014 © HarperCollins Publishers 1991, 1994, 1998, 2000, 2003, 2006, 2007, 2009, 2011, 2014)
- **Actual body weight:** Body weight that was measured during the survey.
- **Misperception:** - a wrong perception

(Ref: (Collins English Dictionary – Complete and Unabridged, 12th Edition 2014 © HarperCollins Publishers 1991, 1994, 1998, 2000, 2003, 2006, 2007, 2009, 2011, 2014)

### 3.3.4 Findings

Overall, 42.0% (95% CI: 38.20, 45.94) of the adolescents in Kedah perceived that they have normal weight. There was no significant difference in school locality, however there were significant different in sex which boys was higher in perceived thin 32.8% (95%CI: 27.16,39.03) as compared than girls, while girls were significantly higher in perceived overweight 31.9% (95%CI: 25.67,38.92) compared with boys 19.2% (95% CI: 16.02, 22.76). There were no significant differences in ethnicity as presented in **Table 3.3.1**.

Among the actual normal 49.8% (95% CI: 45.39, 54.19) was correctly perceived their weight to be normal, 31.8% (95% CI: 25.85 38.48) was underestimated their body weight, perceived to be thin, and 16.7% (95% CI: 12.53, 21.83), 1.7% (95% CI: 1.13, 2.58) were overestimated to be overweight, and obese respectively. However, among the actual overweight 43.3% (95% CI: 34.44, 52.61) was correctly perceived their weight to be overweight, but 13.9% (95% CI: 8.75, 21.40), 36.9% (95% CI: 29.29, 45.16), were underestimated their body weight to be thin or normal respectively. In addition, there were no significant differences in school locality, sex and school category among adolescent whom have actual thin body weight and perceived thin. However, there were significant differences among adolescent that have normal body weight but perceived overweight based on school category which more secondary students perceived overweight 22.5% (95% CI: 19.08, 26.30) while more primary students perceived thin 43.5% (95% CI: 34.79, 52.36). (**Table 3.3.2**)

Among all the adolescents who correctly perceived thin and have actual thin body weight, 64.5% (95% CI: 53.57, 74.03) reported they wanted to increase weight while adolescents who perceived normal and have actual normal body weight 36.7% (95% CI: 30.05, 43.88) have no plan to change their weight. There were no significant differences in school locality, sex and school category among adolescent who correctly perceived thin, normal and overweight between four categories of action taken (**Table 3.3.3**)

However, adolescents whom misperception, perceived thin but actually in overweight and obese categories, most of them 58.4% (95% CI: 47.31, 68.66) wanted to lose weight while 15.7% (95% CI: 7.78, 29.19) wanted to increase their weight. However, there were no significant differences in school locality, sex and school category among adolescent perceived thin but have actual overweight or obese body weight in all four categories of action taken. (**Table 3.3.4**)

About 66.5% (95% CI: 60.88, 71.76) adolescents choose health purpose as the main factor that motivates to lose weight followed by increase self-confidence 21.4%(95% CI: 16.72, 26.94). In term of sex, health purpose was higher among boys 68.8% (95% CI: 62.02, 74.93) as compared than girls, 64.9% (95% CI: 57.56, 71.57) while more girls choose beauty purpose as their main factor to motivate to lose weight. (**Table 3.3.5**)

However, the main factor to motivate adolescents to increase body weight was also health purpose 60.5% (95% CI: 51.57, 68.69) and followed by increase self-confidence 28.1% (95% CI: 21.03, 36.37). Health purpose was higher among girls 71.0% (95% CI: 58.01, 81.32), urban 64.3% (95% CI: 49.67, 76.63) and Indian 77.7% (95% CI: 48.61, 92.74). **(Table 3.3.6)**

Exercise was the highest option preferred by the adolescent to lose body weight 50.3% (95% CI: 46.32, 54.20). It was higher among boys, 59.7% (95% CI: 55.90, 63.34) as compared to girls, however, there was no significant difference between both sexes. Based on school categories it was higher among primary adolescents 55.4% (95% CI: 48.72, 61.79) and higher among Malay ethnicity 51.0% (95% CI: 46.87, 55.20). **(Table 3.3.7)**

Increase quantity of food was the highest option preferred by adolescents to increase their body weight, 55.2% (95% CI: 48.20, 61.92), There were no significant different between school locality, sex, school category and ethnicity. **(Table 3.3.8)**

### 3.3.5 Discussion/Conclusion

Perception of being normal weight among adolescents in Kedah was higher than the national prevalence 42.0 % and 41.4% respectively.

Among the actual thin adolescent in Kedah, 60.1% was correctly perceived thin, and the slightly similar result compared with the national prevalence, 69.6%. Adolescents with actual normal body weight, 45.4% was correctly perceived their weight to be normal and it slightly lower than national prevalence 50.2%.

In Kedah, the trend of main factors to lose body weight among adolescent are similar to the national trend. Health purpose is the highest 66.5% main factor to lose body weight; followed by to increase self-confidence 21.4%, beauty purpose 9.0% and to have more friends 1.97% .

Health purpose is the highest 60.5 % main factor to increase body weight. But it was lower compared with the national prevalence. It was followed by to increase self-confidence 28.1% , beauty purpose 7.7% and to have more friends 3.7%.

Adolescents choose to exercise as the preferred option to lose weight. However, it was lower compared to the national prevalence, 50.3% and 56.3% respectively. Followed by reduced consumption of high fat foods 28.6%, increase intake of fruits and vegetables 8.3% and reduce intake of high sugar foods 5.4%. This trend is similar to the national trend of prevalence.

55.2% adolescents in Kedah choose to increase the quantity of food as the preferred option to increase body weight. It was higher compared with the national prevalence, 52.4%.

### 3.3.6 Recommendation

Body weight perception is a rather complex concept affected by `ideal` as well as `normative` body image. Our adolescents live in a society where increasingly larger proportions of the populations are overweight and obese. They are surrounded by overweight and obese peers may develop inaccurate perception. On the other hand, mass media often portray unusually thin models, especially among females, emphasizing `thin` rather than `healthy` body shapes.

Findings from this study should be utilised by relevant programme managers. Intervention to promote healthy lifestyle should be one of the approaches undertaken to halt this problem from worsening. Nutrition education should be systematically conducted in all school, utilizing educational modules. Parents should act as role models and be actively involved in all efforts to promote healthy eating and active living among children. Media should play important role; advertise more information to adolescent and families about healthy eating and active lifestyle.

### References

1. Abbott, R. A., Lee, A. J., Stubbs, C. O., & Davies, P. S. W. (2010). Accuracy of weight status perception in contemporary Australian children and adolescents. *Journal of Paediatrics and Child Health*, 46, 343–348.
2. Brener, N. D., Eaton, D. K., Lowry, R., & McManus, T. (2004). The association between weight perception and BMI among high school students. *Obesity*, 12, 1866–1874.
3. Edwards, N. M., Pettingell, S., & Borowsky, I. W. (2010). Where perception meets reality: Self-perception of weight in overweight adolescents. *Pediatrics*, 125, 452–458.
4. Keel, P. K., Baxter, M. G., Heatherton, T. F., & Joiner, T. E. J. (2007). A 20-year longitudinal study of body weight, dieting and eating disorder symptoms. *Journal of Abnormal Psychology*, 116, 422–432. Linacre, S. (2007).
5. Maximova, K., McGrath, J. J., Barnett, T., O'Loughlin, J., Paradis, G., & Lambert, M. (2008). Do you see what I see? Weight status misperception and exposure to obesity among children and adolescents. *International Journal of Obesity*, 32, 1008–1015.
6. O'Dea, J. A., & Amy, N. K. (2011). Perceived and desired weight, weight related eating and exercising behaviours, and advice received from parents among thin, overweight, obese or normal weight Australian children and adolescents. *International Journal of Behavioral Nutrition and Physical Activity*,
7. Strauss, R. S. (1999). Self-reported weight status and dieting in a cross-sectional sample of young adolescents: National health and nutrition examination survey III. *Archives of Pediatric and Adolescent Medicine*, 153, 741–747.
8. Viner, R. M., Haines, M. M., Taylor, S. J. C., Head, J., Booy, R., & Stansfeld, S. (2006). Body mass, weight control behaviours, weight perception and emotional well being in a multiethnic sample of early adolescents. *International Journal of Obesity*, 30, 1514.

9. Wang, Y., Liang, H., & Chen, X. (2009). Measured body mass index, body weight perception, dissatisfaction and control practices in urban low-income African American adolescents. *BMC Public Health*, 9, 183–195
10. Xie, B., Liu, C., Chou, C. P., Xia, J., Spruijt-Metz, D., & Gong, J., et al. (2003). Weight perception and psychological factors in Chinese adolescents. *Journal of Adolescent Health*, 33, 202–210.

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.3.1 : Body weight perception among adolescents by socio-demographic characteristics (Cont.)

Characteristics	Perceived thin					Perceived Normal				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	676	70214	28.1	22.94	33.90	1060	105029	42.0	38.20	45.94
<b>Locality of School</b>										
Urban	340	35834	27.4	21.25	34.47	522	53733	41.0	35.74	46.55
Rural	336	34380	28.9	20.87	38.51	538	51296	43.1	37.63	48.77
<b>Sex</b>										
Boys	412	40630	32.8	27.16	39.03	568	54804	44.3	39.56	49.09
Girls	264	29585	23.5	17.94	30.04	492	50225	39.8	35.17	44.66
<b>School Category</b>										
Primary	297	35348	37.1	28.29	46.80	357	41786	43.8	35.94	52.03
Secondary	379	34867	22.6	19.37	26.09	703	63244	40.9	37.31	44.61
<b>Class</b>										
Standard 4	107	12431	39.5	26.94	53.53	140	15484	49.1	33.88	64.57
Standard 5	131	14428	45.5	34.62	56.81	103	10889	34.3	25.56	44.32
Standard 6	59	8489	26.4	16.18	40.07	114	15412	48.0	39.96	56.10
Form 1	100	8152	26.4	19.86	34.28	178	13767	44.7	35.91	53.77
Form 2	74	6937	22.8	14.40	34.04	135	12586	41.3	35.57	47.26
Form 3	62	6600	21.1	15.87	27.57	117	12026	38.5	32.57	44.81
Form 4	79	6188	20.4	16.73	24.75	164	12966	42.8	37.16	48.73
Form 5	64	6989	22.0	16.84	28.18	109	11899	37.4	30.43	45.01
<b>Ethnicity</b>										
Malay	564	58843	29.5	23.48	36.37	852	84558	42.4	37.80	47.17
Chinese	74	7777	19.9	14.44	26.68	155	15596	39.8	34.48	45.42
Indian	31	2913	37.6	27.21	49.31	33	3098	40.0	30.64	50.18
Bumiputera Sabah	1	129	56.3	5.81	96.40	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	1	104	100.0	100.00	100.00
Others	6	553	16.6	8.99	28.63	19	1673	50.2	34.71	65.64



NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.3.1 : Body weight perception among adolescents by socio-demographic characteristics

Characteristics	Perceived Overweight					Perceived Obese				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	646	64002	25.6	21.18	30.60	103	10682	4.3	3.26	5.58
<b>Locality of School</b>										
Urban	355	35200	26.9	20.68	34.14	60	6180	4.7	3.32	6.66
Rural	291	28803	24.2	18.27	31.33	43	4502	3.8	2.53	5.62
<b>Sex</b>										
Boys	240	23730	19.2	16.02	22.76	44	4631	3.7	2.46	5.65
Girls	406	40272	31.9	25.67	38.92	59	6051	4.8	3.36	6.81
<b>School Category</b>										
Primary	108	14251	14.9	11.63	19.00	33	3964	4.2	2.42	7.04
Secondary	538	49751	32.2	29.61	34.87	70	6719	4.3	3.25	5.78
<b>Class</b>										
Standard 4	23	2849	9.0	5.51	14.48	7	743	2.4	1.55	3.58
Standard 5	44	4792	15.1	11.59	19.46	16	1608	5.1	3.65	7.00
Standard 6	41	6611	20.6	14.14	28.97	10	1612	5.0	1.74	13.61
Form 1	105	8130	26.4	20.65	33.04	10	772	2.5	1.49	4.19
Form 2	105	9729	31.9	25.72	38.83	13	1228	4.0	2.15	7.41
Form 3	108	10972	35.1	29.34	41.39	16	1632	5.2	3.29	8.20
Form 4	123	9881	32.7	27.55	38.20	15	1228	4.1	2.50	6.54
Form 5	97	11039	34.7	28.70	41.30	16	1859	5.8	3.08	10.82
<b>Ethnicity</b>										
Malay	499	49439	24.8	19.95	30.38	65	6519	3.3	2.47	4.31
Chinese	119	11947	30.5	21.28	41.63	35	3841	9.8	7.53	12.68
Indian	16	1522	19.7	14.37	26.29	2	210	2.7	0.84	8.39
Bumiputera Sabah	1	100	43.7	3.60	94.19	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	11	994	29.8	19.68	42.43	1	113	3.4	0.64	15.98

Table 3.3.2: Body weight perception among adolescent by actual BMI for age status (Cont.)

Perceived	Actual thin															
	Thin				Normal				Overweight				Obese			
	n	%	Lower	Upper	n	%	Lower	Upper	n	%	Lower	Upper	n	%	Lower	Upper
<b>Kedah</b>	100	60.1	48.83	70.33	51	33.9	23.00	46.75	6	3.7	1.40	9.39	3	2.4	0.69	7.78
<b>Locality of school</b>																
Urban	47	60.3	46.02	73.00	24	35.3	20.66	53.29	3	3.5	1.00	11.41	1	1.0	0.11	7.56
Rural	53	59.8	42.42	75.08	27	32.5	18.24	50.89	3	3.9	0.92	15.18	2	3.8	0.95	13.82
<b>Sex</b>																
Boys	55	57.2	44.47	69.07	30	33.3	22.28	46.59	6	6.7	2.59	16.30	2	2.7	0.59	11.85
Girls	45	63.6	46.22	77.97	21	34.5	19.63	53.23	-	-	-	-	1	1.9	0.23	14.11
<b>School Category</b>																
Primary	26	50.2	34.38	65.96	22	47.0	32.72	61.82	-	-	-	-	1	2.8	0.33	20.00
Secondary	74	65.9	52.40	77.19	29	26.1	14.65	42.18	6	5.9	2.45	13.41	2	2.1	0.50	8.58

Table 3.3.2: Body weight perception among adolescent by actual BMI for age status (Cont.)

Perceived	Actual normal															
	Thin				Normal				Overweight				Obese			
	n	%	Lower	Upper	n	%	Lower	Upper	n	%	Lower	Upper	n	%	Lower	Upper
<b>Kedah</b>	472	31.8	25.85	38.48	792	49.8	45.39	54.19	269	16.7	12.53	21.83	24	1.7	1.13	2.58
<b>Locality of school</b>																
Urban	235	30.8	23.10	39.72	402	50.3	44.67	55.94	144	17.2	10.90	26.00	13	1.7	0.92	3.21
Rural	237	33.0	24.25	43.02	390	49.2	42.54	55.94	125	16.1	11.53	22.11	11	1.7	0.99	2.86
<b>Sex</b>																
Boys	286	38.4	32.47	44.68	402	52.4	47.04	57.72	61	7.8	5.45	11.03	9	1.4	0.75	2.63
Girls	186	26.0	19.16	34.15	390	47.4	42.63	52.30	208	24.6	18.47	32.01	15	2.0	1.12	3.48
<b>School Category</b>																
Primary	204	43.5	34.97	52.36	231	47.8	39.11	56.55	28	6.6	4.12	10.40	9	2.2	1.30	3.63
Secondary	268	25.1	21.02	29.70	561	51.0	46.50	55.40	241	22.5	19.08	26.30	15	1.4	0.80	2.57

Table 3.3.2: Body weight perception among adolescent by actual BMI for age status (Cont.)

Perceived	Actual overweight															
	Thin				Normal				Overweight				Obese			
	n	%	Lower	Upper	n	%	Lower	Upper	n	%	Lower	Upper	n	%	Lower	Upper
<b>Kedah</b>	51	13.9	8.75	21.40	140	36.9	29.29	45.16	171	43.3	34.44	52.61	23	5.9	3.66	9.44
<b>Locality of school</b>																
Urban	31	15.8	9.34	25.61	57	30.4	20.50	42.55	94	46.0	36.08	56.32	15	7.7	4.18	13.79
Rural	20	11.7	5.04	25.00	83	44.1	34.24	54.49	77	40.2	26.01	56.31	8	3.9	1.96	7.65
<b>Sex</b>																
Boys	33	18.0	11.03	27.99	82	44.1	35.96	52.52	67	35.2	26.37	45.15	6	2.7	1.13	6.48
Girls	18	10.1	5.67	17.40	58	30.2	20.50	41.99	104	50.8	40.55	61.06	17	8.9	5.35	14.38
<b>School Category</b>																
Primary	31	24.6	16.19	35.44	60	47.9	35.92	60.17	28	24.3	14.75	37.44	5	3.2	1.30	7.52
Secondary	20	7.3	3.78	13.50	80	30.0	23.59	37.24	143	55.1	50.38	59.77	18	7.6	4.78	12.00

Table 3.3.2: Body weight perception among adolescent by actual BMI for age status

Perceived	Actual obese															
	Thin				Normal				Overweight				Obese			
	n	%	Lower	Upper	n	%	Lower	Upper	n	%	Lower	Upper	n	%	Lower	Upper
<b>Kedah</b>	52	13.8	9.17	20.22	77	19.3	13.52	26.90	200	53.3	44.88	61.52	52	13.6	9.26	19.47
<b>Locality of school</b>																
Urban	26	13.0	8.25	19.84	39	18.7	10.85	30.23	114	53.9	42.36	64.95	31	14.5	8.68	23.21
Rural	26	14.8	7.25	27.92	38	20.2	12.65	30.63	86	52.6	40.30	64.55	21	12.4	7.02	21.00
<b>Sex</b>																
Boys	37	16.9	10.31	26.32	54	22.1	15.32	30.77	106	48.7	37.80	59.72	26	12.4	7.72	19.22
Girls	15	9.7	6.42	14.26	23	15.6	9.43	24.80	94	59.5	50.23	68.14	26	15.2	8.94	24.70
<b>School Category</b>																
Primary	35	21.8	13.80	32.56	44	26.5	16.17	40.20	52	40.1	29.84	51.36	17	11.6	5.13	24.30
Secondary	17	7.5	5.42	10.25	33	13.7	9.57	19.23	148	63.7	56.90	70.02	35	15.1	10.43	21.37

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.3.3: Action taken according to correctly perceived body weight among adolescents (Cont.)

Characteristic	Perceived thin - actual thin									
	Lose weight					Increase weight				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	12	1009	10.5	4.60	22.30	63	6176	64.5	53.57	74.03
<b>Locality of school</b>										
Urban	3	317	6.6	2.21	18.17	32	3275	68.3	56.89	77.91
Rural	9	692	14.5	4.82	36.05	31	2901	60.6	42.48	76.19
<b>Sex</b>										
Boys	7	500	10.0	4.03	22.57	33	3097	61.6	50.44	71.71
Girls	5	508	11.2	3.49	30.38	30	3079	67.6	53.99	78.74
<b>School category</b>										
Primary	5	414	13.9	5.34	31.76	13	1584	53.4	40.93	65.50
Secondary	7	595	9.0	2.61	26.73	50	4592	69.4	55.89	80.24

Table 3.3.3: Action taken according to correctly perceived body weight among adolescents (Cont.)

Characteristic	Perceived thin - actual thin									
	No action					Maintain body weight				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	16	1479	15.4	9.87	23.33	9	918	9.6	4.80	18.20
<b>Locality of school</b>										
Urban	8	746	15.6	7.95	28.24	4	455	9.5	2.95	26.59
Rural	8	732	15.3	8.34	26.38	5	463	9.7	4.47	19.64
<b>Sex</b>										
Boys	10	917	18.2	11.16	28.39	5	511	10.2	4.36	21.95
Girls	6	562	12.3	5.62	24.94	4	407	8.9	3.29	22.05
<b>School category</b>										
Primary	4	488	16.5	6.71	35.10	4	479	16.2	7.17	32.46
Secondary	12	990	15.0	8.99	23.88	5	439	6.6	2.56	16.08

Table 3.3.3: Action taken according to correctly perceived body weight among adolescents (Cont.)

Characteristic	Perceived normal - actual normal									
	Lose weight					Increase weight				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	198	20424	26.3	20.78	32.59	57	5598	7.2	5.42	9.50
<b>Locality of school</b>										
Urban	99	9935	25.7	20.82	31.20	36	3554	9.2	6.46	12.90
Rural	99	10490	26.9	19.63	35.56	21	2043	5.2	3.29	8.22
<b>Sex</b>										
Boys	62	8338	30.5	18.78	45.34	16	1823	6.7	5.36	8.24
Girls	136	12086	24.0	19.23	29.49	41	3775	7.5	4.98	11.12
<b>School category</b>										
Primary	103	10525	25.9	18.20	35.38	25	2570	6.3	4.25	9.30
Secondary	95	9899	26.7	19.52	35.34	32	3028	8.2	5.57	11.82

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.3.3: Action taken according to correctly perceived body weight among adolescents (Cont.)**

Characteristic	Perceived normal - actual normal									
	No action					Maintain body weight				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	295	28531	36.7	30.05	43.88	240	23213	29.8	24.20	36.18
<b>Locality of school</b>										
Urban	152	14215	36.7	29.64	44.44	114	10998	28.4	21.97	35.88
Rural	143	14316	36.6	29.51	44.43	126	12214	31.3	24.59	38.83
<b>Sex</b>										
Boys	111	11791	43.1	29.30	58.00	42	5425	19.8	9.80	35.97
Girls	184	16740	33.2	27.16	39.89	198	17788	35.3	31.59	39.20
<b>School category</b>										
Primary	133	13655	33.6	24.45	44.09	141	13935	34.3	26.71	42.69
Secondary	162	14877	40.1	31.02	49.96	99	9277	25.0	18.14	33.44

**Table 3.3.3: Action taken according to correctly perceived body weight among adolescents (Cont.)**

Characteristic	Perceived overweight - actual overweight									
	Lose weight					Increase weight				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	134	12961	77.6	64.58	86.78	7	656	3.9	1.87	8.04
<b>Locality of school</b>										
Urban	69	6872	73.2	54.01	86.36	5	474	5.0	2.21	11.08
Rural	65	6088	83.2	69.74	91.46	2	182	2.5	0.63	9.24
<b>Sex</b>										
Boys	47	4459	68.2	48.11	83.16	6	584	8.9	3.67	20.16
Girls	87	8502	83.6	72.99	90.63	1	71	0.7	0.08	5.66
<b>School category</b>										
Primary	14	1965	54.4	31.26	75.85	3	308	8.5	3.71	18.38
Secondary	120	10996	84.0	72.19	91.34	4	348	2.7	1.09	6.36

**Table 3.3.3: Action taken according to correctly perceived body weight among adolescents**

Characteristic	Perceived overweight - actual overweight									
	No action					Maintain body weight				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	18	2024	12.1	6.62	21.14	12	1066	6.4	3.16	12.45
<b>Locality of school</b>										
Urban	11	1212	12.9	5.57	27.12	9	835	8.9	4.15	18.03
Rural	7	813	11.1	4.85	23.47	3	231	3.2	1.06	9.05
<b>Sex</b>										
Boys	7	798	12.2	5.18	26.11	7	701	10.7	4.95	21.68
Girls	11	1226	12.1	6.35	21.71	5	365	3.6	1.23	10.05
<b>School category</b>										
Primary	7	927	25.7	11.49	47.88	4	410	11.4	5.62	21.62
Secondary	11	1098	8.4	4.04	16.58	8	656	5.0	1.86	12.80

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.3.4: Action taken according to misperception of body weight among adolescents (Cont.)

Characteristic	Perceived thin -Actual overweight/obese									
	Lose weight					Increase weight				
	Unweighted	Estimated	Prevalence	95% CI		Unweighted	Estimated	Prevalence	95% CI	
	Count	Population	(%)	Lower	Upper	Count	Population	(%)	Lower	Upper
<b>Kedah</b>	59	6249	58.4	47.31	68.66	16	1683	15.7	7.78	29.19
<b>Locality of school</b>										
Urban	37	3989	66.0	55.87	74.93	8	789	13.1	3.54	38.08
Rural	22	2260	48.4	36.64	60.43	8	894	19.2	12.54	28.15
<b>Sex</b>										
Boys	36	3752	52.9	41.79	63.73	14	1429	20.1	9.70	37.17
Girls	23	2496	69.1	53.98	81.05	2	254	7.0	1.64	25.61
<b>School category</b>										
Primary	37	4280	58.1	44.54	70.61	8	934	12.7	4.31	31.91
Secondary	22	1969	58.9	40.07	75.44	8	749	22.4	10.76	40.91

Table 3.3.4: Action taken according to misperception of body weight among adolescents (Cont.)

Characteristic	Perceived thin -Actual overweight/obese									
	No action					Maintain body weight				
	Unweighted	Estimated	Prevalence	95% CI		Unweighted	Estimated	Prevalence	95% CI	
	Count	Population	(%)	Lower	Upper	Count	Population	(%)	Lower	Upper
<b>Kedah</b>	19	1852	17.3	11.00	26.15	9	921	8.6	4.46	15.95
<b>Locality of school</b>										
Urban	6	641	10.6	6.57	16.71	6	620	10.3	5.37	18.78
Rural	13	1211	26.0	17.27	37.06	3	300	6.4	1.84	20.16
<b>Sex</b>										
Boys	12	1078	15.2	7.90	27.22	8	835	11.8	6.48	20.43
Girls	7	774	21.4	12.35	34.60	1	86	2.4	0.26	18.37
<b>School category</b>										
Primary	15	1497	20.3	12.45	31.41	6	651	8.8	4.25	17.51
Secondary	4	355	10.6	4.44	23.29	3	270	8.1	2.02	27.24

Table 3.3.4: Action taken according to misperception of body weight among adolescents (Cont.)

Characteristic	Actual Normal - Perceived thin/overweight/obese									
	Lose weight					Increase weight				
	Unweighted	Estimated	Prevalence	95% CI		Unweighted	Estimated	Prevalence	95% CI	
	Count	Population	(%)	Lower	Upper	Count	Population	(%)	Lower	Upper
<b>Kedah</b>	352	35548	45.3	40.26	50.45	224	22485	28.7	23.27	34.73
<b>Locality of school</b>										
Urban	173	17196	42.8	34.27	51.77	117	12080	30.1	24.11	36.78
Rural	179	18352	47.9	44.00	51.92	107	10405	27.2	18.86	37.48
<b>Sex</b>										
Boys	115	11214	31.8	25.97	38.36	152	14773	42.0	33.79	50.58
Girls	237	24334	56.3	47.51	64.65	72	7712	17.8	12.32	25.10
<b>School category</b>										
Primary	101	12395	41.6	30.81	53.19	64	7626	25.6	14.69	40.68
Secondary	251	23153	47.6	43.84	51.39	160	14859	30.5	26.72	34.67

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.3.4: Action taken according to misperception of body weight among adolescents**

Characteristic	Actual Normal - Perceived thin/overweight/obese									
	No action					Maintain body weight				
	Unweighted	Estimated	Prevalence	95% CI		Unweighted	Estimated	Prevalence	95% CI	
	Count	Population	(%)	Lower	Upper	Count	Population	(%)	Lower	Upper
<b>Kedah</b>	120	12843	16.4	14.10	18.92	68	7582	9.7	6.75	13.66
<b>Locality of school</b>										
Urban	67	7098	17.7	14.48	21.38	35	3806	9.5	7.00	12.70
Rural	53	5745	15.0	12.06	18.52	33	3777	9.9	5.11	18.21
<b>Sex</b>										
Boys	56	5710	16.2	12.62	20.59	33	3516	10.0	7.08	13.90
Girls	64	7133	16.5	13.69	19.74	35	4067	9.4	5.80	14.90
<b>School category</b>										
Primary	44	5661	19.0	14.94	23.81	31	4137	13.9	8.66	21.49
Secondary	76	7182	14.8	12.60	17.24	37	3445	7.1	4.92	10.09

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.3.5 : Main factors that motivate to lose body weight among adolescents by socio-demographic characteristics(Cont.)**

Characteristics	Health purpose					Beauty purpose				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	706	73093	66.5	60.88	71.76	98	9892	9.0	6.38	12.58
<b>Locality of school</b>										
Urban	354	36506	65.0	56.46	72.64	53	5281	9.4	6.12	14.18
Rural	352	36587	68.2	60.76	74.78	45	4611	8.6	4.90	14.64
<b>Sex</b>										
Boys	318	31665	68.8	62.02	74.93	26	2408	5.2	2.81	9.55
Girls	388	41428	64.9	57.56	71.57	72	7484	11.7	8.84	15.38
<b>School category</b>										
Primary	232	29832	76.3	69.30	82.15	27	3279	8.4	3.71	17.88
Secondary	474	43261	61.1	56.83	65.28	71	6613	9.3	6.78	12.75
<b>Class</b>										
Standard 4	76	9039	78.0	63.07	88.00	7	892	7.7	2.52	21.20
Standard 5	88	10133	73.6	70.34	76.60	13	1428	10.4	5.86	17.70
Standard 6	68	10660	77.7	66.82	85.74	7	959	7.0	2.34	19.05
Form 1	135	10533	72.6	62.72	80.69	10	772	5.3	2.54	10.80
Form 2	101	9469	63.0	55.15	70.29	12	1115	7.4	2.90	17.71
Form 3	89	9135	61.8	54.67	68.40	15	1420	9.6	6.01	15.01
Form 4	83	6603	49.5	42.49	56.48	17	1340	10.0	6.20	15.85
Form 5	66	7522	57.4	44.21	69.65	17	1966	15.0	8.95	24.09
<b>Ethnicity</b>										
Malay	608	63274	67.7	61.44	73.42	69	7111	7.6	4.84	11.78
Chinese	71	7270	59.3	44.53	72.54	19	1878	15.3	10.62	21.57
Indian	19	1839	64.4	43.21	81.08	6	529	18.5	8.85	34.67
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	8	710	59.7	32.93	81.75	4	375	31.5	9.50	66.87



## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.3.5 : Main factors that motivate to lose body weight among adolescents by socio-demographic characteristics**

Characteristics	To increase self-confidence					To have more friends				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	248	23495	21.4	16.72	26.94	33	3365	3.1	1.97	4.73
<b>Locality of school</b>										
Urban	131	12618	22.5	16.07	30.47	17	1779	3.2	1.87	5.32
Rural	117	10877	20.3	14.07	28.30	16	1587	3.0	1.43	6.02
<b>Sex</b>										
Boys	103	9939	21.6	16.40	27.92	20	1985	4.3	3.08	6.02
Girls	145	13556	21.2	15.35	28.60	13	1380	2.2	1.04	4.45
<b>School category</b>										
Primary	36	4251	10.9	7.71	15.14	15	1724	4.4	2.45	7.82
Secondary	212	19244	27.2	23.17	31.64	18	1641	2.3	1.27	4.22
<b>Class</b>										
Standard 4	16	1472	12.7	7.47	20.77	2	190	1.6	0.33	7.64
Standard 5	10	1206	8.8	4.94	15.07	9	1002	7.3	4.36	11.90
Standard 6	10	1572	11.5	7.28	17.57	4	532	3.9	0.93	14.83
Form 1	28	2185	15.1	9.45	23.16	12	1016	7.0	3.37	14.00
Form 2	44	4053	27.0	18.38	37.77	4	383	2.5	0.82	7.60
Form 3	40	4090	27.7	20.67	35.95	1	143	1.0	0.13	6.55
Form 4	67	5304	39.7	34.34	45.41	1	100	0.7	0.10	5.40
Form 5	33	3612	27.6	18.92	38.30					
<b>Ethnicity</b>										
Malay	214	20386	21.8	16.52	28.25	26	2664	2.9	1.74	4.64
Chinese	30	2685	21.9	11.70	37.24	4	430	3.5	1.00	11.58
Indian	2	219	7.7	2.14	24.02	3	271	9.5	3.68	22.26
Bumiputera Sabah	1	100	100.0	100.00	100.00	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	1	104	8.8	0.99	47.81	-	-	-	-	-

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.3.6 : Main factor that motivate to increase body weight among adolescents by socio-demographic characteristics (Cont.)**

Characteristics	Health purpose					Beauty purpose				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	203	20675	60.5	51.75	68.69	27	2630	7.7	4.87	11.96
<b>Locality of school</b>										
Urban	106	11340	64.3	49.67	76.63	10	980	5.6	2.52	11.79
Rural	97	9335	56.5	48.49	64.26	17	1650	10.0	6.04	16.11
<b>Sex</b>										
Boys	120	11638	54.3	45.56	62.79	15	1561	7.3	4.32	12.04
Girls	83	9037	71.0	58.01	81.32	12	1069	8.4	4.24	15.97
<b>School category</b>										
Primary	62	7418	67.3	48.46	81.88	9	942	8.5	3.19	20.96
Secondary	141	13257	57.3	49.09	65.13	18	1688	7.3	4.55	11.50
<b>Class</b>										
Standard 4	26	2956	69.1	41.05	87.82	3	230	5.4	1.21	20.83
Standard 5	23	2600	65.7	40.43	84.38	3	327	8.3	2.50	24.04
Standard 6	13	1861	66.9	44.16	83.78	3	385	13.8	4.20	37.02
Form 1	21	1666	41.0	27.14	56.43	6	529	13.0	5.81	26.61
Form 2	23	2137	57.0	38.30	73.89	6	572	15.3	6.34	32.40
Form 3	31	3211	72.6	56.87	84.16	2	211	4.8	1.05	19.17
Form 4	32	2484	48.9	36.34	61.58	2	175	3.4	0.83	13.18
Form 5	34	3759	64.6	51.64	75.74	2	202	3.5	0.83	13.33
<b>Ethnicity</b>										
Malay	148	15053	56.8	49.37	63.96	22	2134	8.1	4.77	13.27
Chinese	39	4128	73.3	56.68	85.23	4	392	7.0	3.91	12.11
Indian	12	1133	77.7	48.61	92.74	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	4	362	77.7	23.90	97.47	1	104	22.3	2.53	76.10

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.3.6 : Main factor that motivate to increase body weight among adolescents by socio-demographic characteristics**

Characteristics	To increase self-confidence					To have more friends				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	101	9585	28.1	21.03	36.37	12	1263	3.7	1.66	8.01
<b>Locality of school</b>										
Urban	47	4445	25.2	14.34	40.39	9	878	5.0	2.28	10.52
Rural	54	5140	31.1	25.73	37.11	3	384	2.3	0.39	12.55
<b>Sex</b>										
Boys	75	7033	32.8	25.02	41.70	11	1199	5.6	2.39	12.54
Girls	26	2552	20.1	12.44	30.71	1	64	0.5	0.06	4.03
<b>School category</b>										
Primary	16	1887	17.1	9.18	29.72	6	770	7.0	3.00	15.43
Secondary	85	7698	33.3	25.90	41.57	6	493	2.1	0.51	8.40
<b>Class</b>										
Standard 4	6	812	19.0	6.46	44.29	2	278	6.5	1.67	22.18
Standard 5	7	672	17.0	6.48	37.61	3	359	9.1	2.60	27.14
Standard 6	3	404	14.5	8.12	24.56	1	132	4.8	0.90	21.58
Form 1	18	1472	36.2	23.77	50.85	5	397	9.8	2.99	27.56
Form 2	10	945	25.2	16.46	36.53	1	96	2.6	0.31	18.02
Form 3	9	1002	22.7	12.77	36.95	-	-	-	-	-
Form 4	31	2422	47.7	36.45	59.13	-	-	-	-	-
Form 5	17	1857	31.9	20.44	46.12	-	-	-	-	-
<b>Ethnicity</b>										
Malay	87	8282	31.3	24.40	39.05	10	1026	3.9	1.46	9.87
Chinese	10	874	15.5	6.70	31.98	2	236	4.2	1.61	10.49
Indian	3	326	22.3	7.26	51.39	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	1	104	100.0	100.00	100.00	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.3.7 : Preferred option to lose body weight among adolescents by socio-demographic characteristics (Cont.)**

Characteristics	Exercise					Reduce consumption of high fat foods				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	555	55655	50.3	46.32	54.20	311	31634	28.6	24.83	32.62
<b>Locality of school</b>										
Urban	276	27833	48.6	45.30	51.90	168	16742	29.2	24.61	34.32
Rural	279	27822	52.0	44.97	59.04	143	14892	27.9	22.15	34.38
<b>Sex</b>										
Boys	288	27992	59.7	55.90	63.34	102	10127	21.6	17.58	26.21
Girls	267	27663	43.3	37.62	49.25	209	21507	33.7	28.46	39.36
<b>School category</b>										
Primary	180	22086	55.4	48.72	61.79	66	8887	22.3	15.93	30.24
Secondary	375	33569	47.4	43.57	51.25	245	22747	32.1	29.09	35.30
<b>Class</b>										
Standard 4	66	7500	65.6	60.12	70.73	11	1346	11.8	7.97	17.06
Standard 5	67	7595	52.1	45.61	58.57	32	3755	25.8	18.26	35.04
Standard 6	47	6992	50.3	36.31	64.22	23	3787	27.2	15.64	43.03
Form 1	93	7292	50.6	39.03	62.19	59	4589	31.9	23.81	41.19
Form 2	80	7376	49.1	37.61	60.73	44	4132	27.5	18.79	38.38
Form 3	66	6766	45.4	34.74	56.56	47	4758	32.0	22.96	42.52
Form 4	86	6720	49.7	41.42	57.90	52	4212	31.1	23.34	40.14
Form 5	50	5415	41.7	33.46	50.39	43	5056	38.9	31.78	46.55
<b>Ethnicity</b>										
Malay	475	48005	51.0	46.87	55.20	264	26949	28.7	24.67	33.00
Chinese	61	5900	48.8	38.37	59.37	28	2876	23.8	20.25	27.75
Indian	14	1304	39.4	24.64	56.44	13	1250	37.8	23.11	55.14
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	5	446	37.6	19.22	60.32	6	559	47.0	20.28	75.61

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.3.7 : Preferred option to lose body weight among adolescents by socio-demographic characteristics (Cont.)

Characteristics	Reduce intake of high sugar foods					Increase intake of fruits & vegetables				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	59	5980	5.4	3.86	7.50	88	9225	8.3	6.34	10.88
<b>Locality of school</b>										
Urban	33	3403	5.9	3.81	9.14	46	5083	8.9	6.35	12.27
Rural	26	2577	4.8	2.94	7.81	42	4141	7.7	4.98	11.85
<b>Sex</b>										
Boys	31	3044	6.5	3.88	10.66	31	3199	6.8	4.83	9.54
Girls	28	2936	4.6	3.25	6.48	57	6026	9.4	6.73	13.08
<b>School category</b>										
Primary	26	3045	7.6	5.10	11.28	30	3826	9.6	6.90	13.18
Secondary	33	2935	4.1	2.60	6.55	58	5399	7.6	5.13	11.19
<b>Class</b>										
Standard 4	9	913	8.0	3.52	17.16	8	835	7.3	5.76	9.22
Standard 5	10	1069	7.3	4.91	10.83	14	1766	12.1	8.13	17.70
Standard 6	7	1063	7.6	5.58	10.38	8	1225	8.8	5.90	12.96
Form 1	7	554	3.8	1.56	9.20	12	970	6.7	3.73	11.88
Form 2	9	847	5.6	2.85	10.87	20	1913	12.7	7.80	20.13
Form 3	4	406	2.7	1.15	6.33	7	730	4.9	3.02	7.86
Form 4	9	704	5.2	2.41	10.88	13	1078	8.0	4.74	13.07
Form 5	4	423	3.3	1.04	9.72	6	708	5.4	1.76	15.68
<b>Ethnicity</b>										
Malay	46	4718	5.0	3.60	6.95	72	7538	8.0	5.97	10.67
Chinese	12	1169	9.7	4.03	21.42	13	1402	11.6	4.95	24.83
Indian	1	93	2.8	0.32	20.49	2	188	5.7	1.85	16.12
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	1	97	8.2	0.99	44.17

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.3.7 : Preferred option to lose body weight among adolescents by socio-demographic characteristics (Cont.)**

Characteristics	Skip main meals					Consume dieting pills/use slimming cream				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	27	2706	2.4	1.67	3.57	4	386	0.3	0.10	1.20
<b>Locality of school</b>										
Urban	18	1788	3.1	1.87	5.18	1	71	0.1	0.02	0.95
Rural	9	918	1.7	1.12	2.63	3	314	0.6	0.15	2.34
<b>Sex</b>										
Boys	7	803	1.7	0.85	3.40	1	126	0.3	0.03	2.07
Girls	20	1903	3.0	1.84	4.79	3	259	0.4	0.08	2.04
<b>School category</b>										
Primary	5	675	1.7	1.09	2.61	1	126	0.3	0.04	2.22
Secondary	22	2031	2.9	1.79	4.55	3	259	0.4	0.08	1.75
<b>Class</b>										
Standard 4	3	425	3.7	1.96	6.97	-	-	-	-	-
Standard 5	1	93	0.6	0.09	4.30	-	-	-	-	-
Standard 6	1	157	1.1	0.15	8.22	1	126	0.9	0.14	5.68
Form 1	6	473	3.3	1.47	7.16	1	71	0.5	0.07	3.48
Form 2	2	177	1.2	0.27	4.96	-	-	-	-	-
Form 3	8	843	5.7	3.00	10.41	1	82	0.6	0.07	4.36
Form 4	4	337	2.5	0.87	6.92	-	-	-	-	-
Form 5	2	202	1.6	0.41	5.64	1	106	0.8	0.11	5.98
<b>Ethnicity</b>										
Malay	23	2313	2.5	1.70	3.54	3	314	0.3	0.08	1.43
Chinese	4	393	3.2	0.99	10.14	-	-	-	-	-
Indian	-	-	-	-	-	1	71	2.2	0.31	13.44
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.3.7 : Preferred option to lose body weight among adolescents by socio-demographic characteristics**

Characteristics	Fasting					Professional advise				
	Unweighted count	Estimated population	Prevalence (%)	95% CI		Unweighted count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	40	4150	3.7	2.31	6.01	10	1000	0.9	0.45	1.81
<b>Locality of school</b>										
Urban	15	1628	2.8	1.49	5.34	7	729	1.3	0.56	2.89
Rural	25	2522	4.7	2.43	8.95	3	271	0.5	0.17	1.47
<b>Sex</b>										
Boys	7	809	1.7	0.71	4.11	8	808	1.7	0.76	3.86
Girls	33	3341	5.2	3.17	8.53	2	192	0.3	0.07	1.26
<b>School category</b>										
Primary	6	797	2.0	1.14	3.49	4	459	1.2	0.35	3.73
Secondary	34	3354	4.7	2.80	7.90	6	541	0.8	0.34	1.72
<b>Class</b>										
Standard 4	3	410	3.6	1.94	6.54					
Standard 5	1	97	0.7	0.08	5.25	2	195	1.3	0.43	4.08
Standard 6	2	290	2.1	0.26	14.57	2	265	1.9	0.24	13.51
Form 1	5	373	2.6	1.04	6.31	1	76	0.5	0.07	3.73
Form 2	5	475	3.2	0.62	14.64	1	95	0.6	0.08	4.89
Form 3	11	1096	7.4	4.71	11.33	2	211	1.4	0.35	5.51
Form 4	4	325	2.4	0.71	7.84	2	158	1.2	0.26	5.01
Form 5	9	1083	8.3	3.40	19.04	-	-	-	-	-
<b>Ethnicity</b>										
Malay	35	3664	3.9	2.27	6.62	6	553	0.6	0.30	1.15
Chinese	2	164	1.4	0.65	2.83	2	183	1.5	0.26	8.23
Indian	1	136	4.1	0.42	30.21	2	265	8.0	0.85	46.95
Bumiputera Sabah	1	100	100.0	100.00	100.00	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	1	86	7.2	0.67	47.26	-	-	-	-	-

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.3.8 : Preferred option to increase body weight among adolescents by socio-demographic characteristics (Cont..)

Characteristics	Increase quantity of food					Taking supplement				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	199	19634	55.2	48.20	61.92	92	9451	26.5	19.91	34.45
<b>Locality of school</b>										
Urban	99	9857	54.1	44.69	63.25	43	4558	25.0	15.90	37.08
Rural	100	9777	56.2	46.14	65.86	49	4892	28.1	19.53	38.73
<b>Sex</b>										
Boys	133	12825	55.7	48.10	63.05	53	5155	22.4	15.39	31.38
Girls	66	6808	54.2	41.42	66.38	39	4296	34.2	23.70	46.46
<b>School category</b>										
Primary	44	5150	44.4	36.85	52.30	26	3242	28.0	15.89	44.40
Secondary	155	14483	60.3	52.67	67.51	66	6209	25.9	18.48	34.92
<b>Class</b>										
Standard 4	14	1653	38.4	29.88	47.78	11	1383	32.1	17.97	50.61
Standard 5	20	2128	45.8	36.83	55.01	11	1276	27.4	15.44	43.93
Standard 6	10	1369	51.9	33.95	69.34	4	583	22.1	9.08	44.63
Form 1	28	2311	53.2	42.67	63.38	14	1143	26.3	14.37	43.12
Form 2	22	2061	52.2	33.10	70.68	15	1430	36.2	20.52	55.56
Form 3	29	3156	69.1	51.68	82.34	11	1092	23.9	12.56	40.70
Form 4	43	3393	66.9	54.59	77.28	10	749	14.8	8.73	23.90
Form 5	33	3563	58.7	41.96	73.58	16	1795	29.5	17.45	45.42
<b>Ethnicity</b>										
Malay	149	14743	54.0	45.65	62.20	77	7837	28.7	20.57	38.55
Chinese	35	3426	56.4	46.75	65.68	11	1175	19.4	11.10	31.61
Indian	9	896	57.9	36.91	76.38	3	310	20.0	9.26	38.01
Bumiputera Sabah	-	-	-	-	-	1	129	100.0	100.00	100.00
Bumiputera Sarawak	1	104	100.0	100.00	100.00	-	-	-	-	-
Others	5	466	100.0	100.00	100.00	-	-	-	-	-



NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.3.8 : Preferred option to increase body weight among adolescents by socio-demographic characteristics

Characteristics	Take high calorie foods					Others				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	39	3673	10.3	6.95	15.04	27	2840	8.0	5.38	11.67
<b>Locality of school</b>										
Urban	23	2265	12.4	8.14	18.53	14	1535	8.4	4.96	13.95
Rural	16	1408	8.1	4.27	14.83	13	1305	7.5	4.16	13.19
<b>Sex</b>										
Boys	32	3100	13.5	8.78	20.09	19	1946	8.5	5.40	13.00
Girls	7	573	4.6	1.99	10.12	8	894	7.1	3.57	13.67
<b>School category</b>										
Primary	15	1659	14.3	9.22	21.55	13	1538	13.3	10.38	16.82
Secondary	24	2014	8.4	4.92	13.94	14	1302	5.4	3.03	9.51
<b>Class</b>										
Standard 4	6	571	13.3	5.78	27.66	6	694	16.1	9.12	26.96
Standard 5	5	558	12.0	7.41	18.88	6	687	14.8	6.51	30.13
Standard 6	4	530	20.1	9.96	36.29	1	157	5.9	0.83	32.43
Form 1	5	396	9.1	3.82	20.21	6	496	11.4	4.90	24.39
Form 2	4	367	9.3	4.07	19.88	1	89	2.3	0.27	16.36
Form 3	1	98	2.1	0.31	13.31	2	224	4.9	1.13	18.81
Form 4	10	761	15.0	7.41	28.07	2	168	3.3	0.82	12.36
Form 5	4	391	6.4	1.90	19.62	3	325	5.4	1.41	18.32
<b>Ethnicity</b>										
Malay	29	2682	9.8	6.53	14.54	19	2020	7.4	4.58	11.77
Chinese	9	917	15.1	10.39	21.47	5	551	9.1	3.79	20.18
Indian	1	73	4.7	0.88	21.69	3	269	17.4	8.54	32.06
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-

### 3.4 Meal pattern among adolescents (Primary 4 to Secondary 5) in Kedah

**Contributors:** Mohamad Hasnan Ahmad, Ling Swee Nian, Nur Ili Mohamad Tarmizi, Ainan Nasrina Ismail, Mahenderan Appukutty, Rusidah Selamat, Azli Baharudin, Ruhaya Salleh

#### 3.4.1 Introduction

The term 'meal patterns' is often used to describe individuals' eating patterns at the level of a 'meal', such as the main meal (for example, breakfast, lunch or dinner) or a smaller-sized meal (for example, supper or snack). It also can be described in three constructs, which are patterning (frequency, spacing, regularity, skipping, timing), format (types of food combinations, sequencing of foods, nutrient profile/content); and context (eating with others or with the family, eating in front of the television or out of the home). Understanding the ways in which different meal patterns make an impact on diet quality is very important as it believed to affect the growth of the individual and elucidate important diet-disease relationships, especially among adolescents. Therefore, meal pattern-based approach could complement current nutrition advice to enhance healthy eating campaign strategies.

#### 3.4.2 Objective

**General objective:**

To determine the meal pattern of adolescent in Kedah (Primary 4 to Secondary 5).

**Specific objective:**

- To determine the prevalence consumption of individual main meals (breakfast, lunch, dinner) and intermeal (during recess, afternoon tea and heavy meal after dinner).
- To identify the sources of food and/or drink consume for main meals (breakfast, lunch, dinner) and intermeals (during recess, afternoon tea and heavy meal after dinner).
- To identify reasons for skipping main meals (breakfast, lunch and dinner).
- To determine the prevalence of practice bringing food or drinks to school.
- To identify common type of food or drink brought to school.
- To determine the prevalence of eating out in adolescents.
- To determine the prevalence of snacking and practice of buying snack out of school area.
- To identify common type of snack consumed and bought out of school area.
- To identify source of media that affect meal pattern among adolescents.

### 3.4.3 Variable Definition

- **Main meal:** the traditional meal; breakfast, lunch, dinner.
- **Breakfast:** defined as the first food taken after waking from sleep, food intake in the early morning, between 6.00 am to 8.00 am.
- **Lunch:** defined as foods consumed or meal between 11.00 am to 3.00 pm.
- **Dinner:** defined as foods consumed or meal between 6.00 pm to 10.00 pm.
- **Afternoon tea:** defined as food and/ or drinks taken between lunch and dinner, between 3.00 pm to 6.00 pm.
- **Heavy meal after dinner:** food taken at night after the dinner after 10.00 pm. Examples of foods that are considered heavy meal is high calorie food such as *nasi lemak*, *roti canai*, fried mee, burger, fried chicken and so on. It does not include two small snacks like crackers and/or a glass of milk.
- **Skipping meal:** the omission or lack of consumption of one or more of the traditional main meals (breakfast, lunch or dinner) throughout the day.
- **Dieting:** to limit food intake in terms of the amount of frequency of eating for weight loss purposes.
- **Fast food:** meant in this question, including ready-to-eat food. Ready-to-eat foods are foods that can be eaten immediately after purchase. It consists of cooked food, food either hot or cold foods and foods that can be eaten without further cooking or heating.
- **Snacking:** consumption of energy outside of traditional meals such as breakfast, lunch, and dinner.
- **Eating during school break time:** Eating time between the intervals of classes after school started.
- **Eating out:** either eating at restaurant or hawker stall, and does not includes buying outside food and eat it at home.
- **Snack food:** snack food such as bun, biscuits, fruits, nuts, crackers, ice cream, junk foods, pickles, flavored/carbonated drink, fries/ nugget/sausage, candy or chocolate.

### 3.4.4 Findings

There were 2,483 respondents that represent 249,756 adolescents aged 10 to 17 years old in Kedah responded to this module. About 27.2% (95% CI: 23.12, 31.72), 48.2% (95% CI: 41.09, 55.47) and 49.7% (95% CI: 41.39, 58.07) had consumed breakfast, lunch and dinner seven days per week respectively. Majority of adolescent in Kedah having their source of food for main meal from home. No appetite become the main reason why adolescent in this state tend to skip the main meal. About 67.2% (95% CI: 61.96, 71.97) adolescents in Kedah reported that they took meal during recess everyday (5 days per week) and the main source of the meal was from school canteen. There was 6.4% (95% CI: 4.71, 8.68) adolescents in Kedah having daily heavy meal after dinner. About 2.1% (95% CI: 1.28, 3.27) adolescents in Kedah consumed fast food in daily basis. During the school day, 7.0% (95% CI: 5.42, 8.91) and 38.8% (95% CI: 32.81, 45.06) of adolescent practice in everyday to bring food and drink respectively. The most food brought to school was nasi lemak/fried rice/mixed rice and the most drink brought to school was plain water. Most of the adolescent also spend their pocket money for buying food or drink. About 4.3% (95% CI: 2.98, 6.21) of adolescents in Kedah had eating out as frequent as 7 times or more in a week. In term of snack food, bread/bun/sandwich was the most popular snack food consumed by adolescent in Kedah and half of them taking snack food one to three times in a week. The analysis also revealed that, flavoured/carbonated drink was the most type of food or drink that adolescent in Kedah bought out of school area and about three quarters of them had bought food or drink out of school area at least one time in a week. In Kedah, television followed by social media was the two main medias source that influence the dietary pattern of the adolescent.

### 3.4.5 Discussions/Conclusion

The prevalence of daily breakfast, lunch and dinner which is the main meal were worrying in Kedah. Skipping main meal need to be avoided among adolescent because it can give negative impact to their growth and health. Deeper investigation is needed to understand why adolescents had poor appetite that make them skip their main meal. Type of food brought to school and type of food or drink bought out of school area among adolescent in Kedah also an important issue to highlight as the food that they brought and the drink that they bought was categorized in high calorie. More interactive advertisement and promotion on healthy food choice should be placed on television and social media as these to medias can influence adolescents' dietary pattern.

### 3.4.6 Recommendation

Taken together from the survey, several recommendations were proposed. Advocacy on proper meal pattern practice among adolescent is crucial therefore, a holistic and comprehensive nutrition intervention should be implemented nation-wide, where every stakeholders must work together. Current adolescent is the future adult, thus healthier adolescent generation is warranted for a healthier nation. As the most of adolescents are school-aged individuals, therefore, more health promotion such as healthy eating habits in house, school and eating out must be addressed systematically. Positive behavioral changes on dietary pattern need a longer time but the support and intervention must be continuous. Ministry of Health and Ministry of Education together with support and cooperation from Parents and Teacher Association and also professional bodies (Nutrition Society of Malaysia, Malaysian Dietitians' Association, Malaysian Association for the Study of Obesity), that are related to diet and lifestyle should work hand-in-hand to educate and empower the adolescent on proper nutrition intakes daily especially on main meals.

### References

1. Leech RM, Worsley A, Timperio A, McNaughton SA. Understanding meal patterns: definitions, methodology and impact on nutrient intake and diet quality. *Nutrition research reviews*. 2015 Jun;28(1):1-21.
2. Delormier T, Frohlich KL, Potvin L. Food and eating as social practice—understanding eating patterns as social phenomena and implications for public health. *Sociology of health & illness*. 2009 Mar 1;31(2):215-28.
3. Fitzgerald A, Heary C, Nixon E, Kelly C. Factors influencing the food choices of Irish children and adolescents: a qualitative investigation. *Health promotion international*. 2010 Apr 10;25(3):289-98.
4. López-Guimerà G, Levine MP, Sánchez-Carracedo D, Fauquet J. Influence of mass media on body image and eating disordered attitudes and behaviors in females: A review of effects and processes. *Media Psychology*. 2010 Nov 30;13(4):387-416.
5. Croezen S, Visscher TL, Ter Bogt NC, Veling ML, Haveman-Nies A: Skipping breakfast, alcohol consumption and physical inactivity as risk factors for overweight and obesity in adolescents: results of the E-MOVO project. *Eur J Clin Nutr* 2009, 63:405-412.
6. Sjöberg A, L Hallberg L, D Höglund D and L Hulthén L. 2003. Meal pattern, food choice, nutrient intake and lifestyle factors in The Göteborg Adolescence Study. *European Journal of Clinical Nutrition* 57, 1569–1578. doi:10.1038/sj.ejcn.1601726
7. Maxwell MA, Cole DA. Weight change and appetite disturbance as symptoms of adolescent depression: Toward an integrative biopsychosocial model. *Clinical Psychology Review*. 2009 Apr 30;29(3):260-73.
8. Garis Panduan Perlaksanaan Pemakanan Sihat di Sekolah. Bahagian Pemakanan, Kementerian Kesihatan Malaysia.

9. Powell LM, Nguyen BT. Fast-food and full-service restaurant consumption among children and adolescents: effect on energy, beverage, and nutrient intake. *JAMA pediatrics*. 2013 Jan 1;167(1):14-20.
10. Dixon, H., Scully, M., Niven, P., Kelly, B., Chapman, K., Donovan, R., Martin, J., Baur, L. A., Crawford, D. and Wakefield, M. (2014), Effects of nutrient content claims, sports celebrity endorsements and premium offers on pre-adolescent children's food preferences: experimental research. *Pediatric Obesity*, 9: e47–e57. doi:10.1111/j.2047-6310.2013.00169.x
11. Lachat C, Nago E, Verstraeten R, Roberfroid D, Van Camp J, Kolsteren P. Eating out of home and its association with dietary intake: a systematic review of the evidence. *Obesity Reviews*. 2012 Apr 1;13(4):329-46.
12. Bezerra IN, Curioni C, Sichieri R. Association between eating out of home and body weight. *Nutrition reviews*. 2012 Feb 1;70(2):65-79.
13. Washi SA, Ageib MB. Poor diet quality and food habits are related to impaired nutritional status in 13-to 18-year-old adolescents in Jeddah. *Nutrition Research*. 2010 Aug 31;30(8):527-34.
14. Grinberg N, Naaman M, Shaw B, Lotan G. Extracting Diurnal Patterns of Real World Activity from Social Media. *InICWSM 2013* Jul 8.

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.1 : Prevalence of breakfast per week among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Socio-demographic Characteristics	Breakfast frequency per week									
	Daily (7 days)					1 to 6 days				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
Lower				Upper	Lower				Upper	
<b>Kedah</b>	685	67948	27.2	23.12	31.72	1553	157646	63.1	58.57	67.45
<b>Locality of school</b>										
Urban	358	36103	27.6	20.98	35.34	770	79109	60.4	53.54	66.95
Rural	327	31845	26.8	22.69	31.34	783	78538	66.1	61.27	70.56
<b>Sex</b>										
Boys	353	34448	27.9	23.91	32.25	788	77649	62.9	58.57	66.97
Girls	332	33500	26.5	21.47	32.31	765	79997	63.4	57.58	68.79
<b>Ethnicity</b>										
Malay	473	46780	23.5	19.94	27.45	1315	133786	67.2	64.07	70.12
Chinese	172	17308	44.1	40.68	47.61	174	17908	45.6	40.64	50.74
Indian	28	2739	35.7	26.17	46.54	44	4218	55.0	44.79	64.80
Bumiputera Sabah	2	229	100.0	100.00	100.00					
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	10	891	26.7	12.52	48.23	19	1630	48.9	35.22	62.77
<b>School level</b>										
Primary school	234	27605	28.9	21.11	38.22	487	59738	62.6	52.78	71.45
Secondary school	451	40343	26.1	21.98	30.79	1066	97909	63.5	59.13	67.57
<b>Class</b>										
Standard 4	75	9290	29.5	17.23	45.71	193	21111	67.1	51.36	79.70
Standard 5	88	9952	31.2	19.99	45.25	157	17185	54.0	41.71	65.75
Standard 6	71	8363	26.0	14.43	42.35	137	21441	66.7	49.28	80.57
Form 1	137	10476	34.0	25.16	44.11	241	19185	62.3	52.17	71.38
Form 2	101	9143	30.1	19.10	43.95	193	18275	60.1	47.26	71.74
Form 3	65	6987	22.4	15.57	31.05	198	20116	64.4	55.33	72.57
Form 4	85	6781	22.5	16.26	30.18	245	19332	64.0	57.81	69.81
Form 5	63	6956	22.0	18.32	26.09	189	21002	66.3	59.20	72.74
<b>School session</b>										
Morning session	436	43943	25.3	20.51	30.87	1107	111433	64.3	58.79	69.39
Evening session	145	11872	43.5	32.51	55.13	169	14306	52.4	40.98	63.56
Morning and evening session	103	12060	24.6	19.73	30.27	277	31908	65.1	56.27	73.07
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	43	4113	25.9	17.81	36.07	108	11123	70.1	61.52	77.42
Normal (≥-2sd - ≤+1sd)	451	44631	28.5	24.17	33.35	961	97544	62.4	57.63	66.90
Overweight (>+1sd - ≤+2sd)	105	10317	26.7	21.22	33.10	237	23970	62.1	55.48	68.35
Obese (>+2sd)	85	8747	22.7	17.50	28.84	246	24904	64.6	57.48	71.04
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	53	4944	25.2	16.98	35.71	121	13173	67.2	55.98	76.71
Normal (≥-2sd)	631	62863	27.3	23.09	32.02	1432	144473	62.8	58.34	67.07

Table 3.4.1 : Prevalence of breakfast per week among adolescents by socio-demographic characteristics and nutritional status

	Did not take breakfast				
	Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper
<b>Kedah</b>	245	24162	9.7	7.46	12.46
<b>Locality of school</b>					
Urban	148	15676	12.0	9.86	14.47
Rural	97	8486	7.1	4.35	11.49
<b>Sex</b>					
Boys	121	11415	9.2	6.91	12.25
Girls	124	12747	10.1	7.53	13.41
<b>Ethnicity</b>					
Malay	190	18622	9.3	6.87	12.60
Chinese	38	4016	10.2	6.81	15.12
Indian	9	713	9.3	3.89	20.59
Bumiputera Sabah					
Bumiputera Sarawak					
Others	8	811	24.3	8.69	52.10
<b>School level</b>					
Primary school	75	8109	8.5	4.54	15.35
Secondary school	170	16053	10.4	8.31	12.95
<b>Class</b>					
Standard 4	9	1077	3.4	1.72	6.71
Standard 5	50	4712	14.8	9.12	23.09
Standard 6	16	2320	7.2	2.83	17.25
Form 1	15	1155	3.7	2.22	6.25
Form 2	32	2974	9.8	5.64	16.44
Form 3	40	4127	13.2	8.95	19.10
Form 4	50	4078	13.5	9.18	19.44
Form 5	33	3718	11.7	7.58	17.74
<b>School session</b>					
Morning session	181	18018	10.4	8.20	13.08
Evening session	13	1126	4.1	2.14	7.81
Morning and evening session	51	5018	10.2	4.59	21.29
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	8	638	4.0	1.58	9.85
Normal ( $\geq$ -2sd - $\leq$ +1sd)	144	14206	9.1	6.70	12.21
Overweight ( $>$ +1sd - $\leq$ +2sd)	43	4296	11.1	8.35	14.71
Obese ( $>$ +2sd)	49	4928	12.8	9.39	17.15
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	16	1493	7.6	4.73	12.04
Normal ( $\geq$ -2sd)	229	22669	9.9	7.60	12.70



## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.2 : Source of food for breakfast among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

	Prepared at home					School canteen				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	1310	133493	59.7	54.52	64.64	425	45379	20.3	15.11	26.68
<b>Locality of school</b>										
Urban	692	71573	63.0	56.75	68.79	213	22742	20.0	14.15	27.52
Rural	618	61920	56.3	48.78	63.52	212	22637	20.6	12.66	31.65
<b>Sex</b>										
Boys	648	64553	58.2	52.49	63.62	229	23434	21.1	15.94	27.42
Girls	662	68940	61.2	54.84	67.17	196	21946	19.5	13.82	26.74
<b>Ethnicity</b>										
Malay	997	101869	56.7	51.29	61.90	361	38882	21.6	15.81	28.86
Chinese	244	25065	73.3	66.89	78.89	41	4329	12.7	8.21	19.03
Indian	54	5224	75.1	60.18	85.74	12	1215	17.5	9.84	29.10
Bumiputera Sabah										
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	15	1334	54.8	41.88	67.06	10	850	34.9	24.13	47.44
<b>School level</b>										
Primary school	438	53221	61.8	52.71	70.13	218	25851	30.0	23.66	37.26
Secondary school	872	80272	58.4	52.20	64.26	207	19528	14.2	9.69	20.33
<b>Class</b>										
Standard 4	168	18466	61.0	40.41	78.30	79	9481	31.3	15.76	52.64
Standard 5	146	16460	61.9	48.34	73.82	76	8049	30.3	20.31	42.51
Standard 6	124	18295	62.5	42.69	78.91	63	8321	28.4	16.62	44.22
Form 1	206	16183	55.0	45.12	64.56	63	5173	17.6	9.88	29.36
Form 2	175	16402	60.0	49.73	69.48	24	2310	8.5	4.77	14.54
Form 3	148	15529	57.5	44.95	69.12	40	4205	15.6	9.86	23.70
Form 4	188	14898	57.2	49.12	64.92	41	3281	12.6	7.62	20.12
Form 5	155	17259	62.2	52.74	70.76	39	4559	16.4	9.08	27.88
<b>School session</b>										
Morning session	910	92302	60.0	54.38	65.45	321	33580	21.8	16.40	28.48
Evening session	183	15464	59.3	47.81	69.79	30	2525	9.7	4.20	20.75
Morning and evening session	216	25654	58.6	48.25	68.22	74	9274	21.2	13.77	31.14
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	83	8441	56.2	45.52	66.26	36	4074	27.1	15.58	42.83
Normal (≥-2sd - ≤+1sd)	812	82775	58.6	52.70	64.21	276	29612	21.0	15.29	28.02
Overweight (>+1sd - ≤+2sd)	212	21673	63.8	56.40	70.56	55	5455	16.1	10.90	23.02
Obese (>+2sd)	201	20356	61.5	53.97	68.56	58	6239	18.9	13.04	26.48
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	101	10315	56.9	49.60	63.98	35	4099	22.6	13.61	35.18
Normal (≥-2sd)	1208	123038	59.9	54.60	64.97	390	41281	20.1	15.03	26.34

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.2 : Source of food for breakfast among adolescents by socio-demographic characteristics and nutritional status (Cont..)**

Socio-demographic Characteristics	Source of food for breakfast									
	Restaurant/ kiosk					Hostel				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	216	20797	9.3	6.82	12.55	231	20043	9.0	4.20	18.09
<b>Locality of school</b>										
Urban	110	10408	9.2	5.76	14.25	82	7351	6.5	2.23	17.34
Rural	106	10389	9.4	6.24	14.05	149	12692	11.5	4.12	28.35
<b>Sex</b>										
Boys	134	12410	11.2	7.63	16.09	96	8418	7.6	3.74	14.77
Girls	82	8387	7.4	5.31	10.35	135	11626	10.3	4.33	22.63
<b>Ethnicity</b>										
Malay	164	16072	8.9	6.59	12.02	227	19657	10.9	5.09	21.93
Chinese	46	4206	12.3	5.36	25.80	1	86	0.3	0.02	2.49
Indian	4	370	5.3	1.72	15.28	1	71	1.0	0.10	9.28
Bumiputera Sabah						2	229	100.0	100.00	100.00
Bumiputera Sarawak										
Others	2	150	6.2	1.34	24.00					
<b>School level</b>										
Primary school	37	4747	5.5	4.18	7.24	7	736	0.9	0.18	4.03
Secondary school	179	16051	11.7	8.37	16.04	224	19307	14.0	7.03	26.07
<b>Class</b>										
Standard 4	15	1773	5.9	4.08	8.34	3	296	1.0	0.13	6.84
Standard 5	12	1253	4.7	1.92	11.10	3	314	1.2	0.34	4.05
Standard 6	10	1721	5.9	3.22	10.53	1	126	0.4	0.06	2.86
Form 1	35	2638	9.0	4.62	16.70	68	5186	17.6	7.79	35.17
Form 2	35	3233	11.8	7.57	18.02	55	4982	18.2	8.35	35.29
Form 3	24	2493	9.2	4.13	19.34	47	4478	16.6	7.40	33.05
Form 4	52	4124	15.8	10.72	22.77	37	2866	11.0	4.74	23.50
Form 5	33	3563	12.8	7.85	20.30	17	1796	6.5	3.35	12.13
<b>School session</b>										
Morning session	151	14588	9.5	6.85	13.00	119	10588	6.9	3.16	14.36
Evening session	43	3525	13.5	7.33	23.57	53	4215	16.2	5.93	37.05
Morning and evening session	22	2685	6.1	4.68	7.99	59	5240	12.0	2.84	38.74
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	19	1597	10.6	5.16	20.60	8	644	4.3	1.64	10.70
Normal (≥-2sd - ≤+1sd)	133	12637	8.9	6.45	12.27	161	13905	9.8	4.76	19.25
Overweight (>+1sd - ≤+2sd)	33	3449	10.1	6.66	15.18	36	3102	9.1	3.62	21.20
Obese (>+2sd)	31	3115	9.4	6.60	13.26	26	2392	7.2	2.78	17.52
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	18	1859	10.3	5.82	17.47	16	1340	7.4	3.42	15.27
Normal (≥-2sd)	198	18939	9.2	6.67	12.60	215	18703	9.1	4.18	18.70

Table 3.4.2 : Source of food for breakfast among adolescents by socio-demographic characteristics and nutritional status

Socio-demographic Characteristics	Source of food for breakfast				
	Count	Estimated Population	Prevalence (%)	Others	
				95% CI Lower	95% CI Upper
<b>Kedah</b>	38	3960	1.8	1.12	2.80
<b>Locality of school</b>					
Urban	17	1591	1.4	0.68	2.85
Rural	21	2369	2.2	1.24	3.72
<b>Sex</b>					
Boys	23	2180	2.0	1.15	3.35
Girls	15	1780	1.6	0.87	2.84
<b>Ethnicity</b>					
Malay	31	3278	1.8	1.16	2.85
Chinese	5	503	1.5	0.30	6.84
Indian	1	77	1.1	0.13	9.01
Bumiputera Sabah					
Bumiputera Sarawak					
Others	1	102	4.2	0.91	17.24
<b>School level</b>					
Primary school	11	1562	1.8	0.73	4.42
Secondary school	27	2398	1.7	1.08	2.80
<b>Class</b>					
Standard 4	2	255	0.8	0.14	4.76
Standard 5	3	518	1.9	0.40	8.88
Standard 6	6	789	2.7	0.39	16.44
Form 1	3	227	0.8	0.26	2.30
Form 2	4	404	1.5	0.44	4.86
Form 3	3	311	1.1	0.27	4.80
Form 4	11	874	3.4	1.57	7.06
Form 5	6	583	2.1	0.47	8.84
<b>School session</b>					
Morning session	27	2661	1.7	0.92	3.23
Evening session	4	363	1.4	0.50	3.83
Morning and evening session	7	936	2.1	1.30	3.48
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	3	276	1.8	0.55	6.02
Normal (≥-2sd - ≤+1sd)	22	2396	1.7	1.00	2.85
Overweight (>+1sd - ≤+2sd)	3	304	0.9	0.28	2.80
Obese (>+2sd)	10	984	3.0	1.41	6.18
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	4	505	2.8	1.09	6.94
Normal (≥-2sd)	34	3455	1.7	1.06	2.67

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.3 : Reasons for skipping breakfast among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Socio-demographic Characteristics	Reasons for skipping breakfast									
	No food available					No appetite				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	115	12218	7.3	5.41	9.79	755	78047	46.7	41.45	51.93
<b>Locality of school</b>										
Urban	58	5779	6.6	4.83	9.06	364	38317	44.0	35.33	53.14
Rural	57	6439	8.0	5.01	12.61	391	39730	49.5	44.49	54.49
<b>Sex</b>										
Boys	71	7815	9.7	5.96	15.27	343	33787	41.7	35.66	48.09
Girls	44	4403	5.1	4.17	6.22	412	44260	51.3	45.20	57.27
<b>Ethnicity</b>										
Malay	96	10147	7.1	5.04	9.95	670	69726	48.9	43.65	54.10
Chinese	16	1774	9.5	5.83	15.08	59	5939	31.8	24.73	39.75
Indian	2	218	6.0	1.33	23.34	18	1590	43.9	27.89	61.28
Bumiputera Sabah										
Bumiputera Sarawak										
Others	1	79	3.7	0.35	29.23	8	792	36.6	16.88	62.12
<b>School level</b>										
Primary school	37	4940	8.1	4.24	14.87	261	32675	53.5	45.25	61.49
Secondary school	78	7278	6.9	5.35	8.75	494	45372	42.7	38.27	47.32
<b>Class</b>										
Standard 4	18	2397	11.5	3.91	29.52	105	11840	57.0	40.39	72.23
Standard 5	10	1097	5.6	4.16	7.45	91	10023	51.0	46.25	55.75
Standard 6	9	1447	7.0	3.91	12.18	65	10812	52.2	37.78	66.27
Form 1	14	1113	5.9	2.22	14.60	121	9419	49.6	41.89	57.41
Form 2	13	1258	6.3	2.98	12.64	92	8633	42.9	33.43	52.90
Form 3	15	1488	6.5	3.94	10.62	96	9668	42.4	36.00	48.98
Form 4	22	1802	8.2	4.72	13.74	98	7786	35.3	29.78	41.14
Form 5	14	1616	7.3	4.13	12.57	87	9866	44.5	31.93	57.86
<b>School session</b>										
Morning session	81	8373	7.1	4.91	10.19	516	52668	44.7	37.86	51.78
Evening session	9	968	6.7	2.59	16.29	88	7284	50.5	41.77	59.11
Morning and evening session	25	2877	8.2	5.99	11.15	151	18095	51.6	40.38	62.68
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	11	1140	10.6	5.41	19.59	54	5830	54.0	42.08	65.45
Normal (≥-2sd - ≤+1sd)	76	8022	7.8	6.00	10.14	474	48833	47.6	42.17	53.07
Overweight (>+1sd - ≤+2sd)	12	1306	4.9	2.30	9.97	118	12531	46.6	39.36	53.99
Obese (>+2sd)	16	1750	6.5	3.60	11.55	109	10853	40.5	33.20	48.26
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	10	976	7.4	3.35	15.50	67	7700	58.2	44.47	70.83
Normal (≥-2sd)	105	11242	7.3	5.22	10.12	688	70348	45.7	40.78	50.63

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.3 : Reasons for skipping breakfast among adolescents by socio-demographic characteristics nutritional status (Cont.)**

Socio-demographic Characteristics	Reasons for skipping breakfast									
	No time					On diet/ control body weight				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	525	50761	30.3	25.83	35.27	115	11289	6.7	5.30	8.55
<b>Locality of school</b>										
Urban	288	29253	33.6	28.04	39.71	59	6104	7.0	5.34	9.17
Rural	237	21508	26.8	20.60	34.04	56	5185	6.5	4.27	9.65
<b>Sex</b>										
Boys	264	24524	30.3	24.79	36.44	68	6463	8.0	5.77	10.96
Girls	261	26237	30.4	26.16	34.96	47	4826	5.6	3.93	7.90
<b>Ethnicity</b>										
Malay	441	42411	29.7	25.02	34.89	101	9763	6.8	5.25	8.88
Chinese	62	6276	33.6	25.88	42.24	9	1102	5.9	2.91	11.59
Indian	14	1312	36.2	19.49	57.11	2	159	4.4	1.00	17.26
Bumiputera Sabah										
Bumiputera Sarawak	1	104	100.0	100.00	100.00					
Others	7	658	30.4	17.40	47.59	3	265	12.2	2.46	43.51
<b>School level</b>										
Primary school	142	15184	24.8	18.23	32.88	32	3683	6.0	3.95	9.09
Secondary school	383	35577	33.5	28.99	38.36	83	7606	7.2	5.40	9.44
<b>Class</b>										
Standard 4	45	4254	20.5	12.31	32.12	13	1108	5.3	2.51	10.99
Standard 5	69	6536	33.3	24.64	43.18	7	839	4.3	1.54	11.30
Standard 6	28	4394	21.2	15.13	28.91	12	1736	8.4	4.50	15.10
Form 1	56	4568	24.1	18.81	30.26	20	1604	8.5	5.64	12.48
Form 2	71	6751	33.5	25.22	43.02	13	1220	6.1	3.10	11.53
Form 3	83	8564	37.5	30.20	45.46	17	1771	7.8	5.37	11.08
Form 4	108	8552	38.7	30.95	47.11	19	1430	6.5	2.33	16.71
Form 5	65	7143	32.2	22.64	43.60	14	1580	7.1	4.18	11.91
<b>School session</b>										
Morning session	398	38180	32.4	27.36	37.92	83	8190	7.0	5.34	9.00
Evening session	35	2994	20.7	14.56	28.65	10	782	5.4	2.77	10.32
Morning and evening session	92	9587	27.3	18.89	37.82	22	2317	6.6	3.47	12.22
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	28	2688	24.9	16.99	34.93	2	104	1.0	0.11	7.80
Normal (≥-2sd - ≤+1sd)	317	30932	30.1	25.17	35.63	54	4962	4.8	3.30	7.03
Overweight (>+1sd - ≤+2sd)	86	7955	29.6	22.42	37.92	30	2925	10.9	7.31	15.90
Obese (>+2sd)	92	8986	33.5	28.11	39.45	29	3298	12.3	8.78	16.98
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	37	3440	26.0	16.83	37.92	4	371	2.8	0.96	7.87
Normal (≥-2sd)	488	47321	30.7	26.40	35.39	111	10918	7.1	5.64	8.88

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.3 : Reasons for skipping breakfast among adolescents by socio-demographic characteristics and nutritional status**

Socio-demographic Characteristics	Reasons for skipping breakfast									
	No money					Others				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	53	5772	3.5	2.33	5.09	97	9202	5.5	3.86	7.78
<b>Locality of school</b>										
Urban	27	2770	3.2	2.52	4.02	50	4780	5.5	3.14	9.45
Rural	26	3002	3.7	1.82	7.52	47	4422	5.5	3.61	8.32
<b>Sex</b>										
Boys	40	4275	5.3	3.47	7.97	43	4070	5.0	3.09	8.08
Girls	13	1498	1.7	1.09	2.76	54	5132	5.9	3.97	8.81
<b>Ethnicity</b>										
Malay	46	4992	3.5	2.24	5.42	59	5663	4.0	2.80	5.59
Chinese	6	678	3.6	1.84	7.03	30	2927	15.7	7.03	31.32
Indian	1	102	2.8	0.29	22.54	3	242	6.7	1.01	33.58
Bumiputera Sabah										
Bumiputera Sarawak										
Others						5	370	17.1	6.14	39.35
<b>School level</b>										
Primary school	24	3144	5.1	3.08	8.48	11	1494	2.4	1.28	4.61
Secondary school	29	2629	2.5	1.56	3.91	86	7708	7.3	5.41	9.68
<b>Class</b>										
Standard 4	6	781	3.8	2.14	6.53	3	378	1.8	0.37	8.47
Standard 5	8	885	4.5	2.54	7.86	2	271	1.4	0.25	7.15
Standard 6	10	1478	7.1	2.89	16.57	6	845	4.1	1.77	9.11
Form 1	13	1169	6.2	2.68	13.55	15	1102	5.8	3.09	10.64
Form 2	3	276	1.4	0.36	5.12	21	1991	9.9	5.24	17.88
Form 3	3	283	1.2	0.29	5.19	10	1049	4.6	2.31	8.92
Form 4	6	485	2.2	0.77	6.14	25	2029	9.2	6.04	13.74
Form 5	4	415	1.9	0.76	4.56	15	1538	6.9	4.09	11.55
<b>School session</b>										
Morning session	37	4167	3.5	2.32	5.37	64	6210	5.3	3.77	7.33
Evening session	8	714	4.9	1.29	17.16	20	1696	11.7	6.83	19.46
Morning and evening session	8	892	2.5	1.04	6.07	13	1296	3.7	1.80	7.45
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	2	201	1.9	0.54	6.19	9	836	7.7	3.32	17.05
Normal (≥-2sd - ≤+1sd)	38	4216	4.1	2.64	6.33	60	5646	5.5	3.68	8.15
Overweight (>+1sd - ≤+2sd)	5	486	1.8	0.68	4.74	17	1685	6.3	3.60	10.68
Obese (>+2sd)	8	870	3.2	1.54	6.72	11	1035	3.9	2.07	7.10
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	4	444	3.4	1.06	10.12	3	292	2.2	0.66	7.16
Normal (≥-2sd)	49	5328	3.5	2.34	5.09	94	8910	5.8	4.04	8.22

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.4 : Prevalence of lunch per week among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Daily (7 days)					1 to 6 days				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	1217	120508	48.2	41.09	55.47	1192	121789	48.8	41.53	56.05
<b>Locality of school</b>										
Urban	686	69400	52.9	42.14	63.35	554	57733	44.0	33.62	54.90
Rural	531	51107	43.1	35.24	51.38	638	64056	54.0	45.75	62.12
<b>Sex</b>										
Boys	590	57329	46.4	39.69	53.23	639	63087	51.1	44.07	57.99
Girls	627	63179	50.1	41.82	58.30	553	58701	46.5	38.49	54.73
<b>Ethnicity</b>										
Malay	855	84289	42.3	37.21	47.61	1068	109317	54.9	49.59	60.09
Chinese	291	29467	75.1	66.22	82.29	82	8537	21.8	16.18	28.61
Indian	48	4484	57.9	44.67	70.10	32	3081	39.8	27.91	53.02
Bumiputera Sabah	2	229	100.0	100.00	100.00					
Bumiputera Sarawak	1	104	100.0	100.00	100.00					
Others	20	1935	58.1	43.25	71.54	10	853	25.6	15.72	38.84
<b>School level</b>										
Primary school	319	39351	41.3	28.55	55.33	456	53626	56.3	41.76	69.80
Secondary school	898	81157	52.5	45.54	59.43	736	68163	44.1	37.84	50.60
<b>Class</b>										
Standard 4	86	10299	32.9	17.69	52.82	183	20205	64.6	44.93	80.27
Standard 5	141	15007	47.1	32.80	61.89	143	15714	49.3	34.09	64.67
Standard 6	92	14045	43.7	28.30	60.45	130	17707	55.1	38.31	70.83
Form 1	180	13740	44.6	34.99	54.61	200	15985	51.9	42.82	60.81
Form 2	178	16308	53.5	42.80	63.89	138	13114	43.0	32.53	54.19
Form 3	171	17674	56.6	49.29	63.62	121	12438	39.8	32.85	47.24
Form 4	224	17842	59.1	49.75	67.87	144	11355	37.6	30.26	45.61
Form 5	145	15592	49.1	34.37	63.90	133	15271	48.0	33.66	62.75
<b>School session</b>										
Morning session	858	85801	49.4	42.12	56.80	814	82578	47.6	40.18	55.11
Evening session	176	14359	52.6	36.10	68.53	144	12386	45.4	29.98	61.68
Morning and evening session	182	20240	41.6	35.09	48.35	232	26679	54.8	47.38	62.00
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	79	7573	47.7	36.12	59.56	72	7455	47.0	34.78	59.53
Normal (≥-2sd - ≤+1sd)	782	77133	49.3	41.50	57.08	736	75508	48.2	40.53	56.04
Overweight (>+1sd - ≤+2sd)	188	19002	49.4	42.27	56.50	182	18056	46.9	39.53	54.44
Obese (>+2sd)	167	16706	43.3	36.58	50.37	200	20523	53.2	46.22	60.14
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	86	8343	42.5	33.05	52.62	102	11080	56.5	45.97	66.47
Normal (≥-2sd)	1131	112165	48.8	41.67	55.91	1089	110568	48.1	40.97	55.24

**Table 3.4.4 : Prevalence of lunch per week among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Lunch frequency per week				
	Count	Estimated Population	Prevalence (%)	Did not take lunch	
				Lower	Upper
<b>Kedah</b>	75	7476	3.0	2.34	3.83
<b>Locality of school</b>					
Urban	40	4124	3.1	2.32	4.24
Rural	35	3352	2.8	1.89	4.22
<b>Sex</b>					
Boys	34	3160	2.6	1.63	3.98
Girls	41	4316	3.4	2.67	4.37
<b>Ethnicity</b>					
Malay	55	5525	2.8	2.11	3.64
Chinese	11	1228	3.1	1.45	6.62
Indian	2	178	2.3	0.64	7.93
Bumiputera Sabah					
Bumiputera Sarawak					
Others	7	544	16.3	11.41	22.84
<b>School level</b>					
Primary school	20	2305	2.4	1.72	3.40
Secondary school	55	5171	3.3	2.47	4.52
<b>Class</b>					
Standard 4	7	791	2.5	1.47	4.31
Standard 5	11	1141	3.6	2.44	5.22
Standard 6	2	372	1.2	0.41	3.22
Form 1	13	1090	3.5	1.41	8.60
Form 2	11	1057	3.5	1.51	7.76
Form 3	11	1118	3.6	1.89	6.69
Form 4	12	983	3.3	1.25	8.22
Form 5	8	923	2.9	1.85	4.52
<b>School session</b>					
Morning session	53	5143	3.0	2.11	4.15
Evening session	7	559	2.0	0.90	4.61
Morning and evening session	15	1774	3.6	2.32	5.68
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	8	845	5.3	2.44	11.21
Normal (≥-2sd - ≤+1sd)	40	3889	2.5	1.79	3.44
Overweight (>+1sd - ≤+2sd)	14	1427	3.7	2.37	5.75
Obese (>+2sd)	13	1315	3.4	1.94	5.93
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	2	188	1.0	0.21	4.27
Normal (≥-2sd)	73	7289	3.2	2.48	4.04



## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.5 : Source of food for lunch among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Source of food for lunch									
	Prepared at home					School canteen				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	1419	142182	59.1	53.45	64.48	497	53646	22.3	17.10	28.52
<b>Locality of school</b>										
Urban	720	73714	58.5	51.91	64.80	256	27943	22.2	15.14	31.27
Rural	699	68468	59.7	50.36	68.42	241	25703	22.4	15.37	31.49
<b>Sex</b>										
Boys	700	68340	57.4	51.93	62.67	271	27701	23.3	18.17	29.27
Girls	719	73842	60.7	53.23	67.77	226	25945	21.3	15.68	28.36
<b>Ethnicity</b>										
Malay	1113	111591	58.0	51.83	63.86	399	43512	22.6	16.90	29.54
Chinese	226	22954	61.3	47.54	73.45	75	8027	21.4	10.01	40.10
Indian	59	5626	74.4	59.71	85.04	16	1511	20.0	10.35	35.03
Bumiputera Sabah										
Bumiputera Sarawak										
Others	21	2011	72.1	56.29	83.86	7	596	21.4	10.08	39.73
<b>School level</b>										
Primary school	453	52498	56.9	48.70	64.74	243	30908	33.5	27.33	40.29
Secondary school	966	89685	60.4	53.14	67.29	254	22738	15.3	13.01	17.96
<b>Class</b>										
Standard 4	136	15048	49.7	35.98	63.43	109	12946	42.7	29.22	57.45
Standard 5	173	18028	58.9	48.58	68.45	80	9187	30.0	22.71	38.48
Standard 6	144	19421	61.9	46.74	75.11	54	8775	28.0	14.23	47.65
Form 1	187	14733	49.8	40.46	59.15	90	7222	24.4	17.74	32.60
Form 2	158	14832	50.7	39.42	61.96	65	6064	20.7	15.50	27.18
Form 3	188	19696	65.6	51.72	77.24	34	3445	11.5	7.15	17.91
Form 4	250	19902	68.5	61.69	74.59	38	2968	10.2	6.78	15.12
Form 5	183	20522	67.3	55.67	77.12	27	3038	10.0	5.25	18.11
<b>School session</b>										
Morning session	1056	105289	63.0	56.62	68.89	310	33438	20.0	14.26	27.31
Evening session	147	12404	46.7	37.42	56.20	88	7520	28.3	21.95	35.67
Morning and evening session	213	24237	52.0	39.62	64.09	99	12687	27.2	17.29	40.06
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	91	8997	59.9	49.69	69.26	40	4297	28.6	18.18	41.92
Normal (≥-2sd - ≤+1sd)	882	88272	58.2	52.53	63.71	313	34189	22.6	17.06	29.18
Overweight (>+1sd - ≤+2sd)	229	23620	63.9	55.66	71.30	63	6220	16.8	12.59	22.09
Obese (>+2sd)	215	21060	57.4	47.70	66.56	80	8832	24.1	16.90	33.08
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	118	11913	61.6	49.86	72.09	44	5146	26.6	17.53	38.19
Normal (≥-2sd)	1300	130129	58.8	53.34	64.11	453	48499	21.9	16.88	27.98

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.4.5 : Source of food for lunch among adolescents by socio-demographic characteristics and nutritional status (Cont..)

Characteristics	Source of food for lunch									
	Restaurant/ kiosk					Hostel				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	198	19665	8.2	5.93	11.15	231	20197	8.4	4.01	16.74
<b>Locality of school</b>										
Urban	139	13718	10.9	7.60	15.35	88	7971	6.3	2.34	15.98
Rural	59	5947	5.2	3.59	7.43	143	12225	10.7	3.80	26.53
<b>Sex</b>										
Boys	120	11484	9.6	6.77	13.57	98	8771	7.4	3.80	13.79
Girls	78	8182	6.7	4.70	9.55	133	11426	9.4	3.89	21.00
<b>Ethnicity</b>										
Malay	134	13723	7.1	5.35	9.43	228	19897	10.3	4.96	20.30
Chinese	58	5402	14.4	8.04	24.52					
Indian	4	357	4.7	1.53	13.60	1	71	0.9	0.10	8.45
Bumiputera Sabah						2	229	100.0	100.00	100.00
Bumiputera Sarawak	1	104	100.0	100.00	100.00					
Others	1	79	2.8	0.28	23.56					
<b>School level</b>										
Primary school	45	5549	6.0	3.49	10.17	10	1208	1.3	0.89	1.92
Secondary school	153	14117	9.5	6.58	13.57	221	18989	12.8	6.32	24.19
<b>Class</b>										
Standard 4	13	1414	4.7	2.35	9.07	6	649	2.1	0.86	5.25
Standard 5	20	2241	7.3	3.61	14.27	2	221	0.7	0.21	2.48
Standard 6	12	1893	6.0	2.32	14.80	2	338	1.1	0.36	3.18
Form 1	31	2337	7.9	4.67	13.05	66	4988	16.9	7.02	35.25
Form 2	29	2689	9.2	4.10	19.36	55	4969	17.0	7.52	34.01
Form 3	20	2186	7.3	3.76	13.62	44	4175	13.9	6.29	27.98
Form 4	33	2643	9.1	4.99	16.02	38	2951	10.2	4.38	21.81
Form 5	40	4264	14.0	9.89	19.40	18	1907	6.3	3.12	12.15
<b>School session</b>										
Morning session	137	13867	8.3	6.13	11.12	120	10865	6.5	3.10	13.13
Evening session	30	2441	9.2	2.95	25.20	50	3930	14.8	4.89	36.98
Morning and evening session	31	3357	7.2	5.20	9.88	61	5401	11.6	2.79	37.38
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	10	947	6.3	2.51	14.93	8	644	4.3	1.63	10.80
Normal (≥-2sd - ≤+1sd)	125	12157	8.0	5.35	11.84	161	14062	9.3	4.54	18.02
Overweight (>+1sd - ≤+2sd)	35	3474	9.4	5.98	14.46	38	3280	8.9	3.51	20.64
Obese (>+2sd)	28	3087	8.4	6.27	11.20	24	2210	6.0	2.51	13.76
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	8	809	4.2	1.72	9.83	13	1069	5.5	2.13	13.57
Normal (≥-2sd)	190	18856	8.5	6.26	11.52	218	19127	8.6	4.10	17.35

Table 3.4.5 : Source of food for lunch among adolescents by socio-demographic characteristics and nutritional status

Characteristics	Source of food for lunch				
	Count	Estimated Population	Other Prevalence (%)	95% CI	
				Lower	Upper
<b>Kedah</b>	47	4972	2.1	1.43	2.98
<b>Locality of school</b>					
Urban	26	2666	2.1	1.19	3.75
Rural	21	2306	2.0	1.29	3.12
<b>Sex</b>					
Boys	27	2791	2.3	1.51	3.63
Girls	20	2181	1.8	1.07	2.99
<b>Ethnicity</b>					
Malay	37	3804	2.0	1.34	2.91
Chinese	9	1066	2.8	1.43	5.58
Indian					
Bumiputera Sabah					
Bumiputera Sarawak					
Others	1	102	3.7	0.59	19.56
<b>School level</b>					
Primary school	17	2100	2.3	1.06	4.83
Secondary school	30	2872	1.9	1.42	2.63
<b>Class</b>					
Standard 4	2	231	0.8	0.18	3.16
Standard 5	8	942	3.1	1.03	8.84
Standard 6	7	927	3.0	0.77	10.68
Form 1	4	306	1.0	0.32	3.26
Form 2	7	684	2.3	1.30	4.19
Form 3	5	524	1.7	0.63	4.72
Form 4	7	591	2.0	0.88	4.61
Form 5	7	767	2.5	0.98	6.28
<b>School session</b>					
Morning session	37	3751	2.2	1.43	3.50
Evening session	3	269	1.0	0.37	2.76
Morning and evening session	7	952	2.0	0.95	4.32
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	2	144	1.0	0.20	4.53
Normal (≥-2sd - ≤+1sd)	26	2928	1.9	1.31	2.85
Overweight (>+1sd - ≤+2sd)	4	398	1.1	0.32	3.51
Obese (>+2sd)	15	1503	4.1	2.05	8.03
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	4	409	2.1	0.57	7.57
Normal (≥-2sd)	43	4564	2.1	1.42	2.98

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.6 : Reasons for skipping lunch among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Reasons for skipping lunch									
	No food available					No appetite				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	86	9034	8.0	6.23	10.32	546	56650	50.4	44.47	56.37
<b>Locality of school</b>										
Urban	41	4129	7.8	5.95	10.10	230	24166	45.5	35.58	55.79
Rural	45	4905	8.3	5.50	12.29	316	32484	54.9	48.78	60.78
<b>Sex</b>										
Boys	59	5817	10.1	7.65	13.28	273	27459	47.8	41.03	54.60
Girls	27	3217	5.9	3.21	10.47	273	29191	53.2	46.42	59.87
<b>Ethnicity</b>										
Malay	72	7644	7.6	5.73	9.94	510	52844	52.3	46.62	57.99
Chinese	7	734	9.6	5.40	16.63	25	2770	36.4	27.85	45.83
Indian	6	576	22.0	10.32	40.89	8	775	29.6	17.44	45.56
Bumiputera Sabah										
Bumiputera Sarawak										
Others	1	79	7.0	0.64	46.63	3	261	23.0	3.74	69.57
<b>School level</b>										
Primary school	28	3732	7.8	4.76	12.51	231	27251	56.9	47.96	65.42
Secondary school	58	5302	8.2	6.33	10.63	315	29399	45.6	40.11	51.23
<b>Class</b>										
Standard 4	13	1789	9.2	3.68	20.99	87	9803	50.1	31.23	69.01
Standard 5	7	677	4.9	1.67	13.63	71	7713	56.1	48.63	63.32
Standard 6	8	1265	8.7	5.24	14.01	73	9735	66.7	42.89	84.23
Form 1	21	1758	11.2	5.94	19.95	85	6628	42.1	31.77	53.08
Form 2	6	597	5.0	2.24	10.65	67	6347	52.8	43.83	61.68
Form 3	11	1141	9.3	6.03	14.03	63	6388	52.0	39.30	64.38
Form 4	11	839	7.8	4.68	12.63	47	3746	34.7	27.91	42.14
Form 5	9	967	7.1	3.74	13.15	53	6290	46.3	31.49	61.83
<b>School session</b>										
Morning session	51	5301	7.1	5.44	9.26	362	36162	48.5	40.67	56.50
Evening session	14	1220	10.4	5.08	20.19	61	5120	43.7	32.09	56.09
Morning and evening session	21	2512	9.7	6.18	14.81	122	15297	58.8	47.32	69.48
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	6	472	6.4	2.72	14.35	331	34079	49.6	44.02	55.17
Normal (≥-2sd - ≤+1sd)	51	5400	7.9	5.82	10.53	86	8942	49.4	39.17	59.61
Overweight (>+1sd - ≤+2sd)	20	2120	11.7	7.51	17.78	79	8126	45.4	34.47	56.77
Obese (>+2sd)	9	1042	5.8	3.29	10.08					
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	9	772	8.4	3.69	17.93	43	4881	53.0	36.36	68.99
Normal (≥-2sd)	77	8262	8.0	6.09	10.49	503	51769	50.3	44.29	56.24

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.6 : Reasons for skipping lunch among adolescents by socio-demographic characteristics and nutritional status (Cont..)**

Characteristics	Reasons for skipping lunch									
	No time					On diet/ control body weight				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	193	19040	16.9	13.11	21.63	138	13571	12.1	9.50	15.25
<b>Locality of school</b>										
Urban	117	12239	23.0	20.24	26.11	72	7278	13.7	10.10	18.32
Rural	76	6801	11.5	7.91	16.39	66	6293	10.6	7.36	15.10
<b>Sex</b>										
Boys	99	9359	16.3	12.38	21.12	69	6615	11.5	8.27	15.80
Girls	94	9681	17.6	12.71	23.97	69	6957	12.7	9.28	17.09
<b>Ethnicity</b>										
Malay	167	16437	16.3	12.39	21.09	118	11627	11.5	8.99	14.64
Chinese	20	1966	25.8	16.65	37.73	10	1033	13.6	8.97	20.00
Indian	5	533	20.4	5.38	53.48	7	657	25.1	15.31	38.33
Bumiputera Sabah										
Bumiputera Sarawak										
Others	1	104	9.1	1.05	48.82	3	254	22.3	6.48	54.27
<b>School level</b>										
Primary school	63	7036	14.7	8.22	24.87	38	4476	9.3	6.13	14.00
Secondary school	130	12004	18.6	15.11	22.74	100	9096	14.1	11.34	17.44
<b>Class</b>										
Standard 4	27	2744	14.0	8.34	22.66	20	2192	11.2	4.82	23.96
Standard 5	26	2840	20.7	12.46	32.27	10	1161	8.4	3.76	17.90
Standard 6	10	1452	9.9	2.71	30.44	8	1123	7.7	3.76	15.09
Form 1	45	3759	23.8	17.21	32.04	26	2095	13.3	8.82	19.55
Form 2	18	1691	14.1	11.23	17.53	15	1391	11.6	5.11	24.18
Form 3	17	1758	14.3	8.24	23.67	15	1571	12.8	7.43	21.10
Form 4	27	2187	20.3	14.63	27.34	29	2304	21.3	13.26	32.48
Form 5	23	2608	19.2	12.13	29.05	15	1735	12.8	8.40	18.95
<b>School session</b>										
Morning session	129	13113	17.6	13.73	22.29	100	10018	13.4	10.15	17.61
Evening session	24	2120	18.1	11.60	27.13	17	1418	12.1	5.73	23.79
Morning and evening session	39	3735	14.4	8.34	23.64	21	2135	8.2	4.07	15.89
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	9	894	12.2	6.25	22.30	2	148	2.0	0.38	9.90
Normal (≥-2sd - ≤+1sd)	111	11041	16.1	11.74	21.61	82	7897	11.5	8.73	14.99
Overweight (>+1sd - ≤+2sd)	38	3695	20.4	13.91	28.90	23	2130	11.8	6.61	20.04
Obese (>+2sd)	35	3410	19.0	13.55	26.10	30	3256	18.2	11.98	26.63
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	17	1875	20.4	10.19	36.55	5	517	5.6	2.20	13.59
Normal (≥-2sd)	176	17165	16.7	13.05	21.05	132	12913	12.5	9.92	15.73

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.6: Reasons for skipping lunch among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Reasons for skipping lunch									
	No money					Others				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	60	6497	5.8	2.78	11.63	78	7546	6.7	4.53	9.85
<b>Locality of school</b>										
Urban	20	2116	4.0	2.16	7.24	31	3187	6.0	3.31	10.63
Rural	40	4381	7.4	2.76	18.36	47	4359	7.4	4.39	12.08
<b>Sex</b>										
Boys	44	4582	8.0	3.80	15.98	39	3641	6.3	3.66	10.76
Girls	16	1915	3.5	1.59	7.50	39	3905	7.1	4.52	11.05
<b>Ethnicity</b>										
Malay	58	6250	6.2	2.92	12.64	63	6163	6.1	3.95	9.32
Chinese	2	247	3.2	1.57	6.59	8	866	11.4	6.95	18.05
Indian	7	657	25.1	15.31	38.33	1	77	2.9	0.37	19.59
Bumiputera Sabah										
Bumiputera Sarawak										
Others	3	254	22.3	6.48	54.27	6	440	38.7	13.59	71.64
<b>School level</b>										
Primary school	34	4062	8.5	2.82	22.82	11	1335	2.8	1.34	5.69
Secondary school	26	2435	3.8	2.58	5.50	67	6211	9.6	7.30	12.62
<b>Class</b>										
Standard 4	23	2560	13.1	3.13	41.29	4	462	2.4	0.74	7.24
Standard 5	6	757	5.5	1.84	15.38	5	597	4.3	2.02	9.07
Standard 6	5	744	5.1	2.19	11.42	2	276	1.9	0.24	13.25
Form 1	6	551	3.5	1.61	7.42	13	972	6.2	2.81	12.99
Form 2	5	492	4.1	1.70	9.53	15	1492	12.4	5.95	24.13
Form 3	5	506	4.1	1.58	10.25	9	929	7.6	2.86	18.48
Form 4	6	483	4.5	2.17	9.00	16	1242	11.5	7.00	18.32
Form 5	4	404	3.0	0.91	9.31	14	1576	11.6	6.23	20.62
<b>School session</b>										
Morning session	49	5210	7.0	3.02	15.36	48	4685	6.3	4.07	9.60
Evening session	4	380	3.2	1.45	7.12	16	1452	12.4	6.31	22.91
Morning and evening session	7	907	3.5	2.02	5.97	14	1409	5.4	2.88	9.96
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	3	308	4.2	1.26	12.96	2	140	1.9	0.41	8.35
Normal (≥-2sd - ≤+1sd)	45	5013	7.3	3.60	14.24	53	5284	7.7	5.15	11.34
Overweight (>+1sd - ≤+2sd)	5	532	2.9	0.50	15.30	8	696	3.8	1.51	9.45
Obese (>+2sd)	7	644	3.6	1.54	8.17	15	1425	8.0	4.43	13.90
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	7	720	7.8	1.89	27.20	5	445	4.8	1.54	14.16
Normal (≥-2sd)	53	5777	5.6	2.87	10.66	73	7101	6.9	4.71	9.99

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.7 : Prevalence of dinner per week among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Dinner frequency per week									
	Daily (7 days)					1 to 6 days				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	1263	123934	49.7	41.39	58.07	1111	114020	45.7	38.34	53.34
<b>Locality of school</b>										
Urban	712	71605	54.7	40.78	67.88	522	54787	41.8	29.81	54.91
Rural	551	52329	44.2	37.57	51.11	589	59234	50.1	44.27	55.86
<b>Sex</b>										
Boys	660	63112	51.2	42.85	59.50	569	56923	46.2	38.64	53.91
Girls	603	60822	48.3	39.50	57.13	542	57097	45.3	37.41	53.45
<b>Ethnicity</b>										
Malay	869	84663	42.6	37.76	47.55	1018	104472	52.5	48.15	56.90
Chinese	324	32781	83.8	75.42	89.68	50	5386	13.8	8.97	20.54
Indian	48	4426	57.8	37.95	75.48	29	2864	37.4	22.46	55.28
Bumiputera Sabah	1	129	56.3	5.81	96.40	1	100	43.7	3.60	94.19
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	21	1936	58.1	40.84	73.57	12	1094	32.8	17.72	52.56
<b>School level</b>										
Primary school	365	42016	44.2	28.11	61.51	391	47908	50.3	35.32	65.30
Secondary school	898	81918	53.2	45.73	60.45	720	66113	42.9	36.18	49.90
<b>Class</b>										
Standard 4	94	10976	34.8	18.99	54.85	173	19124	60.6	41.54	76.95
Standard 5	159	16967	53.6	37.94	68.66	118	12554	39.7	26.82	54.17
Standard 6	112	14073	44.0	24.96	64.96	100	16230	50.7	32.33	68.92
Form 1	192	14664	47.9	35.73	60.24	182	14626	47.7	36.92	58.76
Form 2	185	17117	56.3	43.76	68.14	130	12307	40.5	29.47	52.59
Form 3	160	16865	54.2	46.66	61.47	127	12800	41.1	32.96	49.76
Form 4	209	16586	54.8	46.56	62.80	158	12541	41.4	33.63	49.71
Form 5	152	16686	52.7	41.51	63.60	123	13838	43.7	32.65	55.41
<b>School session</b>										
Morning session	893	88902	51.3	42.15	60.35	758	76704	44.3	35.98	52.87
Evening session	182	14852	55.0	33.89	74.42	130	11223	41.5	23.92	61.63
Morning and evening session	186	20034	41.2	32.92	49.92	222	25986	53.4	46.47	60.17
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	79	7470	47.1	33.60	60.97	76	7913	49.9	35.39	64.34
Normal (≥-2sd - ≤+1sd)	823	81541	52.1	43.24	60.92	672	68311	43.7	35.82	51.89
Overweight (>+1sd - ≤+2sd)	175	16816	44.0	34.45	54.05	192	19991	52.3	42.84	61.65
Obese (>+2sd)	185	18014	46.8	39.41	54.35	169	17558	45.6	40.09	51.26
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	74	7171	36.7	28.70	45.60	110	11763	60.3	52.13	67.86
Normal (≥-2sd)	1189	116763	50.9	42.37	59.29	1000	102117	44.5	37.04	52.17

**Table 3.4.7 : Prevalence of dinner per week among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Dinner frequency per week				
	Did not take dinner				
	Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper	
<b>Kedah</b>	104	11313	4.5	3.39	6.06
<b>Locality of school</b>					
Urban	43	4575	3.5	2.34	5.19
Rural	61	6739	5.7	4.07	7.92
<b>Sex</b>					
Boys	30	3210	2.6	1.68	4.03
Girls	74	8103	6.4	4.65	8.83
<b>Ethnicity</b>					
Malay	87	9688	4.9	3.67	6.45
Chinese	9	962	2.5	0.97	6.11
Indian	4	361	4.7	1.43	14.50
Bumiputera Sabah					
Bumiputera Sarawak					
Others	4	303	9.1	4.10	18.91
<b>School level</b>					
Primary school	37	5243	5.5	3.27	9.14
Secondary school	67	6071	3.9	3.05	5.08
<b>Class</b>					
Standard 4	10	1440	4.6	1.45	13.50
Standard 5	16	2107	6.7	3.73	11.62
Standard 6	11	1695	5.3	3.16	8.76
Form 1	17	1353	4.4	2.63	7.32
Form 2	11	960	3.2	1.62	6.05
Form 3	15	1477	4.7	3.13	7.12
Form 4	14	1137	3.8	2.07	6.71
Form 5	10	1144	3.6	2.21	5.86
<b>School session</b>					
Morning session	72	7716	4.5	3.33	5.93
Evening session	12	939	3.5	1.45	8.11
Morning and evening session	20	2658	5.5	3.46	8.53
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	4	490	3.1	1.03	8.89
Normal ( $\geq -2sd - \leq +1sd$ )	61	6511	4.2	3.10	5.57
Overweight ( $> +1sd - \leq +2sd$ )	14	1398	3.7	2.05	6.44
Obese ( $> +2sd$ )	25	2914	7.6	4.23	13.20
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	5	585	3.0	1.13	7.70
Normal ( $\geq -2sd$ )	99	10728	4.7	3.43	6.34



## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.8 : Source of food for dinner among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Socio-demographic Characteristics	Source of food for dinner									
	Prepared at home					Restaurant/ kiosk				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	1725	174849	74.5	68.93	79.37	306	31380	13.4	11.51	15.48
<b>Locality of school</b>										
Urban	910	94315	75.6	69.33	80.86	181	18494	14.8	12.90	16.96
Rural	815	80534	73.3	63.50	81.25	125	12885	11.7	8.79	15.48
<b>Sex</b>										
Boys	884	86170	73.4	69.44	77.11	177	17961	15.3	12.63	18.44
Girls	841	88679	75.5	66.86	82.55	129	13418	11.4	8.75	14.80
<b>Ethnicity</b>										
Malay	1329	135121	72.4	65.45	78.40	240	24876	13.3	11.16	15.84
Chinese	302	30869	82.3	77.93	86.04	55	5431	14.5	10.58	19.51
Indian	68	6452	89.7	79.64	95.07	5	513	7.1	3.37	14.47
Bumiputera Sabah	1	129	56.3	5.81	96.40					
Bumiputera Sarawak										
Others	25	2278	75.2	66.20	82.43	6	560	18.5	10.12	31.32
<b>School level</b>										
Primary school	606	71683	81.9	78.67	84.65	91	11231	12.8	11.32	14.50
Secondary school	1119	103166	70.1	62.93	76.44	215	20148	13.7	10.97	16.97
<b>Class</b>										
Standard 4	213	24217	83.7	76.13	89.26	26	2723	9.4	6.71	13.07
Standard 5	227	24198	83.5	79.62	86.80	30	3098	10.7	8.05	14.07
Standard 6	166	23268	78.4	74.04	82.18	35	5410	18.2	15.46	21.36
Form 1	252	19849	68.3	57.33	77.51	41	3261	11.2	7.93	15.64
Form 2	210	19686	67.6	57.93	75.90	35	3310	11.4	7.37	17.11
Form 3	191	20002	67.7	54.67	78.40	38	4124	13.9	10.51	18.28
Form 4	263	20894	72.3	65.40	78.21	55	4411	15.3	12.20	18.92
Form 5	203	22736	74.7	68.11	80.34	46	5042	16.6	11.95	22.52
<b>School session</b>										
Morning session	1223	123546	75.9	70.72	80.43	227	23105	14.2	12.19	16.48
Evening session	213	17846	68.9	56.27	79.17	34	2862	11.0	7.08	16.83
Morning and evening session	287	33312	72.8	57.85	83.88	44	5304	11.6	7.95	16.59
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	118	12041	79.2	70.88	85.59	21	1961	12.9	7.66	20.90
Normal (≥-2sd - ≤+1sd)	1082	109943	74.1	67.96	79.47	184	18880	12.7	10.81	14.93
Overweight (>+1sd - ≤+2sd)	266	26949	74.4	67.16	80.51	50	5179	14.3	11.02	18.35
Obese (>+2sd)	257	25669	74.0	66.40	80.31	51	5360	15.4	11.04	21.19
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	131	13559	73.1	65.81	79.31	30	3213	17.3	12.78	23.05
Normal (≥-2sd)	1593	161149	74.6	68.73	79.70	276	28166	13.0	11.01	15.38

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.8 : Source of food for dinner among adolescents by socio-demographic characteristics and nutritional status**

Socio-demographic Characteristics	Source of food for dinner									
	Hostel					Others				
	Count	Estimated Population	Percentage (%)	95% CI		Count	Estimated Population	Percentage (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	252	22406	9.5	5.00	17.46	61	6063	2.6	2.03	3.29
<b>Locality of school</b>										
Urban	101	9308	7.5	3.32	15.91	27	2712	2.2	1.53	3.07
Rural	151	13098	11.9	4.65	27.29	34	3351	3.0	2.25	4.12
<b>Sex</b>										
Boys	113	10263	8.7	5.28	14.16	29	2924	2.5	1.87	3.31
Girls	139	12143	10.3	4.40	22.44	32	3140	2.7	1.74	4.10
<b>Ethnicity</b>										
Malay	243	21531	11.5	5.97	21.11	52	5125	2.7	2.12	3.55
Chinese	3	337	0.9	0.37	2.19	8	851	2.3	1.42	3.60
Indian	3	230	3.2	0.63	14.68					
Bumiputera Sabah	1	100	43.7	3.60	94.19					
Bumiputera Sarawak	1	104	100.0	100.00	100.00					
Others	1	104	3.4	0.42	22.93	1	88	2.9	0.52	14.51
<b>School level</b>										
Primary school	21	2452	2.8	1.50	5.17	19	2209	2.5	2.03	3.13
Secondary school	231	19954	13.6	7.02	24.59	42	3854	2.6	1.83	3.74
<b>Class</b>										
Standard 4	9	1143	4.0	1.71	8.88	9	837	2.9	1.14	7.15
Standard 5	8	792	2.7	0.99	7.33	7	885	3.1	1.41	6.48
Standard 6	4	517	1.7	0.56	5.32	3	488	1.6	0.83	3.23
Form 1	70	5355	18.4	8.63	35.04	8	608	2.1	0.90	4.76
Form 2	54	4932	16.9	8.22	31.67	13	1212	4.2	2.60	6.59
Form 3	48	4548	15.4	6.53	32.12	9	889	3.0	1.51	5.89
Form 4	39	3031	10.5	5.04	20.53	7	578	2.0	0.66	5.93
Form 5	20	2088	6.9	3.43	13.26	5	567	1.9	0.52	6.41
<b>School session</b>										
Morning session	135	12332	7.6	3.98	13.94	40	3768	2.3	1.55	3.45
Evening session	52	4165	16.1	6.62	34.08	11	1042	4.0	2.22	7.18
Morning and evening session	65	5909	12.9	3.54	37.44	10	1253	2.7	1.80	4.15
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	13	1110	7.3	3.63	14.13	1	95	0.6	0.07	5.05
Normal (≥-2sd - ≤+1sd)	168	14826	10.0	5.32	18.02	47	4664	3.1	2.37	4.17
Overweight (>+1sd - ≤+2sd)	42	3637	10.0	4.25	21.93	4	458	1.3	0.41	3.86
Obese (>+2sd)	29	2833	8.2	3.58	17.53	9	847	2.4	1.36	4.33
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	16	1346	7.3	3.40	14.81	4	431	2.3	0.86	6.13
Normal (≥-2sd)	236	21059	9.7	5.08	17.89	57	5632	2.6	2.01	3.37

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.4.9 : Reasons for skipping dinner among adolescents by socio-demographic characteristics and nutritional status (Cont.)

Socio-demographic Characteristics	Reasons for skipping dinner									
	No food available					No appetite				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	101	10941	9.5	7.75	11.51	568	59475	51.4	45.14	57.69
<b>Locality of school</b>										
Urban	56	5827	10.8	8.21	14.08	257	27265	50.5	41.87	59.11
Rural	45	5114	8.3	6.17	11.07	311	32209	52.3	43.20	61.17
<b>Sex</b>										
Boys	64	6710	12.1	8.67	16.59	282	27954	50.3	44.11	56.54
Girls	37	4231	7.0	4.98	9.88	286	31520	52.5	43.72	61.06
<b>Ethnicity</b>										
Malay	87	9352	8.8	6.90	11.27	540	56714	53.6	47.57	59.60
Chinese	8	981	16.9	10.81	25.55	15	1479	25.5	12.91	44.20
Indian	3	312	12.1	5.53	24.56	8	771	30.0	18.42	44.93
Bumiputera Sabah						1	100	100.0	100.00	100.00
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	3	296	22.6	10.32	42.61	3	307	23.4	6.76	56.34
<b>School level</b>										
Primary school	34	4609	9.5	7.30	12.19	234	29128	59.8	52.66	66.60
Secondary school	67	6333	9.5	7.07	12.55	334	30346	45.3	39.96	50.83
<b>Class</b>										
Standard 4	13	1669	8.8	5.03	14.90	110	12280	64.6	44.58	80.58
Standard 5	11	1220	9.5	6.36	13.90	67	7033	54.7	40.85	67.80
Standard 6	10	1720	10.2	7.24	14.25	57	9815	58.4	39.35	75.16
Form 1	23	1902	13.0	7.79	20.98	90	7134	48.8	39.65	58.11
Form 2	9	905	7.4	2.68	19.03	67	6269	51.6	42.76	60.30
Form 3	6	566	4.2	1.54	10.75	68	6851	50.3	38.47	62.03
Form 4	10	779	6.1	3.71	9.85	63	4947	38.7	30.43	47.59
Form 5	19	2180	15.9	9.63	25.00	46	5144	37.4	27.78	48.18
<b>School session</b>										
Morning session	67	7210	9.3	6.90	12.41	385	38840	50.1	42.54	57.63
Evening session	11	947	8.7	4.64	15.72	64	5502	50.5	39.63	61.39
Morning and evening session	22	2676	9.9	6.94	13.89	119	15132	55.9	41.19	69.63
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	9	842	10.5	4.64	21.99	43	4889	60.9	42.78	76.45
Normal (≥-2sd - ≤+1sd)	61	6557	9.5	7.50	12.06	358	37026	53.9	47.85	59.74
Overweight (>+1sd - ≤+2sd)	19	2046	10.1	6.50	15.37	80	8724	43.1	33.20	53.49
Obese (>+2sd)	12	1496	8.2	4.31	14.94	87	8836	48.2	40.30	56.21
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	8	944	8.3	3.92	16.74	64	7015	61.7	55.01	68.04
Normal (≥-2sd)	93	9997	9.6	7.62	12.03	504	52460	50.4	43.57	57.19

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.9 : Reasons for skipping dinner among adolescents by socio-demographic characteristics and nutritional status (Cont..)**

Socio-demographic Characteristics	Reasons for skipping dinner									
	No time					On diet/ control body weight				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	115	11523	10.0	7.70	12.80	257	25577	22.1	17.97	26.92
<b>Locality of school</b>										
Urban	51	5512	10.2	7.46	13.83	116	11951	22.1	17.49	27.61
Rural	64	6011	9.8	6.51	14.35	141	13626	22.1	15.79	30.06
<b>Sex</b>										
Boys	63	6533	11.8	8.76	15.62	102	9991	18.0	13.99	22.83
Girls	52	4990	8.3	5.50	12.36	155	15586	25.9	20.08	32.82
<b>Ethnicity</b>										
Malay	102	10157	9.6	7.43	12.33	229	22804	21.6	17.27	26.59
Chinese	7	791	13.7	8.16	21.97	16	1622	28.0	13.47	49.28
Indian	5	471	18.3	4.55	51.34	9	879	34.2	17.07	56.81
Bumiputera Sabah										
Bumiputera Sarawak										
Others	1	104	7.9	1.11	39.79	3	272	20.8	8.85	41.43
<b>School level</b>										
Primary school	46	5246	10.8	7.20	15.83	56	6918	14.2	10.99	18.18
Secondary school	69	6277	9.4	6.66	13.06	201	18659	27.9	25.07	30.87
<b>Class</b>										
Standard 4	21	2251	11.8	6.60	20.36	18	2025	10.7	4.91	21.60
Standard 5	12	1215	9.4	5.61	15.49	21	2306	17.9	7.25	37.89
Standard 6	13	1779	10.6	3.26	29.33	17	2588	15.4	7.89	27.86
Form 1	23	1968	13.5	6.12	27.12	31	2479	17.0	10.36	26.56
Form 2	9	841	6.9	4.43	10.66	36	3373	27.8	19.70	37.55
Form 3	11	1093	8.0	4.20	14.79	36	3630	26.6	17.91	37.65
Form 4	17	1397	10.9	5.28	21.21	61	4848	37.9	29.95	46.52
Form 5	9	977	7.1	3.11	15.42	37	4329	31.5	19.42	46.72
<b>School session</b>										
Morning session	74	7455	9.6	7.14	12.82	181	18008	23.2	18.23	29.10
Evening session	17	1486	13.6	4.98	32.26	24	2071	19.0	11.14	30.55
Morning and evening session	24	2582	9.5	6.71	13.39	52	5499	20.3	11.76	32.78
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	14	1418	17.7	9.14	31.39	6	502	6.3	2.27	16.09
Normal (≥-2sd - ≤+1sd)	58	5896	8.6	6.31	11.55	141	13658	19.9	15.70	24.80
Overweight (>+1sd - ≤+2sd)	22	2098	10.4	6.72	15.63	66	6558	32.4	23.96	42.08
Obese (>+2sd)	20	2005	10.9	6.96	16.78	43	4719	25.7	20.42	31.91
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	14	1374	12.1	7.08	19.89	12	1064	9.4	4.91	17.13
Normal (≥-2sd)	101	10149	9.7	7.51	12.57	244	24372	23.4	19.03	28.44

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.9 : Reasons for skipping dinner among adolescents by socio-demographic characteristics and nutritional status**

Socio-demographic Characteristics	Reasons for skipping dinner									
	No money					Others				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	23	2332	2.0	1.23	3.30	57	5771	5.0	3.76	6.59
<b>Locality of school</b>										
Urban	12	1186	2.2	1.08	4.43	22	2243	4.2	2.55	6.70
Rural	11	1146	1.9	0.92	3.73	35	3528	5.7	4.24	7.69
<b>Sex</b>										
Boys	17	1721	3.1	1.77	5.36	25	2632	4.7	3.12	7.14
Girls	6	611	1.0	0.45	2.27	32	3139	5.2	3.70	7.32
<b>Ethnicity</b>										
Malay	22	2188	2.1	1.22	3.48	44	4527	4.3	3.12	5.86
Chinese	1	143	2.5	0.61	9.55	7	777	13.4	7.04	24.06
Indian						1	136	5.3	0.54	36.51
Bumiputera Sabah										
Bumiputera Sarawak										
Others						5	330	25.2	4.84	69.17
<b>School level</b>										
Primary school	9	1046	2.1	0.98	4.63	13	1738	3.6	2.09	6.03
Secondary school	14	1286	1.9	1.01	3.63	44	4032	6.0	4.72	7.66
<b>Class</b>										
Standard 4	3	305	1.6	0.46	5.49	4	470	2.5	0.87	6.84
Standard 5	4	461	3.6	1.04	11.58	5	631	4.9	2.20	10.55
Standard 6	2	280	1.7	0.39	6.85	4	638	3.8	2.46	5.81
Form 1	3	233	1.6	0.62	4.06	12	890	6.1	3.18	11.38
Form 2	4	385	3.2	0.82	11.43	4	381	3.1	1.25	7.65
Form 3	3	311	2.3	0.82	6.22	11	1179	8.6	4.47	16.06
Form 4	3	260	2.0	0.64	6.26	7	565	4.4	2.76	7.00
Form 5	1	97	0.7	0.09	5.47	10	1018	7.4	3.17	16.33
<b>School session</b>										
Morning session	16	1703	2.2	1.21	3.96	42	4334	5.6	3.97	7.81
Evening session	3	267	2.4	0.99	5.94	8	615	5.6	2.78	11.13
Morning and evening session	4	362	1.3	0.25	6.81	7	822	3.0	1.45	6.23
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	1	100	1.2	0.14	10.36	3	276	3.4	0.94	11.84
Normal (≥-2sd - ≤+1sd)	17	1728	2.5	1.37	4.55	39	3889	5.7	4.01	7.92
Overweight (>+1sd - ≤+2sd)	1	156	0.8	0.10	5.50	6	682	3.4	1.47	7.54
Obese (>+2sd)	4	348	1.9	0.73	4.86	9	924	5.0	2.39	10.31
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	3	329	2.9	0.71	10.98	6	638	5.6	2.43	12.46
Normal (≥-2sd)	20	2003	1.9	1.14	3.22	51	5133	4.9	3.71	6.52

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.10 : Prevalence of eating and/or drinking during recess time per week among adolescents by socio-demographics and nutritional status (Cont.)**

Characteristics	Frequency of eating and/or drinking during recess time per week									
	5 days					1-4 days				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	1668	167872	67.2	61.96	71.97	765	76899	30.8	26.17	35.78
<b>Locality of school</b>										
Urban	876	90226	68.8	60.04	76.36	382	38812	29.6	22.12	38.33
Rural	792	77646	65.4	60.03	70.34	383	38088	32.1	27.72	36.74
<b>Sex</b>										
Boys	833	80969	65.5	58.09	72.20	404	39987	32.3	25.73	39.74
Girls	835	86903	68.8	63.90	73.29	361	36913	29.2	25.23	33.55
<b>Ethnicity</b>										
Malay	1287	129624	65.0	59.98	69.77	653	65812	33.0	28.51	37.85
Chinese	303	30972	78.9	70.94	85.20	71	7235	18.4	13.35	24.91
Indian	51	4742	61.2	46.65	74.06	29	2828	36.5	25.18	49.58
Bumiputera Sabah	2	229	100.0	100.00	100.00					
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	25	2306	69.2	58.98	77.81	11	921	27.6	17.86	40.12
<b>School level</b>										
Primary school	556	65934	69.1	59.28	77.48	227	27981	29.3	20.95	39.40
Secondary school	1112	101938	65.9	59.99	71.44	538	48918	31.6	26.65	37.11
<b>Class</b>										
Standard 4	180	19358	61.6	44.82	76.02	89	11092	35.3	20.44	53.67
Standard 5	205	22582	70.9	56.71	81.91	87	9035	28.4	17.55	42.42
Standard 6	171	23995	74.7	69.01	79.64	51	7854	24.4	18.67	31.32
Form 1	255	19780	64.2	51.72	75.00	129	10269	33.3	23.34	45.07
Form 2	217	20226	66.4	57.42	74.26	104	9692	31.8	24.16	40.57
Form 3	199	20809	66.6	56.03	75.78	95	9503	30.4	21.97	40.46
Form 4	248	19739	65.2	56.06	73.38	124	9819	32.4	25.26	40.57
Form 5	193	21385	67.3	58.90	74.68	86	9634	30.3	22.67	39.21
<b>School session</b>										
Morning session	1154	115930	66.8	60.30	72.80	531	53624	30.9	25.07	37.45
Evening session	217	17891	65.5	50.92	77.69	103	8687	31.8	20.79	45.34
Morning and evening session	295	33906	69.2	63.10	74.71	130	14481	29.6	24.45	35.24
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	102	10230	64.4	56.31	71.82	53	5228	32.9	26.50	40.08
Normal (≥-2sd - ≤+1sd)	1074	107887	69.0	63.64	73.87	454	45672	29.2	24.64	34.23
Overweight (>+1sd - ≤+2sd)	261	26131	67.7	61.43	73.44	112	11339	29.4	23.72	35.78
Obese (>+2sd)	230	23531	60.7	51.95	68.74	144	14413	37.2	28.82	46.33
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	120	12632	64.8	54.31	73.98	65	6497	33.3	24.60	43.34
Normal (≥-2sd)	1548	155240	67.4	62.32	72.10	699	70261	30.5	26.00	35.41

**Table 3.4.10 : Prevalence of eating and/or drinking during recess time per week among adolescents by socio-demographics and nutritional status**

Characteristics	Frequency of eating and/or drinking during recess time per week				
	Never (0 day)				
	Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper	
<b>Kedah</b>	53	5203	2.1	1.43	3.01
<b>Locality of school</b>					
Urban	21	2145	1.6	1.01	2.65
Rural	32	3057	2.6	1.56	4.21
<b>Sex</b>					
Boys	27	2687	2.2	1.44	3.27
Girls	26	2516	2.0	1.10	3.57
<b>Ethnicity</b>					
Malay	40	3897	2.0	1.27	3.00
Chinese	10	1026	2.6	1.20	5.60
Indian	2	173	2.2	0.69	7.04
Bumiputera Sabah					
Bumiputera Sarawak					
Others	1	106	3.2	0.35	23.38
<b>School level</b>					
Primary school	13	1484	1.6	0.82	2.95
Secondary school	40	3718	2.4	1.57	3.66
<b>Class</b>					
Standard 4	8	972	3.1	1.10	8.41
Standard 5	3	237	0.7	0.18	3.08
Standard 6	2	276	0.9	0.13	5.28
Form 1	9	766	2.5	1.27	4.79
Form 2	6	562	1.8	0.73	4.55
Form 3	9	918	2.9	1.27	6.66
Form 4	9	705	2.3	1.14	4.71
Form 5	7	767	2.4	1.17	4.89
<b>School session</b>					
Morning session	40	3872	2.2	1.52	3.28
Evening session	7	727	2.7	1.25	5.60
Morning and evening session	6	604	1.2	0.38	3.90
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	4	416	2.6	0.84	7.90
Normal (≥-2sd - ≤+1sd)	29	2825	1.8	1.15	2.83
Overweight (>+1sd - ≤+2sd)	12	1113	2.9	1.47	5.58
Obese (>+2sd)	8	849	2.2	1.22	3.89
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	4	373	1.9	0.78	4.62
Normal (≥-2sd)	49	4830	2.1	1.45	3.02

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.4.11 : Source of food during recess time among adolescents by socio-demographic characteristics and nutritional status (Cont.)

Characteristics	Source of food during recess time									
	Bring from home					School canteen				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	374	39574	16.3	12.90	20.42	1772	178676	73.6	70.04	76.96
<b>Locality of school</b>										
Urban	228	24035	18.8	13.89	25.01	916	94227	73.8	68.37	78.58
Rural	146	15539	13.5	9.87	18.25	856	84448	73.5	68.64	77.83
<b>Sex</b>										
Boys	182	18423	15.4	12.04	19.51	904	88973	74.4	70.14	78.27
Girls	192	21151	17.2	13.13	22.19	868	89703	72.9	68.62	76.80
<b>Ethnicity</b>										
Malay	241	26085	13.4	10.61	16.88	1449	146449	75.5	72.15	78.52
Chinese	103	10749	28.6	22.09	36.09	242	24550	65.3	57.37	72.41
Indian	22	2049	27.7	16.60	42.46	51	4938	66.8	49.41	80.55
Bumiputera Sabah						1	100	43.7	3.60	94.19
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	8	692	21.4	13.12	33.03	28	2535	78.6	66.97	86.88
<b>School level</b>										
Primary school	166	20026	21.5	16.37	27.72	571	68626	73.7	66.55	79.78
Secondary school	208	19549	13.1	9.93	17.03	1201	110049	73.6	69.64	77.25
<b>Class</b>										
Standard 4	66	7880	26.0	14.13	42.93	185	20857	68.9	51.21	82.35
Standard 5	68	7364	23.4	17.46	30.72	213	22884	72.9	65.42	79.21
Standard 6	32	4781	15.2	8.53	25.67	173	24885	79.2	69.54	86.36
Form 1	50	3960	13.3	8.49	20.34	266	20997	70.7	60.86	78.96
Form 2	43	4084	13.7	8.83	20.76	209	19516	65.7	56.03	74.14
Form 3	20	2203	7.4	3.80	13.88	247	25359	85.0	77.95	90.15
Form 4	44	3572	12.1	8.04	17.94	288	22848	77.7	70.53	83.51
Form 5	51	5730	18.6	12.97	25.88	191	21330	69.2	61.64	75.78
<b>School session</b>										
Morning session	269	27757	16.5	12.15	22.05	1253	125977	75.0	70.08	79.29
Evening session	45	3893	14.8	10.37	20.60	207	17307	65.6	53.14	76.30
Morning and evening session	60	7925	16.5	10.36	25.33	309	35138	73.3	67.05	78.73
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	23	2481	16.2	11.20	22.94	117	11761	76.9	69.36	83.08
Normal (≥-2sd - ≤+1sd)	215	22536	14.8	11.22	19.23	1127	113774	74.6	70.30	78.52
Overweight (>+1sd - ≤+2sd)	70	7260	19.5	14.25	26.09	265	26843	72.1	66.28	77.25
Obese (>+2sd)	66	7296	19.6	15.71	24.10	260	25957	69.6	65.90	73.08
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	23	2486	13.0	8.93	18.53	144	14784	77.3	70.04	83.20
Normal (≥-2sd)	351	37088	16.6	13.11	20.81	1627	163751	73.3	69.84	76.53



NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.4.11 : Source of food during recess time among adolescents by socio-demographic characteristics and nutritional status (Cont..)

Characteristics	Restaurant/ kiosk					Hostel				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	106	10114	4.2	2.93	5.90	111	9495	3.9	1.90	7.90
<b>Locality of school</b>										
Urban	45	4365	3.4	2.48	4.70	33	2995	2.3	0.96	5.62
Rural	61	5749	5.0	2.87	8.57	78	6500	5.7	2.19	13.81
<b>Sex</b>										
Boys	57	5228	4.4	2.67	7.08	59	4998	4.2	1.95	8.73
Girls	49	4886	4.0	2.74	5.72	52	4498	3.7	1.54	8.41
<b>Ethnicity</b>										
Malay	86	8308	4.3	2.83	6.42	108	9163	4.7	2.26	9.62
Chinese	17	1572	4.2	2.87	6.05	1	132	0.4	0.08	1.48
Indian	3	234	3.2	0.85	11.12	1	71	1.0	0.10	8.79
Bumiputera Sabah						1	129	56.3	5.81	96.40
Bumiputera Sarawak										
Others										
<b>School level</b>										
Primary school	17	1898	2.0	1.30	3.19	9	844	0.9	0.33	2.48
Secondary school	89	8216	5.5	3.94	7.61	102	8651	5.8	2.84	11.44
<b>Class</b>										
Standard 4	10	1026	3.4	1.79	6.32	2	104	0.3	0.04	2.80
Standard 5	4	425	1.4	0.51	3.54	2	221	0.7	0.20	2.41
Standard 6	3	446	1.4	0.32	6.04	5	518	1.6	0.58	4.56
Form 1	19	1426	4.8	2.53	8.92	40	3015	10.2	4.54	21.19
Form 2	17	1627	5.5	2.96	9.91	37	3263	11.0	3.97	26.89
Form 3	11	1169	3.9	1.25	11.61	10	967	3.2	1.04	9.64
Form 4	19	1464	5.0	2.81	8.65	6	459	1.6	0.35	6.69
Form 5	23	2531	8.2	5.13	12.87	9	948	3.1	1.38	6.69
<b>School session</b>										
Morning session	75	7506	4.5	2.90	6.83	38	3466	2.1	1.09	3.86
Evening session	16	1239	4.7	2.48	8.74	46	3640	13.8	4.26	36.56
Morning and evening session	15	1369	2.9	1.21	6.60	27	2389	5.0	1.24	17.97
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	8	580	3.8	1.78	7.89	3	235	1.5	0.33	6.81
Normal (≥-2sd - ≤+1sd)	60	5848	3.8	2.47	5.90	83	7040	4.6	2.24	9.29
Overweight (>+1sd - ≤+2sd)	16	1397	3.8	1.89	7.31	15	1350	3.6	1.72	7.48
Obese (>+2sd)	22	2289	6.1	4.09	9.11	10	870	2.3	1.14	4.71
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	6	596	3.1	1.36	6.98	4	300	1.6	0.29	7.95
Normal (≥-2sd)	100	9518	4.3	3.00	6.03	107	9195	4.1	2.00	8.27

Table 3.4.11 : Source of food during recess time among adolescents by socio-demographic characteristics and nutritional status

Characteristics	Source of food during school break time				
	Count	Estimated Population	Other Prevalence (%)	95% CI	
				Lower	Upper
<b>Kedah</b>	47	4747	2.0	1.25	3.06
<b>Locality of school</b>					
Urban	23	2071	1.6	0.97	2.69
Rural	24	2676	2.3	1.21	4.44
<b>Sex</b>					
Boys	20	1940	1.6	0.95	2.77
Girls	27	2806	2.3	1.27	4.05
<b>Ethnicity</b>					
Malay	40	4035	2.1	1.28	3.37
Chinese	6	610	1.6	0.55	4.71
Indian	1	102	1.4	0.15	11.75
Bumiputera Sabah					
Bumiputera Sarawak					
Others					
<b>School level</b>					
Primary school	13	1726	1.9	0.66	5.11
Secondary school	34	3021	2.0	1.37	2.96
<b>Class</b>					
Standard 4	4	413	1.4	0.53	3.44
Standard 5	3	513	1.6	0.31	8.05
Standard 6	6	799	2.5	0.36	15.82
Form 1	4	292	1.0	0.31	3.11
Form 2	13	1237	4.2	2.05	8.25
Form 3	1	119	0.4	0.05	3.02
Form 4	13	1069	3.6	1.85	7.01
Form 5	3	304	1.0	0.34	2.86
<b>School session</b>					
Morning session	35	3340	2.0	1.10	3.56
Evening session	3	287	1.1	0.27	4.32
Morning and evening session	9	1120	2.3	1.51	3.59
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	2	231	1.5	0.33	6.59
Normal (≥-2sd - ≤+1sd)	32	3255	2.1	1.38	3.29
Overweight (>+1sd - ≤+2sd)	4	383	1.0	0.38	2.74
Obese (>+2sd)	9	878	2.4	0.91	5.96
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	8	963	5.0	2.10	11.59
Normal (≥-2sd)	39	3783	1.7	1.12	2.56

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.12 : Prevalence of afternoon tea per week among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Afternoon tea frequency per week									
	Daily (7 days)					1 to 6 days				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	724	70728	28.3	24.87	32.09	1470	148447	59.5	55.89	62.97
<b>Locality of school</b>										
Urban	341	34514	26.4	23.49	29.51	745	76109	58.2	53.69	62.55
Rural	383	36214	30.5	24.34	37.42	725	72338	60.9	55.39	66.14
<b>Sex</b>										
Boys	370	35583	28.8	25.22	32.74	754	74093	60.0	55.45	64.45
Girls	354	35145	27.9	23.43	32.76	716	74354	58.9	54.61	63.12
<b>Ethnicity</b>										
Malay	603	58761	29.5	25.58	33.82	1197	121309	61.0	57.04	64.77
Chinese	80	8224	21.0	15.27	28.07	208	20923	53.3	46.97	59.58
Indian	25	2307	29.8	16.62	47.46	49	4688	60.5	47.98	71.85
Bumiputera Sabah						2	229	100.0	100.00	100.00
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	16	1436	43.1	30.02	57.18	13	1195	35.9	20.79	54.37
<b>School level</b>										
Primary school	222	25668	26.9	22.66	31.62	488	58834	61.7	55.52	67.48
Secondary school	502	45060	29.2	24.49	34.46	982	89613	58.1	54.00	62.12
<b>Class</b>										
Standard 4	66	7658	24.3	16.15	34.83	199	22485	71.3	58.09	81.69
Standard 5	80	8891	28.0	23.97	32.42	173	18264	57.5	53.46	61.50
Standard 6	76	9119	28.4	18.43	41.02	116	18086	56.3	45.39	66.63
Form 1	116	8947	29.2	21.93	37.71	246	19436	63.4	55.35	70.81
Form 2	110	10061	33.0	26.44	40.31	185	17299	56.8	51.47	61.90
Form 3	87	8888	28.7	22.07	36.28	168	17148	55.3	48.01	62.34
Form 4	115	9040	29.9	22.32	38.71	218	17337	57.3	51.35	63.02
Form 5	74	8124	25.6	19.42	32.85	165	18393	57.9	52.21	63.32
<b>School session</b>										
Morning session	507	49340	28.5	24.52	32.79	1007	101743	58.7	54.20	63.10
Evening session	104	8411	31.0	21.24	42.81	198	16791	61.9	51.98	70.91
Morning and evening session	112	12905	26.4	22.18	31.04	264	29805	60.9	54.80	66.69
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	51	5052	31.9	25.19	39.53	100	10050	63.5	54.64	71.57
Normal (≥-2sd - ≤+1sd)	454	43917	28.0	24.19	32.25	931	94151	60.1	56.24	63.87
Overweight (>+1sd - ≤+2sd)	115	11065	28.9	22.81	35.96	219	22041	57.7	50.94	64.11
Obese (>+2sd)	103	10600	27.5	23.22	32.17	218	21958	56.9	52.80	60.92
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	67	6905	35.3	29.70	41.44	111	11372	58.2	51.84	64.33
Normal (≥-2sd)	657	63823	27.8	24.16	31.68	1358	136934	59.6	55.81	63.20

Table 3.4.12 : Prevalence of afternoon tea per week among adolescents per week by socio-demographic characteristics and nutritional status

Characteristics	Afternoon tea frequency per week				
	Count	Estimated Population	Prevalence (%)	Did not take afternoon tea	
				Lower	Upper
<b>Kedah</b>	286	30414	12.2	9.59	15.36
<b>Locality of school</b>					
Urban	189	20180	15.4	11.76	19.98
Rural	97	10234	8.6	6.84	10.80
<b>Sex</b>					
Boys	136	13743	11.1	8.56	14.37
Girls	150	16671	13.2	10.26	16.85
<b>Ethnicity</b>					
Malay	174	18879	9.5	7.68	11.67
Chinese	96	10085	25.7	19.32	33.33
Indian	8	749	9.7	3.05	26.68
Bumiputera Sabah					
Bumiputera Sarawak					
Others	8	702	21.1	12.27	33.71
<b>School level</b>					
Primary school	84	10894	11.4	7.12	17.82
Secondary school	202	19520	12.7	9.70	16.36
<b>Class</b>					
Standard 4	11	1382	4.4	1.85	10.04
Standard 5	41	4592	14.5	10.13	20.23
Standard 6	32	4920	15.3	9.78	23.17
Form 1	29	2260	7.4	4.63	11.54
Form 2	32	3120	10.2	6.76	15.20
Form 3	46	4984	16.1	10.56	23.68
Form 4	48	3887	12.8	8.92	18.14
Form 5	47	5269	16.6	10.25	25.69
<b>School session</b>					
Morning session	208	22190	12.8	9.36	17.28
Evening session	23	1926	7.1	4.25	11.62
Morning and evening session	54	6225	12.7	9.10	17.50
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	7	719	4.5	2.29	8.82
Normal (≥-2sd - ≤+1sd)	173	18550	11.8	9.10	15.28
Overweight (>+1sd - ≤+2sd)	47	5118	13.4	10.34	17.16
Obese (>+2sd)	59	6027	15.6	11.46	20.94
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	11	1258	6.4	3.41	11.82
Normal (≥-2sd)	275	29156	12.7	10.01	15.95

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.4.13 : Source of food for afternoon tea among adolescents by socio-demographic characteristics and nutritional status (Cont.)

Characteristics	Source of food for afternoon tea									
	Prepared at home					School canteen				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	1385	139366	64.3	59.04	69.24	277	28738	13.3	9.66	17.93
<b>Locality of school</b>										
Urban	680	70082	64.1	56.91	70.65	139	14135	12.9	8.22	19.73
Rural	705	69283	64.5	56.67	71.70	138	14603	13.6	8.70	20.64
<b>Sex</b>										
Boys	680	66634	61.7	56.82	66.40	154	15494	14.4	10.15	19.90
Girls	705	72732	66.9	59.54	73.45	123	13244	12.2	8.72	16.75
<b>Ethnicity</b>										
Malay	1144	115429	64.7	58.54	70.41	213	22846	12.8	8.83	18.22
Chinese	164	16692	58.8	53.60	63.88	46	4215	14.9	6.59	30.13
Indian	54	5114	73.1	63.02	81.26	13	1239	17.7	10.27	28.81
Bumiputera Sabah										
Bumiputera Sarawak	1	104	100.0	100.00	100.00					
Others	22	2027	77.0	67.83	84.19	5	438	16.7	10.04	26.37
<b>School level</b>										
Primary school	477	55891	67.1	59.25	74.17	128	15816	67.1	59.25	74.17
Secondary school	908	83475	62.5	55.67	68.93	149	12921	9.7	6.67	13.84
<b>Class</b>										
Standard 4	173	20013	68.3	55.98	78.56	53	5872	20.1	11.51	32.60
Standard 5	161	16092	59.6	46.97	70.99	55	6721	24.9	13.38	41.50
Standard 6	143	19786	73.4	64.30	80.94	20	3224	12.0	6.48	21.05
Form 1	188	14839	53.2	43.64	62.54	73	5760	20.7	14.14	29.14
Form 2	163	15192	56.1	44.96	66.74	48	4345	16.1	7.33	31.62
Form 3	157	16247	62.6	47.95	75.31	10	1001	3.9	1.58	9.10
Form 4	234	18567	70.6	62.95	77.25	7	562	2.1	0.83	5.41
Form 5	166	18629	70.9	60.60	79.34	11	1253	4.8	2.35	9.42
<b>School session</b>										
Morning session	1033	102643	68.7	62.68	74.09	121	13022	8.7	5.49	13.55
Evening session	136	11470	46.0	37.32	54.91	91	7535	30.2	20.13	42.64
Morning and evening session	214	25072	59.5	50.03	68.33	65	8181	19.4	11.68	30.51
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	103	10330	69.4	59.99	77.49	17	1944	13.1	7.45	21.92
Normal (≥-2sd - ≤+1sd)	846	84842	62.3	56.04	68.11	178	18433	13.5	9.71	18.54
Overweight (>+1sd - ≤+2sd)	213	21395	64.9	58.46	70.92	45	4440	13.5	8.41	20.91
Obese (>+2sd)	220	22459	69.5	62.64	75.63	37	3920	12.1	8.21	17.57
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	118	12288	67.5	58.58	75.33	22	2406	13.2	8.00	21.07
Normal (≥-2sd)	1266	126936	64.0	58.51	69.12	255	26331	13.3	9.45	18.33

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.13 : Source of food for afternoon tea among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Source of food for afternoon tea									
	Restaurant/ kiosk					Hostel				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	200	20132	9.3	7.72	11.14	242	21256	9.8	4.81	18.96
<b>Locality of school</b>										
Urban	123	12318	11.3	9.62	13.14	96	8903	8.1	3.33	18.55
Rural	77	7814	7.3	5.21	10.09	146	12353	11.5	4.01	28.84
<b>Sex</b>										
Boys	128	12541	11.6	9.24	14.50	106	9383	8.7	4.53	16.04
Girls	72	7591	7.0	5.48	8.85	136	11873	10.9	4.69	23.36
<b>Ethnicity</b>										
Malay	148	15072	8.4	6.83	10.40	230	19911	11.2	5.23	22.23
Chinese	46	4481	15.8	11.34	21.58	8	974	3.4	1.27	8.95
Indian	5	500	7.2	3.46	14.21	2	142	2.0	0.21	17.14
Bumiputera Sabah						2	229	100.0	100.00	100.00
Bumiputera Sarawak										
Others	1	79	3.0	0.30	24.61					
<b>School level</b>										
Primary school	51	6367	19.0	13.36	26.30	14	1501	7.6	5.66	10.26
Secondary school	149	13765	10.3	8.36	12.66	228	19755	14.8	7.51	27.08
<b>Class</b>										
Standard 4	16	1911	6.5	4.59	9.21	6	534	1.8	0.56	5.82
Standard 5	17	1811	6.7	4.53	9.80	6	708	2.6	0.94	7.09
Standard 6	18	2644	9.8	5.91	15.86	2	259	1.0	0.30	3.05
Form 1	25	1964	7.0	4.26	11.43	65	4952	17.8	8.00	34.89
Form 2	16	1563	5.8	3.50	9.38	59	5377	19.9	9.61	36.64
Form 3	27	2844	11.0	7.87	15.07	49	4712	18.2	8.46	34.78
Form 4	47	3741	14.2	9.64	20.49	38	2951	11.2	4.82	23.96
Form 5	34	3655	13.9	8.99	20.86	17	1764	6.7	3.11	13.89
<b>School session</b>										
Morning session	161	16252	10.9	8.90	13.22	130	11814	7.9	3.93	15.24
Evening session	17	1576	6.3	3.50	11.15	50	3943	15.8	5.55	37.52
Morning and evening session	22	2304	5.5	3.13	9.39	62	5499	13.1	3.24	40.19
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	15	1369	9.2	4.69	17.30	10	843	5.7	2.54	12.15
Normal (≥-2sd - ≤+1sd)	136	13806	10.1	8.37	12.21	167	14516	10.7	5.36	20.06
Overweight (>+1sd - ≤+2sd)	26	2700	8.2	5.56	11.92	40	3633	11.0	5.04	22.43
Obese (>+2sd)	23	2256	7.0	3.79	12.51	25	2264	7.0	2.27	19.64
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	16	1552	8.5	5.57	12.84	15	1244	6.8	3.11	14.35
Normal (≥-2sd)	184	18580	9.4	7.83	11.17	227	20012	10.1	4.89	19.67

**Table 3.4.13 : Source of food for afternoon tea among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Source of food for afternoon tea				
	Count	Estimated Population	Prevalence (%)	Other	
				Lower	Upper
<b>Kedah</b>	66	7236	3.3	2.30	4.81
<b>Locality of school</b>					
Urban	36	3942	3.6	1.96	6.54
Rural	30	3294	3.1	2.13	4.40
<b>Sex</b>					
Boys	39	3896	3.6	2.54	5.10
Girls	27	3340	3.1	1.65	5.63
<b>Ethnicity</b>					
Malay	48	5140	2.9	2.22	3.74
Chinese	17	2009	7.1	2.62	17.75
Indian					
Bumiputera Sabah					
Bumiputera Sarawak					
Others	1	87	3.3	0.56	17.21
<b>School level</b>					
Primary school	29	3670	1.8	0.63	5.08
Secondary school	37	3566	2.7	2.01	3.54
<b>Class</b>					
Standard 4	9	954	3.3	1.38	7.52
Standard 5	13	1688	6.2	2.23	16.28
Standard 6	7	1028	3.8	2.22	6.49
Form 1	5	376	1.3	0.51	3.49
Form 2	6	583	2.2	0.87	5.22
Form 3	11	1137	4.4	2.75	6.91
Form 4	6	477	1.8	0.81	3.99
Form 5	9	992	3.8	1.92	7.27
<b>School session</b>					
Morning session	54	5747	3.8	2.45	5.98
Evening session	5	416	1.7	0.70	3.92
Morning and evening session	7	1073	2.5	1.11	5.75
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	4	390	2.6	0.93	7.14
Normal (≥-2sd - ≤+1sd)	41	4668	3.4	2.08	5.59
Overweight (>+1sd - ≤+2sd)	8	775	2.4	0.90	6.03
Obese (>+2sd)	13	1404	4.3	2.52	7.39
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	6	710	3.9	1.81	8.19
Normal (≥-2sd)	60	6526	3.3	2.19	4.91

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.14 : Prevalence of heavy meal after dinner per week among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Heavy meal after dinner frequency per week									
	Daily (7 days)					1 to 6 days				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	172	16058	6.4	4.71	8.68	1759	177855	71.1	65.58	76.03
<b>Locality of school</b>										
Urban	76	7623	5.8	4.37	7.68	909	93086	70.9	62.50	78.08
Rural	96	8435	7.1	4.18	11.80	850	84769	71.3	64.01	77.60
<b>Sex</b>										
Boys	109	10351	8.4	6.51	10.67	900	89003	71.9	67.00	76.26
Girls	63	5707	4.5	2.59	7.77	859	88852	70.3	63.55	76.31
<b>Ethnicity</b>										
Malay	145	13481	6.8	4.76	9.51	1477	149658	75.0	70.08	79.34
Chinese	15	1482	3.8	2.73	5.21	199	20329	51.8	47.77	55.84
Indian	5	421	5.4	2.52	11.35	61	5854	75.6	61.37	85.80
Bumiputera Sabah										
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	170	17422	44.4	39.99	48.91	16	1468	19.0	10.27	32.35
<b>School level</b>										
Primary school	69	6574	6.9	3.53	12.98	512	64380	67.4	54.69	77.95
Secondary school	103	9484	6.1	4.71	7.94	1247	113475	73.4	69.16	77.20
<b>Class</b>										
Standard 4	11	1154	3.7	1.85	7.11	198	23424	74.3	53.84	87.73
Standard 5	20	2029	6.4	3.99	10.01	175	19454	61.0	45.37	74.66
Standard 6	38	3390	10.6	2.68	33.57	139	21502	66.9	55.04	77.00
Form 1	15	1157	3.7	2.04	6.77	309	24294	78.6	70.90	84.76
Form 2	21	1967	6.5	4.40	9.38	240	22348	73.3	65.65	79.81
Form 3	23	2296	7.4	4.82	11.06	206	21148	67.7	60.31	74.33
Form 4	27	2157	7.1	5.10	9.88	283	22406	74.0	68.25	79.09
Form 5	17	1908	6.0	3.44	10.28	209	23279	73.2	67.19	78.53
<b>School session</b>										
Morning session	137	12484	7.2	4.91	10.42	1194	121110	69.8	63.09	75.73
Evening session	16	1368	5.0	2.81	8.77	239	19986	73.2	61.53	82.34
Morning and evening session	18	2134	4.3	2.95	6.36	325	36651	74.7	69.37	79.30
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	14	1208	7.6	4.19	13.32	118	11913	74.7	65.29	82.23
Normal (≥-2sd - ≤+1sd)	116	10955	7.0	5.01	9.68	1116	112622	71.9	66.01	77.07
Overweight (>+1sd - ≤+2sd)	21	1908	4.9	2.76	8.71	263	26309	68.2	60.30	75.16
Obese (>+2sd)	21	1987	5.1	2.97	8.78	260	26764	69.3	61.99	75.75
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	15	1518	7.7	4.73	12.42	142	14737	75.1	69.15	80.31
Normal (≥-2sd)	157	14540	6.3	4.59	8.61	1616	162977	70.7	65.01	75.84



**Table 3.4.14 : Prevalence of heavy meal after dinner per week among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Heavy meal after dinner frequency per week				
	Did not take heavy meal after dinner				
	Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper	
<b>Kedah</b>	556	56289	22.5	18.09	27.61
<b>Locality of school</b>					
Urban	295	30576	23.3	16.16	32.35
Rural	261	25712	21.6	17.55	26.34
<b>Sex</b>					
Boys	256	24504	19.8	15.78	24.50
Girls	300	31785	25.2	19.73	31.49
<b>Ethnicity</b>					
Malay	359	36422	18.3	15.08	21.91
Chinese	170	17422	44.4	39.99	48.91
Indian	16	1468	19.0	10.27	32.35
Bumiputera Sabah	2	229	100.0	100.00	100.00
Bumiputera Sarawak					
Others	359	36422	18.3	15.08	21.91
<b>School level</b>					
Primary school	215	24596	25.7	17.34	36.42
Secondary school	341	31693	20.5	16.33	25.40
<b>Class</b>					
Standard 4	68	6956	22.1	10.08	41.67
Standard 5	100	10407	32.6	20.65	47.42
Standard 6	47	7233	22.5	15.71	31.17
Form 1	70	5443	17.6	11.81	25.46
Form 2	66	6164	20.2	14.27	27.85
Form 3	74	7786	24.9	18.40	32.84
Form 4	71	5701	18.8	14.37	24.31
Form 5	60	6599	20.8	14.52	28.78
<b>School session</b>					
Morning session	394	39958	23.0	17.74	29.32
Evening session	72	5951	21.8	13.27	33.66
Morning and evening session	89	10307	21.0	16.51	26.31
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	28	2830	17.7	11.37	26.61
Normal ( $\geq$ -2sd - $\leq$ +1sd)	327	33131	21.1	16.67	26.43
Overweight ( $>$ +1sd - $\leq$ +2sd)	101	10366	26.9	20.24	34.72
Obese ( $>$ +2sd)	99	9869	25.6	19.81	32.29
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	33	3356	17.1	12.82	22.47
Normal ( $\geq$ -2sd)	523	52933	23.0	18.37	28.32

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.15 : Source of food for eating heavy meal after dinner among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Source of food for eating for heavy meal after dinner									
	Home					Restaurant/kiosk				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	927	94484	50.1	44.74	55.53	729	73479	39.0	34.38	43.81
<b>Locality of school</b>										
Urban	463	48680	49.9	42.15	57.64	397	39910	40.9	35.30	46.76
Rural	464	45804	50.4	42.96	57.82	332	33569	36.9	29.90	44.57
<b>Sex</b>										
Boys	452	44736	46.4	40.73	52.18	413	41060	42.6	37.46	47.89
Girls	475	49748	54.0	47.83	60.13	316	32418	35.2	29.88	40.95
<b>Ethnicity</b>										
Malay	755	76859	48.5	43.12	53.89	616	62792	39.6	34.82	44.62
Chinese	128	13564	63.6	50.35	75.14	71	6638	31.1	20.60	44.09
Indian	25	2307	38.8	24.29	55.60	35	3375	56.8	36.36	75.09
Bumiputera Sabah										
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	19	1755	67.9	47.26	83.32	6	569	22.0	7.09	51.15
<b>School level</b>										
Primary school	345	41700	61.5	53.49	68.90	188	23558	34.7	26.31	44.23
Secondary school	582	52784	43.8	40.66	46.90	541	49921	41.4	36.58	46.36
<b>Class</b>										
Standard 4	132	15728	67.4	57.91	75.72	55	6264	26.9	20.06	34.96
Standard 5	7	11954	58.3	47.67	68.20	7	7861	38.3	27.34	50.67
Standard 6	7	14018	58.4	43.51	71.93	7	9433	39.3	25.34	55.27
Form 1	7	11796	48.0	42.78	53.26	7	8452	34.4	26.28	43.53
Form 2	7	11097	46.5	37.48	55.78	7	8585	36.0	27.40	45.57
Form 3	7	9494	41.0	31.59	51.15	7	9676	41.8	32.24	52.02
Form 4	7	10600	43.6	38.34	48.93	7	11364	46.7	39.50	54.06
Form 5	7	9797	39.6	30.31	49.78	7	11844	47.9	39.11	56.86
<b>School session</b>										
Morning session	647	66133	50.6	44.12	57.04	525	52043	39.8	34.30	45.59
Evening session	123	10430	51.2	42.04	60.34	75	6298	30.9	24.13	38.67
Morning and evening session	156	17849	47.9	41.25	54.54	129	15138	40.6	33.24	48.38
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	69	6912	54.7	44.19	64.83	44	4548	36.0	27.58	45.39
Normal (≥-2sd - ≤+1sd)	580	59255	49.2	43.29	55.22	475	47501	39.5	34.96	44.18
Overweight (>+1sd - ≤+2sd)	137	13824	49.9	40.93	58.83	111	11184	40.4	30.41	51.15
Obese (>+2sd)	140	14353	52.2	44.17	60.03	98	10139	36.8	28.55	45.99
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	71	7469	47.9	36.48	59.54	62	6518	41.8	31.79	52.52
Normal (≥-2sd)	855	86874	50.3	45.12	55.47	667	66961	38.8	34.23	43.51

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.15 : Source of food for eating heavy meal after dinner among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Source of food for eating heavy meal after dinner									
	Hostel					Others				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	123	10841	5.8	3.10	10.42	101	9648	5.1	3.86	6.77
<b>Locality of school</b>										
Urban	50	4576	4.7	1.86	11.33	46	4395	4.5	3.10	6.50
Rural	73	6265	6.9	3.03	14.91	55	5253	5.8	3.91	8.47
<b>Sex</b>										
Boys	57	5070	5.3	2.94	9.23	56	5536	5.7	4.22	7.76
Girls	66	5772	6.3	3.06	12.41	45	4111	4.5	2.75	7.19
<b>Ethnicity</b>										
Malay	122	10756	6.8	3.67	12.22	85	8098	5.1	3.68	7.06
Chinese						11	1110	5.2	3.47	7.74
Indian						3	265	4.5	0.97	18.11
Bumiputera Sabah										
Bumiputera Sarawak										
Others	1	86	3.3	0.46	20.15	2	174	6.8	2.18	19.07
<b>School level</b>										
Primary school	8	723	1.1	0.47	2.41	15	1840	2.7	1.61	4.53
Secondary school	115	10118	8.4	4.77	14.33	86	7807	6.5	5.14	8.12
<b>Class</b>										
Standard 4	5	431	1.8	0.53	6.22	7	897	3.8	1.71	8.45
Standard 5	7	292	1.4	0.39	5.07	7	398	1.9	0.61	5.96
Standard 6						7	545	2.3	0.89	5.68
Form 1	7	2034	8.3	3.46	18.49	7	2295	9.3	5.29	15.96
Form 2	7	2656	11.1	6.82	17.65	7	1519	6.4	4.82	8.36
Form 3	7	2567	11.1	5.46	21.23	7	1411	6.1	2.95	12.18
Form 4	7	1573	6.5	2.74	14.49	7	794	3.3	1.78	5.91
Form 5	7	1288	5.2	2.81	9.47	7	1788	7.2	4.32	11.87
<b>School session</b>										
Morning session	67	6138	4.7	2.48	8.71	65	6408	4.9	3.66	6.54
Evening session	26	2021	9.9	4.53	20.36	20	1611	7.9	3.86	15.52
Morning and evening session	30	2683	7.2	1.94	23.30	16	1629	4.4	2.44	7.70
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	4	325	2.6	0.90	7.13	10	848	6.7	2.27	18.22
Normal (≥-2sd - ≤+1sd)	87	7632	6.3	3.46	11.35	61	5945	4.9	3.83	6.36
Overweight (>+1sd - ≤+2sd)	19	1631	5.9	2.64	12.59	12	1079	3.9	2.08	7.18
Obese (>+2sd)	13	1254	4.6	2.35	8.65	18	1775	6.4	4.07	10.08
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	6	543	3.5	1.39	8.44	11	1065	6.8	3.48	12.96
Normal (≥-2sd)	117	10299	6.0	3.16	10.96	90	8583	5.0	3.72	6.61

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.16 : Prevalence of fast food consumption per week among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Frequency of fast food consumption per week									
	Daily (7 days)					1 to 6 days				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	58	5126	2.1	1.28	3.27	2116	213552	85.5	80.91	89.10
<b>Locality of school</b>										
Urban	29	2853	2.2	1.30	3.61	1060	108387	82.6	75.70	87.93
Rural	29	2273	1.9	0.83	4.38	1056	105165	88.6	83.85	92.11
<b>Sex</b>										
Boys	43	3762	3.0	1.90	4.83	1073	105131	85.0	79.10	89.44
Girls	15	1364	1.1	0.50	2.30	1043	108421	86.0	81.86	89.26
<b>Ethnicity</b>										
Malay	50	4378	2.2	1.30	3.68	1745	176714	88.7	85.68	91.18
Chinese	4	396	1.0	0.48	2.10	266	27098	69.1	64.19	73.56
Indian	2	169	2.2	0.62	7.33	75	7081	91.4	86.48	94.71
Bumiputera Sabah						1	100	43.7	3.60	94.19
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	2	183	5.5	1.41	19.04	28	2455	73.7	57.78	85.12
<b>School level</b>										
Primary school	29	2537	2.7	1.35	5.17	660	80723	84.6	74.38	91.22
Secondary school	29	2588	1.7	0.88	3.17	1456	132829	86.0	81.37	89.67
<b>Class</b>										
Standard 4	12	827	2.6	0.57	11.35	249	29063	92.5	81.95	97.07
Standard 5	16	1584	5.0	2.61	9.26	233	25087	78.7	65.92	87.64
Standard 6	1	126	0.4	0.06	2.68	178	26572	82.7	69.11	91.10
Form 1	10	816	2.7	1.17	5.90	343	26918	87.6	82.15	91.49
Form 2	3	281	0.9	0.30	2.76	280	26098	85.6	79.22	90.30
Form 3	4	429	1.4	0.37	4.96	255	25936	83.3	73.65	89.94
Form 4	9	706	2.3	0.99	5.41	325	25809	85.3	79.11	89.86
Form 5	3	356	1.1	0.36	3.46	253	28068	88.3	81.89	92.65
<b>School session</b>										
Morning session	41	3618	2.1	1.19	3.63	1462	147166	84.9	79.35	89.24
Evening session	5	389	1.4	0.41	4.91	283	23650	86.8	77.48	92.68
Morning and evening session	12	1119	2.3	0.93	5.48	368	42483	86.5	79.21	91.56
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	5	461	2.9	1.02	8.02	139	13790	86.9	80.45	91.41
Normal (≥-2sd - ≤+1sd)	40	3531	2.3	1.26	4.00	1324	133496	85.4	80.25	89.40
Overweight (>+1sd - ≤+2sd)	7	634	1.6	0.86	3.12	324	32449	84.3	77.45	89.29
Obese (>+2sd)	6	499	1.3	0.53	3.08	327	33570	86.5	80.61	90.86
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	7	728	3.7	1.64	8.19	161	16562	84.5	78.27	89.12
Normal (≥-2sd)	51	4398	1.9	1.20	3.03	1954	196850	85.6	80.83	89.28

Table 3.4.16 : Prevalence of fast food consumption per week among adolescents by socio-demographic characteristics and nutritional status

Characteristics	Frequency of fast food consumption per week				
	Did not ate fast food				
	Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper	
<b>Kedah</b>	309	31142	12.5	9.01	17.01
<b>Locality of school</b>					
Urban	190	19906	15.2	9.77	22.83
Rural	119	11237	9.5	6.97	12.74
<b>Sex</b>					
Boys	147	14803	12.0	7.84	17.84
Girls	162	16339	13.0	9.73	17.05
<b>Ethnicity</b>					
Malay	182	18088	9.1	7.14	11.49
Chinese	114	11738	29.9	25.97	34.19
Indian	5	493	6.4	3.39	11.66
Bumiputera Sabah	1	129	56.3	5.81	96.40
Bumiputera Sarawak					
Others	7	695	20.8	12.95	31.79
<b>School level</b>					
Primary school	106	12161	12.7	6.69	22.95
Secondary school	203	18981	12.3	8.70	17.09
<b>Class</b>					
Standard 4	15	1544	4.9	2.09	11.12
Standard 5	46	5191	16.3	8.48	29.02
Standard 6	45	5426	16.9	8.53	30.69
Form 1	39	3010	9.8	5.99	15.59
Form 2	44	4100	13.5	8.59	20.44
Form 3	43	4760	15.3	8.65	25.60
Form 4	47	3748	12.4	7.84	19.02
Form 5	30	3363	10.6	6.60	16.52
<b>School session</b>					
Morning session	219	22458	13.0	8.76	18.78
Evening session	38	3194	11.7	5.69	22.64
Morning and evening session	52	5490	11.2	7.13	17.13
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	15	1623	10.2	6.10	16.63
Normal (≥-2sd - ≤+1sd)	191	19274	12.3	8.54	17.49
Overweight (>+1sd - ≤+2sd)	53	5428	14.1	9.02	21.36
Obese (>+2sd)	49	4724	12.2	8.01	18.09
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	22	2321	11.8	7.99	17.19
Normal (≥-2sd)	287	28821	12.5	8.94	17.28

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.17 : Practice of bring food to school among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Bring food to school practices									
	Everyday					Occasionally				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
Lower				Upper	Lower				Upper	
<b>Kedah</b>	173	17405	7.0	5.42	8.91	1130	118885	47.6	41.43	53.80
<b>Locality of school</b>										
Urban	99	10280	7.8	5.41	11.24	633	67082	51.2	42.78	59.52
Rural	74	7126	6.0	4.68	7.65	497	51803	43.6	35.77	51.76
<b>Sex</b>										
Boys	92	8775	7.1	5.32	9.39	517	51856	41.9	36.07	47.94
Girls	81	8631	6.8	4.99	9.32	613	67029	53.2	45.62	60.55
<b>Ethnicity</b>										
Malay	112	11376	5.7	4.42	7.35	871	92410	46.4	38.89	54.04
Chinese	40	4010	10.2	7.06	14.57	206	21582	55.0	48.83	61.04
Indian	14	1277	16.5	8.64	29.22	40	3708	47.9	37.12	58.84
Bumiputera Sabah	1	129	56.3	5.81	96.40	1	100	43.7	3.60	94.19
Bumiputera Sarawak	1	104	100.0	100.00	100.00					
Others	5	509	15.3	4.49	40.82	12	1085	32.5	20.23	47.85
<b>School level</b>										
Primary school	66	7235	7.6	5.30	10.74	447	55706	58.4	50.85	65.54
Secondary school	107	10170	6.6	4.67	9.21	683	63179	40.9	36.42	45.54
<b>Class</b>										
Standard 4	25	2345	7.4	4.42	12.25	175	20762	65.8	50.18	78.61
Standard 5	28	2954	9.3	5.37	15.66	168	18751	59.1	53.28	64.64
Standard 6	13	1936	6.0	4.05	8.88	104	16193	50.4	41.69	59.10
Form 1	29	2362	7.7	4.28	13.37	164	12749	41.4	34.68	48.40
Form 2	19	1782	5.9	2.99	11.18	118	11018	36.3	27.37	46.22
Form 3	13	1433	4.6	2.27	9.05	98	10567	33.8	24.12	45.14
Form 4	21	1728	5.7	3.32	9.66	159	12578	41.6	35.19	48.23
Form 5	25	2864	9.0	5.15	15.30	144	16266	51.2	42.64	59.64
<b>School session</b>										
Morning session	127	12687	7.3	5.50	9.66	799	83480	48.1	41.30	54.99
Evening session	17	1412	5.2	3.10	8.61	115	9452	34.9	25.41	45.71
Morning and evening session	29	3307	6.7	4.22	10.62	216	25953	53.0	46.46	59.35
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	13	1311	8.2	4.36	14.96	75	7905	49.6	35.84	63.34
Normal (≥-2sd - ≤+1sd)	99	9791	6.3	4.75	8.23	682	71896	46.0	39.46	52.69
Overweight (>+1sd - ≤+2sd)	32	3488	9.1	6.24	12.97	183	19046	49.4	41.92	57.00
Obese (>+2sd)	29	2815	7.3	5.12	10.18	188	19791	51.0	45.80	56.21
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	13	1320	6.7	3.46	12.69	90	9417	48.0	40.60	55.53
Normal (≥-2sd)	160	16085	7.0	5.38	9.03	1039	109327	47.5	41.25	53.84

Table 3.4.17 : Practice of bring food to school among adolescents by socio-demographic characteristics and nutritional status

Characteristics	Bring food to school practices				
	Count	Estimated Population	Never Prevalence (%)	95% CI	
				Lower	Upper
<b>Kedah</b>	1181	113596	45.5	38.86	52.22
<b>Locality of school</b>					
Urban	546	53707	41.0	32.18	50.39
Rural	635	59889	50.4	42.24	58.54
<b>Sex</b>					
Boys	655	63156	51.0	44.30	57.70
Girls	526	50440	40.0	32.50	48.00
<b>Ethnicity</b>					
Malay	995	95458	47.9	39.87	56.06
Chinese	138	13640	34.8	27.53	42.79
Indian	28	2758	35.6	23.13	50.43
Bumiputera Sabah					
Bumiputera Sarawak					
Others	20	1740	52.2	34.23	69.61
<b>School level</b>					
Primary school	282	32475	34.0	27.25	41.54
Secondary school	899	81121	52.5	46.67	58.29
<b>Class</b>					
Standard 4	78	8445	26.8	15.28	42.54
Standard 5	97	10034	31.6	24.89	39.21
Standard 6	107	13996	43.6	35.07	52.46
Form 1	200	15702	51.0	42.26	59.60
Form 2	189	17577	57.9	47.50	67.58
Form 3	192	19229	61.6	48.15	73.44
Form 4	201	15957	52.7	44.60	60.71
Form 5	117	12656	39.8	32.10	48.07
<b>School session</b>					
Morning session	799	77354	44.6	37.48	51.91
Evening session	193	16236	59.9	47.96	70.79
Morning and evening session	186	19752	40.3	32.54	48.58
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	72	6735	42.2	30.38	55.04
Normal (≥-2sd - ≤+1sd)	774	74597	47.7	40.93	54.62
Overweight (>+1sd - ≤+2sd)	169	15984	41.5	32.84	50.71
Obese (>+2sd)	165	16187	41.7	36.32	47.33
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	87	8873	45.2	38.15	52.55
Normal (≥-2sd)	1094	104722	45.5	38.76	52.42

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.18 : Type of food usually bring to school among adolescents by socio-demographic characteristics nutritional status (Cont.)**

Characteristics	Type of food									
	Nasi lemak/fried rice/mixed rice					Noodle/Vermicelli/ Kueh Teow				
	Count	Estimated Population	Percentage (%)	95% CI		Count	Estimated Population	Percentage (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	647	68853	52.0	44.66	59.19	118	12347	9.3	8.10	10.69
<b>Locality of school</b>										
Urban	335	36442	48.2	36.37	60.15	75	7775	10.3	8.62	12.21
Rural	312	32411	57.0	52.18	61.76	43	4572	8.0	6.61	9.76
<b>Sex</b>										
Boys	333	33676	57.2	47.74	66.24	52	5297	9.0	7.27	11.10
Girls	314	35177	47.7	39.85	55.76	66	7049	9.6	7.44	12.23
<b>Ethnicity</b>										
Malay	555	59231	58.8	54.70	62.88	91	9601	9.5	8.17	11.11
Chinese	67	7149	28.2	21.89	35.48	22	2314	9.1	5.06	15.92
Indian	17	1675	35.8	20.90	54.17	4	334	7.2	1.64	26.28
Bumiputera Sabah										
Bumiputera Sarawak										
Others	8	799	53.6	32.83	73.24	1	97	6.5	0.77	38.48
<b>School level</b>										
Primary school	279	33822	55.5	43.97	66.54	42	5148	8.5	6.97	10.22
Secondary school	368	35032	48.9	40.47	57.43	76	7199	10.1	8.39	12.00
<b>Class</b>										
Standard 4	109	12871	57.5	40.89	72.51	16	1839	8.2	6.87	9.79
Standard 5	116	12359	59.0	50.01	67.45	17	1895	9.0	5.34	14.92
Standard 6	54	8592	49.0	34.64	63.44	9	1414	8.1	4.23	14.81
Form 1	67	5377	37.3	29.27	45.99	14	1138	7.9	4.95	12.32
Form 2	52	4958	39.9	30.76	49.75	8	742	6.0	2.60	13.11
Form 3	57	6112	51.8	39.03	64.41	14	1553	13.2	8.35	20.17
Form 4	97	7733	54.6	44.28	64.59	23	1798	12.7	8.94	17.73
Form 5	95	10852	57.7	40.08	73.62	17	1969	10.5	6.78	15.86
<b>School session</b>										
Morning session	485	50666	54.1	44.92	62.95	92	9404	10.0	8.31	12.07
Evening session	44	3824	36.7	26.48	48.19	6	486	4.7	2.59	8.24
Morning and evening session	118	14364	50.6	46.07	55.21	20	2457	8.7	6.60	11.30
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	46	4843	53.9	32.40	74.05	6	713	7.9	1.76	29.35
Normal (≥-2sd - ≤+1sd)	380	40220	50.8	42.66	58.86	63	6739	8.5	7.01	10.29
Overweight (>+1sd - ≤+2sd)	108	11824	53.8	45.30	62.12	25	2357	10.7	7.04	16.01
Obese (>+2sd)	111	11719	53.0	44.67	61.25	24	2538	11.5	8.74	14.96
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	59	5767	54.4	39.77	68.30	7	914	8.6	4.15	17.05
Normal (≥-2sd)	587	62946	51.7	44.13	59.19	111	11433	9.4	7.92	11.10



## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.18 : Type of food usually bring to school among adolescents by socio-demographic characteristics and nutritional status (Cont..)**

Characteristics	Type of food									
	Bread/bun/sandwich					Nugget/sausage/burger				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	415	42519	32.1	24.66	40.56	70	7576	5.7	3.94	8.23
<b>Locality of school</b>										
Urban	295	30390	40.2	29.15	52.26	29	3030	4.0	2.10	7.50
Rural	120	12129	21.3	17.13	26.26	41	4545	8.0	5.67	11.18
<b>Sex</b>										
Boys	170	16810	28.6	21.52	36.86	31	3204	5.4	3.62	8.12
Girls	245	25709	34.9	26.20	44.73	39	4372	5.9	3.63	9.56
<b>Ethnicity</b>										
Malay	235	24471	24.3	20.57	28.49	63	6867	6.8	4.89	9.44
Chinese	146	14983	59.1	42.29	73.99	4	399	1.6	0.48	4.99
Indian	27	2442	52.2	30.27	73.38	1	92	2.0	0.28	12.42
Bumiputera Sabah										
Bumiputera Sarawak	1	104	100.0	100.00	100.00					
Others	6	519	34.9	13.74	64.28	2	218	14.6	4.37	39.19
<b>School level</b>										
Primary school	117	14817	24.3	17.21	33.23	26	3718	6.1	3.65	10.05
Secondary school	298	27702	38.7	28.51	49.95	44	3858	5.4	3.17	9.00
<b>Class</b>										
Standard 4	36	4494	20.1	11.98	31.64	10	1300	5.8	3.80	8.77
Standard 5	42	4658	22.2	13.75	33.93	7	938	4.5	1.49	12.72
Standard 6	39	5665	32.3	18.93	49.32	9	1480	8.4	4.74	14.55
Form 1	69	5350	37.1	27.24	48.09	16	1281	8.9	3.75	19.60
Form 2	52	4833	38.9	26.12	53.34	9	834	6.7	2.11	19.32
Form 3	43	4840	41.0	25.39	58.75	6	576	4.9	1.73	13.07
Form 4	76	6119	43.2	33.43	53.58	8	606	4.3	2.01	8.87
Form 5	58	6560	34.9	19.23	54.71	5	560	3.0	0.95	8.99
<b>School session</b>										
Morning session	290	30217	32.2	24.55	41.04	44	4423	4.7	3.21	6.89
Evening session	53	4345	41.7	26.26	58.87	11	909	8.7	2.79	24.13
Morning and evening session	72	7958	28.1	18.76	39.71	15	2244	7.9	4.05	14.88
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	27	2851	31.7	19.90	46.51	6	759	8.5	3.66	18.34
Normal (≥-2sd - ≤+1sd)	256	26265	33.2	24.49	43.14	43	4374	5.5	3.67	8.22
Overweight (>+1sd - ≤+2sd)	65	6746	30.7	22.22	40.74	10	1234	5.6	2.79	10.98
Obese (>+2sd)	67	6656	30.1	23.09	38.24	11	1208	5.5	2.49	11.57
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	21	2101	19.8	11.33	32.35	7	772	7.3	3.55	14.36
Normal (≥-2sd)	394	40418	33.2	25.66	41.70	63	6803	5.6	3.74	8.27

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.18 : Type of food usually bring to school among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Type of food									
	Biscuit					Fruits				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	175	17051	12.9	8.60	18.81	43	4359	3.3	2.55	4.24
<b>Locality of school</b>										
Urban	88	8612	11.4	6.56	19.02	18	2051	2.7	1.67	4.37
Rural	87	8439	14.9	8.46	24.77	25	2308	4.1	3.20	5.15
<b>Sex</b>										
Boys	46	4400	7.5	4.92	11.21	19	1887	3.2	2.37	4.32
Girls	129	12651	17.2	11.37	25.10	24	2473	3.4	2.31	4.85
<b>Ethnicity</b>										
Malay	121	11697	11.6	6.90	18.91	33	3324	3.3	2.52	4.31
Chinese	46	4646	18.3	12.44	26.14	4	467	1.8	0.64	5.20
Indian	7	608	13.0	5.80	26.65	5	483	10.3	3.90	24.65
Bumiputera Sabah	1	100	43.7	3.60	94.19					
Bumiputera Sarawak										
Others						1	86	5.8	1.18	23.76
<b>School level</b>										
Primary school	33	4212	6.9	4.08	11.49	21	2490	4.1	3.51	4.76
Secondary school	142	12839	17.9	12.28	25.42	22	1869	2.6	1.62	4.18
<b>Class</b>										
Standard 4	9	931	4.2	2.57	6.65	9	939	4.2	2.08	8.26
Standard 5	12	1437	6.9	2.99	14.96	8	900	4.3	2.29	7.91
Standard 6	12	1844	10.5	5.97	17.82	4	651	3.7	1.80	7.48
Form 1	32	2385	16.5	7.33	33.13	10	779	5.4	2.58	10.94
Form 2	32	2932	23.6	13.50	37.88	5	450	3.6	1.47	8.61
Form 3	22	2342	19.9	12.63	29.83	2	199	1.7	0.35	7.70
Form 4	33	2642	18.7	13.85	24.68	4	309	2.2	0.88	5.31
Form 5	23	2537	13.5	7.45	23.23	1	132	0.7	0.10	4.84
<b>School session</b>										
Morning session	110	10916	11.6	8.38	15.98	24	2435	2.6	1.66	4.05
Evening session	22	1714	16.4	8.22	30.17	11	861	8.3	3.96	16.41
Morning and evening session	43	4421	15.6	6.66	32.34	8	1063	3.7	2.18	6.36
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	7	724	8.1	3.42	17.83	7	675	7.5	3.25	16.39
Normal (≥-2sd - ≤+1sd)	118	11676	14.7	10.14	20.94	22	2155	2.7	1.81	4.07
Overweight (>+1sd - ≤+2sd)	32	3000	13.7	7.98	22.39	7	697	3.2	1.33	7.37
Obese (>+2sd)	18	1652	7.5	3.83	14.08	7	833	3.8	1.63	8.48
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	17	1838	17.3	10.31	27.67	4	351	3.3	1.29	8.23
Normal (≥-2sd)	158	15214	12.5	8.18	18.62	39	4009	3.3	2.44	4.44

**Table 3.4.18 : Type of food usually bring to school among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Type of food				
	Count	Estimated Population	Others Prevalence (%)	95% CI	
				Lower	Upper
<b>Kedah</b>	57	6348	4.8	2.38	9.41
<b>Locality of school</b>					
Urban	42	4638	6.1	2.46	14.46
Rural	15	1711	3.0	1.57	5.71
<b>Sex</b>					
Boys	29	2903	4.9	2.00	11.64
Girls	28	3446	4.7	2.45	8.74
<b>Ethnicity</b>					
Malay	29	3234	3.2	2.04	5.03
Chinese	26	2889	11.4	4.27	27.04
Indian					
Bumiputera Sabah	1	129	56.3	5.81	96.40
Bumiputera Sarawak					
Others	1	96	6.4	0.92	33.78
<b>School level</b>					
Primary school	32	4060	6.7	2.42	17.07
Secondary school	25	2288	3.2	1.88	5.38
<b>Class</b>					
Standard 4	13	1461	6.5	1.28	27.32
Standard 5	11	1524	7.3	2.89	17.18
Standard 6	8	1074	6.1	2.35	15.03
Form 1	6	457	3.2	1.67	5.92
Form 2	6	559	4.5	1.13	16.17
Form 3	2	196	1.7	0.40	6.57
Form 4	3	221	1.6	0.50	4.79
Form 5	8	857	4.6	2.05	9.83
<b>School session</b>					
Morning session	41	4481	4.8	1.87	11.67
Evening session	4	316	3.0	1.28	7.00
Morning and evening session	12	1550	5.5	2.97	9.85
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)					
Normal ( $\geq -2sd - \leq +1sd$ )	36	4212	5.3	2.49	10.99
Overweight ( $> +1sd - \leq +2sd$ )	12	1156	5.3	3.18	8.58
Obese ( $> +2sd$ )	9	980	4.4	1.62	11.58
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	3	473	4.5	1.58	11.92
Normal ( $\geq -2sd$ )	54	5876	4.8	2.36	9.61

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.19 : Practice of bring drinks to school among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Bring drinks to school practices									
	Everyday					Occasionally				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	964	96818	38.8	32.81	45.06	906	93876	37.6	31.95	43.57
<b>Locality of school</b>										
Urban	567	58274	44.4	36.77	52.39	434	45080	34.4	26.77	42.88
Rural	397	38544	32.5	25.86	39.87	472	48796	41.1	33.92	48.70
<b>Sex</b>										
Boys	405	39104	31.7	25.97	38.02	458	46100	37.4	31.58	43.52
Girls	559	57714	45.7	38.72	52.77	448	47776	37.8	31.26	44.81
<b>Ethnicity</b>										
Malay	647	65357	32.8	28.54	37.39	814	84408	42.4	37.88	47.00
Chinese	248	24971	63.6	44.93	78.98	59	6342	16.2	8.76	27.93
Indian	52	4904	63.3	52.74	72.77	19	1852	23.9	16.01	34.16
Bumiputera Sabah	2	229	100.0	100.00	100.00					
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	15	1358	40.8	32.63	49.44	13	1169	35.1	24.23	47.75
<b>School level</b>										
Primary school	294	34723	36.4	28.02	45.66	320	40763	42.7	32.33	53.78
Secondary school	670	62095	40.2	32.42	48.55	586	53113	34.4	29.26	39.94
<b>Class</b>										
Standard 4	94	9604	30.4	21.46	41.22	132	15995	50.7	37.90	63.42
Standard 5	119	12958	40.8	31.04	51.34	115	13205	41.6	30.61	53.45
Standard 6	81	12161	37.9	26.45	50.79	73	11564	36.0	24.79	48.97
Form 1	155	12129	39.4	31.90	47.35	159	12460	40.4	34.22	46.96
Form 2	123	11441	37.8	27.67	49.07	124	11510	38.0	28.41	48.62
Form 3	108	11577	37.1	24.96	51.05	90	9203	29.5	23.28	36.52
Form 4	159	12701	42.0	29.80	55.19	123	9789	32.3	25.01	40.66
Form 5	125	14247	44.8	32.30	58.04	90	10151	31.9	24.24	40.75
<b>School session</b>										
Morning session	659	67287	38.8	33.40	44.56	599	61463	35.5	30.05	41.30
Evening session	140	11633	42.6	28.23	58.35	117	9753	35.7	23.46	50.19
Morning and evening session	164	17824	36.4	26.04	48.16	189	22552	46.0	36.25	56.13
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	47	4652	29.2	20.93	39.05	76	8002	50.2	37.39	62.92
Normal (≥-2sd - ≤+1sd)	570	57014	36.5	29.95	43.56	564	58308	37.3	31.62	43.39
Overweight (>+1sd - ≤+2sd)	181	18277	47.5	40.64	54.45	129	13379	34.8	28.93	41.10
Obese (>+2sd)	163	16536	42.6	35.57	49.99	137	14187	36.6	29.23	44.59
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	61	5922	30.5	22.59	39.77	78	8529	43.9	33.60	54.84
Normal (≥-2sd)	902	90756	39.4	33.37	45.80	828	85346	37.1	31.60	42.88

**Table 3.4.19 : Practice of bring drinks to school among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Bring drinks to school practices				
	Count	Estimated Population	Never Prevalence (%)	95% CI	
				Lower	Upper
<b>Kedah</b>	613	59121	23.7	19.83	27.99
<b>Locality of school</b>					
Urban	277	27765	21.2	16.61	26.60
Rural	336	31357	26.4	20.83	32.88
<b>Sex</b>					
Boys	397	38203	31.0	25.96	36.44
Girls	216	20919	16.5	13.18	20.57
<b>Ethnicity</b>					
Malay	516	49410	24.8	20.13	30.16
Chinese	77	7919	20.2	12.72	30.50
Indian	11	987	12.7	8.22	19.24
Bumiputera Sabah					
Bumiputera Sarawak					
Others	9	805	24.1	14.54	37.33
<b>School level</b>					
Primary school	181	19943	20.9	14.49	29.18
Secondary school	432	39178	25.4	21.38	29.84
<b>Class</b>					
Standard 4	51	5945	18.8	9.68	33.47
Standard 5	60	5598	17.6	13.78	22.27
Standard 6	70	8400	26.1	16.15	39.43
Form 1	79	6228	20.2	15.50	25.92
Form 2	78	7338	24.2	18.97	30.39
Form 3	105	10450	33.5	23.27	45.48
Form 4	99	7774	25.7	18.65	34.26
Form 5	71	7388	23.2	15.88	32.69
<b>School session</b>					
Morning session	464	44517	25.7	20.88	31.17
Evening session	70	5918	21.7	18.21	25.59
Morning and evening session	78	8614	17.6	13.99	21.87
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	37	3297	20.7	13.22	30.81
Normal ( $\geq-2sd - \leq+1sd$ )	420	40929	26.2	22.14	30.70
Overweight ( $>+1sd - \leq+2sd$ )	74	6826	17.7	12.84	24.00
Obese ( $>+2sd$ )	82	8071	20.8	15.79	26.91
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	49	4959	25.5	17.87	35.11
Normal ( $\geq-2sd$ )	564	54163	23.5	19.77	27.74

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.20 : Type of drinks usually bring to school among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Type of drinks									
	Plain water					Flavoured water/ packed drink/ syrup drink/ tea/ coffee/ Milo				
	Count	Estimated Population	Percentage (%)	95% CI		Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	1644	166932	87.6	83.26	90.91	204	21367	11.2	9.05	13.81
<b>Locality of school</b>										
Urban	899	92382	89.4	83.97	93.12	115	12476	12.1	9.34	15.47
Rural	745	74550	85.5	78.48	90.44	89	8891	10.2	7.20	14.24
<b>Sex</b>										
Boys	713	69978	82.2	75.53	87.39	110	10953	12.9	10.06	16.32
Girls	931	96954	91.9	89.25	93.95	94	10415	9.9	7.36	13.13
<b>Ethnicity</b>										
Malay	1259	128498	85.9	81.29	89.45	172	18045	12.1	9.82	14.72
Chinese	293	29764	95.1	88.29	98.00	25	2577	8.2	4.93	13.42
Indian	62	5896	87.3	71.48	94.93	4	407	6.0	2.54	13.59
Bumiputera Sabah	2	229	100.0	100.00	100.00					
Bumiputera Sarawak	1	104	100.0	100.00	100.00					
Others	27	2442	96.6	83.14	99.40	3	338	13.4	2.14	52.19
<b>School level</b>										
Primary school	492	61337	81.4	74.69	86.59	93	11427	15.2	13.52	16.95
Secondary school	1152	105595	91.7	88.63	93.93	111	9940	8.6	6.57	11.25
<b>Class</b>										
Standard 4	174	20188	79.2	63.64	89.19	30	3138	12.3	6.51	22.05
Standard 5	184	20531	78.5	71.05	84.41	39	4661	17.8	12.20	25.28
Standard 6	134	20617	86.9	81.54	90.88	24	3628	15.3	10.58	21.60
Form 1	282	21924	89.2	82.67	93.42	30	2441	9.9	7.03	13.85
Form 2	225	20933	91.2	84.41	95.21	19	1735	7.6	4.91	11.48
Form 3	181	19051	91.7	81.74	96.45	18	1791	8.6	4.04	17.43
Form 4	267	21244	94.5	88.72	97.37	25	1993	8.9	5.17	14.77
Form 5	197	22442	92.0	86.44	95.38	19	1980	8.1	4.52	14.14
<b>School session</b>										
Morning session	1104	112722	87.6	82.26	91.52	145	15257	11.9	9.35	14.93
Evening session	227	18722	87.5	79.18	92.84	24	2077	9.7	6.88	13.53
Morning and evening session	311	35307	87.4	83.03	90.84	35	4034	10.0	7.55	13.11
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	108	11063	87.4	81.75	91.52	18	1884	14.9	10.38	20.89
Normal (≥-2sd - ≤+1sd)	1002	101423	88.0	82.50	91.97	120	12621	11.0	8.70	13.71
Overweight (>+1sd - ≤+2sd)	271	27318	86.3	79.98	90.85	33	3455	10.9	7.04	16.54
Obese (>+2sd)	261	26894	87.5	83.12	90.93	32	3301	10.7	7.54	15.09
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	123	12724	88.7	79.64	93.98	11	1231	8.6	4.48	15.81
Normal (≥-2sd)	1520	154067	87.5	83.20	90.80	193	20136	11.4	9.26	14.04

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.20 : Type of drinks usually bring to school among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Type of drinks									
	Carbonated drink					Milk/ cultured drink				
	Count	Estimated Population	Percentage (%)	95% CI		Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	34	3318	1.7	1.12	2.70	75	7111	3.7	2.70	5.13
<b>Locality of school</b>										
Urban	16	1585	1.5	0.87	2.68	35	3452	3.3	2.24	4.96
Rural	18	1733	2.0	1.03	3.80	40	3658	4.2	2.56	6.80
<b>Sex</b>										
Boys	23	2225	2.6	1.62	4.20	41	3747	4.4	3.11	6.19
Girls	11	1093	1.0	0.45	2.38	34	3364	3.2	1.87	5.40
<b>Ethnicity</b>										
Malay	28	2757	1.8	1.17	2.88	67	6323	4.2	3.14	5.67
Chinese	3	293	0.9	0.29	2.93	5	478	1.5	0.80	2.89
Indian	3	267	4.0	1.01	14.24	3	309	4.6	1.15	16.47
Bumiputera Sabah										
Bumiputera Sarawak										
Others										
<b>School level</b>										
Primary school	11	1177	1.6	0.64	3.76	33	3394	4.5	3.22	6.26
Secondary school	23	2141	1.9	1.16	2.97	42	3717	3.2	1.93	5.33
<b>Class</b>										
Standard 4	9	948	3.7	1.41	9.44	15	1450	5.7	2.92	10.78
Standard 5	2	229	0.9	0.26	2.93	16	1664	6.4	3.41	11.55
Standard 6						2	280	1.2	0.38	3.59
Form 1	8	667	2.7	1.15	6.30	15	1161	4.7	3.16	7.01
Form 2	4	360	1.6	0.52	4.62	9	835	3.6	1.48	8.65
Form 3	5	555	2.7	1.05	6.63	10	964	4.6	1.67	12.21
Form 4	4	335	1.5	0.59	3.73	5	414	1.8	0.72	4.61
Form 5	2	223	0.9	0.23	3.60	3	343	1.4	0.35	5.49
<b>School session</b>										
Morning session	25	2532	2.0	1.17	3.30	47	4356	3.4	2.28	4.99
Evening session	7	604	2.8	1.20	6.48	8	634	3.0	1.82	4.80
Morning and evening session	2	182	0.4	0.09	2.18	20	2120	5.3	2.97	9.11
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	3	276	2.2	0.71	6.45	1	142	1.1	0.16	7.33
Normal (≥-2sd - ≤+1sd)	20	1990	1.7	0.94	3.15	48	4528	3.9	2.80	5.48
Overweight (>+1sd - ≤+2sd)	4	325	1.0	0.27	3.82	12	1199	3.8	2.35	6.06
Obese (>+2sd)	7	727	2.4	1.17	4.71	14	1241	4.0	2.08	7.70
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	4	377	2.6	1.04	6.49	6	560	3.9	1.43	10.19
Normal (≥-2sd)	30	2941	1.7	1.08	2.58	69	6551	3.7	2.74	5.03

Table 3.4.20 : Type of drinks usually bring to school among adolescents by socio-demographic characteristics and nutritional status

Characteristics	Type of drinks				
	Count	Estimated Population	Others Percentage (%)	95% CI	
				Lower	Upper
<b>Kedah</b>	19	2111	1.1	0.47	2.56
<b>Locality of school</b>					
Urban	10	1230	1.2	0.30	4.64
Rural	9	881	1.0	0.56	1.82
<b>Sex</b>					
Boys	10	943	1.1	0.44	2.75
Girls	9	1169	1.1	0.44	2.75
<b>Ethnicity</b>					
Malay	8	846	0.6	0.29	1.11
Chinese	8	1021	3.3	0.87	11.49
Indian	2	159	2.3	0.51	10.17
Bumiputera Sabah					
Bumiputera Sarawak					
Others	1	86	3.4	0.60	16.86
<b>School level</b>					
Primary school	10	1280	1.7	0.48	5.84
Secondary school	9	832	0.7	0.35	1.49
<b>Class</b>					
Standard 4	2	233	0.9	0.11	7.46
Standard 5	6	782	3.0	1.22	7.15
Standard 6	2	265	1.1	0.17	6.93
Form 1	3	227	0.9	0.28	2.98
Form 2	3	262	1.1	0.40	3.24
Form 3	1	119	0.6	0.08	4.14
Form 4	1	86	0.4	0.05	3.12
Form 5	1	137	0.6	0.07	4.33
<b>School session</b>					
Morning session	9	991	0.8	0.22	2.67
Evening session	5	453	2.1	0.75	5.81
Morning and evening session	5	667	1.7	0.79	3.41
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	1	86	0.7	0.09	5.11
Normal (≥-2sd - ≤+1sd)	12	1356	1.2	0.42	3.23
Overweight (>+1sd - ≤+2sd)	3	293	0.9	0.27	3.16
Obese (>+2sd)	3	377	1.2	0.30	4.80
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	1	141	1.0	0.13	7.16
Normal (≥-2sd)	18	1971	1.1	0.44	2.79



## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.21 : Spending of pocket money among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Spending of pocket money									
	Buy food/drinks					Buy stationery				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	1634	164402	67.1	64.74	69.41	99	9946	4.1	3.17	5.18
<b>Locality of school</b>										
Urban	841	86229	67.3	64.28	70.09	51	5296	4.1	2.74	6.17
Rural	793	78173	67.0	63.14	70.57	48	4650	4.0	3.10	5.11
<b>Sex</b>										
Boys	834	81906	67.9	64.01	71.53	50	4812	4.0	2.98	5.32
Girls	800	82495	66.4	63.92	68.73	49	5134	4.1	2.97	5.72
<b>Ethnicity</b>										
Malay	1317	132439	67.4	64.33	70.33	75	7431	3.8	2.78	5.12
Chinese	246	25445	67.8	60.07	74.74	19	2010	5.4	3.79	7.53
Indian	43	4004	55.0	42.09	67.21	5	505	6.9	2.66	16.84
Bumiputera Sabah	1	100	43.7	3.60	94.19					
Bumiputera Sarawak										
Others	27	2415	72.4	52.94	86.01					
<b>School level</b>										
Primary school	542	64094	68.9	66.53	71.14	32	3972	4.3	3.06	5.93
Secondary school	1092	100308	66.0	62.58	69.32	67	5974	3.9	2.79	5.52
<b>Class</b>										
Standard 4	193	21820	71.1	66.43	75.39	16	1788	5.8	3.22	10.31
Standard 5	193	20454	65.9	62.61	69.01	7	841	2.7	1.53	4.74
Standard 6	156	21820	69.7	62.46	76.02	9	1342	4.3	1.60	11.01
Form 1	246	19397	64.4	57.86	70.41	15	1192	4.0	2.23	6.92
Form 2	209	19545	65.2	56.04	73.29	23	2072	6.9	3.42	13.47
Form 3	197	20332	65.7	59.85	71.12	16	1595	5.2	3.27	8.03
Form 4	249	19693	66.2	61.42	70.68	9	691	2.3	1.39	3.86
Form 5	191	21340	68.6	63.00	73.78	4	424	1.4	0.52	3.51
<b>School session</b>										
Morning session	1150	115594	67.9	64.95	70.69	59	5883	3.5	2.40	4.95
Evening session	200	16769	62.5	54.78	69.71	21	1792	6.7	4.10	10.71
Morning and evening session	281	31786	66.8	62.38	70.86	19	2271	4.8	3.31	6.82
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	110	11113	71.0	62.30	78.42	3	319	2.0	0.59	6.74
Normal (≥-2sd - ≤+1sd)	1037	103937	67.9	65.01	70.61	63	6170	4.0	3.02	5.36
Overweight (>+1sd - ≤+2sd)	251	25289	66.7	61.43	71.67	11	1174	3.1	1.58	6.00
Obese (>+2sd)	234	23863	62.9	57.87	67.66	21	2141	5.6	3.66	8.60
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	122	12322	64.6	56.99	71.53	11	1188	6.2	4.29	8.96
Normal (≥-2sd)	1512	152080	67.4	64.81	69.83	87	8617	3.8	2.87	5.06

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.21 : Spending of pocket money among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Spending of pocket money									
	Saving					Others				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	593	59926	24.5	22.27	26.80	108	10681	4.4	3.37	5.63
<b>Locality of school</b>										
Urban	301	31141	24.3	21.48	27.33	56	5552	4.3	3.10	6.01
Rural	292	28784	24.7	21.32	28.33	52	5129	4.4	2.94	6.52
<b>Sex</b>										
Boys	282	27539	22.8	19.79	26.17	65	6395	5.3	3.99	7.02
Girls	311	32387	26.1	23.39	28.91	43	4286	3.4	2.41	4.90
<b>Ethnicity</b>										
Malay	478	48639	24.8	22.17	27.53	80	7990	4.1	2.94	5.61
Chinese	79	7801	20.8	15.10	27.95	23	2250	6.0	4.04	8.81
Indian	27	2629	36.1	26.44	47.02	2	147	2.0	0.27	13.43
Bumiputera Sabah	1	129	56.3	5.81	96.40					
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	8	727	21.8	10.46	40.02	2	191	5.7	1.62	18.28
<b>School level</b>										
Primary school	177	22091	23.7	20.28	27.59	24	2894	3.1	2.00	4.80
Secondary school	416	37835	24.9	22.13	27.90	84	7786	5.1	3.91	6.69
<b>Class</b>										
Standard 4	54	6317	20.6	15.82	26.34	7	759	2.5	0.95	6.27
Standard 5	75	8357	26.9	23.87	30.20	12	1395	4.5	2.42	8.19
Standard 6	48	7417	23.7	16.23	33.20	5	740	2.4	0.95	5.74
Form 1	102	7866	26.1	21.56	31.23	21	1674	5.6	3.29	9.23
Form 2	79	7353	24.5	18.50	31.72	11	1026	3.4	1.64	6.99
Form 3	81	8348	27.0	21.60	33.13	6	669	2.2	0.84	5.45
Form 4	90	7171	24.1	20.88	27.67	26	2190	7.4	4.44	11.97
Form 5	64	7096	22.8	18.53	27.78	20	2228	7.2	4.25	11.85
<b>School session</b>										
Morning session	405	41002	24.1	21.72	26.61	77	7796	4.6	3.30	6.33
Evening session	85	7048	26.3	20.51	33.03	15	1200	4.5	3.00	6.63
Morning and evening session	103	11875	24.9	21.47	28.77	16	1684	3.5	2.22	5.60
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	40	3854	24.6	17.77	33.07	4	363	2.3	0.86	6.08
Normal (≥-2sd - ≤+1sd)	352	36047	23.5	21.21	26.04	71	6981	4.6	3.25	6.35
Overweight (>+1sd - ≤+2sd)	102	10018	26.4	20.70	33.11	14	1408	3.7	2.11	6.45
Obese (>+2sd)	99	10006	26.4	22.11	31.13	19	1929	5.1	3.14	8.13
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	44	4890	25.6	19.32	33.17	7	674	3.5	1.79	6.87
Normal (≥-2sd)	549	55035	24.4	22.01	26.92	101	10006	4.4	3.39	5.77

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.22 : Prevalence of eating out in a week among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Frequency of eating out in a week									
	7 times or more					4 to 6 times				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	108	10784	4.3	2.98	6.21	339	33732	13.5	11.72	15.51
<b>Locality of school</b>										
Urban	73	7754	5.9	4.11	8.47	195	19796	15.1	12.80	17.79
Rural	35	3030	2.5	1.52	4.23	144	13937	11.7	9.51	14.35
<b>Sex</b>										
Boys	66	6264	5.1	3.40	7.47	204	19857	16.0	13.93	18.43
Girls	42	4520	3.6	2.35	5.43	135	13875	11.0	9.14	13.19
<b>Ethnicity</b>										
Malay	66	6383	3.2	2.36	4.34	265	26569	13.3	11.15	15.87
Chinese	39	4060	10.4	8.32	12.86	52	5070	13.0	9.41	17.56
Indian	3	341	4.4	1.12	15.85	9	915	11.8	4.13	29.39
Bumiputera Sabah										
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others						12	1075	32.2	16.85	52.78
<b>School level</b>										
Primary school	46	5003	5.2	2.69	9.99	125	14265	15.0	13.19	16.93
Secondary school	62	5781	3.7	2.64	5.29	214	19467	12.6	10.13	15.57
<b>Class</b>										
Standard 4	20	1819	5.8	3.20	10.20	59	6779	21.5	13.19	33.06
Standard 5	13	1386	4.4	1.67	10.86	39	4047	12.7	9.02	17.60
Standard 6	13	1798	5.6	1.96	15.06	27	3439	10.8	5.68	19.44
Form 1	14	1120	3.6	1.76	7.32	59	4667	15.1	10.67	20.95
Form 2	10	939	3.1	1.36	6.85	48	4479	14.7	10.48	20.33
Form 3	7	765	2.5	1.35	4.40	28	2962	9.5	5.55	15.74
Form 4	17	1411	4.7	2.78	7.77	39	3002	9.9	6.53	14.85
Form 5	14	1545	4.9	2.17	10.54	40	4358	13.7	9.87	18.73
<b>School session</b>										
Morning session	79	7956	4.6	2.96	7.06	243	24088	13.9	11.63	16.55
Evening session	14	1111	4.1	2.33	7.00	44	3735	13.7	10.03	18.39
Morning and evening session	15	1717	3.5	1.61	7.41	52	5909	12.0	9.09	15.78
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	6	601	3.8	1.68	8.24	24	2192	13.7	7.73	23.25
Normal (≥-2sd - ≤+1sd)	61	5913	3.8	2.39	5.93	206	20488	13.1	11.06	15.45
Overweight (>+1sd - ≤+2sd)	18	1804	4.7	3.00	7.22	57	5656	14.7	11.23	18.91
Obese (>+2sd)	23	2466	6.4	3.10	12.73	52	5396	14.0	10.50	18.39
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	2	209	1.1	0.23	4.88	22	2304	11.7	6.98	19.10
Normal (≥-2sd)	106	10575	4.6	3.24	6.49	317	31429	13.7	11.86	15.68

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.22 : Prevalence of eating out in a week among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Frequency of eating out in a week									
	1 to 3 times					Never				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	1791	180694	72.3	68.65	75.72	246	24632	9.9	8.22	11.78
<b>Locality of school</b>										
Urban	886	90627	69.2	63.95	74.09	122	12698	9.7	7.45	12.54
Rural	905	90066	75.7	72.06	79.01	124	11935	10.0	7.81	12.79
<b>Sex</b>										
Boys	896	88358	71.4	66.71	75.69	98	9250	7.5	5.44	10.19
Girls	895	92335	73.2	69.65	76.51	148	15382	12.2	9.92	14.90
<b>Ethnicity</b>										
Malay	1469	148587	74.6	71.29	77.57	179	17750	8.9	7.25	10.89
Chinese	240	24489	62.6	57.61	67.27	52	5526	14.1	10.59	18.57
Indian	61	5684	73.4	62.47	82.07	9	803	10.4	4.84	20.81
Bumiputera Sabah	1	100	43.7	3.60	94.19	1	129	56.3	5.81	96.40
Bumiputera Sarawak										
Others	20	1833	55.0	33.88	74.46	5	425	12.8	5.99	25.13
<b>School level</b>										
Primary school	550	67170	70.4	62.16	77.57	74	8913	9.3	6.28	13.69
Secondary school	1241	113524	73.5	70.39	76.36	172	15719	10.2	8.57	12.04
<b>Class</b>										
Standard 4	189	21703	68.9	55.31	79.79	9	1221	3.9	2.35	6.32
Standard 5	207	22211	69.7	59.22	78.53	36	4204	13.2	7.78	21.51
Standard 6	154	23256	72.7	53.65	85.99	29	3488	10.9	6.06	18.86
Form 1	285	22360	72.4	65.28	78.50	36	2746	8.9	5.59	13.84
Form 2	234	21768	71.6	65.96	76.68	34	3206	10.5	7.45	14.74
Form 3	232	23767	76.1	71.47	80.19	36	3735	12.0	9.25	15.33
Form 4	279	22130	73.3	69.61	76.69	45	3648	12.1	9.25	15.63
Form 5	211	23498	73.9	66.64	80.10	21	2385	7.5	5.38	10.37
<b>School session</b>										
Morning session	1236	124570	71.9	67.38	76.07	164	16577	9.6	7.64	11.92
Evening session	243	20259	74.2	68.69	79.03	26	2200	8.1	5.80	11.09
Morning and evening session	310	35684	72.7	65.38	78.95	55	5782	11.8	7.58	17.85
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	121	12228	76.7	66.25	84.61	9	930	5.8	2.59	12.59
Normal (≥-2sd - ≤+1sd)	1126	113704	72.7	69.28	75.88	163	16284	10.4	8.56	12.61
Overweight (>+1sd - ≤+2sd)	274	27738	71.9	67.22	76.13	36	3384	8.8	5.62	13.45
Obese (>+2sd)	268	26775	69.4	62.30	75.70	37	3941	10.2	7.74	13.37
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	149	15498	79.0	70.10	85.83	17	1599	8.2	5.50	11.93
Normal (≥-2sd)	1641	165055	71.7	68.15	75.06	229	23033	10.0	8.33	11.99

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.23 : Prevalence of consuming snack food in a week among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

	7 times or more					4 to 6 times				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	170	17370	7.0	5.94	8.16	642	64792	26.0	22.77	29.52
<b>Locality of school</b>										
Urban	86	8887	6.8	5.35	8.62	320	32428	24.8	20.44	29.83
Rural	84	8483	7.2	5.82	8.76	322	32364	27.3	23.03	31.98
<b>Sex</b>										
Boys	90	8515	6.9	5.71	8.33	329	33238	27.0	23.16	31.12
Girls	80	8855	7.0	5.46	9.03	313	31554	25.1	21.51	28.99
<b>Ethnicity</b>										
Malay	131	13302	6.7	5.53	8.09	522	53046	26.7	22.87	30.93
Chinese	29	3073	7.8	5.68	10.74	85	8461	21.6	18.10	25.57
Indian	4	437	5.6	1.65	17.54	20	1911	24.7	17.11	34.21
Bumiputera Sabah						1	100	43.7	3.60	94.19
Bumiputera Sarawak										
Others	6	558	16.7	7.51	33.23	13	1170	35.1	23.09	49.34
<b>School level</b>										
Primary school	67	7707	8.1	6.33	10.35	179	22265	23.4	16.63	31.99
Secondary school	103	9663	6.3	5.24	7.48	463	42527	27.6	25.54	29.71
<b>Class</b>										
Standard 4	21	2178	6.9	3.34	13.86	54	6285	20.0	11.26	33.09
Standard 5	34	3825	12.0	8.03	17.58	66	7319	23.0	19.56	26.80
Standard 6	12	1703	5.4	3.35	8.49	59	8661	27.3	15.81	42.86
Form 1	14	1165	3.8	2.16	6.60	88	6791	22.2	18.18	26.72
Form 2	24	2246	7.4	5.32	10.18	106	9891	32.6	29.41	35.86
Form 3	13	1337	4.3	2.77	6.56	93	9559	30.6	25.93	35.72
Form 4	27	2151	7.1	4.16	11.96	101	8031	26.6	21.99	31.81
Form 5	25	2764	8.7	5.61	13.24	75	8256	26.0	20.06	32.92
<b>School session</b>										
Morning session	115	11133	6.4	5.22	7.93	439	44305	25.7	21.32	30.53
Evening session	17	1533	5.6	3.80	8.26	91	7530	27.6	22.20	33.85
Morning and evening session	38	4704	9.6	6.78	13.42	112	12956	26.4	23.80	29.28
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	15	1363	8.6	4.89	14.64	48	4810	30.3	24.97	36.22
Normal (≥-2sd - ≤+1sd)	109	11264	7.2	6.12	8.50	422	42491	27.2	23.49	31.32
Overweight (>+1sd - ≤+2sd)	24	2385	6.2	3.69	10.35	86	8706	22.8	19.27	26.70
Obese (>+2sd)	22	2358	6.1	3.69	9.92	86	8785	22.7	17.81	28.49
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	11	973	5.0	2.70	8.93	49	5261	26.8	20.50	34.27
Normal (≥-2sd)	159	16397	7.1	6.04	8.44	593	59531	25.9	22.85	29.31

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.23 : Prevalence of consuming snack food in a week among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Frequency of consuming snack foods per week									
	1-3 times					Never				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	1561	156764	62.9	59.60	66.11	106	10256	4.1	2.73	6.16
<b>Locality of school</b>										
Urban	812	83255	63.8	58.70	68.57	55	5970	4.6	2.65	7.78
Rural	749	73509	62.0	57.97	65.79	51	4287	3.6	2.02	6.39
<b>Sex</b>										
Boys	780	75952	61.6	57.95	65.12	61	5599	4.5	2.83	7.20
Girls	781	80812	64.2	60.18	68.03	45	4658	3.7	2.47	5.52
<b>Ethnicity</b>										
Malay	1251	125713	63.3	59.29	67.13	70	6548	3.3	2.21	4.89
Chinese	241	24630	62.9	56.73	68.65	28	3001	7.7	4.50	12.75
Indian	54	5048	65.2	55.43	73.83	4	348	4.5	1.69	11.36
Bumiputera Sabah						1	129	56.3	5.81	96.40
Bumiputera Sarawak										
Others	15	1374	41.2	26.96	57.11	3	232	6.9	2.06	20.95
<b>School level</b>										
Primary school	490	59141	62.3	54.15	69.77	57	5845	6.2	3.38	10.95
Secondary school	1071	97623	63.3	61.21	65.34	49	4411	2.9	2.03	4.02
<b>Class</b>										
Standard 4	189	21780	69.4	55.79	80.34	12	1127	3.6	1.36	9.16
Standard 5	168	17945	56.3	48.68	63.72	27	2759	8.7	5.98	12.40
Standard 6	133	19415	61.2	49.61	71.60	18	1959	6.2	2.58	14.03
Form 1	274	21495	70.1	64.29	75.40	15	1194	3.9	1.61	9.14
Form 2	190	17695	58.2	54.45	61.93	6	552	1.8	1.04	3.15
Form 3	190	19572	62.7	59.36	65.87	7	762	2.4	1.09	5.35
Form 4	241	19117	63.3	57.57	68.75	11	881	2.9	1.76	4.81
Form 5	176	19744	62.1	54.47	69.21	10	1022	3.2	1.55	6.54
<b>School session</b>										
Morning session	1089	110015	63.7	59.02	68.14	76	7252	4.2	2.56	6.83
Evening session	205	17110	62.8	56.42	68.80	13	1064	3.9	1.57	9.39
Morning and evening session	264	29385	60.0	55.81	64.02	17	1940	4.0	2.46	6.31
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	91	9140	57.6	49.27	65.48	5	561	3.5	1.35	8.92
Normal (≥-2sd - ≤+1sd)	960	96285	61.7	57.55	65.68	63	6015	3.9	2.48	5.95
Overweight (>+1sd - ≤+2sd)	258	25910	67.8	63.32	71.95	14	1224	3.2	1.60	6.30
Obese (>+2sd)	249	25089	64.8	59.93	69.47	24	2457	6.4	3.39	11.58
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	124	12792	65.2	58.03	71.79	6	584	3.0	1.29	6.71
Normal (≥-2sd)	1436	143831	62.7	59.52	65.75	100	9672	4.2	2.77	6.36

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.24 : Type of snack foods usually consumed among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Type of snack foods									
	Bread/ bun/ sandwich					French fries				
	Count	Estimated Population	Percentage (%)	95% CI		Count	Estimated Population	Percentage (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	872	85569	34.2	30.49	38.21	371	36947	14.8	12.90	16.90
<b>Locality of school</b>										
Urban	448	44484	34.0	28.33	40.15	210	21404	16.4	14.14	18.85
Rural	424	41085	34.5	29.89	39.46	1010	100227	13.1	10.60	15.98
<b>Sex</b>										
Boys	470	45363	36.7	32.47	41.04	182	17885	14.5	11.85	17.51
Girls	402	40206	31.9	27.90	36.14	189	19062	15.1	12.38	18.33
<b>Ethnicity</b>										
Malay	688	67673	34.0	29.91	38.27	301	29901	15.0	12.90	17.39
Chinese	140	13885	35.4	26.53	45.39	51	5318	13.6	9.49	18.99
Indian	31	2820	36.4	23.95	51.03	12	1061	13.7	8.93	20.47
Bumiputera Sabah	1	100	43.7	3.60	94.19					
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	12	1091	32.7	21.71	46.03	6	563	16.9	7.29	34.39
<b>School level</b>										
Primary school	208	24539	25.8	23.19	28.53	122	14085	14.8	11.17	19.32
Secondary school	664	61030	39.5	37.03	41.95	249	22862	14.8	12.85	16.95
<b>Class</b>										
Standard 4	73	7748	24.6	15.91	35.89	46	4839	15.3	9.40	24.02
Standard 5	84	9074	28.5	22.46	35.40	35	3709	11.6	7.53	17.58
Standard 6	51	7716	24.2	16.44	34.22	41	5537	17.4	13.11	22.70
Form 1	137	10790	34.9	30.93	39.15	67	5224	16.9	12.95	21.78
Form 2	116	10697	35.1	27.36	43.70	41	3801	12.5	8.64	17.67
Form 3	120	12443	39.8	35.05	44.83	32	3181	10.2	6.92	14.75
Form 4	158	12577	41.6	36.55	46.74	58	4685	15.5	11.98	19.78
Form 5	133	14522	45.7	40.77	50.70	51	5970	18.8	14.43	24.08
<b>School session</b>										
Morning session	621	61820	35.7	31.31	40.27	266	26900	15.5	13.41	17.89
Evening session	108	8799	32.4	24.90	40.83	41	3451	12.7	9.33	17.03
Morning and evening session	142	14877	30.3	22.70	39.17	63	6487	13.2	9.86	17.49
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	50	5030	31.8	24.24	40.50	23	2194	13.9	9.15	20.50
Normal (≥-2sd - ≤+1sd)	552	53244	34.0	29.53	38.70	244	24785	15.8	13.27	18.73
Overweight (>+1sd - ≤+2sd)	126	12401	32.4	27.48	37.70	50	4514	11.8	8.36	16.36
Obese (>+2sd)	143	14801	38.3	32.79	44.04	53	5347	13.8	11.00	17.23
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	54	5297	27.0	20.93	34.09	31	3186	16.2	11.55	22.37
Normal (≥-2sd)	818	80272	34.9	31.13	38.83	340	33760	14.7	12.79	16.78

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.24 : Type of snack foods usually consumed among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Type of snack foods									
	Biscuit					Fruits				
	Count	Estimated Population	Percentage (%)	95% CI		Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	590	59611	23.9	20.18	27.97	473	46986	18.8	15.88	22.12
<b>Locality of school</b>										
Urban	335	34560	26.4	22.05	31.28	262	27024	20.7	15.90	26.37
Rural	255	25050	21.0	15.97	27.21	211	19961	16.8	14.79	18.95
<b>Sex</b>										
Boys	252	25072	20.3	16.94	24.04	232	22017	17.8	14.63	21.46
Girls	338	34539	27.4	22.47	32.92	241	24969	19.8	16.19	23.98
<b>Ethnicity</b>										
Malay	436	44079	22.1	18.16	26.66	318	31578	15.8	14.18	17.67
Chinese	127	12957	33.0	27.02	39.65	119	12029	30.7	27.45	34.07
Indian	16	1647	21.3	12.78	33.25	20	1989	25.7	13.52	43.31
Bumiputera Sabah	1	100	43.7	3.60	94.19	1	129	56.3	5.81	96.40
Bumiputera Sarawak										
Others	10	828	24.8	14.88	38.45	15	1262	37.9	18.53	62.00
<b>School level</b>										
Primary school	168	20948	22.0	16.67	28.44	155	18334	19.3	13.67	26.42
Secondary school	422	38663	25.0	20.26	30.42	318	28652	18.5	15.59	21.88
<b>Class</b>										
Standard 4	74	8547	27.1	13.69	46.54	59	6644	21.1	16.43	26.57
Standard 5	49	5396	16.9	12.12	23.18	64	7003	22.0	12.97	34.77
Standard 6	45	7005	22.0	17.59	27.16	32	4686	14.7	8.14	25.17
Form 1	91	6919	22.4	15.00	32.07	74	5708	18.5	14.18	23.71
Form 2	93	8657	28.4	21.26	36.82	67	6196	20.3	15.02	26.92
Form 3	95	9717	31.1	25.02	37.94	51	5390	17.3	11.75	24.63
Form 4	81	6435	21.3	16.15	27.47	80	6341	21.0	16.14	26.74
Form 5	62	6935	21.8	15.42	29.93	46	5017	15.8	11.05	22.04
<b>School session</b>										
Morning session	392	40189	23.2	19.33	27.54	335	33770	19.5	15.97	23.55
Evening session	90	7509	27.6	20.29	36.36	73	5953	21.9	15.43	30.09
Morning and evening session	108	11913	24.3	17.78	32.19	65	7263	14.8	11.91	18.23
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	45	4464	28.2	19.12	39.58	30	2721	17.2	11.70	24.60
Normal (≥-2sd - ≤+1sd)	388	38877	24.8	20.88	29.19	279	28126	17.9	14.64	21.80
Overweight (>+1sd - ≤+2sd)	86	8968	23.4	18.19	29.61	87	8588	22.4	16.39	29.89
Obese (>+2sd)	71	7301	18.9	15.22	23.16	77	7550	19.5	15.23	24.66
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	55	5583	28.5	21.82	36.21	36	3638	18.6	11.77	27.99
Normal (≥-2sd)	535	54028	23.5	19.67	27.76	437	43348	18.8	15.97	22.08



## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.24 : Type of snack foods usually consumed among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Type of snack foods									
	Nuts					Fish cracker				
	Count	Estimated Population	Percentage (%)	95% CI		Count	Estimated Population	Percentage (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	88	9381	3.8	2.72	5.17	354	34896	14.0	11.43	16.96
<b>Locality of school</b>										
Urban	38	3832	2.9	1.97	4.33	175	17555	13.4	9.30	18.97
Rural	50	5549	4.7	3.11	6.93	179	17341	14.6	12.44	16.98
<b>Sex</b>										
Boys	44	4971	4.0	2.55	6.28	173	16769	13.5	11.10	16.43
Girls	44	4410	3.5	2.53	4.82	181	18128	14.4	11.34	18.06
<b>Ethnicity</b>										
Malay	76	8148	4.1	2.92	5.70	311	30744	15.4	13.35	17.76
Chinese	7	785	2.0	0.80	4.90	23	2245	5.7	3.04	10.51
Indian	4	360	4.6	1.97	10.57	14	1305	16.9	9.30	28.61
Bumiputera Sabah										
Bumiputera Sarawak										
Others	1	88	2.6	0.50	12.69	6	603	18.1	8.41	34.66
<b>School level</b>										
Primary school	29	3938	4.1	2.16	7.79	97	11880	12.5	8.28	18.37
Secondary school	59	5443	3.5	2.62	4.71	257	23016	14.9	12.06	18.23
<b>Class</b>										
Standard 4	13	1353	4.3	2.13	8.43	16	2147	6.8	4.14	11.00
Standard 5	4	389	1.2	0.62	2.41	53	5551	17.4	9.19	30.56
Standard 6	12	2195	6.9	2.37	18.43	28	4182	13.1	6.98	23.35
Form 1	15	1146	3.7	1.74	7.73	52	4062	13.1	8.18	20.46
Form 2	13	1240	4.1	2.38	6.88	39	3616	11.9	8.16	16.94
Form 3	15	1532	4.9	2.27	10.27	59	5833	18.7	13.28	25.61
Form 4	10	773	2.6	1.36	4.75	68	5305	17.5	14.26	21.36
Form 5	6	752	2.4	0.99	5.53	39	4201	13.2	9.14	18.73
<b>School session</b>										
Morning session	59	5981	3.5	2.52	4.70	250	23929	13.8	10.65	17.71
Evening session	9	721	2.6	1.24	5.56	34	2875	10.6	6.03	17.88
Morning and evening session	20	2679	5.5	2.77	10.49	70	8092	16.5	13.86	19.49
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	1	75	0.5	0.06	3.84	28	2963	18.7	13.18	25.94
Normal ( $\geq$ -2sd - $\leq$ +1sd)	55	5702	3.6	2.64	4.99	218	21456	13.7	10.74	17.29
Overweight ( $>$ +1sd - $\leq$ +2sd)	19	2124	5.5	3.32	9.13	53	5202	13.6	10.11	18.01
Obese ( $>$ +2sd)	13	1481	3.8	1.89	7.60	55	5276	13.6	10.19	18.02
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	10	1171	6.0	2.89	11.92	30	3018	15.4	10.21	22.54
Normal ( $\geq$ -2sd)	78	8210	3.6	2.66	4.77	324	31879	13.9	11.23	16.97

Table 3.4.24 : Type of snack foods usually consumed among adolescents by socio-demographic characteristics and nutritional status

Characteristics	Type of snack foods				
	Count	Estimated Population	Percentage (%)	Ice cream	
				Lower	Upper
<b>Kedah</b>	310	32301	12.9	11.21	14.86
<b>Locality of school</b>					
Urban	156	16341	12.5	10.04	15.44
Rural	154	15960	13.4	11.24	15.92
<b>Sex</b>					
Boys	129	12684	10.2	8.36	12.50
Girls	181	19617	15.6	12.91	18.62
<b>Ethnicity</b>					
Malay	237	24730	12.4	10.57	14.52
Chinese	61	6482	16.5	12.40	21.68
Indian	8	706	9.1	3.78	20.38
Bumiputera Sabah					
Bumiputera Sarawak					
Others	4	382	11.5	4.18	27.81
<b>School level</b>					
Primary school	105	13347	14.0	11.28	17.29
Secondary school	205	18954	12.3	10.24	14.60
<b>Class</b>					
Standard 4	28	3296	10.4	6.46	16.47
Standard 5	37	4128	13.0	8.13	20.03
Standard 6	40	5923	18.6	14.92	22.95
Form 1	48	3838	12.4	9.98	15.36
Form 2	41	3939	12.9	9.16	17.93
Form 3	40	4188	13.4	9.08	19.37
Form 4	52	4179	13.8	10.76	17.55
Form 5	24	2810	8.8	5.94	12.97
<b>School session</b>					
Morning session	207	20892	12.1	10.14	14.27
Evening session	40	3381	12.4	8.82	17.25
Morning and evening session	63	8028	16.4	12.39	21.28
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	27	2510	15.9	10.07	24.15
Normal ( $\geq-2sd - \leq+1sd$ )	184	19391	12.4	10.42	14.63
Overweight ( $>+1sd - \leq+2sd$ )	53	5606	14.6	10.54	19.97
Obese ( $>+2sd$ )	45	4653	12.0	9.87	14.58
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	16	1817	9.3	5.21	15.96
Normal ( $\geq-2sd$ )	293	30343	13.2	11.36	15.25

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.25 : Prevalence of snack food and/or drinks usually bought out of school area in a week among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	frequency of bought snack food and/or drink out of school area in a week									
	5 times or more					1 to 4 times				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	297	30748	12.3	9.42	15.91	1509	152891	61.2	55.20	66.83
<b>Locality of school</b>										
Urban	145	15759	12.0	7.59	18.47	755	77194	58.8	49.23	67.75
Rural	152	14989	12.6	9.64	16.38	754	75697	63.8	57.78	69.40
<b>Sex</b>										
Boys	179	18025	14.6	11.61	18.11	764	75246	60.8	54.82	66.47
Girls	118	12722	10.1	6.74	14.81	745	77645	61.5	54.71	67.93
<b>Ethnicity</b>										
Malay	263	27514	13.8	10.82	17.46	1271	129175	64.8	61.11	68.35
Chinese	23	2248	5.7	3.51	9.21	166	16825	42.9	34.29	51.94
Indian	6	540	7.0	2.91	15.78	54	5212	67.3	58.49	75.05
Bumiputera Sabah						1	100	43.7	3.60	94.19
Bumiputera Sarawak	1	104	100.0	100.00	100.00					
Others	4	342	10.3	5.60	18.07	17	1579	47.4	40.36	54.53
<b>School level</b>										
Primary school	134	15691	16.4	11.59	22.77	499	59886	62.7	48.61	74.94
Secondary school	163	15056	9.7	7.14	13.18	1010	93005	60.2	55.77	64.50
<b>Class</b>										
Standard 4	39	4318	13.6	11.89	15.61	198	22507	71.1	61.32	79.29
Standard 5	44	4836	15.1	9.64	22.96	184	19468	60.9	43.85	75.68
Standard 6	51	6538	20.5	11.47	33.90	117	17911	56.2	40.08	71.04
Form 1	47	3820	12.4	8.87	17.08	244	19196	62.3	57.51	66.89
Form 2	44	4360	14.3	7.99	24.29	183	17108	56.1	47.82	64.11
Form 3	33	3474	11.2	7.16	17.00	186	19175	61.6	54.60	68.21
Form 4	29	2276	7.5	3.98	13.76	216	17162	56.7	51.65	61.63
Form 5	10	1126	3.5	2.06	6.03	181	20364	64.1	56.83	70.71
<b>School session</b>										
Morning session	207	21225	12.2	8.80	16.71	1035	104503	60.2	53.35	66.59
Evening session	48	4290	15.8	8.83	26.55	180	14985	55.1	47.39	62.49
Morning and evening session	41	5161	10.6	7.43	14.87	292	33222	68.2	62.99	72.91
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	19	2061	12.9	7.67	20.95	105	10733	67.3	58.45	75.05
Normal (≥-2sd - ≤+1sd)	176	18061	11.6	8.68	15.22	943	95287	61.0	54.60	66.96
Overweight (>+1sd - ≤+2sd)	53	5655	14.7	10.16	20.75	230	23134	60.0	53.62	66.13
Obese (>+2sd)	48	4863	12.5	8.74	17.67	230	23596	60.8	53.36	67.82
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	21	2278	11.6	6.29	20.47	123	12911	65.8	57.77	73.08
Normal (≥-2sd)	276	28469	12.4	9.52	15.92	1385	139839	60.8	54.66	66.53

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.25 : Prevalence of snack food and/or drinks usually bought out of school area in a week among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	snack food and/ or drinks usually bought out of school area in a week				
	Count	Estimated Population	Never Prevalence (%)	95% CI	
				Lower	Upper
<b>Kedah</b>	680	66299	26.5	19.33	35.24
<b>Locality of school</b>					
Urban	380	38321	29.2	17.75	44.06
Rural	300	27978	23.6	17.03	31.68
<b>Sex</b>					
Boys	321	30486	24.6	17.43	33.61
Girls	359	35813	28.4	20.83	37.37
<b>Ethnicity</b>					
Malay	446	42608	21.4	16.43	27.33
Chinese	195	20160	51.4	43.83	58.87
Indian	22	1991	25.7	17.67	35.83
Bumiputera Sabah	1	129	56.3	5.81	96.40
Bumiputera Sarawak					
Others	16	1411	42.3	32.40	52.95
<b>School level</b>					
Primary school	164	19916	20.9	8.08	44.14
Secondary school	516	46383	30.0	24.88	35.75
<b>Class</b>					
Standard 4	41	4818	15.2	7.36	28.87
Standard 5	68	7651	23.9	9.03	49.96
Standard 6	55	7447	23.3	8.09	51.32
Form 1	102	7789	25.3	20.68	30.53
Form 2	100	9011	29.6	19.43	42.22
Form 3	83	8462	27.2	20.55	35.04
Form 4	136	10825	35.8	29.25	42.87
Form 5	95	10296	32.4	24.97	40.81
<b>School session</b>					
Morning session	485	47997	27.6	19.28	37.90
Evening session	98	7941	29.2	18.26	43.17
Morning and evening session	97	10361	21.3	16.11	27.51
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	36	3157	19.8	11.07	32.83
Normal (≥-2sd - ≤+1sd)	438	42974	27.5	20.38	35.96
Overweight (>+1sd - ≤+2sd)	101	9742	25.3	17.18	35.56
Obese (>+2sd)	104	10334	26.6	18.98	36.01
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	46	4421	22.5	15.15	32.18
Normal (≥-2sd)	634	61878	26.9	19.60	35.66

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.26 : Type of snack food and/ or drinks usually bought out of school area among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Type of food/ drinks									
	Candy/chocolate					French fries/nugget/sausage				
	Count	Estimated Population	Percentage (%)	95% CI		Count	Estimated Population	Percentage (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	304	31420	12.6	9.59	16.31	474	48246	19.3	15.37	23.96
<b>Locality of school</b>										
Urban	110	11069	8.5	6.77	10.51	258	26883	20.5	14.17	28.78
Rural	194	20351	17.1	13.13	21.98	216	21363	18.0	14.49	22.05
<b>Sex</b>										
Boys	157	15860	12.8	9.80	16.57	241	23370	18.9	15.09	23.34
Girls	147	15560	12.3	8.92	16.82	233	24877	19.7	14.72	25.91
<b>Ethnicity</b>										
Malay	249	26076	13.1	9.67	17.47	392	40211	20.2	15.81	25.38
Chinese	40	4020	10.2	7.23	14.32	68	6647	16.9	12.61	22.38
Indian	10	920	11.9	4.72	26.84	13	1275	16.5	7.91	31.15
Bumiputera Sabah										
Bumiputera Sarawak										
Others	4	300	9.0	2.72	25.87	1	113	3.4	0.64	15.98
<b>School level</b>										
Primary school	109	13617	14.3	8.64	22.69	189	22032	23.1	17.06	30.51
Secondary school	195	17803	11.5	8.72	15.07	285	26215	17.0	12.51	22.57
<b>Class</b>										
Standard 4	39	3780	12.0	6.56	21.01	89	10374	33.0	22.01	46.21
Standard 5	33	3988	12.5	6.82	21.75	60	5605	17.5	10.57	27.68
Standard 6	37	5849	18.3	9.31	32.83	40	6052	18.9	11.01	30.59
Form 1	52	4193	13.6	8.73	20.50	68	5296	17.1	10.77	26.17
Form 2	36	3342	11.0	7.24	16.28	37	3472	11.4	7.29	17.37
Form 3	40	4064	13.0	8.92	18.60	47	4907	15.7	9.56	24.73
Form 4	32	2470	8.2	4.90	13.36	83	6783	22.5	16.76	29.43
Form 5	35	3733	11.7	7.20	18.58	50	5756	18.1	12.10	26.21
<b>School session</b>										
Morning session	188	18702	10.8	8.56	13.50	342	33779	19.5	14.82	25.16
Evening session	56	4837	17.7	11.69	25.93	37	3157	11.6	7.39	17.64
Morning and evening session	59	7772	15.9	9.16	26.10	94	11238	23.0	16.75	30.63
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	23	2407	15.1	7.53	27.94	43	4260	26.7	17.03	39.28
Normal (≥-2sd - ≤+1sd)	191	19426	12.4	9.54	15.96	289	29571	18.9	14.75	23.82
Overweight (>+1sd - ≤+2sd)	51	5391	14.1	10.16	19.30	70	7056	18.5	13.87	24.20
Obese (>+2sd)	39	4196	10.8	6.76	16.86	72	7359	19.0	14.75	24.06
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	19	2017	10.3	6.36	16.21	35	3464	17.7	12.18	24.92
Normal (≥-2sd)	285	29402	12.8	9.68	16.67	439	44782	19.5	15.37	24.31

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.26 : Type of snack food and/ or drinks usually bought out of school area among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Type of snack food/ drinks									
	Flavoured drink/carbonated drink					Pickles				
	Count	Estimated Population	Percentage (%)	95% CI		Count	Estimated Population	Percentage (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	715	69454	27.8	22.46	33.83	138	14467	5.8	3.80	8.71
<b>Locality of school</b>										
Urban	391	39350	30.0	22.61	38.70	54	6202	4.7	2.34	9.35
Rural	324	30104	25.3	18.55	33.51	84	8265	6.9	4.26	11.13
<b>Sex</b>										
Boys	376	35913	29.0	23.40	35.33	63	6535	5.3	3.44	8.02
Girls	339	33541	26.6	20.81	33.31	75	7932	6.3	3.56	10.88
<b>Ethnicity</b>										
Malay	617	60310	30.3	24.45	36.79	125	12924	6.5	4.30	9.67
Chinese	60	5594	14.3	8.26	23.50	11	1353	3.4	1.31	8.76
Indian	28	2624	33.9	24.54	44.67	1	92	1.2	0.20	6.89
Bumiputera Sabah	1	100	43.7	3.60	94.19					
Bumiputera Sarawak										
Others	9	826	24.8	10.76	47.41	1	97	2.9	0.31	22.71
<b>School level</b>										
Primary school	178	20010	21.0	12.58	32.90	51	5933	6.2	3.06	12.25
Secondary school	537	49444	32.0	27.29	37.07	87	8534	5.5	3.29	9.11
<b>Class</b>										
Standard 4	56	5833	18.6	10.22	31.31	12	1422	4.5	1.79	10.96
Standard 5	61	6396	20.0	11.06	33.49	22	2147	6.7	2.66	15.95
Standard 6	61	7781	24.3	11.55	44.23	17	2365	7.4	3.94	13.47
Form 1	124	9843	31.9	26.09	38.25	20	1551	5.0	2.38	10.29
Form 2	113	10808	35.5	26.26	45.88	15	1452	4.8	2.31	9.57
Form 3	112	11592	37.1	31.33	43.30	19	2026	6.5	3.38	12.09
Form 4	112	8698	28.8	22.61	35.91	16	1318	4.4	2.20	8.49
Form 5	76	8503	26.7	20.99	33.42	17	2187	6.9	2.60	17.00
<b>School session</b>										
Morning session	516	50890	29.3	23.57	35.86	92	9991	5.8	3.74	8.78
Evening session	92	7776	28.5	21.10	37.22	14	1129	4.1	1.33	12.10
Morning and evening session	107	10788	22.0	13.05	34.75	32	3346	6.8	3.43	13.18
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	44	4477	28.1	20.08	37.73	6	510	3.2	1.39	7.19
Normal (≥-2sd - ≤+1sd)	438	41995	26.8	21.71	32.59	88	9294	5.9	3.94	8.84
Overweight (>+1sd - ≤+2sd)	107	10598	27.8	21.18	35.47	27	2771	7.3	4.19	12.29
Obese (>+2sd)	124	12137	31.3	23.57	40.20	17	1892	4.9	2.66	8.77
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	52	5512	28.1	19.11	39.28	19	2162	11.0	6.31	18.56
Normal (≥-2sd)	662	63801	27.7	22.41	33.74	119	12305	5.3	3.49	8.10

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.26 : Type of snack food and/ or drinks usually bought out of school area among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Type of food/ drink									
	Snack food					Fish cracker				
	Count	Estimated Population	Percentage (%)	95% CI		Count	Estimated Population	Percentage (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	181	18357	7.3	6.35	8.47	158	15591	6.2	4.47	8.64
<b>Locality of school</b>										
Urban	96	9744	7.4	5.95	9.27	75	7460	5.7	3.13	10.13
Rural	85	8612	7.2	6.06	8.63	83	8131	6.8	4.98	9.31
<b>Sex</b>										
Boys	86	8991	7.3	5.57	9.40	77	7417	6.0	3.99	8.90
Girls	95	9366	7.4	5.81	9.44	81	8174	6.5	4.47	9.31
<b>Ethnicity</b>										
Malay	135	13749	6.9	5.79	8.20	130	12856	6.5	4.62	8.94
Chinese	42	4189	10.7	7.94	14.22	10	1053	2.7	1.19	5.94
Indian	3	311	4.0	0.88	16.50	11	1064	13.7	5.46	30.50
Bumiputera Sabah										
Bumiputera Sarawak										
Others	1	107	3.2	0.31	26.14	7	619	18.6	11.81	27.96
<b>School level</b>										
Primary school	49	6175	6.5	5.22	8.00	53	6449	6.8	3.88	11.53
Secondary school	132	12182	7.9	6.58	9.41	105	9141	5.9	3.92	8.84
<b>Class</b>										
Standard 4	18	1995	6.3	3.58	11.02	17	1747	5.6	3.43	8.89
Standard 5	19	2296	7.2	4.36	11.63	18	1954	6.1	2.77	12.98
Standard 6	12	1884	5.9	4.36	7.92	18	2748	8.6	4.79	14.94
Form 1	27	2099	6.8	4.54	10.05	32	2473	8.0	5.50	11.52
Form 2	27	2434	8.0	4.80	13.00	17	1582	5.2	2.41	10.83
Form 3	21	2136	6.8	5.37	8.68	17	1603	5.1	2.69	9.59
Form 4	28	2284	7.6	4.70	11.96	24	1838	6.1	3.17	11.39
Form 5	29	3229	10.2	6.50	15.53	15	1646	5.2	2.83	9.30
<b>School session</b>										
Morning session	120	12351	7.1	5.92	8.54	110	10560	6.1	4.09	8.98
Evening session	27	2183	8.0	5.64	11.21	20	1537	5.6	3.01	10.29
Morning and evening session	34	3823	7.8	6.02	10.07	27	3420	7.0	4.64	10.39
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	10	957	6.0	3.12	11.22	14	1374	8.6	4.20	16.85
Normal (≥-2sd - ≤+1sd)	118	11898	7.6	6.38	9.01	93	9022	5.8	4.22	7.82
Overweight (>+1sd - ≤+2sd)	26	2667	7.0	4.69	10.29	27	2736	7.2	4.39	11.49
Obese (>+2sd)	26	2695	6.9	4.70	10.15	24	2459	6.3	3.59	10.94
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	18	1965	10.0	6.70	14.73	13	1341	6.8	3.75	12.14
Normal (≥-2sd)	162	16250	7.1	6.00	8.29	145	14250	6.2	4.47	8.51

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.26: Type of snack food and/ or drinks usually bought out of school area among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Type of snack foods				
	Ice cream				
	Count	Estimated Population	Percentage (%)	95% CI	
			Lower	Upper	
<b>Kedah</b>	213	21532	8.6	6.70	11.02
<b>Locality of school</b>					
Urban	120	12126	9.3	6.96	12.21
Rural	93	9407	7.9	5.10	12.07
<b>Sex</b>					
Boys	93	8910	7.2	5.39	9.54
Girls	120	12623	10.0	7.39	13.43
<b>Ethnicity</b>					
Malay	149	15168	7.6	5.70	10.09
Chinese	54	5450	13.9	11.35	16.89
Indian	5	487	6.3	2.31	16.00
Bumiputera Sabah					
Bumiputera Sarawak					
Others	5	427	12.8	5.22	28.18
<b>School level</b>					
Primary school	90	10617	11.1	8.14	15.05
Secondary school	123	10915	7.1	5.14	9.62
<b>Class</b>					
Standard 4	31	3411	10.9	7.31	15.81
Standard 5	38	4175	13.1	8.28	20.00
Standard 6	21	3031	9.5	6.27	14.09
Form 1	37	2955	9.6	6.11	14.66
Form 2	23	2130	7.0	4.18	11.47
Form 3	17	1668	5.3	2.40	11.47
Form 4	26	2026	6.7	4.01	11.03
Form 5	20	2136	6.7	3.40	12.85
<b>School session</b>					
Morning session	152	15060	8.7	6.72	11.16
Evening session	27	2258	8.3	4.78	13.93
Morning and evening session	34	4214	8.6	5.70	12.80
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	11	1061	6.7	3.68	11.73
Normal (≥-2sd - ≤+1sd)	147	14914	9.5	7.21	12.46
Overweight (>+1sd - ≤+2sd)	27	2666	7.0	4.58	10.50
Obese (>+2sd)	27	2799	7.2	4.89	10.53
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	18	1952	10.0	5.54	17.25
Normal (≥-2sd)	195	19581	8.5	6.70	10.74



## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.27 : Media sources which affected dietary pattern among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Sources of media									
	Social media					Television				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	878	85914	34.4	28.68	40.56	1006	102451	41.0	33.33	49.12
<b>Locality of school</b>										
Urban	467	45971	35.1	28.00	42.84	447	47027	35.9	25.23	48.09
Rural	411	39943	33.6	24.89	43.65	559	55424	46.7	37.33	56.23
<b>Sex</b>										
Boys	398	38916	31.5	26.59	36.80	499	48840	39.5	31.70	47.86
Girls	480	46998	37.2	29.87	45.23	507	53611	42.5	34.56	50.77
<b>Ethnicity</b>										
Malay	714	69869	35.1	28.19	42.61	894	91484	45.9	38.83	53.15
Chinese	125	12462	31.8	24.28	40.33	66	6767	17.2	13.31	22.05
Indian	27	2416	31.2	24.91	38.28	28	2609	33.7	29.43	38.23
Bumiputera Sabah										
Bumiputera Sarawak										
Others	12	1167	35.0	18.47	56.15	18	1591	47.8	21.04	75.81
<b>School level</b>										
Primary school	164	20052	21.0	17.56	24.94	433	50949	53.4	38.75	67.47
Secondary school	714	65862	42.6	39.09	46.25	573	51502	33.3	28.79	38.22
<b>Class</b>										
Standard 4	46	5501	17.4	9.69	29.12	173	19018	60.0	43.38	74.60
Standard 5	70	7586	23.9	19.04	29.52	143	15350	48.3	32.23	64.80
Standard 6	48	6965	21.8	14.00	32.28	117	16580	51.9	33.40	69.83
Form 1	141	11130	36.0	29.92	42.62	153	12150	39.3	33.53	45.45
Form 2	126	11860	38.9	32.81	45.37	112	10432	34.2	24.15	45.95
Form 3	138	14117	45.2	38.99	51.57	85	8490	27.2	21.88	33.23
Form 4	183	14447	48.0	40.93	55.12	129	10192	33.9	28.27	39.93
Form 5	126	14308	45.0	37.57	52.69	94	10239	32.2	23.09	42.93
<b>School session</b>										
Morning session	623	61199	35.3	29.21	41.91	699	69847	40.3	32.49	48.62
Evening session	94	7936	29.1	22.32	36.88	116	9675	35.4	23.84	49.04
Morning and evening session	161	16778	34.2	24.15	45.99	189	22750	46.4	36.74	56.39
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	50	4806	30.6	23.17	39.12	71	7636	48.6	35.60	61.73
Normal (≥-2sd - ≤+1sd)	542	53207	34.0	28.54	39.88	624	63250	40.4	32.39	48.95
Overweight (>+1sd - ≤+2sd)	157	15118	39.2	30.75	48.32	160	16227	42.1	33.98	50.58
Obese (>+2sd)	129	12783	33.0	25.71	41.30	149	15105	39.0	31.32	47.36
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	60	5941	30.3	23.75	37.75	86	9458	48.2	36.45	60.21
Normal (≥-2sd)	818	79973	34.7	28.99	40.98	919	92853	40.3	32.84	48.33

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.4.27 : Media sources which affected dietary pattern among adolescents by socio-demographic characteristics and nutritional status (Cont.)**

Characteristics	Sources of media									
	Radio					Printed media				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	83	8430	3.4	2.58	4.41	176	17998	7.2	6.17	8.39
<b>Locality of school</b>										
Urban	38	4009	3.1	1.92	4.84	88	9112	6.9	5.73	8.40
Rural	45	4421	3.7	2.82	4.89	88	8886	7.5	5.89	9.45
<b>Sex</b>										
Boys	59	6012	4.9	3.54	6.64	92	9253	7.5	6.14	9.08
Girls	24	2418	1.9	1.24	2.95	84	8745	6.9	5.38	8.87
<b>Ethnicity</b>										
Malay	61	6175	3.1	2.27	4.22	145	14922	7.5	6.35	8.81
Chinese	13	1403	3.6	1.57	7.92	23	2208	5.6	3.91	8.03
Indian	7	651	8.4	4.52	15.13	6	651	8.4	4.37	15.55
Bumiputera Sabah						1	129	56.3	5.81	96.40
Bumiputera Sarawak	1	104	100.0	100.00	100.00					
Others	1	97	2.9	0.31	22.71	1	88	2.6	0.50	12.69
<b>School level</b>										
Primary school	36	4082	4.3	2.99	6.09	58	7176	7.5	5.85	9.62
Secondary school	47	4348	2.8	2.00	3.96	118	10822	7.0	5.78	8.47
<b>Class</b>										
Standard 4	11	1119	3.5	1.76	6.96	27	3049	9.6	5.57	16.11
Standard 5	18	1774	5.6	2.87	10.61	17	1993	6.3	4.33	9.01
Standard 6	7	1189	3.7	1.86	7.32	14	2134	6.7	3.51	12.32
Form 1	19	1532	5.0	2.66	9.06	32	2517	8.1	5.06	12.86
Form 2	9	808	2.7	1.05	6.53	19	1803	5.9	3.88	8.92
Form 3	9	971	3.1	1.45	6.52	23	2304	7.4	4.47	11.93
Form 4	4	349	1.2	0.49	2.72	21	1659	5.5	3.43	8.73
Form 5	6	689	2.2	0.92	5.02	23	2540	8.0	4.27	14.45
<b>School session</b>										
Morning session	55	5916	3.4	2.29	5.06	120	12077	7.0	5.70	8.49
Evening session	17	1370	5.0	2.32	10.49	25	2069	7.6	4.36	12.85
Morning and evening session	11	1144	2.3	1.26	4.28	31	3851	7.9	4.72	12.80
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	4	318	2.0	0.73	5.48	13	1248	7.9	3.39	17.46
Normal (≥-2sd - ≤+1sd)	55	5585	3.6	2.64	4.81	109	10921	7.0	5.62	8.62
Overweight (>+1sd - ≤+2sd)	7	594	1.5	0.65	3.61	28	2986	7.7	5.16	11.45
Obese (>+2sd)	17	1933	5.0	2.85	8.61	26	2843	7.3	4.42	11.98
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	6	553	2.8	1.35	5.81	13	1533	7.8	4.25	13.94
Normal (≥-2sd)	77	7877	3.4	2.56	4.57	163	16465	7.2	6.16	8.29

**Table 3.4.27 : Media sources which affected dietary pattern among adolescents by socio-demographic characteristics and nutritional status**

Characteristics	Sources of media				
	Count	Estimated Population	Prevalence (%)	Not affected	
				Lower	Upper
<b>Kedah</b>	639	64428	25.8	20.30	32.14
<b>Locality of school</b>					
Urban	388	39836	30.4	22.11	40.15
Rural	251	24593	20.7	15.86	26.55
<b>Sex</b>					
Boys	331	31976	25.9	19.97	32.77
Girls	308	32453	25.7	19.87	32.56
<b>Ethnicity</b>					
Malay	409	40791	20.5	17.68	23.57
Chinese	193	20041	51.1	46.61	55.54
Indian	27	2679	34.6	26.02	44.31
Bumiputera Sabah	1	100	43.7	3.60	94.19
Bumiputera Sarawak					
Others	9	818	24.5	13.91	39.56
<b>School level</b>					
Primary school	163	20469	21.5	11.52	36.42
Secondary school	476	43960	28.5	23.61	33.86
<b>Class</b>					
Standard 4	36	4429	14.0	6.74	26.76
Standard 5	65	7127	22.4	11.41	39.40
Standard 6	62	8913	27.9	15.71	44.50
Form 1	90	6860	22.2	16.03	29.91
Form 2	101	9312	30.6	19.47	44.45
Form 3	95	10081	32.3	23.91	41.96
Form 4	110	8822	29.3	24.25	34.91
Form 5	80	8885	28.0	22.00	34.80
<b>School session</b>					
Morning session	449	46120	26.6	20.84	33.30
Evening session	102	8525	31.2	16.04	51.90
Morning and evening session	87	9710	19.8	15.43	25.09
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	38	3495	22.2	15.22	31.27
Normal (≥-2sd - ≤+1sd)	419	42268	27.0	20.85	34.16
Overweight (>+1sd - ≤+2sd)	81	8476	22.0	16.23	29.04
Obese (>+2sd)	100	10083	26.1	21.31	31.45
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	47	4439	22.6	14.20	34.09
Normal (≥-2sd)	592	59989	26.1	20.59	32.40

### 3.5 Physical activity among adolescents (Primary 4 to Secondary 5) in Kedah

**Contributors:** Nor Azian Mohd Zaki, Hazizi Abu Saad, Shahrulnaz Norhazli Nazri, Mohd Azahadi Omar

#### 3.5.1 Introduction

Physical activity is defined as any bodily movement produced by skeletal muscle that requires energy expenditure. According to World Health Organization (2010) and Malaysian Dietary Guidelines for Children and Adolescents (NCCFN, 2013), children and adolescents should accumulate at least 60 minutes or more of either moderate or vigorous intensity activity daily. Ideally, daily screen time should not more than two hours a day and children and adolescents should not be sedentary for more than 60 minutes at a time.

#### 3.5.2 Objectives

The general objective of this study was to assess physical activity pattern among adolescents and the specific objectives as follows:

- To determine the physical activity level.
- To evaluate the most five preferred physical activities during spare time.
- To assess the level of participation in physical education (PE) classes.
- To evaluate the duration of watching television, using computer and playing video games during weekend and schooling days.

#### 3.5.3 Variable definitions

**Physical Activity Assessment** - The physical activity Questionnaire for Older Children (PAQ-C) was adapted from Kowalski et al (2004) to assess the general level of physical activity of the adolescents.

**Physical Activity Classifications** - The total mean scores of PAQ-C was classified into three categories of either 'low physical activity' (Score: 1.00-2.33), 'moderate physical activity' (Score: 2.34-3.66) or 'high physical activity' (Score: 3.67-5.00).

**Screen time** - Screen time refers to the time spent on screen-based behaviours. For example: Watching television, playing video games and using the computer or surfing the internet.

### 3.5.4 Findings

The mean score for the physical activity level for adolescent in Kedah was 2.37 (95% CI: 2.28, 2.46) (**Table 3.5.1**). Overall prevalence of physically active among adolescents was 47.4% (95% CI: 40.88, 53.93) and the prevalence of physically inactive was 52.6% (95% CI: 46.07, 59.12). In terms of school locality, there was no significant difference of physically active between adolescent studying in urban area [(46.6% (95% CI: 38.39, 54.91))] and adolescent from rural areas (48.2%; 95% CI: 38.21, 58.42). Boys showed higher prevalence of physically active [59.9% (95% CI: 52.56, 66.90)] compared to girls, 35.5% (95% CI: 28.74, 42.89). Primary students [58.0% (95% CI: 46.35, 68.74)] were significantly more active than secondary students [41.3% (95% CI: 35.92, 46.92)]. In term of BMI-for-age status, there is no significant different among thinness [40.2% (95% CI: 28.50, 53.09)], normal [48.5% (95% CI: 41.18, 55.94)], overweight [45.7% (95% CI: 37.74, 53.89)] and obese [47.4% (95% CI: 39.81, 55.11)] (**Table 3.5.2**).

The most popular spare-time physical activity according to the percentage of adolescents in Kedah were walking for exercise [85.1% (95% CI: 82.37, 87.47)] (**Table 3.5.3**). About 16.2% (95% CI: 13.80, 18.86)] of adolescents reported they do not attend/very rare participated in PE class (**Table 3.5.4**). A total of 52.5% (95% CI:46.37, 58.55) and 66.8% (95% CI:63.18, 70.25) of the adolescents watched television, using computer and playing video games less than 2 hours per day over the weekend and during school days, respectively (**Table 3.5.5** and **Table 3.5.6**).

### 3.5.5 Discussion

The prevalence of physically active among adolescents in Kedah (47.4%) was higher than the national prevalence (44.6%). Boys and primary students were significantly had a higher prevalence of physically active than girls and secondary students. There was no significant difference in terms of school locality and BMI-for-age status of adolescent. The prevalence of adolescents that engaged on screen activities more than 2 hours during was higher during weekends than school days.

### 3.5.6 Conclusion

Based on National Health and Morbidity Survey (2017), 52.6% of children and adolescents in Kedah were physically inactive. The prevalence of physically inactive among Malaysian adolescents was slightly decreased as compared to the Malaysian School-Based Nutrition Survey (2012) but remains high. Therefore, more programmes and strategies to increase physical activity should be implemented among children and adolescents in Malaysia.

### 3.5.7 Recommendations

Adolescents should be encouraged to be more active in their daily life. Policy and campaign to promote physical activity among children and adolescents should be enhanced and health promotion activities to increase physical activity should be promoted. A comprehensive surveillance system for monitoring physical activity should be developed to ensure compliance with physical activity recommendation among children and adolescents.

Parents should be encouraged to be good role models; be active, limit the amount of sedentary and screen time behaviours, and monitor physical activity sedentary behaviours as well as screen time for their children. Interviewing technique for physical activity assessment should be applied in the future study. Adolescents should be encouraged to get physically active in their daily life. Formulating specific program and intensifying health campaign are essential to promote physical activity among children and adolescents. Developing surveillance systems for physical activity enables compliance based on the standard recommendations. Parents should instill active lifestyle, limit the amount of sedentary and screen time behaviors as for their children. Improving technique for physical activity assessment is necessary.

### References

1. Kowalski KC, Crocker PR, Donen RM. The physical activity questionnaire for older children (PAQ-C) and adolescents (PAQ-A) manual. College of Kinesiology, University of Saskatchewan. 2004;87.
2. Dan S, Nasir MM, Zalilah M. Sex and ethnic differentials in physical activity levels of adolescents in Kuantan. *Malays J Nutr.* 2007;13(2):109-20.
3. NCCFN (2013) Malaysian Dietary Guidelines for Children and Adolescents.
4. Malaysian School-Based Nutrition Survey (2012)
5. Wong JE, Parikh P, Poh BK, Deurenberg P; SEANUTS Malaysia Study Group. Physical Activity of Malaysian Primary School Children: Comparison by Sociodemographic Variables and Activity Domains. *Asia Pac J Public Health.* 2016 Jul;28(5 Suppl):35S-46S.
6. World Health Organization (2010). Global Strategy on Diet, Physical Activity and Health

**Table 3.5.1: Mean total scores in PAQ-C among adolescents within last 7 days by socio-demographic characteristics and BMI - for - age status**

Characteristic	Mean total scores in PAQ-C		
	Mean	95% CI	
		Lower	Upper
<b>KEDAH</b>	2.37	2.28	2.46
<b>Locality of school</b>			
Urban	2.37	2.26	2.48
Rural	2.37	2.21	2.52
<b>Sex</b>			
Boys	2.55	2.45	2.65
Girls	2.20	2.09	2.30
<b>Class</b>			
Standard 4	2.46	2.27	2.64
Standard 5	2.57	2.38	2.75
Standard 6	2.57	2.45	2.69
Form 1	2.39	2.27	2.51
Form 2	2.38	2.24	2.52
Form 3	2.22	2.11	2.34
Form 4	2.22	2.11	2.33
Form 5	2.17	2.03	2.31
<b>Ethnicity</b>			
Malay	2.42	2.32	2.51
Chinese	2.16	2.04	2.28
Indian	2.30	2.14	2.46
Bumiputera Sabah	1.52	1.33	1.71
Bumiputera Sarawak	-	-	-
Others	2.27	2.05	2.49
<b>School Category</b>			
Primary	2.53	2.41	2.66
Secondary	2.27	2.19	2.36
<b>BMI-for-age status (BAZ)</b>			
Thinness (<-2sd)	2.29	2.14	2.45
Normal (≥-2sd - ≤+1sd)	2.38	2.28	2.48
Overweight (>+1sd - ≤+2sd)	2.36	2.24	2.49
Obese (>+2sd)	2.36	2.27	2.45
<b>Height-for-age status (HAZ)</b>			
Stunting (<-2sd)	2.38	2.23	2.53
Normal (≥-2sd)	2.37	2.28	2.46

**Note:**

Mean Score	Physical Activity Level (PAL)
1.00 - 2.33	Low
2.34 - 3.66	Moderate
3.67 - 5.00	High

(Kowalski et. al., 2004)

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.5.2: Distribution of adolescents according to physical activity level within last 7 days by socio-demographic characteristics and BMI - for - age status**

Characteristic	Physical activity level									
	Active					Not active				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>KEDAH</b>	1080	108793	47.4	40.88	53.93	1206	120917	52.6	46.07	59.12
<b>Locality of School</b>										
Urban	539	55806	46.6	38.39	54.91	633	64066	53.4	45.09	61.61
Rural	541	52988	48.2	38.21	58.42	573	56851	51.8	41.58	61.79
<b>Sex</b>										
Boys	685	66809	59.9	52.56	66.90	455	44644	40.1	33.10	47.44
Girls	395	41984	35.5	28.74	42.89	751	76273	64.5	57.11	71.26
<b>Class</b>										
Standard 4	120	13167	50.0	28.52	71.50	113	13160	50.0	28.50	71.48
Standard 5	165	17191	60.9	46.34	73.72	94	11045	39.1	26.28	53.66
Standard 6	127	18037	62.3	48.58	74.32	73	10910	37.7	25.68	51.42
Form 1	170	13489	49.2	40.95	57.41	180	13952	50.8	42.59	59.05
Form 2	141	13259	46.4	37.87	55.06	166	15342	53.6	44.94	62.13
Form 3	112	11615	38.6	33.47	43.90	181	18510	61.4	56.10	66.53
Form 4	140	11037	38.1	30.70	46.03	225	17956	61.9	53.97	69.30
Form 5	105	10999	35.4	26.22	45.87	174	20042	64.6	54.13	73.78
<b>Ethnicity</b>										
Malay	920	92888	50.8	44.04	57.58	899	89872	49.2	42.42	55.96
Chinese	112	11482	30.9	24.89	37.67	251	25661	69.1	62.33	75.11
Indian	33	3158	47.9	34.16	61.90	36	3439	52.1	38.10	65.84
Bumiputera Sabah	-	-	-	-	-	2	229	100.0	100.00	100.00
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	15	1266	42.5	26.68	59.93	18	1716	57.5	40.07	73.32
<b>School Category</b>										
Primary	412	48395	58.0	46.35	68.74	280	35115	42.0	31.26	53.65
Secondary	668	60398	41.3	35.92	46.92	926	85802	58.7	53.08	64.08
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	63	5827	40.2	28.50	53.09	84	8675	59.8	46.91	71.50
Normal (≥-2sd - ≤+1sd)	685	69735	48.5	41.18	55.94	742	73976	51.5	44.06	58.82
Overweight (>+1sd - ≤+2sd)	163	16562	45.7	37.74	53.89	198	19673	54.3	46.11	62.26
Obese (>+2sd)	169	16669	47.4	39.81	55.11	181	18501	52.6	44.89	60.19
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	93	9581	53.3	41.68	64.55	81	8397	46.7	35.45	58.32
Normal (≥-2sd)	987	99212	46.9	40.51	53.31	1125	112520	53.1	46.69	59.49

Notes:

Low PAL is classified as not active

**Table 3.5.3: The five most preferred physical activities during spare time within the last 7 days based on the proportion of adolescents participated in it**

The five most preferred physical activities	Count	Prevalence (%)	95% CI	
			Lower	Upper
Walking for exercise	2106	85.1	82.37	87.47
Jogging/Running	1992	80.8	76.99	84.04
Tagging	1731	69.9	65.47	74.06
Badminton	1496	61.7	53.27	69.54
Cycling	1724	70.8	63.05	77.56



## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.5.4: Level of participation in physical education (PE) classes among adolescents within last 7 days by socio demographic characteristics and BMI - for-age status (Cont.)**

Characteristic	I do not attend the PE class / Very Rare					Occasionally/ Quite Often				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	396	40362	16.2	13.80	18.86	1504	151102	60.5	57.06	63.92
<b>Locality of school</b>										
Urban	221	23186	17.7	15.58	19.97	729	75081	57.2	54.35	60.04
Rural	175	17176	14.5	10.69	19.41	775	76021	64.2	58.41	69.64
<b>Sex</b>										
Boys	213	21497	17.4	14.33	21.00	712	69131	56.0	51.21	60.70
Girls	183	18865	15.0	11.78	18.79	792	81971	65.0	60.91	68.82
<b>Class</b>										
Standard 4	65	7595	24.2	20.16	28.69	139	16297	51.9	43.84	59.78
Standard 5	49	5095	15.9	10.13	24.19	156	16626	52.0	44.01	59.95
Standard 6	19	2647	8.3	5.49	12.29	156	21838	68.2	60.15	75.37
Form 1	62	5022	16.4	11.22	23.29	221	17310	56.5	51.24	61.54
Form 2	47	4416	14.5	9.63	21.21	206	19178	62.9	53.95	71.08
Form 3	54	5600	18.0	13.00	24.33	187	19291	61.9	54.95	68.47
Form 4	47	3780	12.5	8.97	17.14	252	19869	65.7	58.34	72.29
Form 5	53	6206	19.6	12.50	29.36	187	20693	65.3	55.21	74.23
<b>Ethnicity</b>										
Malay	295	30086	15.1	12.27	18.50	1235	123996	62.3	58.32	66.17
Chinese	73	7553	19.3	13.75	26.29	201	20715	52.8	47.88	57.67
Indian	21	2039	26.3	16.53	39.21	45	4268	55.1	47.20	62.80
Bumiputera Sabah	2	229	100.0	100.00	100.00	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	5	455	13.6	7.60	23.30	23	2123	63.7	46.64	77.87
<b>School level</b>										
Primary	133	15338	16.1	12.36	20.65	451	54762	57.4	54.72	60.06
Secondary	263	25024	16.2	13.27	19.69	1053	96340	62.5	57.53	67.16
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	32	3158	19.8	13.59	27.92	97	9943	62.3	55.25	68.93
Normal (≥-2sd - ≤+1sd)	242	24989	16.0	13.01	19.47	920	91822	58.7	54.21	63.08
Overweight (>+1sd - ≤+2sd)	57	5692	14.8	11.04	19.67	240	24573	64.1	58.45	69.38
Obese (>+2sd)	65	6523	16.9	13.23	21.35	245	24516	63.5	57.27	69.40
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	39	4031	20.6	13.92	29.50	104	10735	55.0	44.02	65.45
Normal (≥-2sd)	357	36331	15.8	13.64	18.23	1399	140226	61.0	57.65	64.22

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.5.4: Level of participation in physical education (PE) classes among adolescents within last 7 days by socio demographic characteristics and BMI - for-age status**

Characteristic	Count	Estimated population	Always		
			Prevalence (%)	95% CI	
				Lower	Upper
<b>KEDAH</b>	581	58134	23.3	20.18	26.72
<b>Locality of school</b>					
Urban	329	32959	25.1	22.18	28.29
Rural	252	25176	21.3	15.96	27.76
<b>Sex</b>					
Boys	336	32803	26.6	22.59	30.98
Girls	245	25331	20.1	16.72	23.92
<b>Class</b>					
Standard 4	72	7533	24.0	13.94	38.04
Standard 5	91	10233	32.0	24.79	40.23
Standard 6	48	7513	23.5	17.46	30.80
Form 1	108	8326	27.2	21.29	33.94
Form 2	74	6885	22.6	15.00	32.56
Form 3	61	6252	20.1	17.08	23.45
Form 4	82	6614	21.9	15.31	30.20
Form 5	45	4776	15.1	9.69	22.70
<b>Ethnicity</b>					
Malay	445	44875	22.6	19.19	26.31
Chinese	110	10964	27.9	23.52	32.85
Indian	16	1436	18.5	11.44	28.64
Bumiputera Sabah	-	-	-	-	-
Bumiputera Sarawak	1	104	100.0	100.00	100.00
Others	9	755	22.7	14.74	33.19
<b>School level</b>					
Primary	211	25280	26.5	22.08	31.46
Secondary	370	32855	21.3	17.68	25.44
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	31	2849	17.9	11.39	26.90
Normal (≥-2sd - ≤+1sd)	393	39579	25.3	21.61	29.40
Overweight (>+1sd - ≤+2sd)	86	8073	21.1	17.16	25.57
Obese (>+2sd)	70	7540	19.5	15.33	24.58
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	46	4765	24.4	18.28	31.76
Normal (≥-2sd)	535	53369	23.2	20.18	26.55

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.5.5: Length of time spent per day on watching television, using computer and playing video games at weekends among adolescents by socio-demographic characteristics and BMI-for-age status**

Characteristic	Less than 2 hour					More than 2 hours				
	Unweighted count	Estimated population	Prevalence (%)	95% CI		Unweighted count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	1264	130898	52.5	46.37	58.55	1214	118443	47.5	41.45	53.63
<b>Locality of school</b>										
Urban	639	67418	51.5	42.78	60.17	637	63444	48.5	39.83	57.22
Rural	625	63480	53.6	45.11	61.85	577	54999	46.4	38.15	54.89
<b>Sex</b>										
Boys	637	63444	51.4	46.30	56.44	624	60025	48.6	43.56	53.70
Girls	627	67454	53.6	45.56	61.43	590	58417	46.4	38.57	54.44
<b>Class</b>										
Standard 4	187	22236	70.6	50.73	84.89	89	9243	29.4	15.11	49.27
Standard 5	169	18897	59.6	51.93	66.81	125	12815	40.4	33.19	48.07
Standard 6	136	19562	60.9	48.71	71.85	88	12563	39.1	28.15	51.29
Form 1	236	18374	59.9	54.77	64.91	155	12275	40.1	35.09	45.23
Form 2	154	14456	47.6	39.65	55.62	172	15930	52.4	44.38	60.35
Form 3	117	12105	39.0	30.60	48.10	184	18933	61.0	51.90	69.40
Form 4	132	10495	34.7	29.08	40.73	249	19768	65.3	59.27	70.92
Form 5	133	14775	46.6	37.17	56.32	152	16914	53.4	43.68	62.83
<b>Ethnicity</b>										
Malay	1052	109710	55.2	48.33	61.81	922	89173	44.8	38.19	51.67
Chinese	146	15009	38.3	30.63	46.51	238	24223	61.7	53.49	69.37
Indian	45	4351	57.6	49.77	64.98	35	3209	42.4	35.02	50.23
Bumiputera Sabah	2	229	100.0	100.00	100.00	-	-	-	-	-
Bumiputera Sarawak						1	104	100.0	100.00	100.00
Others	19	1600	48.0	32.98	63.40	18	1733	52.0	36.60	67.02
<b>School level</b>										
Primary	492	60694	63.7	54.36	72.07	302	34621	36.3	27.93	45.64
Secondary	772	70204	45.6	42.38	48.81	912	83821	54.4	51.19	57.62
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	95	9932	63.2	51.59	73.52	62	5774	36.8	26.48	48.41
Normal (≥-2sd - ≤+1sd)	791	9932	52.4	45.33	59.38	765	5774	47.6	40.62	54.67
Overweight (>+1sd - ≤+2sd)	193	19360	50.5	45.05	56.01	189	18951	49.5	43.99	54.95
Obese (>+2sd)	184	19534	50.5	43.39	57.53	197	19172	49.5	42.47	56.61
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	106	11484	58.8	50.23	66.87	83	8045	41.2	33.13	49.77
Normal (≥-2sd)	1158	119414	52.0	45.84	58.03	1131	110398	48.0	41.97	54.16

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.5.6: Length of time spent per day on watching television, using computer and playing video games on schooling days among adolescents by socio-demographic characteristics and BMI-for-age status**

Characteristic	Less than 2 hour					More than 2 hours				
	Unweighted count	Estimated population	Prevalence (%)	95% CI		Unweighted count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	1656	166432	66.8	63.18	70.25	820	82672	33.2	29.75	36.82
<b>Locality of school</b>										
Urban	838	86003	65.8	59.74	71.33	437	44761	34.2	28.67	40.26
Rural	818	80429	68.0	64.14	71.56	383	37911	32.0	28.44	35.86
<b>Sex</b>										
Boys	781	75807	61.4	57.96	64.69	480	47705	38.6	35.31	42.04
Girls	875	90625	72.2	67.41	76.45	340	34967	27.8	23.55	32.59
<b>Class</b>										
Standard 4	186	21975	69.7	49.39	84.49	91	9532	30.3	15.51	50.61
Standard 5	211	22679	71.3	60.73	79.94	84	9136	28.7	20.06	39.27
Standard 6	142	20784	65.1	55.84	73.38	80	11132	34.9	26.62	44.16
Form 1	296	23128	75.6	71.55	79.32	94	7448	24.4	20.68	28.45
Form 2	218	20231	66.6	61.64	71.18	108	10155	33.4	28.82	38.36
Form 3	179	18185	58.6	53.21	63.73	122	12864	41.4	36.27	46.79
Form 4	238	18823	62.2	54.74	69.12	143	11440	37.8	30.88	45.26
Form 5	186	20627	65.3	58.48	71.53	98	10966	65.3	58.48	71.53
<b>Ethnicity</b>										
Malay	1342	135500	68.2	64.41	71.80	630	63116	31.8	28.20	35.59
Chinese	224	22526	57.5	50.41	64.34	159	16634	42.5	35.66	49.59
Indian	61	5803	75.7	63.11	85.08	20	1858	24.3	14.92	36.89
Bumiputera Sabah	2	229	100.0	100.00	100.00	-	-	-	-	-
Bumiputera Sarawak	1	104	100.0	100.00	100.00	-	-	-	-	-
Others	26	2270	68.1	48.03	83.15	11	1063	31.9	16.85	51.97
<b>School level</b>										
Primary	539	65437	68.7	60.88	75.60	255	29799	31.3	24.40	39.12
Secondary	1117	100995	65.6	62.42	68.72	565	52872	34.4	31.28	37.58
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	106	10849	69.1	60.23	76.72	51	4857	30.9	23.28	39.77
Normal (≥-2sd - ≤+1sd)	1048	105644	67.7	63.48	71.70	504	50337	32.3	28.30	36.52
Overweight (>+1sd - ≤+2sd)	253	24694	64.1	56.69	70.93	131	13817	35.9	29.07	43.31
Obese (>+2sd)	248	25152	65.0	60.62	69.11	133	13554	35.0	30.89	39.38
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	132	13676	70.0	60.25	78.27	57	5853	30.0	21.73	39.75
Normal (≥-2sd)	1524	152756	66.54	62.89	70.00	763	76819	33.5	30.00	37.11

### 3.6 Supplements intake among adolescents (Primary 4 to Secondary 5) in Kedah

**Contributors:** Fatimah Othman, Sam Azura Ahmad, Syafinaz Mohd Sallehuddin, Mohamad Ihsan Tahir, Safiah Mohd Yusof, Nur Azna Mahmud

#### 3.6.1 Introduction

Dietary supplements are defined as “a product (other than tobacco) intended to supplement the diet that bears or contains one or more of the following dietary ingredients: a vitamin, a mineral, an herb or other botanical, an amino acid, or a dietary substance for use by man to supplement the diet by increasing the total dietary intake, or a concentrate, metabolite, constituent, extract, or combination of the above ingredients” (DV Porter, 2001). The use of supplements becomes common behavior among people due to general health concerns. In 2014, approximately 54.1% and 40.2% of Malaysian adolescents consumed vitamin/mineral and food supplements respectively (Sien, Shahril, Mutalip, 2014). This prevalence was found to be higher than that in other countries (Picciano, Dwyer, Radimer, 2007; Yoon, Park, Kang, 2009; Sichert-Hellert and Kersting, 2004).

High dietary supplement intake suggests a wide use of dietary supplements among adolescents despite the unclear guideline or recommendation on dietary supplements. The long-term potentially dangerous effects related to unrestrained consumption of dietary supplements are still unknown and are becoming a matter of public health concern. Reports on dietary supplements intake pattern among Malaysian adolescents are limited. Therefore, the aims of the current study were to assess the frequency, reasons and types of vitamin/mineral and food supplement use among Malaysian adolescents.

#### 3.6.2 Objectives

##### General objective

To determine the pattern of use of vitamin/mineral and food supplements among Malaysian adolescents.

##### Specific objective

- To determine the most commonly taken vitamin/mineral supplements.
- To determine the most commonly taken food supplements.
- To identify the reason(s) of taking vitamin/mineral supplements.
- To identify the reason(s) of taking food supplements.
- To determine the frequency of vitamin/mineral supplements intake.
- To determine the frequency of food supplements intake.

### 3.6.3 Findings

The prevalence of vitamin/minerals and food supplements intake among adolescence in Kedah was 44.3% (95% CI: 38.25, 50.57) (**Table 3.6.1**) and 31.0% (95% CI: 25.89, 36.72) (**Table 3.6.5**). There was no significant difference of vitamin/mineral and food supplement intakes between boys and girls, ethnicity, school classes and localities (**Table 3.6.1** and **Table 3.6.5**). In average, the vitamin/mineral and food supplements were consumed everyday by 14.5% (95% CI: 11.41, 18.20) and 10.8% (95%CI 7.82, 14.70) (**Table 3.6.4** and **Table 3.6.8**). The most commonly consumed vitamin/ minerals and food supplements were Vitamin C 36.5% (95% CI: 30.98, 42.39) (**Table 3.6.2**) and Bee product 16.9% (95% CI: 13.39, 21.11) (**Table 3.6.6**). The main reason for taking vitamin/minerals and food supplements was due to parent's advised 40.8 % (95% CI: 34.90, 47.0) (**Table 3.6.3**) and 30.0% (95% CI: 26.00, 35.60) (**Table 3.6.7**)

### 3.6.4 Discussions

The prevalence of taking vitamin/minerals and food supplements among adolescence in Kedah was slightly similar to the national prevalence, which was 44.7% (95% CI: 42.49-46.91) and 30.6% (95% CI: 28.90-32.43). The consumption of Vitamin C and Bee Product were significantly higher compared with the other types of vitamin/mineral and food supplement and this result was consistent with the national finding. Finding from the survey in Kedah showed that parents advised was the main and significant reason for taking vitamin/mineral and food supplements among adolescents. It suggests that the parents are a strong influencer for food supplement and vitamin intake of the children.

### 3.6.5 Conclusions

Overall findings from this survey showed that almost every four and three of ten adolescents in Kedah took vitamin/mineral and food supplements. Every four and three of ten parents influenced the children's intake of vitamin/ mineral and food supplements. Vitamin C and Bee product remain as the main type of vitamin and food supplement consumed by adolescents in Kedah.

### 3.6.6 Recommendation

Advocating adolescents to eat balanced and healthy meals is the main priority in designing health policy. However, the Ministry of Health should also establish guidelines, regulations, and policy of food supplements and vitamin/mineral intake as its consumption has become common among Malaysian adolescents. There is a need for further scientific research involving adolescents with the purpose of assessing the beneficial effects and safety of its long-term use. The guidelines and regulations should be made clear to parents and guardians for appropriate use of food supplements.

**References**

1. DV Porter. Special report: Dietary Supplements : recent chronology and legislations. *Nutr Rev.* 1995;53: 31–36.
2. Sien YP, Sahril N, Mutalip MHA, Zaki NAM, Ghaffar SA. Determinants of Dietary Supplements Use among Adolescents in Malaysia. *Asia Pacific J Public Heal.* SAGE PublicationsSage CA: Los Angeles, CA; 2014;26: 36S–43S. doi:10.1177/1010539514543681
3. Picciano MF, Dwyer JT, Radimer KL, Wilson DH, Fisher KD, Thomas PR, et al. Dietary Supplement Use Among Infants, Children, and Adolescents in the United States, 1999-2002. *Arch Pediatr Adolesc Med.* US Government Printing Office, Washington, DC; 2007;161: 978. doi:10.1001/archpedi.161.10.978
4. Yoon JY, Park HA, Kang JH, Kim KW, Hur YI, Park JJ, et al. Prevalence of Dietary Supplement Use in Korean Children and Adolescents: Insights from Korea National Health and Nutrition Examination Survey 2007-2009. *J Korean Med Sci.* 2012;27: 512. doi:10.3346/jkms.2012.27.5.512
5. Sichert-Hellert W, Kersting M. Vitamin and mineral supplements use in German children and adolescents between 1986 and 2003: results of the DONALD Study. *Ann Nutr Metab.* Karger Publishers; 2004;48: 414–9. doi:10.1159/000083574

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.6.1: Prevalence of adolescents taking vitamin/ mineral supplements by socio-demographic characteristics

Characteristics	Taking vitamin / mineral supplement					Not taking vitamin / mineral supplement				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	1086	110550	44.3	38.25	50.57	1394	138864	55.7	49.43	61.75
<b>Locality of School</b>										
Urban	544	57418	43.9	34.81	53.50	730	73254	56.1	46.50	65.19
Rural	542	53132	44.7	37.11	52.64	664	65610	55.3	47.36	62.89
<b>Sex</b>										
Boys	606	58600	47.6	41.06	54.13	653	64633	52.4	45.87	58.94
Girls	480	51951	41.2	34.55	48.13	741	74231	58.8	51.87	65.45
<b>Class</b>										
Standard 4	153	16611	52.8	38.88	66.27	124	14858	47.2	33.73	61.12
Standard 5	185	19326	61.1	50.05	71.15	108	12294	38.9	28.85	49.95
Standard 6	115	17281	53.8	39.59	67.40	109	14844	46.2	32.60	60.41
Remove class										
Form 1	206	16257	52.6	45.74	59.41	188	14636	47.4	40.59	54.26
Form 2	123	11536	38.2	32.32	44.42	201	18673	61.8	55.58	67.68
Form 3	85	8681	27.8	21.17	35.56	218	22549	72.2	64.44	78.83
Form 4	116	9215	30.5	25.50	36.05	264	20979	69.5	63.95	74.50
Form 5	103	11644	36.8	28.36	46.04	182	20031	63.2	53.96	71.64
<b>Ethnicity</b>										
Malay	892	91142	45.8	38.82	52.98	1084	107790	54.2	47.02	61.18
Chinese	137	14119	36.1	31.79	40.72	245	24954	63.9	59.28	68.21
Indian	40	3878	50.1	35.72	64.42	42	3866	49.9	35.58	64.28
Bumiputera Sabah	1	129	56.3	5.81	96.40	1	100	43.7	3.60	94.19
Bumiputera Sarawak	-	-	-	-	-	1	104	100.0	100.00	100.00
Others	21	2050	38.5	20.33	60.52	37	3333	61.5	39.48	79.67
<b>BMI-for age status (BAZ)</b>										
Thinness (<-2sd)	81	8038	50.8	41.10	60.35	78	7800	49.2	39.65	58.90
Normal (≥-2sd - ≤+1sd)	686	70651	45.2	38.30	52.25	870	85726	54.8	47.75	61.70
Overweight (>+1sd - ≤+2sd)	174	17256	44.9	37.13	52.84	210	21214	55.1	47.16	62.87
Obese (>+2sd)	144	14498	37.6	30.79	45.00	235	24031	62.4	55.00	69.21
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	88	9189	46.9	38.85	55.03	102	10422	53.1	44.97	61.15
Normal (≥-2sd)	998	101362	44.1	37.95	50.46	1292	128442	55.9	49.54	62.05



NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.6.2: Types of vitamin/ mineral usually consumed among adolescents by socio-demographic characteristics (Cont.)

Characteristics	Multivitamin					Vitamin C				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	148	14395	5.8	4.47	7.48	873	90653	36.5	30.98	42.39
<b>Locality of School</b>										
Urban	77	7678	5.9	4.39	7.85	443	47004	36.0	27.35	45.74
Rural	71	6717	5.7	3.65	8.78	430	43649	37.0	30.91	43.55
<b>Sex</b>										
Boys	105	10134	8.2	6.32	10.70	448	44318	36.1	30.65	41.88
Girls	43	4261	3.4	2.11	5.43	425	46336	36.9	29.81	44.64
<b>Class</b>										
Standard 4	30	3105	9.9	6.27	15.23	134	15110	48.1	33.41	63.10
Standard 5	22	2011	6.4	4.56	9.00	143	15884	50.8	42.67	58.89
Standard 6	11	1631	5.1	3.38	7.55	89	13521	42.1	31.00	54.03
<b>Remove class</b>										
Form 1	27	2149	7.0	3.98	12.12	164	12744	41.7	35.02	48.73
Form 2	22	2071	6.9	4.07	11.33	99	9448	31.3	22.60	41.49
Form 3	10	1005	3.2	1.68	6.19	77	7974	25.8	19.17	33.70
Form 4	15	1228	4.1	1.75	9.18	83	6584	21.8	17.86	26.35
Form 5	11	1195	3.8	2.21	6.38	84	9388	29.6	20.51	40.74
<b>Ethnicity</b>										
Malay	121	11649	5.9	4.28	8.04	728	76060	38.4	32.34	44.91
Chinese	23	2356	6.0	4.20	8.55	97	10091	25.8	19.85	32.75
Indian	3	317	4.1	1.13	13.96	36	3526	46.1	38.31	53.99
Bumiputera Sabah	-	-	-	-	-	1	129	56.3	5.81	96.40
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	1	73	2.2	0.21	19.19	11	847	25.4	19.60	32.30
<b>BMI-for age status (BAZ)</b>										
Thinness (<-2sd )	13	1117	7.0	3.45	13.84	62	6665	42.0	32.50	52.18
Normal (≥ - 2sd - ≤+ 1sd )	97	9576	6.1	4.52	8.29	560	58281	37.4	31.41	43.77
Overweight (> +1sd - ≤+ 2sd)	18	1600	4.2	2.24	7.65	139	14298	37.3	29.67	45.68
Obese (> + 2sd)	20	2101	5.5	3.34	8.98	111	11302	29.7	24.73	35.10
<b>Height-for - age status (HAZ)</b>										
Stunting (<-2sd )	12	1147	5.9	3.41	10.15	75	7854	40.7	33.20	48.58
Normal (≥-2sd )	136	13248	5.8	4.43	7.53	798	82799	36.1	30.50	42.20

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.6.2: Types of vitamin/ mineral usually consumed among adolescents by socio-demographic characteristics

Characteristic	Iron					Others				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	142	14658	5.9	4.26	8.11	147	14438	5.8	4.79	7.04
<b>Locality of School</b>										
Urban	67	7074	5.4	3.46	8.40	69	7205	5.5	4.20	7.24
Rural	75	7584	6.4	4.06	10.04	78	7234	6.1	4.67	8.01
<b>Sex</b>										
Boys	99	9993	8.1	5.62	11.63	92	8521	6.9	5.26	9.10
Girls	43	4665	3.7	2.32	5.89	55	5917	4.7	3.20	6.90
<b>Class</b>										
Standard 4	27	2965	9.4	4.93	17.32	7	807	2.6	0.96	6.71
Standard 5	22	2296	7.3	3.71	14.03	31	2693	8.6	5.50	13.25
Standard 6	19	2839	8.8	7.17	10.84	16	2268	7.1	4.42	11.10
Remove class										
Form 1	26	2162	7.1	4.08	11.99	24	1893	6.2	3.88	9.74
Form 2	12	1096	3.6	1.94	6.67	19	1715	5.7	2.86	10.94
Form 3	9	913	3.0	0.98	8.52	13	1336	4.3	2.11	8.65
Form 4	18	1436	4.8	2.04	10.69	17	1333	4.4	3.06	6.35
Form 5	9	951	3.0	1.64	5.44	20	2393	7.6	4.68	11.98
<b>Ethnicity</b>										
Malay	122	12610	6.4	4.48	8.98	109	10561	5.3	4.46	6.37
Chinese	15	1633	4.2	2.75	6.28	28	2938	7.5	5.30	10.52
Indian	4	328	4.3	0.83	19.21	4	396	5.2	2.03	12.55
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	1	104	100.0	100.00	100.00
Others	1	88	2.6	0.50	12.69	5	440	13.2	1.98	53.39
<b>BMI-for age status (BAZ)</b>										
Thinness (<-2sd)	6	552	3.5	1.47	8.04	9	853	5.4	2.51	11.13
Normal ( $\geq -2sd - \leq +1sd$ )	78	8020	5.1	3.32	7.89	91	8794	5.6	4.25	7.46
Overweight (> +1sd - $\leq +2sd$ )	31	3180	8.3	5.52	12.30	20	2007	5.2	3.33	8.16
Obese (> +2sd)	26	2813	7.4	4.45	11.99	27	2785	7.3	4.95	10.65
<b>Height-for - age status (HAZ)</b>										
Stunting (<-2sd)	9	949	4.9	1.98	11.67	11	1196	6.2	3.75	10.04
Normal ( $\geq -2sd$ )	133	13709	6.0	4.41	8.08	136	13243	5.8	4.73	7.05

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.6.3: Reasons for taking vitamin/ mineral among adolescents by socio-demographic characteristics (Cont.)

Characteristics	Doctor's Instruction					Parents' advice				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	190	20156	18.3	15.03	22.13	442	44902	40.8	34.90	46.99
<b>Locality of School</b>										
Urban	99	10591	18.5	14.36	23.59	228	24188	42.3	37.29	47.53
Rural	91	9565	18.1	13.26	24.17	214	20714	39.2	28.73	50.68
<b>Sex</b>										
Boys	103	10138	17.4	14.14	21.22	233	21951	37.7	32.20	43.46
Girls	87	10019	19.4	15.45	23.97	209	22951	44.3	36.27	52.74
<b>Class</b>										
Standard 4	40	4718	28.4	23.13	34.35	70	7155	43.1	33.08	53.67
Standard 5	39	4523	23.6	17.61	30.97	82	8198	42.9	33.81	52.42
Standard 6	15	2278	13.3	7.23	23.14	55	8582	50.1	35.51	64.61
Remove class										
Form 1	29	2368	14.7	9.57	21.98	86	6589	41.0	30.92	51.84
Form 2	16	1541	13.4	8.37	20.64	50	4696	40.7	29.16	53.38
Form 3	20	2003	23.1	13.13	37.32	25	2656	30.6	19.79	44.07
Form 4	22	1726	18.7	11.75	28.53	42	3364	36.5	24.60	50.33
Form 5	9	999	8.6	3.94	17.67	32	3661	31.4	18.44	48.18
<b>Ethnicity</b>										
Malay	162	17332	19.1	15.57	23.18	351	36160	39.8	33.12	46.93
Chinese	18	1807	12.8	7.37	21.30	66	6475	45.9	31.19	61.29
Indian	10	1018	27.5	15.34	44.21	14	1392	37.6	21.83	56.51
Bumiputera Sabah						1	129	100.0	100.00	100.00
Bumiputera Sarawak										
Others						10	746	58.2	45.86	69.60
<b>BMI-for age status (BAZ)</b>										
Thinness (< -2sd)	13	1412	17.9	11.97	25.82	31	3024	38.3	24.66	54.03
Normal ( $\geq -2sd$ - $\leq +1sd$ )	120	12840	18.2	14.46	22.64	284	29467	41.8	35.42	48.39
Overweight ( $> +1sd$ - $\leq +2sd$ )	34	3420	19.8	13.42	28.28	70	6853	39.7	29.34	51.11
Obese ( $> +2sd$ )	23	2484	17.5	10.92	26.79	56	5451	38.4	28.65	49.09
<b>Height-for - age status (HAZ)</b>										
Stunting (< -2sd)	14	1320	14.6	7.73	25.79	32	3435	37.9	22.55	56.20
Normal ( $\geq -2sd$ )	176	18837	18.7	15.00	22.95	410	41467	41.1	35.35	47.03

Table 3.6.3: Reasons for taking vitamin/ mineral among adolescents by socio-demographic characteristics (Cont..)

Characteristics	Self awareness					Influences by friends				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	326	32705	29.7	24.62	35.39	24	2349	2.1	1.19	3.81
<b>Locality of School</b>										
Urban	153	15680	27.4	22.80	32.62	13	1426	2.5	1.15	5.33
Rural	173	17025	32.2	23.58	42.20	11	923	1.7	0.73	4.14
<b>Sex</b>										
Boys	191	18930	32.5	27.39	38.01	15	1353	2.3	1.31	4.09
Girls	135	13775	26.6	20.79	33.39	9	996	1.9	0.86	4.27
<b>Class</b>										
Standard 4	31	3471	20.9	14.02	29.96	2	241	1.5	0.40	5.15
Standard 5	42	4433	23.2	15.29	33.53	1	97	0.5	0.07	3.70
Standard 6	31	4554	26.6	19.69	34.80	3	419	2.4	0.33	15.99
Remove class										
Form 1	70	5550	34.5	27.15	42.70	6	502	3.1	1.44	6.63
Form 2	43	4028	34.9	25.94	45.11	3	245	2.1	0.45	9.42
Form 3	29	2901	33.4	22.19	46.89	3	317	3.7	1.18	10.75
Form 4	35	2771	30.1	19.36	43.49	5	372	4.0	1.62	9.66
Form 5	45	4997	42.9	27.45	59.91	1	155	1.3	0.16	10.22
<b>Ethnicity</b>										
Malay	280	28073	30.9	24.70	37.91	17	1486	1.6	0.86	3.09
Chinese	31	3278	23.2	15.63	33.05	6	775	5.5	2.30	12.54
Indian	10	921	24.9	12.17	44.20	1	87	2.4	0.35	14.13
Bumiputera Sabah										
Bumiputera Sarawak										
Others	5	432	33.7	18.06	53.93	1	104	8.1	0.87	47.04
<b>BMI-for age status (BAZ)</b>										
Thinness (<-2sd)	27	2618	33.1	18.92	51.28	2	149	1.9	0.41	8.29
Normal (≥ - 2sd - ≤+ 1sd)	204	20640	29.2	24.40	34.62	18	1801	2.6	1.45	4.46
Overweight (> +1sd - ≤+ 2sd)	50	4879	28.3	20.92	37.01	3	255	1.5	0.47	4.58
Obese (> + 2sd)	45	4568	32.1	23.29	42.49	1	143	1.0	0.13	7.32
<b>Height-for - age status (HAZ)</b>										
Stunting (<-2sd)	29	3090	34.1	22.75	47.69	4	413	4.6	1.71	11.62
Normal (≥-2sd)	297	29615	29.3	23.97	35.33	20	1935	1.9	1.02	3.56

**Table 3.6.3: Reasons for taking vitamin/ mineral among adolescents by socio-demographic characteristics**

Characteristics	Others				
	Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper
<b>Kedah</b>	70	7449	6.8	4.98	9.14
<b>Locality of School</b>					
Urban	37	4153	7.3	4.86	10.73
Rural	33	3295	6.2	3.95	9.70
<b>Sex</b>					
Boys	40	4177	7.2	4.95	10.27
Girls	30	3271	6.3	3.70	10.60
<b>Class</b>					
Standard 4	7	856	5.2	2.78	9.36
Standard 5	12	1368	7.2	3.48	14.14
Standard 6	8	1116	6.5	2.37	16.66
<b>Remove class</b>					
Form 1	7	575	3.6	1.89	6.67
Form 2	7	651	5.6	2.03	14.69
Form 3	7	693	8.0	3.67	16.49
Form 4	10	834	9.1	4.24	18.28
Form 5	12	1355	11.6	5.16	24.16
<b>Ethnicity</b>					
Malay	55	5772	6.4	4.67	8.59
Chinese	12	1364	9.7	5.98	15.26
Indian	2	208	5.6	1.45	19.47
Bumiputera Sabah					
Bumiputera Sarawak					
Others					
<b>BMI-for age status (BAZ)</b>					
Thinness (<-2sd )	5	561	7.1	2.97	15.99
Normal (≥ - 2sd - ≤+ 1sd )	45	4569	6.5	4.36	9.51
Overweight (> +1sd - ≤+ 2sd)	9	1140	6.6	3.00	13.93
Obese (> + 2sd)	11	1180	8.3	4.49	14.83
<b>Height-for - age status (HAZ)</b>					
Stunting (<-2sd )	4	439	4.8	1.56	14.06
Normal (≥-2sd )	66	7010	6.9	5.13	9.34

Table 3.6.4: Frequency of taking vitamin/ mineral among adolescents by socio-demographic characteristics (Cont.)

Characteristics	Everyday					5 to 6 times per week				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	360	36047	14.5	11.41	18.20	176	18544	7.4	5.79	9.53
<b>Locality of School</b>										
Urban	187	19524	14.9	11.15	19.73	84	9117	7.0	4.94	9.77
Rural	173	16523	14.0	9.44	20.17	92	9427	8.0	5.55	11.30
<b>Sex</b>										
Boys	193	18426	15.0	11.78	18.87	111	11337	9.2	6.61	12.72
Girls	167	17620	14.0	10.71	18.06	65	7208	5.7	4.43	7.36
<b>Class</b>										
Standard 4	62	6158	19.4	12.25	29.41	42	4540	14.3	9.21	21.61
Standard 5	75	8072	25.8	14.65	41.28	29	3148	10.1	8.00	12.56
Standard 6	27	4082	12.7	8.51	18.63	20	2860	8.9	4.99	15.45
<b>Remove class</b>										
Form 1	66	5175	16.8	11.89	23.31	16	1273	4.1	2.24	7.55
Form 2	38	3565	11.8	7.80	17.47	23	2173	7.2	3.30	14.96
Form 3	27	2877	9.2	6.25	13.43	17	1766	5.7	2.58	12.00
Form 4	32	2542	8.4	6.51	10.83	16	1274	4.2	3.22	5.52
Form 5	33	3576	11.3	8.16	15.41	13	1510	4.8	2.85	7.86
<b>Ethnicity</b>										
Malay	282	28306	14.3	10.64	18.85	145	15353	7.7	5.88	10.12
Chinese	52	5299	13.5	10.66	17.05	28	2938	7.5	5.14	10.83
Indian	17	1670	21.6	15.57	29.07	3	254	3.3	0.97	10.55
Bumiputera Sabah	1	129	56.3	5.81	96.40	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	8	643	19.3	7.12	42.72	-	-	-	-	-
<b>BMI-for age status (BAZ)</b>										
Thinness (<-2sd)	20	1904	11.9	7.37	18.75	11	1141	7.2	3.45	14.24
Normal ( $\geq -2sd - \leq +1sd$ )	236	23872	15.3	11.87	19.46	108	11485	7.4	5.85	9.21
Overweight ( $> +1sd - \leq +2sd$ )	60	5635	14.6	11.25	18.85	30	3114	8.1	5.05	12.73
Obese ( $> +2sd$ )	44	4635	12.1	7.88	18.24	27	2804	7.3	4.64	11.42
<b>Height-for - age status (HAZ)</b>										
Stunting (<-2sd)	32	3473	17.7	13.52	22.85	18	1897	9.7	4.85	18.36
Normal ( $\geq -2sd$ )	328	32574	14.2	11.01	18.12	158	16648	7.3	5.60	9.36

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.6.4: Frequency of taking vitamin/ mineral among adolescents by socio-demographic characteristics

Characteristic	3 to 4 times per week					1 to 2 times per week				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>Kedah</b>	307	31124	12.5	10.60	14.68	415	43205	17.4	15.05	19.92
<b>Locality of School</b>										
Urban	156	15991	12.2	9.96	14.95	202	21704	16.6	12.92	21.10
Rural	151	15132	12.8	9.87	16.41	213	21501	18.2	15.81	20.79
<b>Sex</b>										
Boys	191	18677	15.2	12.56	18.25	218	21762	17.7	14.67	21.19
Girls	116	12447	9.9	8.10	11.99	197	21443	17.0	14.00	20.53
<b>Class</b>										
Standard 4	43	5504	17.4	11.76	24.90	50	5646	17.8	13.99	22.41
Standard 5	53	4781	15.3	9.34	23.96	54	5929	18.9	14.20	24.79
Standard 6	32	4846	15.1	11.68	19.34	55	8315	25.9	20.59	32.11
Remove class										
Form 1	62	4882	15.9	12.14	20.52	85	6760	22.0	17.19	27.70
Form 2	35	3252	10.8	7.13	15.93	51	4829	16.0	10.82	22.99
Form 3	18	1923	6.2	3.49	10.70	37	3650	11.7	7.07	18.80
Form 4	38	3045	10.1	7.57	13.33	41	3250	10.8	7.73	14.81
Form 5	26	2890	9.1	5.90	13.85	42	4826	15.2	9.65	23.22
<b>Ethnicity</b>										
Malay	261	26390	13.3	11.28	15.61	343	35838	18.1	15.48	20.96
Chinese	32	3345	8.5	5.39	13.30	50	5427	13.9	7.95	23.08
Indian	9	951	12.3	6.19	22.89	15	1364	17.6	7.35	36.54
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	1	104	100.0	100.00	100.00
Others	5	438	13.1	5.50	28.18	6	471	14.1	8.25	23.18
<b>BMI-for age status (BAZ)</b>										
Thinness (<-2sd)	21	2160	13.5	8.78	20.32	36	3680	23.1	15.90	32.24
Normal (≥ - 2sd - ≤+ 1sd)	192	19461	12.5	9.98	15.45	255	26447	16.9	14.22	20.03
Overweight (> +1sd - ≤+ 2sd)	40	4124	10.7	6.63	16.87	68	7057	18.3	13.27	24.79
Obese (> + 2sd)	53	5273	13.8	10.54	17.88	56	6021	15.8	12.49	19.71
<b>Height-for - age status (HAZ)</b>										
Stunting (<-2sd)	24	2598	13.2	8.62	19.82	31	3162	16.1	11.31	22.48
Normal (≥-2sd)	283	28526	12.4	10.70	14.41	384	40042	17.5	14.98	20.24

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.6.5: Prevalence of adolescents taking food supplements by socio-demographic characteristics**

Characteristics	Taking food supplement					Not taking food supplement				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	765	77288	31.0	25.89	36.72	1710	171655	69.0	63.28	74.11
<b>Locality of School</b>										
Urban	385	40065	30.6	24.65	37.38	890	90666	69.4	62.62	75.35
Rural	380	37222	31.5	23.25	41.09	820	80989	68.5	58.91	76.75
<b>Sex</b>										
Boys	439	42488	34.5	28.53	41.04	818	80598	65.5	58.96	71.47
Girls	326	34800	27.7	22.01	34.10	892	91057	72.3	65.90	77.99
<b>Class</b>										
Standard 4	90	9793	31.2	25.65	37.32	186	21606	68.8	62.68	74.35
Standard 5	152	15798	50.3	41.13	59.54	139	15584	49.7	40.46	58.87
Standard 6	90	13281	41.3	29.74	53.99	134	18843	58.7	46.01	70.26
<b>Remove class</b>										
Form 1	140	11029	35.9	31.91	40.02	252	19725	64.1	59.98	68.09
Form 2	87	8093	26.7	20.06	34.61	238	22206	73.3	65.39	79.94
Form 3	53	5429	17.5	12.60	23.76	248	25617	82.5	76.24	87.40
Form 4	92	7224	23.9	19.30	29.13	289	23039	76.1	70.87	80.70
Form 5	61	6640	21.0	13.83	30.46	224	25035	79.0	69.54	86.17
<b>Ethnicity</b>										
Malay	582	59215	29.8	23.64	36.89	1388	139184	70.2	63.11	76.36
Chinese	134	13514	34.5	30.08	39.28	249	25621	65.5	60.72	69.92
Indian	31	2976	38.4	27.72	50.40	51	4767	61.6	49.60	72.28
Bumiputera Sabah	1	129	56.3	5.81	96.40	1	100	43.7	3.60	94.19
Bumiputera Sarawak	-	-	-	-	-	1	104	100.0	100.00	100.00
Others	17	1454	43.6	21.44	68.70	20	1879	56.4	31.30	78.56
<b>BMI-for age status (BAZ)</b>										
Thinness (<-2sd)	56	5429	34.0	25.54	43.71	104	10522	66.0	56.29	74.46
Normal (≥ - 2sd - ≤+ 1sd)	471	48267	30.9	25.75	36.58	1083	107932	69.1	63.42	74.25
Overweight (> +1sd - ≤+ 2sd)	118	11643	30.3	24.22	37.18	265	26773	69.7	62.82	75.78
Obese (> + 2sd)	119	11842	31.0	23.66	39.48	257	26335	69.0	60.52	76.34
<b>Height-for - age status (HAZ)</b>										
Stunting (<-2sd)	59	6308	32.3	22.12	44.55	130	13204	67.7	55.45	77.88
Normal (≥-2sd)	706	70980	30.9	25.86	36.53	1580	158451	69.1	63.47	74.14



NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.6.6: Types of food supplement usually consumed among adolescents by socio-demographic characteristics (Cont.)

Characteristics	Spirulina					Fish oil				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	125	13035	5.3	3.90	7.04	193	19503	7.9	6.03	10.20
<b>Locality of School</b>										
Urban	61	6587	5.1	3.22	7.89	115	11754	9.0	6.67	12.16
Rural	64	6448	5.5	3.72	7.96	78	7749	6.6	4.17	10.20
<b>Sex</b>										
Boys	90	9193	7.5	5.53	10.19	119	11169	9.2	6.27	13.18
Girls	35	3842	3.0	2.08	4.44	74	8334	6.6	4.84	8.98
<b>Class</b>										
Standard 4	25	2836	9.0	4.73	16.48	32	3492	11.1	5.35	21.60
Standard 5	31	3008	9.7	6.58	14.00	22	2467	7.9	4.94	12.49
Standard 6	15	2255	7.0	4.66	10.45	17	2503	7.8	4.25	13.85
<b>Remove class</b>										
Form 1	20	1646	5.4	3.22	8.94	31	2525	8.3	4.92	13.64
Form 2	7	656	2.2	0.71	6.50	22	2073	6.9	3.17	14.41
Form 3	5	576	1.9	0.61	5.53	22	2209	7.1	3.59	13.60
Form 4	11	854	2.8	1.53	5.18	25	1932	6.4	4.41	9.19
Form 5	11	1203	3.8	2.64	5.48	22	2302	7.3	4.09	12.66
<b>Ethnicity</b>										
Malay	100	10392	5.3	3.65	7.50	139	14359	7.3	5.19	10.05
Chinese	17	1859	4.8	2.90	7.72	35	3438	8.8	7.46	10.36
Indian	5	503	6.8	2.94	15.07	12	1070	14.5	7.63	25.87
Bumiputera Sabah	-	-	-	-	-	1	129	56.3	5.81	96.40
Bumiputera Sarawak	1	104	100.0	100.00	100.00	-	-	-	-	-
Others	2	177	5.3	0.95	24.68	6	507	15.2	8.68	25.30
<b>BMI-for age status (BAZ)</b>										
Thinness (<-2sd)	5	511	3.2	1.17	8.47	16	1398	8.8	3.90	18.54
Normal (≥ - 2sd - ≤+ 1sd)	89	9403	6.0	4.34	8.36	102	10300	6.6	4.95	8.80
Overweight (> +1sd - ≤+ 2sd)	15	1414	3.7	2.31	5.92	40	4198	11.0	7.23	16.46
Obese (> + 2sd)	16	1706	4.5	2.21	8.84	35	3607	9.5	6.95	12.75
<b>Height-for - age status (HAZ)</b>										
Stunting (<-2sd)	11	1243	6.4	3.60	11.03	14	1346	6.9	4.24	11.03
Normal (≥-2sd)	114	11791	5.2	3.82	6.94	179	18157	7.9	6.10	10.29

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.6.6: Types of food supplement usually consumed among adolescents by socio-demographic characteristics**

Characteristics	Bee Product					Chicken essence				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	412	41908	16.9	13.39	21.11	97	10228	4.1	3.19	5.32
<b>Locality of School</b>										
Urban	194	20445	15.7	11.22	21.61	53	5509	4.2	3.29	5.45
Rural	218	21462	18.2	13.25	24.45	44	4719	4.0	2.49	6.36
<b>Sex</b>										
Boys	233	22847	18.7	14.89	23.29	60	6316	5.2	3.89	6.86
Girls	179	19060	15.1	11.46	19.70	37	3912	3.1	2.07	4.63
<b>Class</b>										
Standard 4	73	8239	26.2	18.77	35.22	17	2055	6.5	4.09	10.27
Standard 5	71	7709	24.8	14.94	38.20	14	1573	5.1	2.89	8.68
Standard 6	39	5722	17.8	10.23	29.18	13	1816	5.7	3.01	10.36
<b>Remove class</b>										
Form 1	75	5780	19.0	14.99	23.73	20	1573	5.2	2.60	10.01
Form 2	56	5219	17.4	12.77	23.23	12	1149	3.8	2.29	6.33
Form 3	32	3335	10.7	7.45	15.25	6	679	2.2	0.90	5.24
Form 4	44	3416	11.3	8.09	15.62	11	899	3.0	1.73	5.07
Form 5	22	2487	7.9	5.34	11.49	4	484	1.5	0.51	4.54
<b>Ethnicity</b>										
Malay	360	36781	18.6	14.69	23.23	67	7178	3.6	2.52	5.20
Chinese	45	4492	11.5	8.88	14.78	23	2403	6.2	4.49	8.38
Indian	6	549	7.5	3.34	15.80	4	397	5.4	2.41	11.60
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	1	86	2.6	0.43	13.75	3	251	7.5	2.09	23.76
<b>BMI-for age status (BAZ)</b>										
Thinness (<-2sd)	30	2946	18.5	11.74	27.83	7	628	3.9	1.92	7.91
Normal (≥ -2sd - ≤+ 1sd)	247	25601	16.5	12.40	21.50	58	6288	4.0	2.87	5.65
Overweight (> +1sd - ≤+ 2sd)	65	6181	16.2	12.06	21.50	16	1672	4.4	2.67	7.14
Obese (> + 2sd)	69	7074	18.6	13.44	25.06	16	1641	4.3	2.57	7.12
<b>Height-for - age status (HAZ)</b>										
Stunting (<-2sd)	34	3549	18.2	10.72	29.16	8	992	5.1	2.44	10.29
Normal (≥-2sd)	378	38358	16.8	13.56	20.60	89	9236	4.0	3.09	5.27

Table 3.6.6: Types of food supplement usually consumed among adolescents by socio-demographic characteristics

Characteristics	Others				
	Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper
<b>Kedah</b>	255	26021	10.5	8.86	12.39
<b>Locality of School</b>					
Urban	125	13266	10.2	7.81	13.23
Rural	130	12755	10.8	8.77	13.25
<b>Sex</b>					
Boys	134	12735	10.4	8.10	13.36
Girls	121	13286	10.5	8.79	12.60
<b>Class</b>					
Standard 4	26	2998	9.5	6.38	13.99
Standard 5	53	5047	16.2	10.41	24.41
Standard 6	29	4426	13.8	11.41	16.54
Remove class					
Form 1	39	3081	10.1	7.73	13.14
Form 2	27	2558	8.5	6.12	11.75
Form 3	23	2276	7.3	3.98	13.12
Form 4	28	2244	7.4	4.48	12.09
Form 5	30	3391	10.7	5.55	19.78
<b>Ethnicity</b>					
Malay	194	19952	10.1	8.17	12.39
Chinese	45	4580	11.7	8.60	15.81
Indian	8	793	10.8	5.26	20.72
Bumiputera Sabah	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-
Others	8	696	20.9	6.42	50.37
<b>BMI-for age status (BAZ)</b>					
Thinness (<-2sd )	19	1977	12.4	7.48	19.84
Normal ( $\geq -2sd - \leq +1sd$ )	165	16813	10.8	8.82	13.17
Overweight ( $> +1sd - \leq +2sd$ )	34	3510	9.2	6.29	13.31
Obese ( $> +2sd$ )	37	3721	9.8	7.36	12.84
<b>Height-for - age status (HAZ)</b>					
Stunting (<-2sd )	20	1952	10.0	6.14	15.89
Normal ( $\geq -2sd$ )	235	24070	10.5	8.77	12.61

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.6.7: Reasons for taking food supplements among adolescents by socio-demographic characteristics (Cont.)

Characteristics	Doctor's Instruction					Parents' advice				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	128	13694	12.4	9.44	16.25	328	33673	30.6	26.00	35.65
<b>Locality of School</b>										
Urban	66	7131	12.4	9.47	16.19	167	18182	31.7	26.45	37.55
Rural	62	6563	12.4	7.54	19.86	161	15492	29.4	22.19	37.78
<b>Sex</b>										
Boys	85	8594	14.8	11.60	18.70	171	15873	27.3	23.54	31.51
Girls	43	5101	9.8	6.00	15.66	157	17801	34.3	27.43	41.82
<b>Class</b>										
Standard 4	32	3595	21.6	17.45	26.52	56	6511	39.2	30.02	49.21
Standard 5	29	3348	17.3	13.47	22.00	73	7249	37.5	32.00	43.36
Standard 6	14	1955	11.5	5.31	23.10	36	5487	32.2	24.24	41.46
Remove class										
Form 1	22	1801	11.2	6.52	18.55	63	4951	30.8	22.88	40.00
Form 2	8	777	6.7	2.71	15.76	33	3108	26.9	20.20	34.94
Form 3	10	1032	11.9	5.15	25.11	14	1402	16.1	8.36	28.91
Form 4	9	719	7.8	3.17	17.96	29	2318	25.2	18.39	33.39
Form 5	4	468	4.1	1.07	14.12	24	2646	22.9	12.96	37.33
<b>Ethnicity</b>										
Malay	107	11531	12.7	9.39	16.97	256	26603	29.3	23.88	35.39
Chinese	11	1197	8.5	4.24	16.23	52	5210	36.9	32.10	41.97
Indian	8	815	22.0	11.57	37.81	13	1283	34.7	21.40	50.84
Bumiputera Sabah						1	129	100.0	100.00	100.00
Bumiputera Sarawak										
Others	2	152	11.9	1.80	49.84	6	448	35.0	12.95	66.04
<b>BMI-for age status (BAZ)</b>										
Thinness (< -2sd )	10	1106	14.0	8.25	22.75	24	2368	30.0	20.25	41.91
Normal (≥ - 2sd - ≤+ 1sd )	77	8443	12.0	8.52	16.60	200	20989	29.8	24.07	36.23
Overweight (> +1sd - ≤+ 2sd)	22	2242	13.1	8.50	19.77	58	5791	33.9	27.46	41.10
Obese (> + 2sd)	19	1904	13.1	8.94	18.87	45	4420	30.5	24.82	36.80
<b>Height-for - age status (HAZ)</b>										
Stunting (< -2sd )	15	1491	16.2	7.80	30.71	24	2586	28.1	17.85	41.37
Normal (≥ -2sd )	113	12203	12.1	9.24	15.71	304	31088	30.8	26.28	35.81

Table 3.6.7: Reasons for taking food supplements among adolescents by socio-demographic characteristics (Cont..)

Characteristics	Self awareness					Influences by friends				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	227	23054	21.0	18.17	24.05	24	2281	2.1	1.51	2.84
<b>Locality of School</b>										
Urban	110	11563	20.2	16.87	23.98	12	1201	2.1	1.28	3.42
Rural	117	11491	21.8	17.39	26.96	12	1080	2.0	1.41	2.97
<b>Sex</b>										
Boys	139	13864	23.9	19.43	28.98	20	1920	3.3	2.43	4.48
Girls	88	9191	17.7	15.40	20.24	4	361	0.7	0.24	2.02
<b>Class</b>										
Standard 4	33	3609	21.7	18.29	25.60	4	352	2.1	0.54	7.91
Standard 5	33	3485	18.0	13.28	24.00	4	354	1.8	0.38	8.29
Standard 6	24	3533	20.8	15.43	27.34	2	344	2.0	0.60	6.62
Remove class										
Form 1	46	3649	22.7	16.61	30.19	5	412	2.6	1.01	6.32
Form 2	24	2241	19.4	14.03	26.26	1	87	0.8	0.11	4.92
Form 3	22	2241	25.8	16.75	37.56	3	320	3.7	1.24	10.45
Form 4	20	1608	17.5	13.27	22.62	4	298	3.2	1.23	8.24
Form 5	25	2689	23.3	9.23	47.62	1	114	1.0	0.12	7.93
<b>Ethnicity</b>										
Malay	192	19493	21.5	18.19	25.18	19	1785	2.0	1.31	2.93
Chinese	25	2633	18.6	14.48	23.68	4	409	2.9	1.84	4.53
Indian	5	469	12.7	5.06	28.28	1	87	2.4	0.35	14.13
Bumiputera Sabah										
Bumiputera Sarawak										
Others	5	459	35.8	13.49	66.63					
<b>BMI-for age status (BAZ)</b>										
Thinness (<-2sd)	20	1834	23.2	13.27	37.41	1	72	0.9	0.11	7.51
Normal (≥ - 2sd - ≤+ 1sd)	142	14658	20.8	17.90	24.05	16	1669	2.4	1.59	3.52
Overweight (> +1sd - ≤+ 2sd)	36	3615	21.2	14.94	29.17	2	117	0.7	0.15	3.11
Obese (> + 2sd)	29	2947	20.3	14.66	27.48	5	422	2.9	1.07	7.71
<b>Height-for - age status (HAZ)</b>										
Stunting (<-2sd)	12	1232	13.4	6.76	24.87	4	441	4.8	1.86	11.82
Normal (≥-2sd)	215	21822	21.6	18.48	25.19	20	1840	1.8	1.33	2.51

Table 3.6.7: Reasons for taking food supplements among adolescents by socio-demographic characteristics

Characteristics	Others				
	Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper
<b>Kedah</b>	62	6391	5.8	4.41	7.63
<b>Locality of School</b>					
Urban	27	2935	5.1	3.35	7.76
Rural	35	3456	6.6	4.54	9.37
<b>Sex</b>					
Boys	39	3830	6.6	4.46	9.66
Girls	23	2561	4.9	3.49	6.91
<b>Class</b>					
Standard 4	5	533	3.2	0.61	15.24
Standard 5	12	1375	7.1	3.50	13.93
Standard 6	9	1335	7.8	5.08	11.93
Remove class					
Form 1	8	588	3.7	1.43	9.04
Form 2	11	1017	8.8	6.04	12.69
Form 3	3	315	3.6	0.95	12.89
Form 4	9	702	7.6	3.18	17.12
Form 5	5	525	4.6	1.77	11.26
<b>Ethnicity</b>					
Malay	50	5204	5.7	4.28	7.64
Chinese	8	881	6.2	3.30	11.47
Indian	3	236	6.4	2.17	17.24
Bumiputera Sabah					
Bumiputera Sarawak					
Others	1	71	5.5	0.66	33.62
<b>BMI-for age status (BAZ)</b>					
Thinness (<-2sd)	4	324	4.1	1.45	11.08
Normal ( $\geq -2sd - \leq +1sd$ )	42	4469	6.3	4.58	8.72
Overweight ( $> +1sd - \leq +2sd$ )	8	757	4.4	2.33	8.30
Obese ( $> +2sd$ )	8	841	5.8	2.51	12.85
<b>Height-for - age status (HAZ)</b>					
Stunting (<-2sd)	5	535	5.8	2.57	12.69
Normal ( $\geq -2sd$ )	57	5855	5.8	4.32	7.77

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.6.8: Frequency of taking food supplements among adolescents by socio-demographic characteristics (Cont.)**

Characteristics	Everyday					5 to 6 times per week				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	264	26815	10.8	7.82	14.70	166	16887	6.8	5.10	9.00
<b>Locality of School</b>										
Urban	133	14199	10.9	7.03	16.44	80	8550	6.5	4.46	9.50
Rural	131	12616	10.7	6.61	16.84	86	8337	7.1	4.59	10.71
<b>Sex</b>										
Boys	157	14823	12.1	9.19	15.72	118	11546	9.4	7.00	12.53
Girls	107	11992	9.5	6.32	14.11	48	5341	4.2	2.86	6.24
<b>Class</b>										
Standard 4	60	5862	18.5	10.52	30.46	36	4198	13.2	8.75	19.54
Standard 5	58	6270	20.0	11.04	33.40	41	3467	11.0	5.91	19.70
Standard 6	24	3695	11.5	8.81	14.89	16	2402	7.5	5.59	9.93
<b>Remove class</b>										
Form 1	46	3733	12.2	7.32	19.69	16	1261	4.1	2.59	6.51
Form 2	19	1800	6.0	3.14	11.12	12	1151	3.8	1.59	8.92
Form 3	15	1605	5.2	3.01	8.79	21	2208	7.1	3.30	14.74
Form 4	21	1614	5.3	3.09	9.10	13	1007	3.3	2.30	4.81
Form 5	21	2236	7.1	4.00	12.25	11	1192	3.8	2.24	6.29
<b>Ethnicity</b>										
Malay	207	21154	10.7	7.25	15.44	138	14124	7.1	5.13	9.82
Chinese	35	3630	9.3	7.38	11.54	23	2330	5.9	4.26	8.23
Indian	14	1340	18.0	11.39	27.17	4	336	4.5	1.43	13.25
Bumiputera Sabah	1	129	56.3	5.81	96.40	-	-	-	-	-
Bumiputera Sarawak	1	104	100.0	100.00	100.00	-	-	-	-	-
Others	6	458	13.7	2.78	47.04	1	97	2.9	0.31	22.71
<b>BMI-for age status (BAZ)</b>										
Thinness (<-2sd)	16	1418	8.9	4.68	16.25	13	1284	8.1	3.42	17.81
Normal (≥ - 2sd - ≤+ 1sd)	174	17686	11.3	7.99	15.86	98	9992	6.4	4.53	8.99
Overweight (> +1sd - ≤+ 2sd)	42	4301	11.3	8.07	15.52	22	2186	5.7	3.60	9.00
Obese (> + 2sd)	32	3410	8.9	5.52	14.03	33	3424	8.9	5.98	13.15
<b>Height-for - age status (HAZ)</b>										
Stunting (<-2sd)	22	2430	12.4	7.02	21.12	17	1854	9.5	4.81	17.90
Normal (≥-2sd)	242	24385	10.6	7.81	14.34	149	15033	6.6	5.00	8.57

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

Table 3.6.8: Frequency of taking food supplements among adolescents by socio-demographic characteristics

Characteristics	3 to 4 times per week					1 to 2 times per week				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>Kedah</b>	218	22236	8.9	7.70	10.37	396	41332	16.6	14.33	19.21
<b>Locality of School</b>										
Urban	116	11956	9.2	7.68	10.88	196	20588	15.8	12.67	19.44
Rural	102	10281	8.7	6.78	11.13	200	20744	17.6	14.43	21.25
<b>Sex</b>										
Boys	132	13025	10.6	8.93	12.58	211	21350	17.4	14.25	21.08
Girls	86	9211	7.3	5.89	9.06	185	19983	15.9	13.05	19.17
<b>Class</b>										
Standard 4	32	3996	12.6	7.70	19.97	45	5769	18.2	11.44	27.70
Standard 5	31	3254	10.4	9.23	11.61	57	6429	20.5	16.27	25.42
Standard 6	23	3295	10.3	7.27	14.28	44	6639	20.7	16.23	25.93
Remove class										
Form 1	46	3628	11.9	10.04	13.99	78	6145	20.1	16.07	24.86
Form 2	28	2592	8.6	5.95	12.32	56	5219	17.3	12.29	23.91
Form 3	15	1529	4.9	3.12	7.74	29	2992	9.7	6.74	13.68
Form 4	27	2115	7.0	4.69	10.34	50	3996	13.2	9.46	18.21
Form 5	16	1827	5.8	2.68	12.05	37	4143	13.1	8.70	19.33
<b>Ethnicity</b>										
Malay	175	18027	9.1	7.65	10.78	309	32649	16.5	13.70	19.68
Chinese	28	2720	6.9	5.11	9.35	66	6764	17.2	13.98	21.08
Indian	11	1115	14.9	9.21	23.32	13	1211	16.2	8.95	27.62
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	4	374	11.2	4.13	27.00	8	708	21.2	11.86	35.09
<b>BMI-for age status (BAZ)</b>										
Thinness (<-2sd )	10	963	6.0	3.23	11.01	33	3351	21.0	12.14	33.85
Normal (≥ - 2sd - ≤+ 1sd )	130	13704	8.8	7.13	10.79	248	26086	16.7	14.24	19.56
Overweight (> +1sd - ≤+ 2sd)	39	3854	10.1	6.74	14.85	61	6217	16.3	13.37	19.70
Obese (> + 2sd)	38	3609	9.4	7.35	11.99	54	5678	14.8	11.70	18.58
<b>Height-for - age status (HAZ)</b>										
Stunting (<-2sd )	21	2044	10.5	8.26	13.18	25	2626	13.5	8.75	20.13
Normal (≥-2sd )	197	20193	8.8	7.45	10.40	371	38706	16.9	14.47	19.64



### **3.7 Food and nutrition labeling among adolescent (Secondary 1 to Secondary 5) in Kedah**

**Contributors:** Ruhaya Salleh, Ruzita Abd Talib, Lai Wai Kent, Noor ul-Aziha Muhammad, Mohamad Hasnan Ahmad, Lalitha Palaniveloo, Rashidah Ambak, Hazizi Abu Saad, Shubash Shander a/I Ganapathy

#### **3.7.1 Introduction**

Recognizing the need for more effective regulation of the nutrition labels and claims on food packages, the Ministry of Health Malaysia (MOH) gazetted amendments to Food Regulations 1985 in 2003 (MOH, 1985). MOH has also gazetted and enforced Regulations on Nutrition Labelling and Claims. Regulations were introduced requiring manufacturers to describe the nutritional qualities of a food product factually and informatively.

Nutrition information on food labels to assist food choices and implementation of Front-of-Pack (FOP) labelling are listed as current nutrition programs and activities in the National Plan of Action for Nutrition of Malaysia III, 2016-2025. Food and nutrition labelling are designed to provide consumers with various information when choosing food. Food and nutrition labelling in this survey include food labelling, FOP labelling, nutrition information panel (NIP) and nutrition labelling. Food labelling includes any written, printed or graphic matter that is presented on the label, accompanies the food, or is displayed near the food, including that for the purpose of promoting its sale or disposal. NIP declares the nutrients as a table in one section of a food label. In addition, nutrition labelling describes the nutrient content of a food product and this may assist the consumers in making better food choices when planning their daily meals. Thus, food and nutrition labelling has been recognized as one of the strategies to encourage people to adopt healthy eating practices. There is no national data in Malaysia on the prevalence of food label reading among Malaysian children and teenagers. Therefore, this survey was conducted to determine the prevalence of reading and understanding the food and nutritional labelling among adolescents in Malaysia.

#### **3.7.2 Objective**

##### **General objective**

To determine the prevalence of reading food and nutrition labeling among adolescents (Secondary 1 to Secondary 5).

##### **Specific objective:**

1. To determine the prevalence of reading food label when buying or receiving food/drink.

2. To determine the reason(s) for not reading food labels.
3. To determine the types of nutrition fact information (energy, carbohydrate/ sugar, fat, protein, sodium, vitamin, mineral and fiber content) that is read from the food label.
4. To determine the types of information (expiry date, nutritional claim, nutrition facts, halal logo, food ingredients, storage instruction) read from the food label.
5. To determine the understanding of nutrition labelling (nutrition facts and front of pack).
6. To determine the knowledge of the most and least amount of ingredients contained based on the food ingredients list.

### **3.7.3 Variable definitions**

There were three classifications used in this study.

- a. Always: reads food labels every time when buying or receiving food/drinks
- b. Sometimes: occasionally or once in a while reads food labels when buying or receiving food/drink
- c. Never: does not read food labels at all.

#### **Food label**

- A food label includes any tag, brand, mark, pictorial or other descriptive matter, written, printed, stenciled, marked, painted, embossed or impressed on, or attached to or included in, belonging to, or accompanying any food. (Malaysia Food Regulations 1985).

#### **Front of Pack (FOP) labels**

- Simplified nutrition information on the front of the package, in varied forms.

#### **Nutrition information panel/ Nutrition facts**

- The nutrition information panel or NIP is a table found in one section of a food label declaring the amount of nutrients contained in the food.

#### **Nutrition labelling**

- A nutrition label is a listing of the level of nutrient(s) as displayed on the food label. It is meant to provide factual information about the nutritional content of the product.

### 3.7.4 Findings

#### 3.7.4.1 Prevalence of practise reading food labels when buying or receiving food/drink among adolescents in Kedah

The results in **Table 3.7.1** showed 35.4% (95%CI: 32.57, 38.28) of adolescents in Kedah reported as always reading food labels. Another 51.4% (95%CI: 47.91,54.93) of adolescents reported as sometimes, while only 13.2% (95%CI: 10.29,16.79) reported as never reading food labels when buying or receiving food. The prevalence of never reading food labels was significantly higher among boys [ 18.8% (95% CI: 14.00,24.67)] than girls [7.9% (95%CI: 5.79,10.77)].

#### 3.7.4.2 Reasons for not reading food and nutrition labelling among adolescents in Kedah

Among those never read food labels, the findings showed that the main reasons for not reading food labels were that the food labels were not interesting [42.3% (95%CI: 31.92, 53.40)], followed by do not understand food labels [21.4% (95%CI: 16.99, 26.63)] and did not know the importance of food labels [16.1% (95%CI: 10.01, 24.97)]. The results also revealed that 16.0% (95%CI: 12.76, 19.96) of adolescents had time constraint; 12.7% (95%CI: 9.16, 17.33) of adolescents were already aware of the food label information and 11.6% (95%CI: 8.05, 16.45) of adolescents think that the size of the printing on food labels was too small (Table 6.2). Food labels being not interesting was reported as the main reason for not reading food labels by adolescents from both boys and girls and adolescents from all Forms.

By BMI-for-age status (BAZ), food labels were not interesting was reported as the highest percentage of the reason for not reading food labels among overweight [48.5% (95%CI: 34.08, 63.22)], thin [41.5% (95%CI: 21.16, 65.29)], obese [41.3% (95%CI: 27.51, 56.51)] and normal adolescents [40.9% (95%CI: 25.47, 58.42)]. By height-for-age status (HAZ), stunted adolescents [44.1% (95%CI: 16.28, 76.18)] reported that time constraint as the highest percentage of the reason for not reading the food labels; normal adolescents [42.7% (95%CI: 31.99, 54.19)] reported food labels were not interesting as the highest percentage of the reason for not reading food labels among. (**Table 3.7.2**).

#### 3.7.4.3 Types of nutrition fact information (energy, carbohydrate/ sugar, fat, protein, sodium, vitamin, mineral and fiber content) that read from the food labels.

Among those who read the nutrition fact information, the three most common types of nutritional information being read were fat content [41.4% (95%CI: 35.37, 47.77)], total energy content [39.0% (95%CI: 35.31, 42.87)], and carbohydrate content (including sugar) [36.8% (95%CI: 31.4, 42.58)]. It was followed by protein content [22.8% (95%CI: 19.65, 26.32)], vitamin content [22.5% (95%CI: 18.54, 27.06)], fiber [10.5% (95%CI: 7.79, 14.07)], mineral

content [10.4% (95%CI: 7.76, 13.90)] and sodium content [9.6% (95%CI: 7.72, 11.83)] (**Table 3.7.3a** and **Table 3.7.3b**)

#### **3.7.4.4 Types of information (expiry date, nutrition claim, nutrition facts, halal logo, food ingredients and storage instruction read from the food labels.**

Based on types of information (expiry date, nutritional claim, nutrition facts, halal logo, food ingredients, storage instruction) read on the food label, most of the adolescents read expiry date [76.7% (95%CI: 72.26, 80.70)], followed by halal logo [46.9% (95%CI: 37.23, 56.72)], food ingredients [30.5% (95%CI: 25.02, 36.67)], nutrition fact [25.0% (95%CI: 20.46, 30.14)], storage instruction [18.7% (95%CI: 13.13, 26.04)] and nutritional claim [18.4% (95%CI: 13.02, 25.38)]. By locality of school, the highest percentage of adolescents read expiry date from urban area [79.1% (95%CI: 71.83, 84.86)] as compared with rural area [74.4% (95%CI: 69.61, 78.66)]. While the lowest information read in urban area [21.9% (95%CI: 12.65, 35.25)] and in rural area [14.9% (95%CI: 13.02, 16.95)] was nutritional claim. By sex, the highest types of information read among boys [70.1% (95%CI: 64.27, 75.34)] and girls [82.3% (95%CI: 77.78, 86.09)] was expiry date (**Table 3.7.4**).

#### **3.7.4.5 Understanding of nutrition facts among adolescents in Kedah**

Overall, [62.0% (95%CI: 57.23, 66.57)] and [55.4% (95%CI: 50.72, 59.98)] of the adolescents had given a correct response to the question assessing interpretation of the energy content and sugar content based on the nutrition facts given. While 44.9% (95%CI: 39.03, 50.86)] correct responses for both energy and sugar (**Table 3.7.5**).

#### **3.7.4.6 Understanding of front of pack labelling among adolescents in Kedah**

Overall, less than half of the adolescents [42.8% (95%CI: 37.02, 48.83)] had given the correct response to question assessing interpretation of the energy content based on the front of pack labelling given and [46.7% (95%CI: 43.07, 50.40)] had given correct response to question assessing interpretation of the percentage of energy content based on the front of pack labelling given. However, the results showed [28.5% (95% CI: 24.03, 33.38)] to questions assessing interpretations of both the energy content and the percentage of energy content based on the front of pack labelling given (**Table 3.7.6**).

#### **3.7.4.7 Understanding of the mostly and the least used ingredients based on the food ingredient list among adolescents in Kedah**

Overall, less than half of the adolescents [57.1% (95%CI: 50.93, 63.02)] had given a correct response to the question assessing interpretation of the most used ingredient in the food based on the list of ingredients given. Girls [61.3% (95%CI: 54.22, 67.85)] reported a higher prevalence of interpreting correctly as compared to the boys [52.1% (95%CI: 45.79, 58.35)].

While 15.4% (95%CI: 12.60, 18.67) of adolescents had given the correct response to the question assessing interpretation of the least used ingredient in the food based on the list of ingredients given. The results showed a low level of correct response [7.7% (95%CI: 5.81, 10.12)] to questions assessing interpretations of both the most and the least used ingredients based on the ingredient list given (**Table 3.7.7**).

### **3.7.5 Discussion/Conclusion**

This study provides useful information about the prevalence of reading food and nutrition labelling among adolescents in Kedah. Adolescents reported a lower prevalence of not reading food label. Continuous education regarding understanding the food and nutrition labelling, not limited to the expiry date, but also the nutritional content and the benefits of front of pack labelling and nutrition information panel is necessary. Boys had a higher prevalence of not reading food and nutrition labelling. Thus, we need to be creative in education and promotion to ensure that adolescents know how to interpret the overall information that is stated at the food and nutrition labelling before choosing packaged food and drinks. In this survey, majority of the adolescents still lack of knowledge to determine the highest and lowest ingredients content based on the label.

### **References**

1. Institute for Public Health. National health and Morbidity Survey 2014. Malaysian Adult Nutrition Survey. Vol II.
2. Malaysia Food Regulations (1985). Ministry of Health Malaysia.
3. National Coordinating Committee on Food and Nutrition. 2010. Malaysian Dietary Guidelines. Ministry of Health.

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.1: Prevalence of reading food and nutritional labelling when buying or receiving food/drink among adolescents (Cont.)**

Characteristic	Yes, always					Yes, sometimes				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	607	54586	35.4	32.57	38.28	867	79361	51.4	47.91	54.93
<b>Locality of School</b>										
Urban	307	27451	35.4	31.87	39.19	435	39787	51.4	46.48	56.23
Rural	300	27135	35.3	31.05	39.79	432	39575	51.5	46.43	56.51
<b>Sex</b>										
Boys	292	26440	35.2	30.01	40.72	376	34619	46.1	40.79	51.43
Girls	315	28146	35.6	32.70	38.51	491	44742	56.5	53.28	59.70
<b>Class</b>										
Form 1	185	14513	47.1	38.91	55.44	164	12684	41.2	35.12	47.48
Form 2	111	10165	33.5	25.25	43.00	175	16443	54.3	45.75	62.53
Form 3	105	10888	34.9	30.85	39.10	153	15640	50.1	45.26	54.90
Form 4	121	9614	31.8	27.57	36.45	220	17440	57.8	53.18	62.23
Form 5	85	9406	29.6	23.74	36.20	155	17155	54.0	42.40	65.13
<b>Ethnicity</b>										
Malay	479	42961	35.6	32.32	38.95	694	63582	52.6	48.41	56.83
Chinese	81	7462	32.1	27.08	37.64	122	11037	47.5	38.02	57.22
Indian	34	3103	44.3	34.13	55.03	31	2852	40.7	34.54	47.27
Bumiputera Sabah	-	-	-	-	-	1	100	100.0	100.00	100.00
Bumiputera Sarawak	-	-	-	-	-	1	104	100.0	100.00	100.00
Others	13	1061	34.2	22.85	47.70	18	1686	54.3	37.66	70.08
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	38	3462	34.5	23.77	47.02	50	4406	43.9	30.56	58.13
Normal (≥-2sd - ≤+1sd)	396	35661	36.0	33.52	38.60	562	51433	52.0	48.57	55.32
Overweight (>+1sd - ≤+2sd)	99	8725	36.7	30.20	43.77	127	11658	49.1	42.70	55.46
Obese (>+2sd)	74	6738	31.3	23.80	39.94	128	11864	55.1	47.59	62.44
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	46	4185	39.1	33.62	44.95	64	5903	55.2	49.69	60.57
Normal (≥-2sd)	561	50401	35.1	32.08	38.23	803	73459	51.1	47.59	54.69

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.1: Prevalence of reading food and nutritional labelling when buying or receiving food/drink among adolescents**

Characteristic	Never				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper
<b>KEDAH</b>	213	20375	13.2	10.29	16.79
<b>Locality of School</b>					
Urban	106	10213	13.2	11.18	15.49
Rural	107	10161	13.2	8.20	20.61
<b>Sex</b>					
Boys	147	14099	18.8	14.00	24.67
Girls	66	6276	7.9	5.79	10.77
<b>Class</b>					
Form 1	44	3619	11.7	6.60	20.05
Form 2	39	3695	12.2	6.82	20.85
Form 3	45	4702	15.1	10.70	20.77
Form 4	39	3134	10.4	7.92	13.49
Form 5	46	5225	16.4	8.61	29.11
<b>Ethnicity</b>					
Malay	149	14251	11.8	8.65	15.89
Chinese	49	4723	20.3	12.62	31.11
Indian	11	1045	14.9	7.27	28.18
Bumiputera Sabah	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-
Others	4	356	11.5	4.01	28.69
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	23	2175	21.7	12.54	34.77
Normal (≥-2sd - ≤+1sd)	125	11904	12.0	9.45	15.18
Overweight (>+1sd - ≤+2sd)	35	3377	14.2	9.62	20.50
Obese (>+2sd)	30	2918	13.6	8.90	20.12
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	7	606	5.7	1.99	15.08
Normal (≥-2sd)	206	19768	13.8	10.88	17.26

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.2: Reasons for not reading food label among adolescents (Cont.)**

Characteristic	Size of the print too small					Do not understand				
	Unweighted	Estimated	Prevalence	95% CI		Unweighted	Estimated	Prevalence	95% CI	
	Count	Population	(%)	Lower	Upper	Count	Population	(%)	Lower	Upper
<b>KEDAH</b>	26	2365	11.6	8.05	16.45	46	4364	21.4	16.99	26.63
<b>Locality of School</b>										
Urban	14	1343	13.2	9.12	18.59	21	2121	20.8	13.27	30.97
Rural	12	1022	10.1	5.32	18.19	25	2244	22.1	18.46	26.18
<b>Sex</b>										
Boys	20	1871	13.3	7.67	22.00	36	3432	24.3	19.35	30.15
Girls	6	493	7.9	3.18	18.12	10	932	14.9	7.09	28.52
<b>Class</b>										
Form 1	9	742	20.5	8.55	41.55	12	1039	28.7	12.86	52.33
Form 2	6	553	15.0	5.90	33.03	8	747	20.2	11.65	32.77
Form 3	2	223	4.7	1.20	16.88	11	1118	23.8	12.48	40.57
Form 4	4	313	10.0	4.22	21.84	8	651	20.8	9.41	39.87
Form 5	5	535	10.2	2.22	36.38	7	809	15.5	6.52	32.48
<b>Ethnicity</b>										
Malay	13	1141	8.0	4.29	14.44	33	3152	22.1	15.27	30.90
Chinese	8	752	15.9	9.96	24.46	8	768	16.3	8.24	29.57
Indian	4	385	36.9	9.54	76.42	3	280	26.8	10.21	54.02
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	1	87	24.4	2.36	81.18	2	165	46.4	8.38	89.12
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	2	179	8.2	1.68	31.99	4	346	15.9	5.83	36.71
Normal (≥-2sd - ≤+1sd)	12	1125	9.4	6.64	13.28	31	3006	25.3	16.74	36.20
Overweight (>+1sd - ≤+2sd)	8	649	19.2	7.78	40.11	6	547	16.2	7.11	32.75
Obese (>+2sd)	4	413	14.1	5.56	31.54	5	465	15.9	7.54	30.62
<b>Height-for-age status (HAZ)</b>										
Stunting ( <-2sd )						2	167	27.5	8.72	60.13
Normal ( ≥-2sd )	26	2365	12.0	8.31	16.92	44	4197	21.2	16.32	27.15



## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.2: Reasons for not reading food label among adolescents (Cont.)**

Characteristic	Not interesting					Do not know the importance of food label				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	88	8618	42.3	31.92	53.40	34	3288	16.1	10.01	24.97
<b>Locality of School</b>										
Urban	46	4344	42.5	25.24	61.88	24	2338	22.9	15.10	33.13
Rural	42	4274	42.1	32.15	52.65	10	950	9.3	4.75	17.57
<b>Sex</b>										
Boys	61	5947	42.2	31.11	54.09	23	2207	15.7	8.17	27.90
Girls	27	2671	42.6	22.74	65.11	11	1081	17.2	7.53	34.72
<b>Class</b>										
Form 1	13	1054	29.1	12.42	54.37	2	172	4.8	1.02	19.52
Form 2	17	1615	43.7	20.77	69.70	8	737	20.0	6.06	49.07
Form 3	15	1571	33.4	17.36	54.50	11	1166	24.8	13.86	40.30
Form 4	13	1004	32.1	13.55	58.68	8	645	20.6	8.13	43.12
Form 5	30	3374	64.6	39.58	83.52	5	569	10.9	3.03	32.28
<b>Ethnicity</b>										
Malay	51	5018	35.2	24.66	47.43	22	2156	15.1	8.52	25.42
Chinese	36	3496	74.0	57.30	85.81	12	1132	24.0	16.48	33.51
Indian	1	105	10.0	1.45	45.75	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	9	904	41.5	21.16	65.29	3	276	12.7	3.25	38.61
Normal (≥-2sd - ≤+1sd)	51	4872	40.9	25.47	58.42	18	1724	14.5	7.44	26.30
Overweight (>+1sd - ≤+2sd)	16	1639	48.5	34.08	63.22	6	604	17.9	7.79	36.00
Obese (>+2sd)	12	1204	41.3	27.51	56.51	7	684	23.4	8.32	50.76
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	2	172	28.4	2.83	84.37					
Normal (≥-2sd)	86	8446	42.7	31.99	54.19	34	3288	16.6	10.38	25.57

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.2: Reasons for not reading food label among adolescents in Kedah**

Characteristic	Time constraint					Already aware of the food label information				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	35	3266	16.0	12.76	19.96	27	2587	12.7	9.16	17.33
<b>Locality of School</b>										
Urban	19	1828	17.9	13.87	22.78	12	1179	11.5	7.53	17.30
Rural	16	1439	14.2	10.24	19.26	15	1408	13.9	8.44	21.91
<b>Sex</b>										
Boys	21	1934	13.7	8.47	21.44	19	1872	13.3	7.65	22.07
Girls	14	1333	21.2	13.39	31.99	8	715	11.4	4.65	25.31
<b>Class</b>										
Form 1	4	355	9.8	2.85	28.68	8	617	17.1	9.49	28.75
Form 2	8	746	20.2	11.27	33.55	3	287	7.8	2.51	21.65
Form 3	7	687	14.6	8.02	25.14	7	754	16.0	6.05	36.16
Form 4	10	818	26.1	11.21	49.69	4	342	10.9	4.01	26.44
Form 5	6	660	12.6	3.34	37.70	5	586	11.2	5.93	20.22
<b>Ethnicity</b>										
Malay	27	2525	17.7	13.07	23.57	21	1951	13.7	9.70	18.98
Chinese	4	362	7.7	2.48	21.30	6	636	13.5	5.49	29.44
Indian	3	275	26.3	11.66	49.19	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	1	104	29.2	3.00	84.60	-	-	-	-	-
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	5	509	23.4	9.11	48.26	2	164	7.5	1.68	28.01
Normal (≥-2sd - ≤+1sd)	20	1834	15.4	10.65	21.76	17	1563	13.1	7.90	21.02
Overweight (>+1sd - ≤+2sd)	7	643	19.0	9.57	34.30	3	349	10.3	3.28	28.10
Obese (>+2sd)	3	281	9.6	2.70	29.02	5	512	17.6	6.34	40.09
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	3	267	44.1	16.28	76.18	1	91	15.1	1.31	70.25
Normal (≥-2sd)	32	2999	15.2	11.39	19.93	26	2496	12.6	8.95	17.51

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.3a: Prevalence of reading nutrition information (macronutrient) among those who read food label (Yes, always/ Yes, sometimes) (Cont.)**

Characteristic	Yes, always/ Yes, sometimes									
	Total energy					Carbohydrate				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	575	52274	39.0	35.31	42.87	543	49336	36.8	31.4	42.6
<b>Locality of School</b>										
Urban	304	27832	41.4	36.87	46.07	273	24976	37.1	29.3	45.7
Rural	271	24442	36.6	31.54	42.06	270	24360	36.5	29.4	44.3
<b>Sex</b>										
Boys	277	25666	42.0	36.82	47.43	213	19590	32.1	25.4	39.5
Girls	298	26608	36.5	32.00	41.26	330	29746	40.8	35.1	46.8
<b>Class</b>										
Form 1	134	10299	37.9	29.72	46.76	96	7413	27.3	20.6	35.1
Form 2	111	10260	38.6	32.04	45.51	106	9665	36.3	27.7	45.9
Form 3	121	12571	47.4	39.06	55.87	108	11087	41.8	34.6	49.3
Form 4	120	9635	35.6	28.13	43.88	141	11170	41.3	33.3	49.8
Form 5	89	9509	35.8	27.60	44.93	92	10002	37.7	29.0	47.1
<b>Ethnicity</b>										
Malay	421	38150	35.8	32.44	39.33	431	39086	36.7	31.7	42.0
Chinese	104	9600	51.9	43.05	60.62	87	7947	43.0	33.2	53.3
Indian	34	3169	53.2	43.50	62.70	14	1349	22.7	12.1	38.5
Bumiputera Sabah	1	100	100.0	100.00	100.00	-	-	-	-	-
Bumiputera Sarawak	1	104	100.0	100.00	100.00	-	-	-	-	-
Others	14	1151	41.9	25.53	60.29	11	954	34.7	18.7	55.1
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	35	3176	40.4	30.00	51.66	35	3179	40.4	27.2	55.1
Normal (≥-2sd - ≤+1sd)	370	33524	38.5	34.08	43.11	363	32991	37.9	32.4	43.7
Overweight (>+1sd - ≤+2sd)	96	8752	42.9	36.29	49.84	71	6380	31.3	24.2	39.4
Obese (>+2sd)	74	6823	36.7	31.49	42.20	74	6785	36.5	28.8	44.9
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd )	43	3923	38.9	29.02	49.75	37	3328	33.0	24.7	42.5
Normal (≥-2sd )	532	48351	39.0	35.52	42.67	506	46008	37.1	31.8	42.9

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.3a: Prevalence of reading nutrition information (macronutrient) among those who read food label (Yes, always/ Yes, sometimes)**

Characteristic	Yes, always/ Yes, sometimes									
	Fat					Protein				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	603	55503	41.4	35.37	47.77	336	30558	22.8	19.65	26.32
<b>Locality of School</b>										
Urban	301	27685	41.2	32.86	50.03	181	16297	24.2	19.43	29.79
Rural	302	27818	41.7	33.10	50.84	155	14261	21.4	17.83	25.42
<b>Sex</b>										
Boys	210	19521	32.0	26.64	37.82	169	15505	25.4	21.00	30.35
Girls	393	35981	49.4	41.62	57.14	167	15053	20.7	17.36	24.38
<b>Class</b>										
Form 1	112	8575	31.5	20.80	44.68	67	5290	19.5	14.02	26.34
Form 2	106	9883	37.1	26.76	48.86	70	6544	24.6	19.26	30.84
Form 3	121	12497	47.1	38.19	56.21	62	6516	24.6	17.31	33.61
Form 4	155	12271	45.4	39.21	51.65	83	6525	24.1	17.13	32.83
Form 5	109	12277	46.2	35.73	57.06	54	5683	21.4	17.26	26.21
<b>Ethnicity</b>										
Malay	464	42420	39.8	33.14	46.89	251	22690	21.3	18.18	24.78
Chinese	102	9597	51.9	46.73	57.00	64	5872	31.7	27.54	36.26
Indian	25	2363	39.7	24.78	56.80	13	1277	21.4	8.69	43.92
Bumiputera Sabah	1	100	100.0	100.00	100.00	1	100	100.0	100.00	100.00
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	11	1022	37.2	17.13	62.93	7	620	22.6	13.48	35.27
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	25	2212	28.1	17.81	41.38	18	1641	20.9	13.22	31.32
Normal (≥-2sd - ≤+1sd)	367	33879	38.9	32.42	45.80	225	20429	23.5	19.70	27.68
Overweight (>+1sd - ≤+2sd)	118	10786	52.9	44.59	61.08	49	4574	22.4	16.60	29.61
Obese (>+2sd)	93	8626	46.4	36.22	56.83	44	3913	21.0	15.44	27.99
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	36	3311	32.8	20.59	47.94	24	2161	21.4	16.19	27.78
Normal (≥-2sd)	567	52192	42.1	36.12	48.40	312	28397	22.9	19.52	26.73

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.3b: Prevalence of reading nutrition information (micronutrient/fiber) among those who read food label (Yes, always/ Yes, sometimes) (Cont)**

Characteristic	Yes, always/ Yes, sometimes									
	Sodium					Vitamin				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>KEDAH</b>	141	12830	9.6	7.72	11.83	332	30163	22.5	18.54	27.06
<b>Locality of School</b>										
Urban	76	7141	10.6	8.20	13.65	175	15784	23.5	16.99	31.49
Rural	65	5689	8.5	6.14	11.73	157	14379	21.6	17.60	26.11
<b>Sex</b>										
Boys	71	6756	11.1	8.29	14.62	129	11867	19.4	14.43	25.65
Girls	70	6074	8.3	6.44	10.72	203	18295	25.1	20.81	29.94
<b>Class</b>										
Form 1	29	2253	8.3	4.89	13.70	89	6992	25.7	19.18	33.55
Form 2	24	2106	7.9	3.44	17.16	55	5028	18.9	11.32	29.84
Form 3	32	3524	13.3	7.58	22.24	65	6814	25.7	18.74	34.13
Form 4	35	2726	10.1	7.00	14.30	78	6292	23.3	17.73	29.89
Form 5	21	2221	8.4	4.49	15.05	45	5037	19.0	12.39	27.91
<b>Ethnicity</b>										
Malay	104	9206	8.6	6.69	11.09	247	22294	20.9	17.26	25.13
Chinese	28	2784	15.0	8.41	25.48	69	6450	34.9	26.85	43.84
Indian	7	667	11.2	4.20	26.63	10	885	14.9	6.09	31.94
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	2	174	6.3	1.67	21.12	6	534	19.4	5.02	52.45
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	9	871	11.1	5.36	21.46	25	2259	28.7	16.86	44.45
Normal (≥-2sd - ≤+1sd)	94	8718	10.0	7.58	13.10	216	19728	22.7	18.64	27.24
Overweight (>+1sd - ≤+2sd)	20	1750	8.6	5.51	13.15	44	3916	19.2	12.79	27.83
Obese (>+2sd)	18	1491	8.0	3.93	15.65	47	4259	22.9	15.20	32.96
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	14	1208	12.0	6.14	22.05	24	2204	21.8	14.80	31.02
Normal (≥-2sd)	127	11622	9.4	7.60	11.54	308	27959	22.6	18.60	27.12

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.3b: Prevalence of reading nutrition information (micronutrient/fiber) among those who read food label (Yes, always/ Yes, sometimes)**

Characteristic	Yes, always/ Yes, sometimes									
	Mineral					Fiber				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
			Lower	Upper				Lower	Upper	
<b>KEDAH</b>	152	13980	10.4	7.76	13.90	154	14091	10.5	7.79	14.07
<b>Locality of School</b>										
Urban	80	7464	11.1	6.66	17.93	81	7472	11.1	7.11	16.95
Rural	72	6516	9.8	7.60	12.47	73	6619	9.9	6.71	14.44
<b>Sex</b>										
Boys	70	6535	10.7	7.15	15.71	58	5530	9.1	6.53	12.43
Girls	82	7445	10.2	7.67	13.48	96	8561	11.7	8.11	16.72
<b>Class</b>										
Form 1	27	2103	7.7	3.84	14.97	31	2382	8.8	4.33	16.92
Form 2	30	2780	10.4	5.70	18.38	29	2628	9.9	5.60	16.82
Form 3	30	3249	12.2	5.83	23.93	38	4081	15.4	8.45	26.37
Form 4	45	3612	13.4	8.71	19.92	39	3162	11.7	6.47	20.19
Form 5	20	2237	8.4	5.27	13.19	17	1838	6.9	4.05	11.57
<b>Ethnicity</b>										
Malay	107	9555	9.0	6.87	11.62	114	10242	9.6	7.22	12.70
Chinese	38	3769	20.4	10.14	36.72	34	3226	17.4	10.26	28.08
Indian	5	497	8.4	2.48	24.64	5	519	8.7	2.93	23.21
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	2	159	5.8	1.31	22.09	1	103	3.8	0.37	29.30
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	9	832	10.6	5.23	20.20	9	789	10.0	4.77	19.85
Normal (≥-2sd - ≤+1sd)	98	9146	10.5	8.15	13.43	93	8617	9.9	6.78	14.22
Overweight (>+1sd - ≤+2sd)	24	2138	10.5	5.37	19.48	27	2445	12.0	7.02	19.74
Obese (>+2sd)	21	1865	10.0	5.51	17.56	25	2240	12.0	7.39	19.01
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	11	1003	9.9	5.88	16.30	14	1266	12.6	6.74	22.18
Normal (≥-2sd)	141	12978	10.5	7.67	14.16	140	12825	10.4	7.58	13.98

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.4: Prevalence of reading food label among those who read food label (Yes, always/ Yes, sometimes) (Cont.)**

Characteristic	Expiry date					Nutritional claim				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	1135	102801	76.7	72.26	80.70	274	24665	18.4	13.02	25.38
<b>Locality of School</b>										
Urban	589	53174	79.1	71.83	84.86	162	14739	21.9	12.65	35.25
Rural	546	49627	74.4	69.61	78.66	112	9926	14.9	13.02	16.95
<b>Sex</b>										
Boys	467	42804	70.1	64.27	75.34	130	11785	19.3	12.65	28.32
Girls	668	59997	82.3	77.78	86.09	144	12880	17.7	12.85	23.81
<b>Class</b>										
Form 1	258	19828	72.9	65.36	79.33	63	4839	17.8	11.50	26.49
Form 2	205	18886	71.0	58.80	80.74	55	5030	18.9	11.60	29.29
Form 3	198	20578	77.6	66.33	85.86	39	4261	16.1	10.46	23.86
Form 4	284	22508	83.2	77.16	87.89	80	6473	23.9	16.12	33.98
Form 5	190	21001	79.1	70.21	85.82	37	4062	15.3	7.85	27.68
<b>Ethnicity</b>										
Malay	872	78930	74.1	70.55	77.33	159	14301	13.4	11.06	16.20
Chinese	185	16761	90.6	84.70	94.38	95	8678	46.9	40.08	53.86
Indian	49	4543	76.3	59.96	87.36	13	1106	18.6	12.81	26.14
Bumiputera Sabah	1	100	100.0	100.00	100.00	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	28	2468	89.8	70.16	97.08	7	581	21.1	12.86	32.74
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	70	6177	78.5	67.82	86.35	15	1305	16.6	9.79	26.68
Normal (≥-2sd - ≤+1sd)	731	66428	76.3	70.96	80.87	177	16162	18.6	12.91	25.94
Overweight (>+1sd - ≤+2sd)	177	16003	78.5	70.25	84.97	45	3938	19.3	11.60	30.42
Obese (>+2sd)	157	14194	76.3	66.43	83.98	37	3261	17.5	11.61	25.59
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	76	6844	67.8	59.22	75.41	24	2139	21.2	15.04	29.04
Normal (≥-2sd)	1059	95957	77.5	72.78	81.56	250	22526	18.2	12.53	25.64

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.4: Prevalence of reading food label among those who read food label (Yes, always/ Yes, sometimes) (Cont.)**

Characteristic	Nutrition fact					Halal logo				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	367	33470	25.0	20.46	30.14	688	62761	46.9	37.23	56.72
<b>Locality of School</b>										
Urban	211	19141	28.5	21.17	37.09	298	27338	40.7	28.19	54.45
Rural	156	14329	21.5	18.27	25.08	390	35423	53.1	40.49	65.33
<b>Sex</b>										
Boys	162	14851	24.3	18.65	31.07	280	25776	42.2	34.48	50.35
Girls	205	18619	25.5	20.83	30.90	408	36985	50.7	38.56	62.84
<b>Class</b>										
Form 1	72	5555	20.4	12.87	30.85	140	10839	39.9	26.53	54.88
Form 2	65	5998	22.5	15.74	31.19	131	12294	46.2	31.15	61.98
Form 3	75	7701	29.0	24.45	34.08	145	14824	55.9	45.44	65.83
Form 4	98	8008	29.6	20.96	40.00	172	13651	50.5	38.42	62.44
Form 5	57	6208	23.4	16.85	31.46	100	11152	42.0	27.41	58.12
<b>Ethnicity</b>										
Malay	256	23347	21.9	18.95	25.20	657	60032	56.3	48.49	63.89
Chinese	92	8430	45.6	39.22	52.06	16	1412	7.6	6.22	9.33
Indian	13	1174	19.7	12.72	29.29	9	795	13.4	7.96	21.54
Bumiputera Sabah	1	100	100.0	100.00	100.00	1	100	100.0	100.00	100.00
Bumiputera Sarawak	-	-	-	-	-	1	104	100.0	100.00	100.00
Others	5	419	15.2	8.33	26.26	4	318	11.6	4.72	25.72
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	13	1184	15.0	9.07	23.93	41	3650	46.4	31.92	61.49
Normal (≥-2sd - ≤+1sd)	243	22260	25.6	20.90	30.85	439	39876	45.8	35.61	56.33
Overweight (>+1sd - ≤+2sd)	57	5190	25.5	18.71	33.63	113	10370	50.9	39.65	62.01
Obese (>+2sd)	54	4837	26.0	18.59	35.10	95	8865	47.7	35.99	59.58
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	30	2801	27.8	17.31	41.37	55	5043	50.0	35.60	64.38
Normal (≥-2sd)	337	30670	24.8	20.28	29.86	633	57718	46.6	36.50	56.98



## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.4: Prevalence of reading food label among those who read food label (Yes, always/ Yes, sometimes)**

Characteristic	Food ingredients					Storage instruction				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	446	40901	30.5	25.02	36.67	278	25112	18.7	13.13	26.04
<b>Locality of School</b>										
Urban	237	21511	32.0	24.82	40.13	165	14936	22.2	13.33	34.66
Rural	209	19390	29.1	21.32	38.26	113	10176	15.3	10.42	21.78
<b>Sex</b>										
Boys	164	15190	24.9	18.91	31.99	107	9961	16.3	9.57	26.42
Girls	282	25711	35.3	28.20	43.06	171	15151	20.8	15.42	27.41
<b>Class</b>										
Form 1	93	7143	26.3	16.48	39.13	62	4719	17.4	9.49	29.59
Form 2	70	6490	24.4	15.19	36.75	52	4715	17.7	10.06	29.30
Form 3	97	10105	38.1	27.59	49.84	59	6258	23.6	16.62	32.35
Form 4	113	9219	34.1	24.37	45.34	67	5406	20.0	13.52	28.52
Form 5	73	7945	29.9	21.08	40.54	38	4013	15.1	8.23	26.09
<b>Ethnicity</b>										
Malay	341	31262	29.3	23.40	36.08	172	15583	14.6	10.84	19.44
Chinese	81	7446	40.3	35.02	45.72	83	7499	40.5	31.40	50.39
Indian	17	1524	25.6	13.06	44.05	9	817	13.7	7.63	23.45
Bumiputera Sabah	1	100	100.0	100.00	100.00	1	100	100.0	100.00	100.00
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	6	569	20.7	7.37	46.21	13	1112	40.5	24.00	59.44
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	27	2415	30.7	19.10	45.37	18	1561	19.8	11.67	31.66
Normal (≥-2sd - ≤+1sd)	285	25959	29.8	23.97	36.38	170	15604	17.9	12.33	25.30
Overweight (>+1sd - ≤+2sd)	69	6388	31.3	22.45	41.85	44	3816	18.7	10.96	30.11
Obese (>+2sd)	65	6139	33.0	22.46	45.59	46	4132	22.2	14.25	32.91
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	32	3020	29.9	19.62	42.78	19	1684	16.7	9.75	27.08
Normal (≥-2sd)	414	37882	30.6	24.70	37.18	259	23428	18.9	13.11	26.51

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.5: Prevalence of understanding on the interpretation calorie and sugar content on the nutrition labelling among adolescents (Cont.)**

Characteristic	Both Correct					Interpretation calorie correct				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	752	69393	44.9	39.03	50.86	1045	95904	62.0	57.23	66.57
<b>Locality of School</b>										
Urban	387	35520	45.8	36.11	55.85	536	48833	63.0	55.80	69.64
Rural	365	33873	43.9	37.77	50.27	509	47072	61.0	54.77	66.96
<b>Sex</b>										
Boys	345	32119	42.6	35.69	49.90	499	46132	61.2	56.16	66.10
Girls	407	37274	47.0	40.36	53.73	546	49773	62.7	56.08	68.95
<b>Class</b>										
Form 1	150	11481	37.2	29.40	45.65	221	17042	55.2	46.56	63.47
Form 2	116	10745	35.3	25.30	46.68	180	16831	55.2	45.11	64.91
Form 3	148	15617	50.0	39.81	60.20	196	20367	65.2	55.28	73.98
Form 4	190	15096	49.9	39.85	59.93	255	20298	67.1	57.64	75.31
Form 5	148	16454	51.8	40.67	62.69	193	21367	67.2	54.21	78.03
<b>Ethnicity</b>										
Malay	555	51212	42.3	37.75	46.95	781	71735	59.2	54.65	63.65
Chinese	157	14413	62.1	52.68	70.63	198	18069	77.8	72.70	82.20
Indian	24	2330	33.3	25.65	41.92	45	4196	60.0	53.36	66.20
Bumiputera Sabah	-	-	-	-	-	1	100	100.0	100.00	100.00
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	16	1439	46.4	34.13	59.05	20	1805	58.2	44.70	70.50
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	59	5363	53.4	37.31	68.81	72	6588	65.6	55.17	74.70
Normal (≥-2sd - ≤+1sd)	476	43911	44.2	37.97	50.70	670	61597	62.1	55.83	67.92
Overweight (>+1sd - ≤+2sd)	118	11122	46.8	38.39	55.41	164	15110	63.6	55.70	70.82
Obese (>+2sd)	99	8998	41.7	32.59	51.33	139	12609	58.4	50.66	65.72
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	48	4276	40.0	29.27	51.75	72	6494	60.7	49.21	71.16
Normal (≥-2sd)	704	65117	45.2	39.11	51.51	973	89410	62.1	56.91	67.04

Table 3.7.5: Prevalence of understanding on the interpretation calorie and sugar content on the nutrition labelling among adolescents

Characteristic	Interpretation of sugar correct				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper
<b>KEDAH</b>	935	85672	55.4	50.72	59.98
<b>Locality of School</b>					
Urban	469	42989	55.4	47.42	63.20
Rural	466	42684	55.3	50.54	60.05
<b>Sex</b>					
Boys	440	40661	54.0	47.51	60.32
Girls	495	45011	56.7	51.75	61.60
<b>Class</b>					
Form 1	207	16004	51.8	44.54	58.99
Form 2	161	14864	48.8	40.16	57.45
Form 3	167	17600	56.4	46.30	65.91
Form 4	229	18218	60.2	50.31	69.32
Form 5	171	18986	59.7	50.73	68.13
<b>Ethnicity</b>					
Malay	710	64959	53.6	49.54	57.68
Chinese	169	15529	66.9	57.47	75.10
Indian	39	3666	52.4	43.68	60.94
Bumiputera Sabah	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-
Others	17	1518	48.9	35.50	62.51
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	73	6647	66.2	49.47	79.65
Normal ( $\geq -2sd$ - $\leq +1sd$ )	592	54124	54.5	49.47	59.50
Overweight ( $> +1sd$ - $\leq +2sd$ )	151	13994	58.9	52.23	65.25
Obese ( $> +2sd$ )	119	10907	50.5	43.30	57.68
<b>Height-for-age status (HAZ)</b>					
Stunting ( <-2sd )	64	5666	53.0	38.07	67.38
Normal ( $\geq -2sd$ )	871	80006	55.6	50	61

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.6: Prevalence of understanding on correct interpretation of front of pack labelling for energy among adolescents (Cont.)**

Characteristic	Both correct					Know only the energy content				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	483	44036	28.5	24.03	33.38	727	66225	42.8	37.02	48.83
<b>Locality of School</b>										
Urban	227	20594	26.6	20.04	34.31	352	31999	41.3	31.30	52.02
Rural	256	23442	30.4	25.07	36.31	375	34227	44.4	39.28	49.60
<b>Sex</b>										
Boys	218	19990	26.5	21.60	32.15	336	30990	41.1	34.74	47.86
Girls	265	24046	30.3	25.13	36.04	391	35235	44.4	38.16	50.85
<b>Class</b>										
Form 1	94	7177	23.2	17.24	30.54	145	11111	36.0	27.80	45.03
Form 2	84	7669	25.2	17.53	34.71	138	12680	41.6	31.64	52.31
Form 3	77	7941	25.4	19.17	32.90	125	13066	41.8	32.23	52.11
Form 4	124	9871	32.6	22.53	44.62	183	14613	48.3	35.71	61.08
Form 5	104	11378	35.8	27.84	44.62	136	14755	46.4	37.00	56.10
<b>Ethnicity</b>										
Malay	361	33108	27.3	22.66	32.57	524	47746	39.4	34.35	44.73
Chinese	96	8595	37.0	30.37	44.19	159	14518	62.5	55.54	69.01
Indian	20	1784	25.5	16.85	36.61	32	2906	41.5	29.42	54.73
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	1	104	100.0	100.00	100.00	1	104	100.0	100.00	100.00
Others	5	445	14.3	6.55	28.56	11	952	30.7	16.10	50.54
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	43	3830	38.1	27.69	49.80	55	4856	48.4	33.62	63.38
Normal (≥-2sd - ≤+1sd)	297	26837	27.0	22.63	31.96	457	41797	42.1	36.40	48.04
Overweight (>+1sd - ≤+2sd)	84	7985	33.6	26.66	41.34	124	11347	47.8	39.95	55.68
Obese (>+2sd)	59	5385	24.9	16.75	35.41	91	8225	38.1	27.76	49.61
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	42	3619	33.8	22.76	47.03	56	4913	45.9	36.14	56.06
Normal (≥-2sd)	441	40417	28.1	23.71	32.90	671	61313	42.6	36.55	48.86

Table 3.7.6: Prevalence of understanding on correct interpretation of front of pack labelling for energy among adolescents

Characteristic	Know only the percentage of contribution by serving of foods				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper
<b>KEDAH</b>	795	72250	46.7	43.07	50.40
<b>Locality of School</b>					
Urban	373	33776	43.6	39.01	48.24
Rural	422	38474	49.9	45.53	54.24
<b>Sex</b>					
Boys	368	33647	44.7	40.37	49.05
Girls	427	38603	48.7	42.88	54.48
<b>Class</b>					
Form 1	188	14520	47.0	40.67	53.43
Form 2	147	13548	44.5	35.09	54.22
Form 3	118	12157	38.9	33.50	44.64
Form 4	192	15305	50.6	41.35	59.76
Form 5	150	16720	52.6	43.80	61.24
<b>Ethnicity</b>					
Malay	630	57505	47.5	43.15	51.84
Chinese	120	10672	46.0	39.53	52.51
Indian	33	3006	43.0	32.88	53.64
Bumiputera Sabah	-	-	-	-	-
Bumiputera Sarawak	1	104	100.0	100.00	100.00
Others	11	963	31.0	17.41	49.01
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	64	5807	57.8	51.25	64.13
Normal (≥-2sd - ≤+1sd)	507	45830	46.2	41.90	50.51
Overweight (>+1sd - ≤+2sd)	126	11638	49.0	40.29	57.73
Obese (>+2sd)	98	8975	41.6	32.67	51.03
<b>Height-for-age status (HAZ)</b>					
Stunting (<-2sd)	66	5804	54.3	40.10	67.79
Normal (≥-2sd)	729	66446	46.2	42.43	49.93

## NATIONAL HEALTH AND MORBIDITY SURVEY 2017

**Table 3.7.7: Prevalence on the understanding of food ingredients among adolescents (Cont.)**

Characteristic	Both Correct					Know only the highest ingredient				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
<b>KEDAH</b>	113	10305	7.7	5.81	10.12	848	76461	57.1	50.93	63.02
<b>Locality of School</b>										
Urban	66	6127	9.1	6.90	11.95	426	38490	57.2	48.59	65.47
Rural	47	4178	6.3	3.86	10.00	422	37972	56.9	48.14	65.29
<b>Sex</b>										
Boys	41	3875	6.3	4.23	9.43	351	31815	52.1	45.79	58.35
Girls	72	6430	8.8	6.59	11.71	497	44646	61.3	54.22	67.85
<b>Class</b>										
Form 1	22	1697	6.2	4.19	9.20	187	14346	52.7	43.33	61.98
Form 2	27	2510	9.4	7.21	12.26	167	15417	57.9	48.02	67.26
Form 3	16	1616	6.1	3.47	10.47	152	15502	58.4	49.33	67.01
Form 4	31	2545	9.4	5.85	14.79	206	16177	59.8	50.25	68.66
Form 5	17	1937	7.3	4.02	12.88	136	15019	56.5	45.30	67.16
<b>Ethnicity</b>										
Malay	81	7258	6.8	5.01	9.21	659	59371	55.7	48.97	62.28
Chinese	23	2267	12.3	6.15	22.93	134	12168	65.8	60.24	70.91
Indian	7	596	10.0	3.48	25.53	36	3272	54.9	42.31	66.98
Bumiputera Sabah	-	-	-	-	-	1	100	100.0	100.00	100.00
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	2	184	6.7	1.60	23.98	18	1551	56.4	46.54	65.87
<b>BMI-for-age status (BAZ)</b>										
Thinness (<-2sd)	3	242	3.1	0.93	9.75	49	4392	55.8	41.82	68.95
Normal (≥-2sd - ≤+1sd)	77	7106	8.2	5.79	11.37	548	49467	56.8	50.85	62.56
Overweight (>+1sd - ≤+2sd)	15	1281	6.3	3.71	10.44	126	11289	55.4	48.22	62.33
Obese (>+2sd)	18	1675	9.0	5.50	14.40	125	11314	60.8	50.21	70.50
<b>Height-for-age status (HAZ)</b>										
Stunting (<-2sd)	7	586	5.8	2.19	14.55	56	4964	49.2	33.85	64.72
Normal (≥-2sd)	106	9718	7.8	6.05	10.11	792	71497	57.7	51.74	63.49

Table 3.7.7: Prevalence on the understanding of food ingredients among adolescents

Characteristic	Know only the lowest ingredient				
	Unweighted	Estimated	Prevalence	95% CI	
	Count	Population	(%)	Lower	Upper
<b>KEDAH</b>	225	20615	15.4	12.60	18.67
<b>Locality of School</b>					
Urban	132	12049	17.9	13.52	23.36
Rural	93	8566	12.8	11.21	14.67
<b>Sex</b>					
Boys	104	9692	15.9	11.41	21.65
Girls	121	10923	15.0	12.35	18.07
<b>Class</b>					
Form 1	55	4309	15.8	11.28	21.81
Form 2	53	4901	18.4	13.57	24.52
Form 3	32	3277	12.4	7.77	19.09
Form 4	48	3970	14.7	9.69	21.61
Form 5	37	4158	15.7	11.00	21.80
<b>Ethnicity</b>					
Malay	173	15788	14.8	12.15	17.95
Chinese	33	3145	17.0	9.07	29.61
Indian	13	1135	19.1	8.21	38.26
Bumiputera Sabah	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-
Others	6	548	19.9	9.83	36.26
<b>BMI-for-age status (BAZ)</b>					
Thinness (<-2sd)	11	905	11.5	5.54	22.37
Normal (≥-2sd - ≤+1sd)	144	13418	15.4	12.42	18.95
Overweight (>+1sd - ≤+2sd)	36	3146	15.4	11.73	20.04
Obese (>+2sd)	34	3146	16.9	10.89	25.32
<b>Height-for-age status (HAZ)</b>					
Stunting ( <-2sd )	20	1962	19.5	12.44	29.10
Normal ( ≥-2sd )	205	18653	15.1	12.00	18.74

## Appendices

### Appendix 1: Members of Steering Committee NHMS 2015-2018

1. Director General of Health
2. Deputy Director General of Health (Public Health)
3. Deputy Director General of Health (Medical)
4. Deputy Director General of Health (Research & Tech Support)
5. Director, Oral Health Division
6. Director, Pharmaceutical Services Division
7. Director, Food Safety and Quality Programmed Division
8. Director, Medical Development Division
9. Director, Planning Division
10. Director, Health Education Division
11. Director, Disease Control Division
12. Director, Family Health Development Division
13. Director, Nutrition Division
14. Representative of State Directors
15. Director, Institute for Public Health
16. Dean Faculty of Medicine, University of Malaya
17. Dean Faculty of Medicine, National University of Malaysia
18. Principle Investigator, NHMS



**Appendix 2: Term of Reference for NHMS 2015-2018 Steering Committee**

1. To approve the objectives and scopes of NHMS 2015-2018.
2. To facilitate inter and intra sectorial collaboration.
3. To monitor the implementation of the NHMS 2015-2018.
4. To facilitate the utilisation of the NHMS 2015-2018 findings.

**Appendix 3: List of members of Central Coordinating Committee, NHMS 2017**

1. Dr Hj Tahir bin Aris, Director of Institute for Public Health
2. Dr Muhammad Fadhli bin Mohd Yusoff, Coordinator of NHMS 2015-2018
3. Dr. S Maria binti Awaluddin, Principal Investigator of Adolescent Health Survey
4. Pn. Ruhaya binti Salleh, Principal Investigator of Adolescent Nutrition Survey
5. En. Mohamad Aznuddin bin Abd Razak, Principal Investigator of Healthy Mind Screening using DASS
6. Dr Mohd Azahadi bin Omar, Head Data Processing and Data Management
7. Dr Noor Ani binti Ahmad, Central Field Supervisor of Perlis & Kedah
8. Dr. Nor Asiah binti Mohamad, Central Field Supervisor of Johor, Melaka & Negeri Sembilan
9. Dr. Rajini a/p Sooryanarayana, Data Processing & Quality
- 10.Pn. Tee Guat Hiong, Central Field Supervisor of Sarawak
- 11.Dr. Nur Liana binti Ab. Majid, Central Field Supervisor of WP Kuala Lumpur, WP Putrajaya & Selangor
- 12.Cik Hasimah binti Ismail, Central Field Supervisor of Pahang, Kelantan & Terengganu
- 13.Pn. Norzawati binti Yeop, Central Field Supervisor of Perak & Kedah
- 14.Pn. Norazizah binti Ibrahim Wong, Data Processing & Quality
- 15.En. Mohd Hazrin bin Hasim @ Hashim, Central Field Supervisor of WP Labuan & Sabah
- 16.Pn. Lalitha a/p Palaniveloo, Person in charge for Dietary Intake
- 17.Pn. Siti Nor'Ain binti Hashim, Head of ICT Support
- 18.En. Lim Kuang Kuay, Logistic Support
- 19.Pn. Hamizatul Akmal binti Abd. Hamid, Project Manager
- 20.Pn Wan Shakira binti Rodzlan Hasani, Project Manager
- 21.Pn. Cheong Siew Man, Person in-charge for Habitual Food Intake
- 22.Pn. Nazirah Bt Alias, Data Processing & Quality
- 23.Dr. Fazila Haryati Ahmad, Data Processing & Quality

**Appendix 4: Terms of Reference for NHMS 2017 Central Coordinating Team**

No	Team	Duties	Officers
1	Project Management and Finance	<p>Work closely with recruitment group for employment of RA</p> <p>Prepare Questionnaires manual, Data collection manual</p> <p>Meeting with Liason Officers</p> <p>Planning for data collection training</p> <p>Prepare security cards/name tags for research team</p> <p>Arrangement for advanced payment for team managers, nurses and drivers</p> <p>Process claims of MOH staff</p> <p>Prepare tickets for travelling</p> <p>Monitor the expenditure/budget</p>	<p>Dr. Muhammad Fadhli bin Mohd Yusoff</p> <p>Dr. S. Maria Binti Awaluddin Pn. Ruhaya Salleh</p> <p>Pn. Hamizatul Akmal binti Abd Hamid</p> <p>Pn. Wan Shakira binti Rodzlan Hasani</p> <p>Cik Nur Hazwani binti Mohd Hasri</p>
2	Survey Research Centre	<p>Calculate the sample size</p> <p>Determine the sample distribution by state</p>	<p>Dr. Muhammad Fadhli bin Mohd Yusoff</p> <p>Pn. Norazizah binti Ibrahim Wong</p> <p>Pn. Wan Shakira binti Rodzlan Hasani</p>
3	ICT Unit	<p>Maintenance of the scanning machine</p> <p>Daily back up for databases</p>	<p>Pn. Siti Nor'ain Binti Hashim</p> <p>En. Sulaiman Bin Harun</p> <p>En. Yusmirol Bin Yusop</p> <p>En. Andy Bin Mustaming</p>
4	Central Field Supervisors	<p><b><u>Before Data Collection</u></b></p> <p>Central Field Supervisors are expected to prepare for the initiation of data collection. The preparation tasks include:</p>	<p>Dr Nor Asiah Binti Muhamad</p> <p>Dr Nur Liana Binti Ab Majid</p> <p>Pn. Norzawati Binti Yeop</p> <p>Dr. Noor Ani Binti Ahmad</p>

		<p>Conduct meeting with State Education Office, School Principals, Teacher in-charged for the selected schools.</p> <p>To ensure adequate logistic support for the data collection and liaise with the District Education Office, District Health Office and other relevant departments to ensure that:</p> <ul style="list-style-type: none"> <li>• Human resources are available: Field Supervisors, Team leaders, Research Assistants and drivers.</li> <li>• Manage transport: Vehicles</li> <li>• Manage survey instruments and relevant form</li> <li>• Manage lodging for data collectors</li> </ul> <p><b><u>During Data Collection</u></b></p> <p>Gather feedback from the field on the data collection status and problems related to logistics.</p> <p>Visit the field to help data collectors solve the problem if necessary.</p> <p>To ensure all data collection monitoring forms have been received on time.</p> <p>To ensure bundle from field received by the Operation Centre by hand and bypost( Sabah, Sarawak, WP Labuan)</p> <p>Updating the monitoring board for state achievement and attending CCT meeting.</p>	<p>Pn. Hasimah Binti Ismail</p> <p>Pn. Helen Tee Guat Hiong</p> <p>En. Mohd Hazrin Bin Hasim @ Hashim</p>
--	--	--	---

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

5	Data Processing and management	<p>Setting up data processing facility Development of directory of variables database</p> <p>Development of QC manual for data processing Specify data structure for data processing and data output requirement</p> <p>Responsible for data entry and data Cleaning</p> <p>Monitoring and evaluation of QC performance for data processing</p>	<p>Dr. Mohd Azahadi bin Omar</p> <p>Dr. Rajini a/p sooryanarayana</p> <p>Dr. Fazila Haryati Binti Ahmad</p> <p>Pn. Nazirah Binti Alias</p>
6	Operation Centre	<p>Arrange date and place of meeting</p> <p>Prepare and circulate briefing materials</p> <p>Prepare and circulate minutes of CCT meeting</p> <p>Prepare letters of appointment to state liaison officers, nurses, scouts and data collectors</p> <p>Prepare advertisement material for recruitment of data collectors, team leaders, and interviewers,</p> <p>Prepare letters of notifications for data collections</p> <p>Prepare manuals for scouts, field supervisors, data collectors and nurses</p> <p>Develop a system/format and monitor the distribution of materials/equipment for field work</p> <p>Arrange transport/drivers for distribution and collection of materials/equipment/SAQ</p>	<p>Pn. Hamizatul Akmal binti Abd Hamid</p> <p>En. Azli bin Baharudin</p> <p>Cik Nur Hazwani binti Mohd Hasri</p> <p>Pn. Siti Noafika binti Anwar</p> <p>En. Muhammad Suhaimi bin Mohamad Idrus</p> <p>Cik Shahibul Bariah binti Mat Ghani</p> <p>Pn. Nur Fadzilla binti Mohd Radzi</p> <p>En. Muhammad Zuhdi Bin Khiruddin</p> <p>Cik Nurbaiti binti Asmawi</p>

**Appendix 5: List of Research Team Members, NHMS 2017**

- |                                    |  |
|------------------------------------|--|
| 1. Ms. Ainan Nasrina Ismail        | 20. Ms. Norlida Zulkafly                     |
| 2. Mr. Azli Baharudin              | 21. Ms. Nur Ili Mohamad Tarmizi              |
| 3. Ms. Chin Kim Ling               | 22. Ms. Nur Shahida Abdul Aziz               |
| 4. Ms. Chong Siew Man              | 23. Prof. Dr. Poh Bee Koon                   |
| 5. Ms. Fatimah Othman              | 24. Ms. Rashidah Ambak                       |
| 6. Assc. Prof. Dr. Hazizi Abu Saad | 25. Ms. Rohana Ya'akob                       |
| 7. Ms. Jamilah Ahmad               | 26. Ms. Ruby Zainureen Zahedi                |
| 8. Ms. Junaidah Raib               | 27. Ms. Ruhaya Salleh                        |
| 9. Mr. Lai Wai Kent                | 28. Ms. Rusidah Selamat                      |
| 10. Ms. Lalitha a/p Palanivello    | 29. Prof. Dr. Ruzita Abd Talib               |
| 11. Ms. Ling Swee Nian             | 30. Prof. Madya Datin Dr. Safiah Md<br>Yusof |
| 12. Dr. Mahenderan a/l Appukutty   | 31. Ms. Sam Azura Ahmad                      |
| 13. Mr. Mohamad Hasnan Ahmad       | 32. Mr. Shahrulnaz Norhazli Nazri            |
| 14. Mr. Mohamad Ihsan Tahir        | 33. Dr. Subash Shander a/l Ganapathy         |
| 15. Dr. Mohd Azahadi Omar          | 34. Mr. Suhaidi Sudin                        |
| 16. Ms. Noor Hasnani Ismail        | 35. Ms. Syafinaz Sallehuddin                 |
| 17. Ms. Noor Ul-Aziha Muhammad     | 36. Mr. Tan Beng Chin                        |
| 18. Ms. Nor Azian Mohd Zaki        |  |
| 19. Ms. Nor Azizah Ibrahim Wong    |  |

## Appendix 6: List of Data Collection Teams

### KEDAH

#### Liaison Officer

Ms. Rohida binti Sallehuddin

#### Field Supervisor

Ms. Hasmila binti Mat Hassan

#### Nutritionist

1. Ms. Noor Hasnani binti Ismail
2. Ms. Sharifah Salbiah binti Shareh Hashim
3. Mr. Ho Boon Keat
4. Ms. Zalikha Amirah binti Zainol

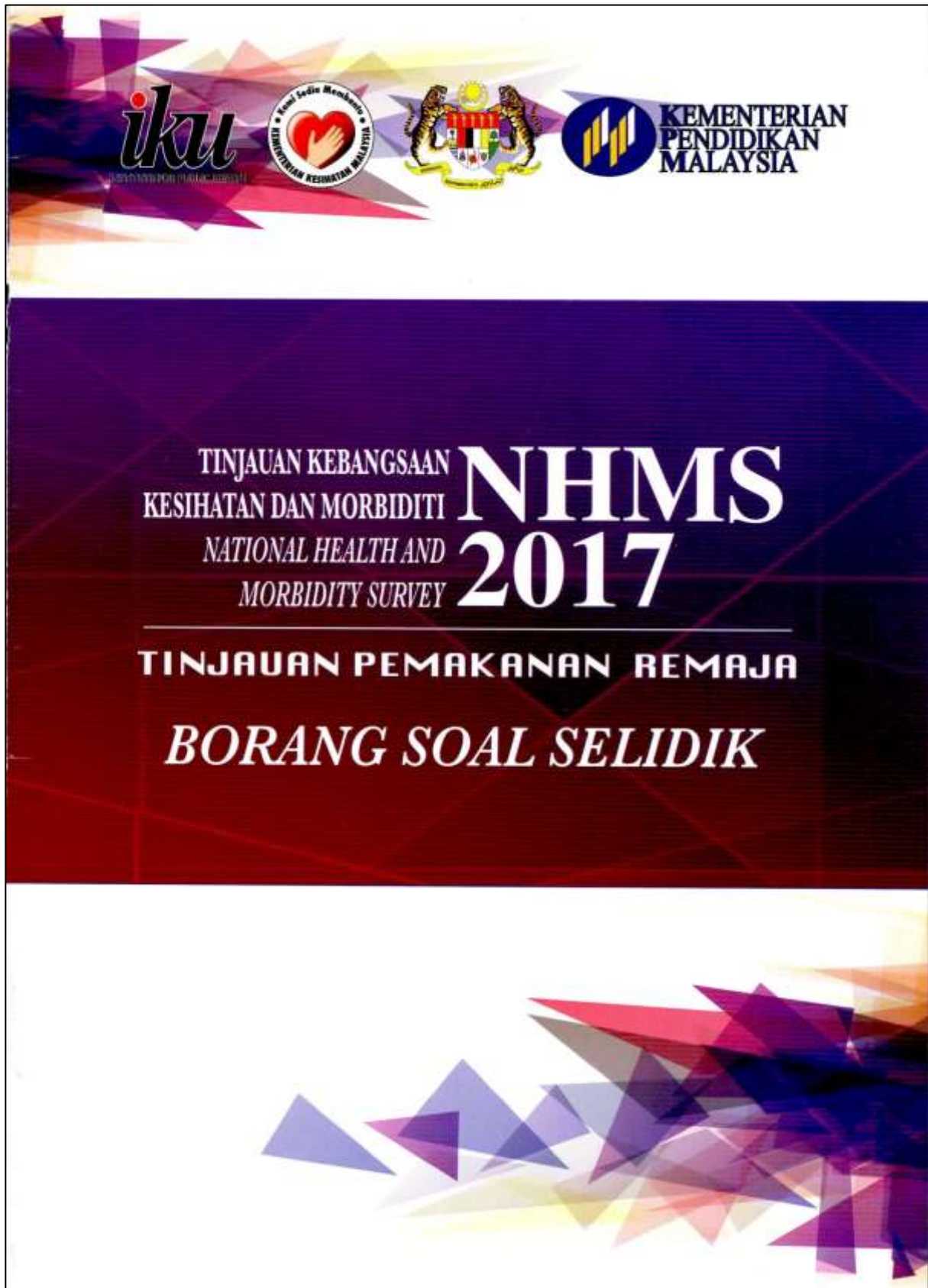
#### Drivers

1. Mr. Muhammad Ezuan bin Razali @ Ghazali
2. Mr. Mohd Nizam Bin Yaakob

#### Research Assistants

1. Siti Syakiroh binti Zaimi Azlan
2. Nurul Hani' binti Mohamad Shofi
3. Roslinda binti Md Zadin
4. Nurul Hazliza binti Mat Yusoff
5. Azman bin Senin
6. Siti Rakiah binti Abdul Rahaman
7. Wan Muhd Hafiz bin Wan Abdul Kadir
8. Muhamad Sulhi bin Isa

Appendix 7: Nutrition Questionnaires





**TINJAUAN PEMAKANAN REMAJA 2017**  
மலேசிய பள்ளி மாணவர் உணவு முறை ஆய்வறிக்கை 2017

**BORANG SOAL SELIDIK**  
அளவறிக்கை

**Pengenalan**

Tinjauan ini dijalankan untuk mengetahui status pemakanan, amalan pemakanan, pengambilan makanan, tahap aktiviti Fizikal, dan penggunaan label makanan dan pemakanan anda. Pelajar lain yang terpilih seperti anda di seluruh negara juga menjawab borang soal selidik ini.

Maklumat yang anda berikan akan digunakan untuk membangunkan program-program kesihatan yang lebih baik untuk generasi muda seperti anda.


**அறிமுகம்**

பந்த ஆய்வு உங்கள் உணவு பழக்கமுறைமற்றும் சுகாதாரத்தின் அளவை கணக்கீட பயன்படும். நம் நாட்டில் உள்ள அனைத்து மாணவர்களும் பந்த ஆய்வறிக்கையில் பங்குபெறுகின்றனர்.

நீங்கள் கொடுக்கும் தகவல்கள் நம் நாட்டில் உள்ளவர்களுக்கின் உடல் நிலையைப் பேச மிகவும் உதவும்.

**Panduan mengisi borang soal-selidik**

ஆய்வறிக்கையை நிரப்ப வழிகாட்டிகள்

1. Jawapan yang anda berikan akan **DIRAHSIAKAN**. Jawab soalan-soalan berdasarkan apa yang tahu dan apa yang anda lakukan. Tidak ada jawapan yang betul atau salah.  
நீங்கள் கொடுக்கும் தகவல்கள் சம்மந்தப்பட்டோர் மட்டுமே பயன்படுத்துவர். உங்களுக்கு தெரிந்த விடையடி அளிக்கவும். சரி அல்லது பிழை என்ற மட்டுமே விடையளிக்கக் கூடாது.
2. Baca soalan dengan teliti. Hitamkan jawapan anda pada kertas jawapan yang disediakan dengan pensil 2B yang dibekalkan.  
கொடுக்கப்பட்டுள்ள கேள்விகளை தெளிவாக படித்தப்பின் 2B எழுதுக்கோலால் விடைத்தாளில் பதிலளிக்கவும்.
3. Cara menghitamkan jawapan:  
பதிலளிக்கும் முறை:  
Hitamkan jawapan anda seperti ini    bukan seperti ini    atau  
பவ்வாறு கருமயாக்கவும்        பவ்வாறல்ல        அல்லது    
4. Hanya satu jawapan bagi setiap soalan **KECUALI** ada arahan lain yang dinyatakan.  
கொடுக்கப்பட்டுள்ள கேள்விகளுக்கு குறிப்பிடப்பட்ட அளவு விடையளிக்க வேண்டும்.
5. Sekiranya anda tidak faham, sila angkat tangan untuk bertanyakan soalan semasa sesi menjawab soalan.  
புரியாவிடில் உங்கள் கரத்தை உயர்த்தி அங்கிருக்கும் ஆசிரியரிடம் கேள்வி கேட்கலாம்.
6. Apabila anda selesai menjawab, tunggu arahan daripada Fasilitator yang menjaga kelas anda.  
விடையளித்து முடித்தப்பின் ஆசிரியர் உங்கள் தால்களை வாங்கும் வரை பொருத்திருங்கள்.

Terima kasih di atas kesudian anda menjawab soal selidik ini.  
பவ்வாய்வறிக்கையை விடையளித்தமைக்கு நன்றி

Tinjauan Persekitaran Keluarga

MODUL A : MAKLUMAT PERIBADI					
தொகுதி A : மாணவர் தகவல்					
Arahan : Isikan ID pelajar, tarikh lahir dan hitamkan jawapan pada kertas jawapan yang disediakan. கட்டளை: மாணவர் பெயர், பிறந்த திகதி, மற்றும் சரியான விடையை கொடுக்கப்பட்டுள்ள விடைத்தாளில் எழுதவும்.					
A1	ID Pelajar மாணவர் ஐடி	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
		Negeri மாநில	Strata நிலை	Kategori Sekolah பள்ளி பிரிவு	Kod Sekolah பள்ளி குறியீடு
		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
A2	Tarikh lahir பிறந்த திகதி	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
		Hari நாள்	Bulan மாதம்	Tahun ஆண்டு	
A3	Jantina பால்	A. Lelaki -ன் B. Perempuan பெண்			
A4	Bangsa மனம்	A. Melayu மலாய் B. Cina சீனர் C. India மத்தியர் D. Bumiputra Sabah சபா பூர்வீகம் E. Bumiputra Sarawak சரவாக்பூர்வீகம் F. Lain-Lain மற்றது			
		Sekolah Rendah ஆரம்பப்பள்ளி		Sekolah Menengah மடைநிலைப்பள்ளி	
A5	Kelas Àìòò	A. Tahun 4 ஆண்டு 4 B. Tahun 5 ஆண்டு 5 C. Tahun 6 ஆண்டு 6		D. Kelas Peralihan குறைநீக்கல்வகுப்பு E. Tingkatan 1 படிவம் 1 F. Tingkatan 2 படிவம் 2 G. Tingkatan 3 படிவம் 3 H. Tingkatan 4 படிவம் 4 I. Tingkatan 5 படிவம் 5	
A6	Umur ÀÁÁ	A. 10 tahun 10 வயது B. 11 tahun 11 வயது C. 12 tahun 12 வயது		D. 13 tahun 13 வயது E. 14 tahun 14 வயது F. 15 tahun 15 வயது G. 16 tahun 16 வயது H. 17 tahun 17 வயது I. 18 tahun 18 வயது	

<b>MODUL B :</b>	<b>CORAK PEMAKANAN</b>
<b>தொகுதி B :</b>	<b>உணவு பழக்கம்</b>
<b>Arahan : Pilih jawapan dan hitamkan pada kertas jawapan yang disediakan.</b>	
<b>கட்டளை :</b> சரியான விடையைத் தெரிவு செய்து கொடுக்கப்பட்டுள்ள விடைத்தாளில் கருமையாக்குக .	
<b>B1</b>	<p>Apakah sesi persekolahan anda? உங்கள்பள்ளி எச்சமயத்தில் நடைபெறும் ?</p> <p>A Sesi pagi sahaja / காஸலயில் மட்டும் B Sesi petang sahaja / மதியத்தில் மட்டும் C Sesi pagi sampai petang / காலை முதல் மாலை வரை</p>
<b>B2</b>	<p>Kebiasaannya, dalam seminggu berapa hari anda mengambil sarapan (dari pukul 6.00 pagi hingga 8.00 pagi)? ஒரு வாரத்தில் எத்தனை முறை காலை சிற்றுண்டி உட்கொள்வீர்கள்? (காலை மணி 6.00- லிருந்துகாலை மணி 8.00 வரை)?</p> <p>A 1 hari / 1 நாள் B 2 hari / 2 நாள் C 3 hari / 3 நாள் D 4 hari / 4 நாள் E 5 hari / 5 நாள் F 6 hari / 6 நாள் G 7 hari / 7 நாள் H Tidak berkaitan / Tidak ambil sarapan தொடர்பு இல்லை /காலை உணவு உட்கொள்வதில்லை</p>
<b>B3</b>	<p>Kebiasaannya, dari mana anda dapat makanan itu? வழக்கமாக எங்கு காலை உணவை உட்கொள்வீர்கள்?</p> <p>A Disediakan di rumah / வீடு B Beli di kantin sekolah / பள்ளி சிற்றுண்டிச்சாலை C Beli di restoran atau warung / கடை D Disediakan di asrama / பள்ளி விடுதி E Lain-lain / மற்றது F Tidak ambil sarapan / காலை உணவு உட்கொள்வதில்லை</p>
<b>B4</b>	<p>Sekiranya anda tidak mengambil sarapan, apakah sebabnya? ஏன் காலை உணவை உட்கொள்வதில்லை?</p> <p>A Tiada makanan / உணவு இல்லை B Tiada selera / உண்ண விருப்பமில்லை C Tiada masa / நேரமில்லை D Berdiet/kawal berat badan / உணவு கட்டுப்பாட்டிலிருத்தல் E Tiada duit / பணம் பற்றாக்குறை F Lain-lain / மற்றது G Tidak berkaitan/kerana saya mengambil sarapan setiap hari தொடர்பு இல்லை/ தினமும் காலை சிற்றுண்டி உட்கொள்வேன்.</p>

Tamil and Peranakan Malay

- B5** Kebiasaannya, dalam seminggu berapa hari anda makan dan/atau minum pada waktu rehat sekolah?  
வழக்கமாக ஒரு வாரத்தில் அத்தனை முறை பள்ளி ஓய்வு நேரத்தில் உணவு உட்கொள்வீர்கள்?
- A 0 hari / 0 நாள்  
B 1 hari / 1 நாள்  
C 2 hari / 2 நாள்  
D 3 hari / 3 நாள்  
E 4 hari / 4 நாள்  
F 5 hari / 5 நாள்
- B6** Kebiasaannya, dari mana anda dapat makanan itu?  
வழக்கமாக அவ்வுணவை எங்கிருந்து பெருவீர்கள்?
- A Bekal dari rumah / வீடு  
B Beli di kantin sekolah / பள்ளி சிற்றுண்டிச்சாலை  
C Beli di restoran atau warung / கடை  
D Disediakan di asrama / பள்ளி விடுதி  
E Lain-lain / மற்றது  
F Tidak berkaitan/tidak mengambil makan dan/atau minum pada waktu rehat  
தொடர்பு இல்லை/ ஓய்வு நேரத்தில் உணவு உட்கொள்வதில்லை
- B7** Kebiasaannya, dalam seminggu berapa hari anda makan tengah hari (11.00 pagi hingga 3.00 petang)?  
வழக்கமாக ஒரு வாரத்தில் அத்தனை முறை மதிய உணவு உண்பீர்கள் (காலை மணி 11.00-  
லிருந்துமாலை மணி 3.00 வரை)?
- A 1 hari / 1 நாள்  
B 2 hari / 2 நாள்  
C 3 hari / 3 நாள்  
D 4 hari / 4 நாள்  
E 5 hari / 5 நாள்  
F 6 hari / 6 நாள்  
G 7 hari / 7 நாள்  
H Tidak mengambil makanan tengah hari / மதிய உணவு உட்கொள்வதில்லை
- B8** Kebiasaannya, dari mana anda dapat makanan itu?  
வழக்கமாக அவ்வுணவை எங்கிருந்து பெருவீர்கள்?
- A Disediakan di rumah / வீடு  
B Beli di kantin sekolah / பள்ளி சிற்றுண்டிச்சாலை  
C Beli di restoran atau warung / கடை  
D Disediakan di asrama / பள்ளி விடுதி  
E Lain-lain / மற்றது  
F Tidak berkaitan/tidak ambil makanan tengahari /  
தொடர்பு இல்லை/ ஓய்வு நேரத்தில் உணவு உட்கொள்வதில்லை

- B9** Sekiranya anda tidak mengambil makan tengahari, apakah sebabnya?  
ஏன் மதிய உணவை உட்கொள்வதில்லை?
- A Tiada makanan / உணவு இல்லை
  - B Tiada selera / உண்ண விருப்பமில்லை
  - C Tiada masa / நேரம் இல்லை
  - D Berdiet /kawal berat badan / உணவு கட்டுப்பாட்டிலிருத்தல்
  - E Tiada duit / பணம் பற்றாக்குறை
  - F Lain-lain / மற்றது
  - G Tidak berkaitan/ambil makan tengahari / தொடர்பு இல்லை/ மதிய உணவை உட்கொள்வேன்
- B10** Kebiasaannya, dalam seminggu berapa hari anda mengambil minum petang (3.00 petang hingga 6.00 petang)?  
வழக்கமாக ஒரு வாரத்தில் எத்தனை முறை மாலை சிற்றுண்டி உட்கொள்வீர்கள் (மாலை மணி 3.00-லிருந்து மாலை மணி 6.00 வரை)?
- A 1 hari / 1 நாள்
  - B 2 hari / 2 நாள்
  - C 3 hari / 3 நாள்
  - D 4 hari / 4 நாள்
  - E 5 hari / 5 நாள்
  - F 6 hari / 6 நாள்
  - G 7 hari / 7 நாள்
  - H Tidak minum petang / மாலை சிற்றுண்டி உட்கொள்வதில்லை
- B11** Kebiasaannya, dari mana anda dapat makanan itu?  
வழக்கமாக அவ்வணவை எங்கிருந்து பெருவீர்கள்?
- A Disediakan di rumah / வீடு
  - B Beli di kantin sekolah / பள்ளி சிற்றுண்டிச்சாலை
  - C Beli di restoran atau warung / கடை
  - D Disediakan di asrama / பள்ளி விடுதி
  - E Lain-lain / மற்றது
  - F Tidak ambil minum petang / மாலை சிற்றுண்டி உட்கொள்வதில்லை
- B12** Kebiasaannya, dalam seminggu berapa hari anda makan malam(6.00 petang hingga 10.00 malam)?  
வழக்கமாக ஒரு வாரத்தில் எத்தனை முறை யரவு உணவு உட்கொள்வீர்கள் (மதிய மணி 6.00-லிருந்து யரவு மணி 10.00 வரை)?
- A 1 hari / 1 நாள்
  - B 2 hari / 2 நாள்
  - C 3 hari / 3 நாள்
  - D 4 hari / 4 நாள்
  - E 5 hari / 5 நாள்
  - F 6 hari / 6 நாள்
  - G 7 hari / 7 நாள்
  - H Tidak makan malam / யரவு உணவு உட்கொள்வதில்லை

Tinjauan Persekitaran Keluarga

- B13** Kebiasaannya, dari mana anda dapat makanan itu?  
எங்கிருந்து அவ்வண்ணை பெருவீர்கள்?
- A Disediakan di rumah / வீடு  
B Beli di restoran atau warung / கடை  
C Disediakan di asrama / பள்ளி விடுதி  
D Lain-lain / மற்றது  
E Tidak berkaitan/tidak ambil makan malam / தொடர்பு யல்லை/பரவு உணவு உண்பதில்லை
- B14** Sekiranya anda tidak mengambil makan malam, apakah sebabnya?  
ஏதனால் பரவு உணவு உட்கொள்வதில்லை?
- A Tiada makanan / உணவு யல்லை  
B Tiada selera / உண்ண விருப்பமில்லை  
C Tiada masa / நேரம்யல்லை  
D Berdiet / உணவு கட்டுப்பாடு  
E Tiada duit / பணம் பற்றாக்குறை  
F Lain-lain / மற்றது  
G Tidak berkaitan/ambil makan malam / தொடர்பு யல்லை/பரவு உணவு உட்கொள்வேன்.
- B15** Dalam seminggu yang lepas, berapa kerap anda ambil makanan berat selepas makan malam? (Contoh: nasi lemak, roti canal, mee goreng, burger, ayam goreng, mee segera dan sebagainya. Ini tidak termasuk snek ringan contohnya 2 keping biskut dan/atau satu gelas susu)  
கடந்த வாரத்தில், பரவில் எத்தனை முறை அதிகமான அளவில் உணவு உட்கொண்டீர்கள்?  
(உதாரணமாக: நாசி லெமாக், ரொத்தி சாளாய், மீ பிரத்தல், பர்கர், பொரித்தக் கோழி, குரித மீமற்றும் சில. யதில் பால்மற்றும் பிஸ்கிட் போன்ற உணவு அடங்காது. (உதாரணத்திற்கு 2 துண்டு பிஸ்கிட் மற்றும்/ அல்லது ஒரு குவளைப்பால்)
- A 1 hari / 1 நாள்  
B 2 hari / 2 நாள்  
C 3 hari / 3 நாள்  
D 4 hari / 4 நாள்  
E 5 hari / 5 நாள்  
F 6 hari / 6 நாள்  
G 7 hari / 7 நாள்  
H Tidak ambil makanan berat selepas makan malam /  
பரவில் நாள் அதிகமான அளவில் உணவு உண்பதில்லை
- B16** Di manakah anda mengambil makanan berat tersebut?  
எங்கு யவ்வண்ணை உட்கொள்வீர்கள்?
- A Rumah / வீடு  
B Restoran atau warung / கடை  
C Asrama / பள்ளி விடுதி  
D Lain-lain / மற்றது  
E Tidak berkaitan/tidak ambil makanan berat /  
தொடர்பு யல்லை/பரவில் நாள் அதிகமான அளவில் உணவு உண்பதில்லை

- B17** Kebiasaannya, dalam seminggu berapa hari anda makan makanan segera yang dibeli dari restoran makanan segera seperti burger, pizza, ayam goreng, kentang goreng, nugget dan sebagainya?  
வழக்கமாக ஒரு வாரத்தில் எத்தனை முறை துரித உணவு உட்கொள்வீர்கள். உதாரணத்திற்கு பர்கர், பீசா, பொரித்தச் கோழி, பிராக் பிராஸ், நகெட் மற்றும் சில.
- A. 1 hari / 1 நாள்  
B. 2 hari / 2 நாள்  
C. 3 hari / 3 நாள்  
D. 4 hari / 4 நாள்  
E. 5 hari / 5 நாள்  
F. 6 hari / 6 நாள்  
G. 7 hari / 7 நாள்  
H. Tidak ambil makanan segera / நான் துரித உணவு உட்கொள்வதில்லை.
- B18** Berapa kerap anda membawa bekal makanan ke sekolah?  
பொதுவாக எத்தனை முறை பள்ளிக்கு வீட்டிலிருந்து உணவு எடுத்துச் செல்வீர்கள்?
- A. Setiap hari / தினமும்  
B. Kadang-kadang / சில நேரத்தில்  
C. Tidak / பள்ளிக்கு நீர் எடுத்துச் செல்லமாட்டேன்
- B19** Apakah bekal makanan yang biasa dibawa ke sekolah? (Boleh pilih SATU atau DUA jawapan sahaja)  
எந்த உணவை வழக்கமாக பள்ளிக்கு எடுத்துச் செல்வீர்கள்? (ஒன்று அல்லதுபரண்டு உணவை தேர்வு செய்யலாம்)
- A. Nasi lemak/nasi goreng /nasi berlauk / நாசி லெமாக்/நாசி கோரேங்/நாசி பெர்லாவுக்  
B. Mee / Bihun / Kueh Teow / மீ / மீவுன் / குவே தியாவ்  
C. Roti / Ban / Sandwic / ரொத்தி / பன் / சான்விச்  
D. Nuget / Sosej / Burger / நகெட் / சொசேஜ் / பர்கர்  
E. Biskut / பிஸ்கிட்  
F. Buah-buahan / பழம்  
G. Lain-lain / மற்றது  
H. Tidak bawa bekal / பள்ளிக்கு உணவு எடுத்துச் செல்லமாட்டேன்
- B20** Berapa kerap anda membawa bekal minuman ke sekolah?  
பொதுவாக எத்தனை முறை பள்ளிக்கு நீர் எடுத்துச் செல்வீர்கள்?
- A. Setiap hari / தினமும்  
B. Kadang-kadang / சில நேரத்தில்  
C. Tidak / பள்ளிக்கு நீர் எடுத்துச் செல்லமாட்டேன்

Tinjauan Persekitaran Keluarga

- B21** Apakah bekalan minuman yang biasa dibawa ke sekolah? (Boleh pilih **SATU** atau **DUA** jawapan sahaja)  
வழக்கமாக எவ்வகை நீரை பள்ளிக்கு எடுத்துச் செல்வீர்கள்? (ஒன்று அல்லது மரண்டு விடையை மட்டும் தெர்வு செய்ய்க)
- A Air kosong / தண்ணீர்  
B Air berperisa (air kotak/air sirap/ teh / kopi/ milo)  
சுவைபானம்( சீராப், தேநீர், மீலோ)  
C Air berkarbonat / கார்போனெட் பானம்  
D Susu / minuman berkultur (air yogurt) / பால்/ மோர்  
E Lain-lain / மற்றது  
F Tidak bawa bekal / பள்ளிக்கு நீர் எடுத்துச் செல்லமாட்டேன்
- B22** Kebiasaannya, bagaimana wang saku/duit poket anda banyak dibelanjakan?  
வழக்கமாக பணத்தை எதற்காக செழவு செய்வீர்கள்?
- A Membeli makanan dan/atau minuman / உணவு  
B Membeli alat tulis / எழுத பயன்படுத்தும் பொருட்கள்  
C Simpanan / சேமிப்பு  
D Lain-lain / மற்றது  
E Tidak bawa wang saku/duit poket / பள்ளிக்கு பணம் எடுத்துச் செல்லமாட்டேன்
- B23** Dalam seminggu berapa kali anda makan di luar? Tidak termasuk makan di sekolah dan di asrama.  
வாரத்தில் எத்தனை முறை வெளியே உணவு உட்கொள்வீர்கள்? பள்ளி மற்றும் பள்ளி விடுதியில் உண்பது மதில் உட்படவில்லை.
- A 1 kali / 1 முறை  
B 2 kali / 2 முறை  
C 3 kali / 3 முறை  
D 4 kali / 4 முறை  
E 5 kali / 5 முறை  
F 6 kali / 6 முறை  
G 7 kali atau lebih / 7 முறைக்கு மேல்  
H Tidak pernah / வெளியே உணவு உட்கொள்வதில்லை
- B24** Apakah jenis makanan ringan yang selalu anda makan? (Boleh pilih **SATU** atau **DUA** jawapan sahaja)  
எவ்வித துரித உணவை உட்கொள்வீர்கள் (ஒன்று அல்லது மரண்டு விடையை மட்டும் தெர்வு செய்ய்க)
- A Roti / Bun / Sandwic / ரொட்டி / பன் / சான்விச்  
B Kentang goreng / பிரஞ் பிரைஸ்  
C Biskut / பிஸ்கிட்  
D Buah-buahan / பழம்  
E Kekacang / தானியம்  
F Keropok / கிழங்கு சிப்ஸ்  
G Aiskrim / பனிக்கூல்  
H Tidak ambil makanan ringan / துரித உணவு உட்கொள்வதில்லை



- B25** Berapa kerap anda mengambil makanan ringan tersebut dalam seminggu?  
ஒரு வாரத்தில் எத்தனை முறை துரித உணவு உட்கொள்வீர்கள்?
- A 1 kali / 1 முறை  
B 2 kali / 2 முறை  
C 3 kali / 3 முறை  
D 4 kali / 4 முறை  
E 5 kali / 5 முறை  
F 6 kali / 6 முறை  
G 7 kali atau lebih / 7 முறைக்கு மேல்  
H Tidak pernah makanan ringan atau snek / துரித உணவு உட்கொள்வதில்லை
- B26** Apakah jenis makanan dan/atau minuman yang selalu anda beli dari luar pagar sekolah?(Boleh pilih **SATU** atau **DUA** jawapan sahaja)  
எத்தகைய உணவை பள்ளி வலாகத்தின் வெளியே பெறுவீர்கள்? (ஒன்று அல்லது யரண்டு விடையை மட்டும் தெர்வு செய்க)
- A Gula-gula/coklat / சாக்டெட்  
B Kentang goreng / nuget / sosej / பிரஞ் பிரைஸ்/ நாகெட்/ சொசெஜ்  
C Air berperisa/air berkarbonat / குளிர்்பானம்/ காற்போனெட்பானம்  
D Makanan jeruk / ஊருகாய்  
E Makanan ringan/rapu / துரித உணவு  
F Keropok / சிப்ஸ்  
G Aiskrim / பனிக்ரூல்  
H Tidak ambil makanan ringan di luar pagar sekolah / பள்ளி வலாகத்தின் வெளியே உணவு வாங்கமாட்டேன்
- B27** Dalam seminggu, adakah andamembeli makanan dan/atau minuman di luar pagar sekolah?  
ஒரு வாரத்தில் எத்தனை முறை பள்ளி வலாகத்தின் வெளியே உணவு வாங்குவீர்கள்?
- A 1 kali / 1 முறை  
B 2 kali / 2 முறை  
C 3 kali / 3 முறை  
D 4 kali / 4 முறை  
E 5 kali / 5 முறை  
F 6 kali / 6 முறை  
G 7 kali atau lebih / 7 முறைக்கு மேல்  
H Tidak pernah / பள்ளி வலாகத்தின் வெளியே உணவு வாங்கமாட்டேன்

Tinjauan Persekitaran Keluarga

**B28** Sumber media manakah yang paling mempengaruhi pengambilan makanan anda?(Boleh pilih **SATU** atau **DUA** jawapan sahaja)

உங்கள் உணவு பழக்கமுறையை தூண்டிய தொடர்புத்துறை ஊடகம் எது? (ஒன்று அல்லது பரண்டு விடையை மட்டும் தெர்வு செய்க)

- A Media sosial (contoh : Internet, YouTube, Facebook, Instagram, Twitter) / சமூக வளைத்தலம்.(உதாரணம் : யூதுப், முகப்புத்தகம், துவித்தர்)
- B Televisyen / தொலைக்காட்சி
- C Radio / வானொலி
- D Media cetak (contoh: majalah, surat khabar, papan iklan, risalah, katalog) / அச்ச ஊடகங்கள் (உதாரணம்: பத்திரிகை, செய்தித்தாள், விளம்பரம், ஆய்வுகட்டுரைகள், அட்டவணை)
- E Tidak terpengaruh / பாதிக்கப்படவில்லை

**MODUL C : AKTIVITI FIZIKAL**

**தொகுதி C : உடல் செயல்பாடு நடவடிக்கை**

**C1** Aktiviti Fizikal di waktu lapang: Adakah anda melakukan aktiviti-aktiviti yang disenaraikan di bawah sepanjang 7 hari yang lepas (minggu lepas). Jika **YA**, berapa kali?

ஒவ்வொரு நேரத்தில் உடல் செயல்பாடு நடவடிக்கைகள்: கடந்த 7 நாட்களில் கீழ்க்கண்டவற்றை எவ்வாறு செய்தீர்? (கடந்த வாரம்). ஆம் என்றால் எத்துனை முறை?

	<b>Aktiviti நடவடிக்கை</b>	<b>Tiada</b>	<b>1-2 kali முறை</b>	<b>3-4 kali முறை</b>	<b>5-6 kali முறை</b>	<b>7 kali atau lebih முறை</b>
a	Lompat tali சிகிப்பிங்	A	B	C	D	E
b	Mendayung / Berkenu படகு ஓட்டல்	A	B	C	D	E
c	Silat / Karate / Taekwondo சிலாட் / கராட்டே / தைக்கொண்டோ	A	B	C	D	E
d	Bermain kejar-kejar ஓடி பிடித்து விளையாடல்	A	B	C	D	E
e	Bersenam dengan berjalan நடத்தல்	A	B	C	D	E
f	Berbasikal மிதிவண்டி ஓட்டல்	A	B	C	D	E
g	Joging / Berlari மெதுவோட்டம்	A	B	C	D	E
h	Senamrobik ஏரோபிக்ஸ்	A	B	C	D	E
i	Berenang நீச்சல் அடித்தல்	A	B	C	D	E
j	Bola lisut / Besbol பேல்பாஸ்போல்	A	B	C	D	E
k	Menari நடனம்	A	B	C	D	E
l	Ragbi ரக்பி	A	B	C	D	E
m	Badminton பூப்பந்து	A	B	C	D	E
n	Hoki ஹோகி	A	B	C	D	E
o	Bola tampar கைப்பந்து	A	B	C	D	E
p	Bola keranjang / Bola jarring நெட்பால்	A	B	C	D	E
q	Sepak takraw செபாக் டாக்ராவ்	A	B	C	D	E
r	Bola sepak / Futsal காற்பந்து	A	B	C	D	E
s	Pingpong பிங்பொங்	A	B	C	D	E

Tinjauan Persekitaran (Cont.)

- C2** Dalam 7 hari yang lepas semasa aktiviti kelas pendidikan jasmani, berapa kerap anda berada dalam keadaan sangat aktif (bermain, berlari, melontar, melompat).  
கடந்த 7 நாட்களில் உடற்கல்வி பாடத்தின் பொழுது, எத்துனை முறை நீங்கள் முழுமையாகச் செயல்பட்டீர்கள்? (விளையாடுதல், ஓடுதல், குதித்தல்).
- A Saya tidak mengikuti kelas pendidikan jasmani  
நான் உடற்கல்வி வகுப்பில் பங்குப்பெறவில்லை
- B Sangat jarang / மிகவும் குறைவு
- C Kadang-kadang / சில சமயத்தில்
- D Agak kerap / சற்று அதிகமாக
- E Selalu / எப்பொழுதும்
- C3** Dalam 7 hari yang lepas, apakah perkara yang anda biasa lakukan semasa waktu rehat di sekolah?  
கடந்த 7 நாட்களில், ஓய்வு நேரத்தின் பொழுது நீங்கள் என்ன செய்தீர்கள்?
- A Duduk (berbual, membaca, membuat kerja sekolah)  
உட்கார்ந்திருந்தேன் (பேசிக்கொண்டு, படித்துக்கொண்டு, பாடம் செய்துக்கொண்டு)
- B Berdiri atau berjalan-jalan  
நின்றனாகொண்டு அல்லது நடந்துக்கொண்டிருந்தேன்
- C Berlari atau bermain sedikit  
ஓடிக்கொண்டு அல்லது விளையாடிக்கொண்டிருந்தேன்
- D Berlari dan bermain sedikit  
ஓடிக்கொண்டுமற்றும் விளையாடிக்கொண்டிருந்தேன்
- E Berlari dan bermain hampir sepanjang masa  
ஓய்வு நேரம்முழுவதும் விளையாடிக்கொண்டிருந்தேன்
- C4** Dalam 7 hari yang lepas, apakah perkara yang biasa anda lakukan semasa waktu makan tengahari (selain daripada makan)?  
கடந்த 7 நாட்களில், ஓய்வு நேரத்தின் பொழுது நீங்கள் என்ன செய்தீர்கள்?
- A Duduk (berbual, membaca, membuat kerja sekolah)  
உட்கார்ந்திருந்தேன் (பேசிக்கொண்டு, படித்துக்கொண்டு, பாடம் செய்துக்கொண்டு)
- B Berdiri atau berjalan-jalan  
நின்றனாகொண்டு அல்லது நடந்துக்கொண்டிருந்தேன்
- C Berlari atau bermain sedikit  
ஓடிக்கொண்டு அல்லது விளையாடிக்கொண்டிருந்தேன்
- D Berlari dan bermain sedikit  
ஓடிக்கொண்டுமற்றும் விளையாடிக்கொண்டிருந்தேன்
- E Berlari dan bermain hampir sepanjang masa  
ஓய்வு நேரம்முழுவதும் விளையாடிக்கொண்டிருந்தேன்

- C5** Dalam 7 hari yang lepas, berapa harikah anda bersukan, menari atau bermain dengan **aktif sebaik sahaja tamat waktu persekolahan?**  
கடந்த 7 நாட்களில், எத்துனை நாள் பள்ளி நேரத்திற்கு அப்பால் நீங்கள் உடல் செயல்பாடு நடவடிக்கையில் ஈடுபடுவீர்கள்?
- A Tiada / ஈடுபடிவதில்லை  
B 1 hari / 1 நாள்  
C 2 atau 3 hari / 2 அல்லது 3 நாள்  
D 4 hari / 4 நாள்  
E 5 hari / 5 நாள்
- C6** Dalam 7 hari yang lepas, berapa harikah anda bersukan, menari atau bermain dengan **aktif pada waktu petang?**  
A Tiada / ஈடுபடவில்லை  
B 1 hari / 1 நாள்  
C 2 atau 3 hari / 2 அல்லது 3 நாள்  
D 4 atau 5 hari / 4 அல்லது 5 நாள்  
E 6 atau 7 hari / 6 அல்லது 7 நாள்
- C7** Pada hujung minggu yang lepas, berapa kali anda terlibat dengan aktiviti bersukan, menari atau melibatkan diri dengan permainan yang aktif?  
கடந்த வாரத்தில் எத்துனை முறை நீங்கள் உடல் செயல்பாடு நடவடிக்கையில் ஈடுபட்டீர்கள்?
- A Tiada / ஈடுப்படமாட்டேன்.  
B 1 kali / 1 முறை  
C 2 atau 3 kali / 2 அல்லது 3 முறை  
D 4 atau 5 kali / 4 அல்லது 5 முறை  
E 6 atau lebih kali / 6 முறைக்கு மேல்

Tinjauan Persekitaran Keluarga

**C8** Yang manakah antara pernyataan berikut menggambarkan diri anda dalam tempoh 7 hari yang lepas? கீழ்வருவனவற்றில் எது உண்மை?

A Saya menggunakan semua atau kebanyakan masa lapang saya dengan melakukan aktiviti ringan  
என் ஓய்வு நேரத்தில் சாதாரண உடற்பயிற்சியில் ஈடுபட்டேன்

B Saya kadang-kadang (1-2 kali seminggu) melakukan aktiviti fizikal semasa waktu lapang saya (contoh: bersukan, berlari, berenang, berbasikal, aktiviti aerobik)  
என் ஓய்வு நேரத்தில் சில சமயம் (1-2 முறை ஒரு வாரத்தில்) உடல் செயல்பாட்டு நடவடிக்கையில் ஈடுபடுவேன். (உதாரணம்: ஓடுதல், நீச்சலடித்தல், மிடிவண்டி ஓட்டுதல், ஓரோபிக்ஸ்)

C Saya selalu (3-4 kali seminggu) melakukan aktiviti fizikal semasa waktu lapang saya (contoh: bersukan, berlari, berenang, berbasikal, aktiviti aerobik)  
என் ஓய்வு நேரத்தில் (3-4 முறை ஒரு வாரத்தில்) உடல் செயல்பாட்டு நடவடிக்கையில் ஈடுபடுவேன். (உதாரணம்: ஓடுதல், நீச்சலடித்தல், மிடிவண்டி ஓட்டுதல், ஓரோபிக்ஸ்)

D Saya kerap (5-6 kali seminggu) melakukan aktiviti fizikal semasa waktu lapang saya (contoh: bersukan, berlari, berenang, berbasikal, aktiviti aerobik)  
நான் ஓய்வு நேரத்தில் (5-6 முறை ஒரு வாரத்தில்) உடல் செயல்பாட்டு நடவடிக்கையில் ஈடுபடுவேன். (உதாரணம்: ஓடுதல், நீச்சலடித்தல், மிடிவண்டி ஓட்டுதல், ஓரோபிக்ஸ்)

E Saya sangat kerap (7 kali atau lebih seminggu) melakukan aktiviti fizikal semasa waktu lapang saya (contoh: bersukan, berlari, berenang, berbasikal, aktiviti aerobik)  
நான் எப்பொழுதும் (7 முறைக்கு மேல் ஒரு வாரத்தில்) உடல் செயல்பாட்டு நடவடிக்கையில் ஈடுபடுவேன். (உதாரணம்: ஓடுதல், நீச்சலடித்தல், மிடிவண்டி ஓட்டுதல், ஓரோபிக்ஸ்)

**C9** Tandakan kekerapan anda melakukan aktiviti fizikal (seperti bersukan, bermain, menari atau apa-apa aktiviti fizikal) untuk setiap hari pada minggu lepas. எத்துனை முறை ஒரு வாரத்தில் உடல் செயல்பாட்டு நடவடிக்கையில் ஈடுபடுவீர்கள்? (உதாரணம்: ஓடுதல், நீச்சலடித்தல், மிடிவண்டி ஓட்டுதல், ஓரோபிக்ஸ்) ஒரு நாளில் எத்துனை முறை?

Hari நாள்	Tiada Aktiviti நடவடிக்கையில் ஈடுபடுவதில்லை	(1-2 kali) (1-2 முறை)	(3-4 kali) (3-4 முறை)	(5-6 kali) (5-6 முறை)	(7 kali atau lebih) (7 முறைக்கு மேல்)
a Isnin திங்கள்	A	B	C	D	E
b Selasa செவ்வாய்	A	B	C	D	E
c Rabu புதன்	A	B	C	D	E
d Khamis வியாழன்	A	B	C	D	E
e Jumaat வெள்ளி	A	B	C	D	E
f Sabtu சனி	A	B	C	D	E
g Ahad ஞாயிறு	A	B	C	D	E

- C10** Adakah anda sakit pada minggu lepas, atau adakah terdapat sebarang perkara yang menghalang anda daripada melakukan aktiviti fizikal yang biasa dilakukan pada minggu lepas?  
கடந்த வாரம் உங்களின் உடல் நிலை பாதிக்கப்பட்டிருந்ததா, அல்லது ஏதாவது எதிர்பாராத சம்பவம் உடற்பயிற்சி நேரத்தை குறிக்கிட்டதா?
- A Ya / ஆம்  
B Tidak / இல்லை
- C11** Pada **hujung minggu** adakah anda menonton televisyen dan/atau menggunakan komputer dan/atau bermain permainan video (contoh: *PSP, Playstation, Gameboy dan lain-lain*)?  
கடந்த வார பறுதியில் தொலைக்காட்சி, கணினி, அல்லது கணினி விளையாட்டில் ஈடுபட்டீர்களா? (உதாரணம்: *பிஎஸ்பி, பிலே சிதேசன், கேம்போய் மற்றும் சில*)?
- A Ya / ஆம்  
B Tidak / இல்லை
- C12** Berapa lamakah anda menonton televisyen dan/atau menggunakan komputer dan/atau bermain permainan video pada **hujung minggu**?  
எவ்வளவு நேரம் கடந்த வார பறுதியில் தொலைக்காட்சி, கணினி, அல்லது கணினி விளையாட்டில் ஈடுபட்டீர்களா?
- A kurang dari 1 jam sehari  
1 மணி நேரத்திற்கு குறைவாக
- B 1 jam hingga kurang dari 2 jam sehari  
ஒரு நாளில் 1 மணியிலிருந்து 2 மணி நேரம்
- C 2 jam hingga kurang dari 3 jam sehari  
ஒரு நாளில் 2 மணியிலிருந்து 3 மணி நேரம்
- D 3 jam hingga kurang dari 4 jam sehari  
ஒரு நாளில் 3 மணியிலிருந்து 4 மணி நேரம்
- E Lebih dari 4 jam sehari  
4 மணி நேரத்திற்கு மேல்
- C13** Pada **hari persekolahan** adakah anda menonton televisyen dan/atau menggunakan komputer dan/atau bermain permainan video (contoh: *PSP, Playstation, Gameboy dan lain-lain*)?  
பள்ளி நாட்களில் தொலைக்காட்சி, கணினி, அல்லது கணினி விளையாட்டில் ஈடுபட்டீர்களா?
- A Ya / ஆம்  
B Tidak / இல்லை

*Tamil Language Version*

- C14** Berapa lamakah anda menonton televisyen dan/atau menggunakan komputer dan/atau bermain permainan video pada **hari persekolahan**?  
எவ்வளவு நேரம் டிவில் செலவழிப்பீர்கள்?
- A kurang dari 1 jam sehari  
1 மணி நேரத்திற்கு குறைவாக
- B 1 jam hingga kurang dari 2 jam sehari  
ஒரு நாளில் 1 மணியிலிருந்து 2 மணி நேரம்
- C 2 jam hingga kurang dari 3 jam sehari  
ஒரு நாளில் 2 மணியிலிருந்து 3 மணி நேரம்
- D 3 jam hingga kurang dari 4 jam sehari  
ஒரு நாளில் 3 மணியிலிருந்து 4 மணி நேரம்
- E Lebih dari 4 jam sehari  
4 மணி நேரத்திற்கு மேல்



<p><b>MODUL D : PERSEPSI PENGURUSAN BERAT BADAN</b>  <b>தொகுதி D : உடல் எடை கட்டுப்பாடு</b></p>	
<p><b>Arahan : Pilih jawapan dan hitamkan pada kertas jawapan yang disediakan.</b>  <b>கட்டளை : சரியான விடையைத் தெர்வு செய்து கொடுக்கப்பட்டுள்ள விடைத்தாளில்</b></p>	
<p><b>D1</b></p>	<p>Pada masa sekarang, anda rasa anda :  தற்சமயத்தில், என் உடல் எடை:</p> <p>A Kurang berat badan yang ketara  மிகவும் குறைவாக உள்ளது</p> <p>B Kurang berat badan  குறைவாக உள்ளது</p> <p>C Mempunyai berat badan yang sesuai  சரியாக உள்ளது</p> <p>D Berlebihan berat badan  சற்று அதிகமாக உள்ளது</p> <p>E Sangat berlebihan berat badan  மிகவும் அதிகமாக உள்ளது</p>
<p><b>D2</b></p>	<p>Apakah yang anda sedang lakukan terhadap berat badan anda?  உங்கள் உடல் எடையை சரிசெய்ய நீங்கள் ஏதாவது முயற்சியில் ஈடுபட்டுள்ளீர்களா?</p> <p>A Saya sedang berusaha untuk menurunkan berat badan saya  உடல் எடையை குறைக்க முயற்சிக்கிறேன்</p> <p>B Saya sedang berusaha untuk menambahkan berat badan saya  உடல் எடையை அதிகரிக்க முயற்சிக்கிறேன்</p> <p>C Saya tidak membuat apa-apa terhadap berat badan saya  ஒரு முயற்சியிலும் ஈடுபடவில்லை</p> <p>D Saya sedang mengekalkan berat badan saya  உடல் எடையை கட்டுப்படுத்த முயற்சிக்கிறேன்</p>
<p><b>D3</b></p>	<p>Sekiranya anda berhasrat untuk <b>mengurangkan berat badan</b>, apakah faktor utama yang mendorong anda  berbuat demikian?  எனனால் நீங்கள் உடல் எடையை குறைக்க முயற்சி செய்கிறீர்கள்?</p> <p>A Kesihatan  உடல் நிலையைப் பேச</p> <p>B Kecantikan  அழகைப் பேச</p> <p>C Meningkatkan keyakinan diri  தன்னிக்கையை உயர்த்த</p> <p>D Mendapat ramai kawan  நிறைய நண்பர்கள் கிடைக்க</p> <p>E Tidak berhasrat mengurangkan berat badan  உடல் எடையைக் குறைக்க விருப்பமில்லை</p>

Tinjauan Persekitaran Keluarga

**D4** Sekiranya anda berhasrat untuk **mengurangkan berat badan**, apakah kaedah yang menjadi pilihan utama anda?   
 எவ்வாறு உடல் எடையை குறைக்க விருப்பம்?

A Bersenam   
 உடற்பயிற்சி

B Kurangkan pengambilan makanan tinggi lemak (contoh: makanan bergoreng)   
 கொழுப்பு நிறைந்த உணவை குறைத்தல்

C Kurangkan pengambilan makanan manis   
 டீயிப்பு நிறைந்த உணவை குறைத்தல்

D Meningkatkan pengambilan sayur-sayuran dan buah-buahan   
 நிறைய பழம் மற்றும் காய்கறிகள் உட்கொள்ளுதல்

E Tidak mengambil hidangan utama (sarapan/ tengah hari/ makan malam)   
 உணவை தவிர்த்தல் (காலை சிற்றுண்டி/ மாலை உணவு/ யரவு உணவு)

F Mengambil pil diet/menggunakan krim pelangsing tubuh   
 மருந்து பயன்படுத்துதல்

G Berpuasa   
 விரதம்

H Mendapat khidmat professional   
 அறிவுரை நாடுதல்

I Tidak berhasrat mengurangkan berat badan   
 உடல் எடையைக் குறைக்க விருப்பமில்லை

**D5** Sekiranya anda berhasrat untuk **menambahkan berat badan**, apakah faktor utama yang mendorong anda   
 berbuat demikian?   
 அதனால் நீங்கள் உடல் எடையை அதிகரிக்க முயற்சி செய்கிறீர்கள்?

A Kesihatan / உடல் நிலையைப் பேண

B Kecantikan / அழகைப் பேண

C Meningkatkan keyakinan diri / தன்னிக்கையை உயர்த்த

D Mendapat ramai kawan / நிறைய நண்பர்கள் கிடைக்க

E Tidak berhasrat menambah berat badan / உடல் எடையைக் அதிகரிக்க விருப்பமில்லை

**D6** Sekiranya anda berhasrat untuk **menambahkan berat badan**, apakah kaedah yang menjadi pilihan utama anda?   
 எவ்வாறு உடல் எடையை அதிகரிப்பீர்கள்?

A Menambah kuantiti makanan yang diambil   
 உட்கொள்ளும் உணவின் அளவை அதிகரிப்பேன்

B Mengambil suplemen (Makanan tambahan seperti susu, suplemen vitamin)   
 மருந்து உட்கொள்ளுவேன்

C Mengambil makanan yang berkalori tinggi   
 அதிக புரதச்சத்து உள்ள உணவை உட்கொள்ளுவேன்

D Lain-lain   
 மற்றது

F Tidak berhasrat menambah berat badan   
 உடல் எடையைக் அதிகரிக்க விருப்பமில்லை

<b>MODUL E :</b>	<b>PENGAMBILAN SUPLEMEN</b>
<b>தொகுதி E :</b>	<b>விடமின் மற்றும் மாற்றுச்சத்துணவு உட்கொள்ளுதல்</b>
<b>Arahan : Pilih jawapan dan hitamkan pada kertas jawapan yang disediakan.</b>	
<b>கட்டளை : சரியான விடையைத் தெர்வு செய்து கொடுக்கப்படுள்ள விடைத்தாளில்</b>	
<b>E1</b>	<p>Adakah anda ada mengambil sebarang suplemen <b>vitamin / mineral</b>? நீங்கள் விடமின் ஏதாவது உட்கொள்கிறீர்களா?</p> <p>A Ya / ஆம்</p> <p>B Tidak / இல்லை</p> <p>(Jika <b>TIDAK</b>, sila jawab <b>TIDAK AMBIL SUPLEMEN</b> di soalan E2, E3, dan E4) (இல்லை என்றால், விடமின் உட்கொள்ளவில்லை என்று E2, E3, மற்றும் E4 கேள்விகளில் விடையளிக்கவும்)</p>
<b>E2</b>	<p>Apakah jenis suplemen vitamin / mineral yang biasa diambil? எவ்வகை விடமின் உட்கொள்வீர்கள்?</p> <p>A Multivitamin / மல்திவிடமின்</p> <p>B Vitamin C / விடமின் C</p> <p>C Zat besi (Ferum) / டிரும்பு சத்து</p> <p>D Lain-lain / மற்றது</p> <p>E Tidak ambil suplemen / விடமின் உட்கொள்ளவில்லை</p>
<b>E3</b>	<p>Apakah sebab anda mengambil suplemen vitamin / mineral tersebut? எதனால் விடமின் உட்கொள்கிறீர்கள்?</p> <p>A Atas arahan doktor / மருத்துவரின் ஆலோசனை</p> <p>B Atas arahan ibubapa / பெற்றோரின் ஆலோசனை</p> <p>C Kesedaran sendiri / சுய முயற்சி</p> <p>D Pengaruh kawan-kawan / நண்பர்களால்</p> <p>E Lain-lain / மற்றது</p> <p>F Tidak ambil suplemen / விடமின் உட்கொள்ளவில்லை</p>
<b>E4</b>	<p>Berapa kerap anda mengambil suplemen vitamin / mineral tersebut? ஒரு வாரத்தில் எத்தனை முறை நீங்கள் விடமின் உட்கொள்வீர்கள்?</p> <p>A Setiap hari / ஒவ்வொரு நாளும்</p> <p>B 5-6 kali seminggu / 5-6 முறை</p> <p>C 3-4 kali seminggu / 3-4 முறை</p> <p>D 1-2 kali seminggu / 1-2 முறை</p> <p>E Tidak ambil suplemen / விடமின் உட்கொள்ளவில்லை</p>

Tinjauan Persekitaran Keluarga

- E5** Adakah anda ada mengambil sebarang suplemen makanan?  
நீங்கள் மாற்றுச்சத்துணவு உட்கொள்வீர்களா?
- A Ya / ஆம்  
B Tidak / பல்லை
- (Jika **TIDAK**, sila jawab **TIDAK AMBIL SUPLEMEN** di soalan E6, E7, dan E8)  
(பல்லை என்றால், விடமின் உட்கொள்ளவில்லை என்று E2, E3, மற்றும் E4 கேள்விகளில் விடையளிக்கவும்)
- E6** Apakah jenis suplemen makanan yang biasa diambil?  
எவ்விதமான மாற்றுச்சத்துணவை நீங்கள் உட்கொள்கிறீர்கள்?
- A Spirulina / சிபிருலினா  
B Minyak ikan / மீன் எண்ணை  
C Madu atau hasil madu / தேன்  
D Pati ayam / கோழி ஸ்தார்ச்  
E Lain-lain / மற்றது  
F Tidak ambil suplemen / விடமின் உட்கொள்ளவில்லை
- E7** Apakah sebab anda mengambil suplemen makanan tersebut?  
எதனால் மாற்றுச்சத்துணவு உட்கொள்கிறீர்கள்?
- A Atas arahan doktor  
மருத்துவரின் ஆலோசனை  
B Atas arahan ibubapa  
பெற்றோரின் ஆலோசனை  
C Kesedaran sendiri  
சுய முயற்சி  
D Pengaruh kawan-kawan  
நண்பர்களால்  
E Lain-lain  
மற்றது  
F Tidak ambil suplemen  
விடமின் உட்கொள்ளவில்லை
- E8** Berapa kerap anda mengambil suplemen makanan tersebut?  
ஒரு வாரத்தில் எத்தனை முறை நீங்கள் மாற்றுச்சத்துணவு உட்கொள்வீர்கள்?
- A Setiap hari / ஒவ்வொரு நாளும்  
B 5-6 kali seminggu / 5-6 முறை  
C 3-4 kali seminggu / 3-4 முறை  
D 1-2 kali seminggu / 1-2 முறை  
E Tidak ambil suplemen / விடமின் உட்கொள்ளவில்லை

<b>MODUL F :</b>	<b>LABEL MAKANAN DAN PEMAKANAN (SEKOLAH MENENGAH SAHAJA)</b>																		
<b>தொகுதி F :</b>	<b>உணவு மற்றும் உணவு உல்கொள்ளும்முறையையும்குறிப்பிடுக. (படைநிலைப்பள்ளி மட்டும்)</b>																		
<b>Arahan : Pilih jawapan dan hitamkan pada kertas jawapan yang disediakan.</b>																			
<b>கட்டளை : சரியான விடையைத் தேர்வு செய்து கொடுக்கப்படுள்ள விடைத்தாளில்</b>																			
<b>F1</b>	<p>Adakah anda membaca label makanan ketika membeli atau menerima makanan/minuman? <b>ஒர் உணவுப் பொருளை வாங்குவதற்கு முன் நீங்கள் அதன் அடையாள அட்டையை படிப்பீர்களா?</b></p> <p>A. Ya, setiap kali (<b>terus ke soalan F3 dan jawab hingga soalan F10</b>) ஆம், ஒவ்வொருமுறையும் (கேள்வி F3- டல்பருந்து F10 வரை பதிலளிக்கவும்)</p> <p>B. Ya, kadang-kadang / ஆம், சில சமயத்தில்</p> <p>C. Tidak (<b>silalah jawab soalan F2 dan terus ke soalan F5 hingga F8</b>) டல்லை (கேள்வி F2 மற்றும் F5 பின் அதிலிருந்து தொடர்ந்து F8 வரை பதிலளிக்கவும்)</p>																		
<b>F2</b>	<p>Jika anda tidak membaca label makanan, nyatakan sebab-sebabnya? <b>Anda boleh memilih lebih daripada satu jawapan.</b> எனால் நீங்கள் அவ்வடையாள அட்டையை படிக்கமாதிர்கள்? <b>ஒரு விடைக்கு மேல் தேர்வு செய்யலாம்.</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Sebab-sebab tidak membaca label makanan காரணம்</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Tulisan kecil / சிறிய எழுத்து</td> </tr> <tr> <td>B</td> <td>Tidak faham / புரியவில்லை</td> </tr> <tr> <td>C</td> <td>Tidak menarik / கவனத்தை ஈர்க்கவில்லை</td> </tr> <tr> <td>D</td> <td>Tidak tahu kepentingan / முக்கியத்துவம் தெரியவில்லை</td> </tr> <tr> <td>E</td> <td>Tiada masa / நேரமில்லை</td> </tr> <tr> <td>F</td> <td>Telah mengetahui tentang maklumat அந்த உணவைப் பற்றித் தெரியும்</td> </tr> </tbody> </table>	Sebab-sebab tidak membaca label makanan காரணம்		A	Tulisan kecil / சிறிய எழுத்து	B	Tidak faham / புரியவில்லை	C	Tidak menarik / கவனத்தை ஈர்க்கவில்லை	D	Tidak tahu kepentingan / முக்கியத்துவம் தெரியவில்லை	E	Tiada masa / நேரமில்லை	F	Telah mengetahui tentang maklumat அந்த உணவைப் பற்றித் தெரியும்				
Sebab-sebab tidak membaca label makanan காரணம்																			
A	Tulisan kecil / சிறிய எழுத்து																		
B	Tidak faham / புரியவில்லை																		
C	Tidak menarik / கவனத்தை ஈர்க்கவில்லை																		
D	Tidak tahu kepentingan / முக்கியத்துவம் தெரியவில்லை																		
E	Tiada masa / நேரமில்லை																		
F	Telah mengetahui tentang maklumat அந்த உணவைப் பற்றித் தெரியும்																		
<b>F3</b>	<p>Apakah jenis maklumat panel maklumat pemakanan yang anda baca? <b>Anda boleh memilih lebih daripada satu jawapan.</b> எந்த வகையான தகவலை நீங்கள் உணவு அடையாள அட்டையில் படித்தீர்கள்? <b>ஒரு விடைக்கு மேல் தேர்வு செய்யலாம்</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Maklumat khasiat makanan</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Jumlah tenaga makanan உணவுச்சத்து</td> </tr> <tr> <td>B</td> <td>Kandungan karbohidrat/gula ஈட்டிச்சத்துமற்றும் சர்க்கரையின்அளவு</td> </tr> <tr> <td>C</td> <td>Kandungan lemak கொழுப்பின் அளவு</td> </tr> <tr> <td>D</td> <td>Kandungan protein புரதச்சத்து</td> </tr> <tr> <td>E</td> <td>Kandungan garam/natrium உப்பின் அளவு</td> </tr> <tr> <td>F</td> <td>Kandungan vitamin விட்டமினின் அளவு</td> </tr> <tr> <td>G</td> <td>Kandungan mineral கனிமத்தின் அளவு</td> </tr> <tr> <td>H</td> <td>Serat (fiber) ஈபபெர்</td> </tr> </tbody> </table>	Maklumat khasiat makanan		A	Jumlah tenaga makanan உணவுச்சத்து	B	Kandungan karbohidrat/gula ஈட்டிச்சத்துமற்றும் சர்க்கரையின்அளவு	C	Kandungan lemak கொழுப்பின் அளவு	D	Kandungan protein புரதச்சத்து	E	Kandungan garam/natrium உப்பின் அளவு	F	Kandungan vitamin விட்டமினின் அளவு	G	Kandungan mineral கனிமத்தின் அளவு	H	Serat (fiber) ஈபபெர்
Maklumat khasiat makanan																			
A	Jumlah tenaga makanan உணவுச்சத்து																		
B	Kandungan karbohidrat/gula ஈட்டிச்சத்துமற்றும் சர்க்கரையின்அளவு																		
C	Kandungan lemak கொழுப்பின் அளவு																		
D	Kandungan protein புரதச்சத்து																		
E	Kandungan garam/natrium உப்பின் அளவு																		
F	Kandungan vitamin விட்டமினின் அளவு																		
G	Kandungan mineral கனிமத்தின் அளவு																		
H	Serat (fiber) ஈபபெர்																		

*Tinjauan Pemakanan Remaja*

**F4** Mengambil contoh gambar minuman di bawah, apakah jenis maklumat berikut yang anda baca? **Anda boleh memilih lebih daripada satu jawapan.**

கீழ்க்காட்டுக்கப்பட்டிருள்ள தண்ணீர் பாட்டிலில் எவ்வகையான தகவலை நீங்கள் பெற முடியும்?, (ஒரு விடைக்கு மேல் தேர்வு செய்யலாம்)



Jenis Maklumat தகவல்களின் வகை	
A	Tarikh luput காலாவதியாகும் திகதி
B	Akuan pemakanan ஊட்டச்சத்து கூற்றுகள்
C	Panel maklumat pemakanan ஊட்டச்சத்து தகவல்
D	Logo halal ஹலால் சின்னம்
E	Senarai ramuan/bahan பொருளடக்கம்
F	Arahan penyimpanan வழிமுறை

Berdasarkan kepada panel maklumat pemakanan pada **satu Minuman Kotak XYZ** yang ditunjukkan di bawah. Sila baca dan nyatakan sama ada kenyataan berikut adalah betul atau salah.

கீழ்க்காணும் அட்டவணையில் குளிர்பானம் XYZ-யின் ஊட்டச்சத்து தகவல்கள் கொடுக்கப்பட்டுள்ளது. அதை படித்தப்பின் கொடுக்கப்பட்டுள்ள கூற்றுக்கள் சரி அல்லது பிழை என அடையாளம் காண்க.

Maklumat Pemakanan bagi Minuman XYZ குளிர்பானம் XYZ		
Saiz hidangan : 250ml பானத்தின் அளவு : 250ml Jumlah hidangan bagi setiap kotak: 1 பரிமாறும் அளவு: 1		
	100 ml	250ml
Tenaga (kcal) சத்து	56	140
Karbohidrat (g) ஊட்டச்சத்து	10.9	27.3
Jumlah gula (g) சர்க்கரை	10.6	26.5
Protein (g) புரதச்சத்து	0	0
Lemak (g) கொழுப்பு	0	0

- F5** Jika saya minum 100ml minuman ini, ia membekalkan 56 kcal tenaga.  
நான் 100ml குளிர்பானம் குடித்தால், எனக்கு 56 கலோரிச் சத்துகள் கிடைக்கும்.
- A Betul / சரி  
B Salah / பிழை  
C Tidak tahu / தெரியவில்லை
- F6** Jika saya minum satu kotak minuman ini, bermaksud saya telah mengambil 26.5 gram gula.  
ஓர் குளிர்பானத்தை நான் முழுமையாக அருந்தினால், நான் 26.5 கிராம் சர்க்கரை எடுப்பதற்கு ஈடாகும்.
- A Betul / சரி  
B Salah / பிழை  
C Tidak tahu / தெரியவில்லை

Tinjauan Pemakanan Remaja

Berdasarkan kepada label kandungan tenaga pada pandangan hadapan (*front of pack labelling*) di bawah, sila nyatakan sama ada kenyataan berikut adalah betul atau salah.

கீழ்க்காணும் கலோரி தகவலுக்கேற்ப, கொடுக்கப்பட்டுள்ள கூற்று சரி அல்லது பிழை என்று குறிப்பிடுக.

Satu Hidangan  
Mengandungi 250 ml  
ஒரு பரிமாறலில் 250 ml உள்ளது




- F7** Nilai tenaga untuk dua hidangan makanan ini adalah 140kcal. 2 பரிமாறலில் சத்தின் அளவு 140kcal.
- A Betul / சரி  
B Salah / பிழை  
C Tidak tahu / தெரியவில்லை

- F8** Jika saya minum satu hidangan makanan ini, ia membekalkan 7% tenaga daripada 2000 kalori tersebut. நான் டீயை குடி செய்தால், எனக்கு 2000 கலோரியிலிருந்து 7% சத்து கிடைக்கும்.
- A Betul / சரி  
B Salah / பிழை  
C Tidak tahu / தெரியவில்லை



**Produk aiskrim A**  
பனிக்கூல் A



**Senarai Ramuan /Bahan:**  
**உள்ளடக்கம்:**

Gula, Olein/Minyak Isirung Kelapa Sawit, Pepejal Susu, Sirap Glukosa, Serbuk Koko  
சர்க்கரை, பனை எண்ணெய், பால், Sirap குளுகோஸ், கொக்கோ

**F9** Apakah ramuan/bahan paling banyak digunakan dalam aiskrim ini?  
பப்பனிக்கூலில் அதிகமான அளவில் பயன்படுத்தப்பட்டுள்ள பொருள் எது?

A. Pepejal susu  
பால்

B. Sirap glukosa  
குளுகோஸ்

C. Gula  
சர்க்கரை

D. Olein/Minyak isirung kelapa sawit  
பனை எண்ணெய்

E. Serbuk koko  
கொக்கோ

**F10** Apakah ramuan/bahan yang paling sedikit dalam aiskrim ini?  
பப்பனிக்கூலில் குறைவான அளவில் பயன்படுத்தப்பட்டுள்ள பொருள் எது?

A. Sirap glukosa  
குளுகோஸ்

B. Gula  
சர்க்கரை

C. Olein/Minyak isirung kelapa sawit  
பனை எண்ணெய்

D. Pepejal susu  
பால்

E. Serbuk koko  
கொக்கோ

Tinjauan Pendidikan Kesihatan

<b>MODUL G : PENGUKURAN ANTROPOMETRI</b> <b>தொகுதி G : ஆந்தரோபோமெற்றிக் அளவீடுகள்</b>				
<b>Arahan : Bahagian ini akan diisi oleh pelajar di dalam kertas jawapan yang disediakan.</b> <b>கட்டளை: கீழ்க்காணும் பத்திரத்தை நிரப்புக.</b>				
G1	Tarikh pengukuran Antropometri ஆந்தரோபோமெற்றிக் அளவு எடுக்கப்பட்ட திகதி <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 20%;">Hari நாள்</td> <td style="width: 20%;">Bulan மாதம்</td> <td style="width: 60%;">Tahun ஆண்டு</td> </tr> </table>	Hari நாள்	Bulan மாதம்	Tahun ஆண்டு
Hari நாள்	Bulan மாதம்	Tahun ஆண்டு		
G2	Berat Badan உடல் எடை Berat 1 எடை 1 <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> kg Berat 2 எடை 2 <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> kg Enggan diukur அளக்கவில்லை <input type="checkbox"/>			
G3	Tinggi உயரம் Tinggi 1 உயரம் 1 <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> cm Tinggi 2 உயரம் 2 <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> cm Enggan diukur அளக்கவில்லை <input type="checkbox"/>			

**ADOLESCENT NUTRITION SURVEY 2017**

**马来西亚学生营养调查 2017**




**Survey form/调查问卷**

**INTRODUCTION / 简介**

The survey was conducted to determine the nutritional status, eating habits, food intake, physical activity level, and the use of food labels and nutrition. Selected student from all over the country will also answer this questionnaire.  
 这项调查是为了解你的营养状况，饮食习惯，食物摄取，体能活动质量，和食品标签应用。在全国各地与你一样被选中的学生，也会回答这份问卷。

The information you provide will be used to develop better health programs for the future younger generation.  
 你所提供的资料将被用于规划更好的健康方案给予如你一样的年轻一代。

**Guide to filling survey forms/填写问卷指南**

1. Your responses will be kept **CONFIDENTIAL**. Answer the questions based on what you know and what you do. There is no right or wrong answers.  
 你提供的答案将被**保密**。请跟你所知道与你所做的来作答。答案没有对错之分。
2. Read the question carefully. Shade your answer on the answer sheet provided with a 2B pencil supplied.  
 请仔细阅读问题。请使用所提供的2B铅笔并在准备好的答案纸上划黑作答。
3. How to shade the answer/如何划黑作答：  
 Shade your answer like this  Not like this  or   
 如此划黑作答 不是这样划 或这样
4. Only one answer for each question UNLESS there are other instructions.  
 每题只能拥有一个答案，除非有其他指示。
5. If you do not understand, please raise your hand to ask question.  
 如果你在作答期间不明白，请举手发问。
6. Kindly wait for instruction from your class facilitator once you have completed the survey.  
 当你回答完毕，请等待班上协调员的指令。

**THANK YOU FOR YOUR WILLINGNESS TO COMPLETE THE SURVEY**

**感谢你愿意回答问卷**

*Enjinan Persekitanan Kesihatan*

<b>MODULE A : PERSONAL INFORMATION</b>													
<b>A组：个人资料</b>													
<b>INSTRUCTION : Fill the student ID, date of birth and shade your answer on the answer sheet provided</b>													
<b>指示：填写学生编号，出生日期并在准备好的答案纸上划黑作答</b>													
A1	<table border="0"> <tr> <td style="text-align: center;">□□</td> <td style="text-align: center;">□</td> <td style="text-align: center;">□□</td> <td style="text-align: center;">□□</td> <td style="text-align: center;">□□</td> <td style="text-align: center;">□□</td> </tr> <tr> <td style="text-align: center;">State 州属</td> <td style="text-align: center;">Strata 区域</td> <td style="text-align: center;">School Category 学校类别</td> <td style="text-align: center;">School code 学校编号</td> <td style="text-align: center;">Class 班级</td> <td style="text-align: center;">Student 学生</td> </tr> </table>	□□	□	□□	□□	□□	□□	State 州属	Strata 区域	School Category 学校类别	School code 学校编号	Class 班级	Student 学生
□□	□	□□	□□	□□	□□								
State 州属	Strata 区域	School Category 学校类别	School code 学校编号	Class 班级	Student 学生								
A2	<table border="0"> <tr> <td style="text-align: center;">□□</td> <td style="text-align: center;">□□</td> <td style="text-align: center;">□□□□</td> </tr> <tr> <td style="text-align: center;">Day/日期</td> <td style="text-align: center;">Month/月</td> <td style="text-align: center;">Year/年份</td> </tr> </table>	□□	□□	□□□□	Day/日期	Month/月	Year/年份						
□□	□□	□□□□											
Day/日期	Month/月	Year/年份											
A3	<p>A. Male/男 B. Female/女</p>												
A4	<p>A. Malay/马来人 B. Chinese/华人 C. Indian/印度人 D. Sabah indigenous/沙巴士著 E. Sarawak indigenous /沙撈越土著 F. Others/其他</p>												
	<table border="0" style="width: 100%;"> <tr> <td style="width: 30%;"></td> <td style="text-align: center;"><b>Primary school/小学</b></td> <td style="text-align: center;"><b>Secondary school/中学</b></td> </tr> </table>		<b>Primary school/小学</b>	<b>Secondary school/中学</b>									
	<b>Primary school/小学</b>	<b>Secondary school/中学</b>											
A5	<table border="0" style="width: 100%;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%;"> <p>A. Primary 4/4年级 B. Primary 5/5年级 C. Primary 6/6年级</p> </td> <td style="width: 35%;"> <p>D. Remove class/预备班 E. Secondary1/初中1 F. Secondary2/初中2 G. Secondary3/初中3 H. Secondary4/初中4 I. Secondary5/初中5</p> </td> </tr> </table>		<p>A. Primary 4/4年级 B. Primary 5/5年级 C. Primary 6/6年级</p>	<p>D. Remove class/预备班 E. Secondary1/初中1 F. Secondary2/初中2 G. Secondary3/初中3 H. Secondary4/初中4 I. Secondary5/初中5</p>									
	<p>A. Primary 4/4年级 B. Primary 5/5年级 C. Primary 6/6年级</p>	<p>D. Remove class/预备班 E. Secondary1/初中1 F. Secondary2/初中2 G. Secondary3/初中3 H. Secondary4/初中4 I. Secondary5/初中5</p>											
A6	<table border="0" style="width: 100%;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%;"> <p>A. 10 year old/10岁 B. 11 year old /11岁 C. 12 year old /12岁</p> </td> <td style="width: 35%;"> <p>D. 13 year old /13岁 E. 14 year old / 14岁 F. 15 year old / 15岁 G. 16 year old /16岁 H. 17 year old / 17岁 I. 18 year old / 18岁</p> </td> </tr> </table>		<p>A. 10 year old/10岁 B. 11 year old /11岁 C. 12 year old /12岁</p>	<p>D. 13 year old /13岁 E. 14 year old / 14岁 F. 15 year old / 15岁 G. 16 year old /16岁 H. 17 year old / 17岁 I. 18 year old / 18岁</p>									
	<p>A. 10 year old/10岁 B. 11 year old /11岁 C. 12 year old /12岁</p>	<p>D. 13 year old /13岁 E. 14 year old / 14岁 F. 15 year old / 15岁 G. 16 year old /16岁 H. 17 year old / 17岁 I. 18 year old / 18岁</p>											

<b>MODULE B: Meal pattern</b>	
<b>组 B: 饮食习惯</b>	
<b>Instruction : Choose the answer and shade on the answer sheet provided</b> <b>指示 : 请在准备好的答案纸上划圈作答</b>	
<b>B1</b>	<p>What is your school session? 请问你现在就读早上或下午班?</p> <p>A Morning session only/上午班 B Afternoon session only/下午班 C Morning and afternoon session/上午至下午班</p>
<b>B2</b>	<p>Normally, how many days in a week do you take breakfast (from 6.00AM till 8.00AM)? 你通常在一个星期内有几天会吃早餐(从早上6点到8点)?</p> <p>A 1 day/1天 B 2 days/2天 C 3 days/3天 D 4 days/4天 E 5 days/5天 F 6 days/6天 G 7 days/7天 H Not applicable / I do not take breakfast/不相关 / 没有吃早餐</p>
<b>B3</b>	<p>Normally, where do you get your breakfast from? 你通常从哪里获得早餐?</p> <p>A Prepared at home/在家准备 B Buy from school canteen/学校食堂购买 C Buy at restaurant or kiosk/餐馆或摊子购买 D Provided by the hostel/宿舍提供 E Others/其他途径 F I do not take breakfast/没有吃早餐</p>
<b>B4</b>	<p>If you do not take breakfast, what is the reason? 如果你没有吃早餐, 请问是什么原因?</p> <p>A No food/没有食物 B No appetite/没有胃口 C No time/没有时间 D On diet/ control body weight/节食/控制体重 E No money/没有钱 F Others/其他原因 G Not applicable/ because I take breakfast everyday 不相关/我每天都吃早餐</p>

**B5** Normally, how many days in a week do you eat and/or drink during school break time?  
你通常在一个星期内有几天会在学校休息节时吃食物与/或喝饮料?

- A 0 day/0天
- B 1 day/1天
- C 2 days/2天
- D 3 days/3天
- E 4 days/4天
- F 5 days/5天

**B6** Normally, where do you obtain the food?  
你通常从哪里获得该食物?

- A Bring from home/在家准备
- B Buy from school canteen/学校食堂购买
- C Buy at restaurant or kiosk/餐馆或摊子购买
- D Provided by hostel/宿舍提供
- E Others/其他途径
- F Not applicable/ I do not consume food and/or drink during school break time  
不相关/没有在学校休息节时吃食物与/或喝饮料

**B7** Normally, how many days in a week do you consume lunch (11.00AM till 3.00PM)?  
你通常在一个星期内有几天会吃午餐 (从早上11点到下午3点)?

- A 1 day/1天
- B 2 days/2天
- C 3 days/3天
- D 4 days/4天
- E 5 days/5天
- F 6 days/6天
- G 7 days/7天
- H I do not take lunch/没有吃上午餐

**B8** Normally, where do you obtain the food?  
你通常从哪里获得该食物?

- A Prepared at home/在家准备
- B Buy from school canteen/学校食堂购买
- C Buy from restaurant or kiosk/餐馆或摊子购买
- D Provided by hostel/宿舍提供
- E Others/其他途径
- F Not applicable/ I do not take lunch/不相关/没有吃午餐

- B9** If you do not take lunch, what is the reason?  
如果你没有吃午餐，请问是什么原因？
- A No food/没有食物
  - B No appetite/没有胃口
  - C No time/没有时间
  - D On diet/ control body weight/节食/控制体重
  - E No money/没有钱
  - F Others/其他原因
  - G Not applicable/ I take lunch/不相关/ 我有吃午餐
- B10** Normally, how many days in a week do you have afternoon tea (3.00PM till 6.00PM)?  
你通常在一个星期内有几天会吃下午茶点（从下午3点到傍晚6点）？
- A 1 day/1天
  - B 2 days/2天
  - C 3 days/3天
  - D 4 days/4天
  - E 5 days/5天
  - F 6 days/6天
  - G 7 days/7天
  - H No afternoon tea/没有吃下午茶
- B11** Normally, where do you obtain the food?  
你通常从哪里获得下午茶点的食物？
- A Prepared at home/在家准备
  - B Buy from school canteen/学校食堂购买
  - C Buy from restaurant or kiosk/餐馆或摊子购买
  - D Provided by hostel/宿舍提供
  - E Others/其他途径
  - F Not having afternoon tea/没有吃下午茶点
- B12** Normally, how many days in a week do you have dinner(6.00PM till10.00PM)?  
你通常在一个星期内有几天会吃晚餐（从傍晚6点到晚上10点）？
- A 1 day/1天
  - B 2 days/2天
  - C 3 days/3天
  - D 4 days/4天
  - E 5 days/5天
  - F 6 days/6天
  - G 7 days/7天
  - H Not having dinner/没有吃晚餐

**B13** Normally, where do you obtain the food?  
通常从哪获得该食物?

- A Prepared at home/在家准备
- B Buy from restaurant or kiosk/餐馆或摊子购买
- C Provided by hostel/宿舍提供
- D Others/其他途径
- E Not applicable/ I do not take dinner/不相关/ 没有吃晚餐

**B14** If you do not take dinner, what is the reason?  
如果你没有吃晚餐，请问是什么原因?

- A No food/没有食物
- B No appetite/没有胃口
- C No time/没有时间
- D On diet/节食
- E No money/没有钱
- F Others/其他原因
- G Not applicable/ I take dinner/不相关/ 有吃晚餐

**B15** For the past one week, how often do you take heavy meals after dinner? (Example: nasilemak, roti canai, fried mee, burger, fried chicken, instant noodle and etc.This does not include light snacks, eg 2 pieces of biscuit and/or one glass of milk)

在上周里面，有几天你在完晚饭后会吃难消化的食物？（例：椰浆饭，印度煎饼，炒面，汉堡包，炸鸡，快熟面等。这不包括小吃，例如2块饼干和/或一杯牛奶）

- A 1 day/1天
- B 2 days/2天
- C 3 days/3天
- D 4 days/4天
- E 5 days/5天
- F 6 days/6天
- G 7 days/7天
- H I do not take heavy meals after dinner/晚餐后不再吃东西

**B16** Where do you take the heavy meals?  
你从哪里享用该食物?

- A Home/家里
- B Restaurant/ kiosk/餐馆或摊子
- C Hostel/宿舍
- D Others/其他地方
- E Not applicable/ I do not take heavy meals/不相关/ 晚餐后不再吃东西



- B17** Normally, how many days in a week do you eat fast food bought from fast food restaurant, such as burger, pizza, fried chicken, French fries, nugget and etc?  
你通常在一个星期内有几天会吃从快餐店购买的食物如汉堡包, 披萨饼, 炸鸡, 薯条, 鸡肉块等等?
- A 1 day/1天
  - B 2 days/2天
  - C 3 days/3天
  - D 4 days/4天
  - E 5 days/5天
  - F 6 days/6天
  - G 7 days/7天
  - H No fast food/没有吃快餐
- B18** How often do you bring food to school?  
你可否有从家里携带便当/食物到学校?
- A Everyday/每天
  - B Occasionally/偶尔 (有时候会)
  - C Never/没有携带
- B19** What is the usual packed meal that you bring to school? (Can choose **ONE** or **TWO** answer(s) only)  
通常会带什么食物到学校? (只能选择一个或两个答案)
- A *Nasi lemak*/fried rice/mixed rice  
椰浆饭 / 炒饭 / 饭菜
  - B Noodle / Vermicelli / KuehTeow  
面 / 米粉 / 河粉
  - C Bread / Bun / Sandwich  
面包 / 馒头 / 三文治
  - D Nugget / Sausage / Burger  
鸡肉块 / 香肠 / 汉堡包
  - E Biscuit/饼干
  - F Fruits/水果
  - G Others/其他
  - H I do not bring packed meal/没有携带食物
- B20** How often do you bring drink to school?  
你可否有从家里携带饮料到学校?
- A Everyday/每天
  - B Occasionally/偶尔 (有时候会)
  - C Never/没有携带

- B21** What is the usual drink that you bring to school?(Can choose **ONE** or **TWO** answer(s) only)  
通常会带什么饮料到学校? (只能选择一个或两个答案)
- A Plain water/白开水
  - B Flavored water/packed drink/syrup drink/tea/coffee/Milo  
有味饮料 / 包装饮料 / 糖浆饮料 / 茶 / 咖啡 / 美禄
  - C Carbonated drink/汽水
  - D Milk/ cultured drink/奶/ 酸奶饮品 (优格)
  - E Others/其他
  - F I don't bring drink to school/没有携带饮料
- B22** Normally, where do you mostly spend your pocket money?  
你最常把零用钱花在哪一方面?
- A Buy food and/ or drink/购买食物X或饮料
  - B Buy stationery/购买文具
  - C Saving/储蓄
  - D Others/其他
  - E I do not bring pocket money to school/没有零用钱
- B23** How often do you eat outside in a week?Not included eating in the school and hostel?  
你通常在一个星期内有几天会在外用餐? 不包括在学校和宿舍?
- A 1 time/1次
  - B 2 times/2次
  - C 3 times/3次
  - D 4 times/4次
  - E 5 times/5次
  - F 6 times/6次
  - G 7 times or more/7次或以上
  - H Never/没有在外面用餐
- B24** What kind of snack foods that you always eat?(Can choose **ONE** or **TWO** answer(s) only)  
你最常吃的零食是什么? (只能选择一个或两个答案)
- A Bread / Bun / Sandwich/面包 / 馒头 / 三文治
  - B French fries/薯条
  - C Biscuit/饼干
  - D Fruits/水果
  - E Nuts/花生
  - F Fish cracker/炸鱼饼/虾饼
  - G Ice cream/冰淇淋
  - H I do not take snack food/没有吃零食

- B25** How often do you take snack foods in a week?  
你在一个星期内吃多少次零食?
- A 1 time/1次
  - B 2 times/2次
  - C 3 times/3次
  - D 4 times/4次
  - E 5 times/5次
  - F 6 times/6次
  - G 7 times or more/7次或以上
  - H Never take snack food before/没有吃零食
- B26** What types of food and/or drinks that you always buy out of school area?(Can choose **ONE** or **TWO** answer(s) only)  
你从学校范围外买些什么类型的食物和/或饮料? (只能选择一个或两个答案)
- A Candy/chocolate/糖果 / 巧克力
  - B French fries/ nugget / sausage/薯条 / 鸡肉块 / 香肠
  - C Flavoured drink/ carbonated drink/各种口味饮料 / 汽水
  - D Pickles/腌制食物
  - E Snack food/零食
  - F Fish cracker/炸鱼饼/虾饼
  - G Ice cream/冰淇淋
  - H Never take snack food outside the school area/没有买学校范围外的食物
- B27** Within a week, how often do you buy food and/or drink outside school compound?  
在一星期内, 你可否有从学校范围外买食物和/或饮料?
- A 1 time/1次
  - B 2 times/2次
  - C 3 times/3次
  - D 4 times/4次
  - E 5 times/5次
  - F 6 times/6次
  - G 7 times or more/7次或以上
  - H Never/没有购买
- B28** Which media source(s) that most affect your dietary pattern? (Can choose **ONE** or **TWO** answer (s) only)/  
什么媒体最影响你的食物选择? (只能选择一个或两个答案)
- A Social media (example : Surf Internet / YouTube / Facebook / Instagram, Twitter)  
社交网站 (例: 浏览网站 / 视频网站 / 面子书)
  - B Television/电视机
  - C Radio/电台
  - D Printed media (Example: magazine, newspaper, billboard, brochure, catalogue)  
平面媒体 (例子: 杂志, 报章, 广告牌, 传单, 购物目录)
  - E Not affected/没有被影响

<b>MODULE C : PHYSICAL ACTIVITY</b>						
<b>C组：体能活动</b>						
<b>Instruction : Choose the answer and shade on the answer sheet provided</b>						
<b>指示：请在准备好的答案纸上划黑作答</b>						
<b>C1 Physical activity during leisure time: Are you doing the activities listed below during the last 7 days (last week). If YES, how many times?</b>						
<b>休闲体能活动：在过去的7天（上周）你有做出以下列出的哪些活动。如果有，请问多少次？</b>						
	<b>Activity/活动</b>	<b>Never/ 没有</b>	<b>1-2 times/ 1-2次</b>	<b>3-4 times/ 3-4次</b>	<b>5-6 times/ 5-6次</b>	<b>7 times or more/ 7次或以上</b>
a	Rope skipping/跳绳	A	B	C	D	E
b	Rowing/ Canoeing/划艇	A	B	C	D	E
c	Silat / Karate / Taekwondo 马来武术/空手道/跆拳道	A	B	C	D	E
d	Chasing game/追逐游戏	A	B	C	D	E
e	Brisk walking/步行运动	A	B	C	D	E
f	Cycling/骑脚踏车	A	B	C	D	E
g	Jogging / Running/慢跑 / 赛跑	A	B	C	D	E
h	Aerobics/有氧体操	A	B	C	D	E
i	Swimming/游泳	A	B	C	D	E
j	Baseball/棒球	A	B	C	D	E
k	Dancing/跳舞	A	B	C	D	E
l	Rugby/橄榄球	A	B	C	D	E
m	Badminton/羽毛球	A	B	C	D	E
n	Hockey/曲棍球	A	B	C	D	E
o	Volleyball/排球	A	B	C	D	E
p	Basketball / Netball/篮球	A	B	C	D	E
q	Sepak takraw/藤球	A	B	C	D	E
r	Football / Futsal/足球	A	B	C	D	E
s	Ping pong/乒乓球	A	B	C	D	E

- C2** During physical education class in the last 7 days, how often are you in an active condition (playing, running, throwing, jumping)?  
在过去的7天，在体育课活动期间，你是否非常活跃（玩耍，奔跑，投球，跳跃）？
- A I do not attend the physical education class/我不参与体育课  
B Very rare/级少数  
C Occasionally/偶尔(有时候会)  
D Quite often/经常  
E Always/常常
- C3** What do you usually do **during break time in the school** for the last 7 days?  
在过去的7天，你都在**学校休息课**时做些什么？
- A Sitting down (chatting, reading, doing homework) /坐下(聊天，阅读，做功课)  
B Standing or walking/站立或步行  
C Running or playing for a short while/奔跑或偶尔玩耍  
D Running and playing for a short while/奔跑和偶尔玩耍  
E Running and playing all the time/奔跑和经常玩耍
- C4** What are the activities that you normally do **during lunch time** for the last 7 days (apart from eating)?  
在过去的7天，除了坐下吃午餐外，你都在**吃午餐的时候**做些什么？
- A Sitting down (chatting, reading, doing homework)/坐下(聊天，阅读，做功课)  
B Standing or walking/站立或步行  
C Running or playing for a short while/奔跑或偶尔玩耍  
D Running and playing for a short while/奔跑和适量的玩耍  
E Running and playing all the time/奔跑和经常玩耍
- C5** In the last 7 days, how many days did you spend playing sports, dance or playing **actively immediately after school hours**?  
在过去的7天，你有几天是**直接在放学后**运动，跳舞，或非常活跃的玩耍？
- A Never/没有  
B 1 day/1天  
C 2 or 3 days/2或3天  
D 4 days/4天  
E 5 days/5天
- C6** In the last 7 days, how many days did you play sports, dance or play **actively in the evening**?  
在过去的7天，你有几天是在**下午时间**运动，跳舞，或非常活跃的玩耍？
- A Never/没有  
B 1 day/1天  
C 2 or 3 days/2或3天  
D 4 or 5 days/4或5天  
E 6 or 7 days/6或7天

- C7** How many times have you been involved with sport activities, dancing or engage in active games during last weekend?  
在上个周末，你有多少次参与运动，跳舞，或活跃的课外活动？
- A Never/没有
  - B 1 time/1次
  - C 2 or 3 times/2或3次
  - D 4 or 5 times/4或5次
  - E 6 times or more/6次或以上
- C8** Which of the following statements describe you in the last 7 days?  
以下哪项正是描述你在过去的7天的行为？
- A I use all or most of my spare time with a mild activity/  
我用全部或大部分空闲的时间做些不劳累的活动
  - B I occasionally (1-2 times per week) do physical activity during my spare time (example: involve in sport activities, running, swimming, cycling, aerobic activity)/  
在空闲的时候，我偶尔（每周1-2次）会参与课外活动（例：运动，赛跑，跳舞，游泳，骑脚踏车，有氧运动）
  - C I sometimes (3-4 times per week) do physical activity during my spare time(example: involve in sport activities, running, swimming, cycling, aerobic activity)/  
在空闲的时候，我有时（每周3-4次）会参与课外活动（例：运动，赛跑，跳舞，游泳，骑脚踏车，有氧运动）
  - D I often (5-6times per week) do physical activity during my spare time (example: involve in sport activities, running, swimming, cycling, aerobic activity)/  
在空闲的时候，我经常（每周5-6次）会参与课外活动（例：运动，赛跑，跳舞，游泳，骑脚踏车，有氧运动）
  - E I regularly (7times or more per week) do physical activity during my spare time (example: involve in sport activities, running, swimming, cycling, aerobic activity)/  
在空闲的时候，我常常（每周7次或以上）会参与课外活动（例：运动，赛跑，跳舞，游泳，骑脚踏车，有氧运动）

**C9** Highlight the frequency of your activity (such as sports, playing, dancing, or any other physical activity) for each day during the last one week.

上个星期的每一天，你有多少次参与课外活动（体育，玩耍，跳舞或其他课外活动）

Day/日期		No activity/ 没有活动	Occasionally (1-2 times)/ 偶尔 (1-2 次)	Sometimes (3-4 times) / 有时 (3-4 次)	Often (5-6 times/ 经常 (5-6 次)	Regularly (7 times or more)/ 常常 (7 次或以)
a	Monday/ 星期一	A	B	C	D	E
b	Tuesday/ 星期二	A	B	C	D	E
c	Wednesday/ 星期三	A	B	C	D	E
d	Thursday/ 星期四	A	B	C	D	E
e	Friday/ 星期五	A	B	C	D	E
f	Saturday/ 星期六	A	B	C	D	E
g	Sunday/ 星期日	A	B	C	D	E

- C10** For the past week, are you sick, or are there any things that prevent you from doing regular physical activity?  
 在上个星期, 你是否生病或因其他原因而导致你不能参与课外活动吗?  
 A Yes/是  
 B No/不是
- C11** During **weekend**, do you watch television and/or use computer and/or play video games ?  
 在**周末**, 你是否有看电视和/或使用电脑和/或玩电子游戏机 (example/如: PSP, Playstation, Gameboy and others)?  
 A Yes/是  
 B No/不是
- C12** How long do you watch television and/or use computer and/or play video games during **weekend**?  
 在**周末**, 你花多少时间在看电视和/或使用电脑和/或玩电子游戏机?  
 A Less than 1 hour per day/一天少过 1 小时  
 B 1 to 2 hours per day/一天 1 至 2 小时之间  
 C 2 to 3 hours per day/一天 2 至 3 小时之间  
 D 3 to 4 hours per day/一天 3 至 4 小时之间  
 E More than 4 hours per day/一天超过 4 小时
- C13** During **school day**, do you watch television and/or use computer and/or playing video games?  
 在**上学期间**, 你是否有看电视和/或使用电脑和/或玩电子游戏机(example/如: PSP, PlayStation, Gameboy and others)?  
 A Yes/是  
 B No/不是
- C14** How long do you watch television and/or use computer and/or play video games on **school days**?  
 在**上学期间**, 你花多少时间在看电视和/或使用电脑和/或玩电子游戏机?  
 A Less than 1 hour per day/一天少过 1 小时  
 B 1 to 2 hours per day/一天 1 至 2 小时之间  
 C 2 to 3 hours per day/一天 2 至 3 小时之间  
 D 3 to 4 hours per day/一天 3 至 4 小时之间  
 E More than 4 hours per day/一天超过 4 小时



<b>MODULE D : PERCEPTION OF WEIGHT MANAGEMENT</b>	
<b>D 组 : 体重管理的自我观点</b>	
<b>INSTRUCTION : Choose the answer and shade on the answer sheet provided.</b> <b>指示 : 请在准备好的答案纸上划圈作答</b>	
<b>D1</b>	At the present time, you think you are: 目前, 你觉得你: A Significant underweight/体重非常不足 B Underweight/体重不足 C Has appropriate body weight/拥有适当的体重 D Overweight/体重过重 E Obese/肥胖
<b>D2</b>	What are you doing to your body weight? 你对你的体重做了些什么? A I am trying to reduce my body weight/我正在努力减轻自己的体重 B I am trying to increase my body weight/我正在努力增加自己的体重 C I am not doing anything to my body weight/我什么也没做 D I am maintaining my body weight/我正在维持自己的体重
<b>D3</b>	If you intend to <b>lose body weight</b> , what are the main factor that motivate you to do so?/如果你想 <b>减肥</b> , 是什么主要因素驱使你这样做呢? A Health/健康 B Beauty/漂亮 C Increase self-confidence/提高自信 D To have more friends/结交更多朋友 E Does not intend to lose body weight/没有想过减肥
<b>D4</b>	If you intend to <b>lose body weight</b> , what is the preferred option? 如果你想 <b>减肥</b> , 什么方法是你的首选? A Exercise/运动 B Reduce consumption of high fat foods/减少吃油腻的食物(Example/例子: fried food/煎炸食物) C Reduce intake of sugary foods/减少吃甜食 D Increase intake of vegetables and fruits/多吃蔬菜和水果 E Skip main meals/不吃正餐 (breakfast/早餐, lunch/午餐, dinner/晚餐) F Taking diet pills/ use slimming cream/吃减肥药/用减肥霜 G Fasting/禁食 H Get professional advise/征求专业服务 I Does not intend to lose body weight/没有想过减肥
<b>D5</b>	If you intend to <b>increase body weight</b> , what are the main factor that motivate you to do so? 如果你想 <b>增肥</b> , 是什么主要因素驱使你这样做呢? A Healthy/健康 B Beauty/漂亮 C Increase self-confidence/提高自信 D To have more friends/结交更多朋友 E Does not intend to increase body weight/没有想过增肥
<b>D6</b>	If you intend to <b>increase body weight</b> , what is the preferred option? 如果你想 <b>增肥</b> , 什么方法是你的首选? A Increase the quantity of food consumed/吃更多的食物 B Taking supplement (Additional foods such as milk, vitamin)/吃补品 (如奶, 维生素补品) C Take high-calorie foods/吃高卡路里的食物 D Others/其他 E Does not intend to increase body weight/没有想过增肥

**MODULE E: SUPPLEMENT INTAKE****E 组：食用营养补剂****Instruction : Choose the answer and shade on the answer sheet provided****指示：请在准备好的答案纸上划黑作答**

- E1** Are you taking any vitamin supplement/ minerals?  
 你有在食用维生素/矿物质的补剂吗？  
 A Yes/有  
 B No/没有  
 (If No, please answer 'I DON'T TAKE SUPPLEMENT' at question E2, E3, dan E4  
 (如果没有，请在 E2, E3 和 E4 回答没有食用补剂))
- E2** What type of vitamin supplement/ minerals that you usually take?  
 你在食用什么维生素/矿物质补剂？  
 A Multivitamin/多元维生素  
 B Vitamin C/维生素 C  
 C Iron supplement (Ferum)/铁质  
 D Others/其他  
 E I do not take supplement/没有食用补剂
- E3** What is the reason for you to take vitamin supplement/ minerals?  
 是什么原因使你在食用维生素/矿物质补剂？  
 A Prescribed by doctor/医生指示  
 B Advised by parent/父母要求  
 C Self-awareness/自我意识  
 D Friend influence/朋友影响  
 E Others/其他  
 F I do not take supplement/没有食用补剂
- E4** How often do you take vitamin supplement / minerals?  
 你如何食用该维生素/矿物质补剂？  
 A Everyday/每天  
 B 5-6 times per week/一星期 5 至 6 次  
 C 3-4 times per week/一星期 3 至 4 次  
 D 1-2 times per week/一星期 1 至 2 次  
 E I do not take supplement/没有服用补剂
- E5** Are you taking any **food supplement**?  
 你有在食用食物补剂吗？  
 A Yes/有  
 B No/没有  
 (If NO, please answer 'I DON'T TAKE SUPPLEMENT' at question E6, E7, dan E8)  
 (如果没有，请在 E6, E7 和 E8 回答没有食用补剂))

**E6** What kind of food supplement that you usually take?  
你在食用什么食物补助品？

- A Spirulina/螺旋藻
- B Fish oil/鱼油
- C Honey/蜜糖或蜜糖制品
- D Chicken essence/鸡精
- E Others/其他
- F I do not take supplement/没有食用补助品

**E7** What is the reason for you to take food supplement?  
是什么原因使你在食用食物补助品？

- A Prescribed by doctor/医生指示
- B Advised by parent/父母要求
- C Self-awareness/自我意识
- D Friend influence/朋友影响
- E Others/其他
- F I do not take supplement/没有服用补助品

**E8** How often do you take food supplement?  
你如何食用该维生素/矿物质补助品？

- A Everyday/每天
- B 5-6 times per week/一星期 5 至 6 次
- C 3-4 times per week/一星期 3 至 4 次
- D 1-2 times per week/一星期 1 至 2 次
- E I do not take supplement/没有服用补助品

<b>MODULE F: NUTRITION AND FOOD LABELLING</b>																			
<b>F 组：食品标签（只限于中学生作答）</b>																			
<i>Instruction: Choose the answer and shade on the answer sheet provided</i> <i>指示：请在准备好的答案纸上划黑作答</i>																			
<b>F1</b>	<p>Do you read food label when buying or receiving food/drink? 当你正在购买或接受食品/饮料的时候，你会否阅读食品标签？</p> <p>A. Yes, every time/每次都会</p> <p>B. Yes, sometimes/偶尔会</p> <p>C. No/不会</p>																		
<p><b>(Straight to question F3 and answer till question F10/ 请直接跳去回答问题 F3，并继续回答至 F10)</b></p> <p><b>(Please answer question F2 and question F5 till F8/ 请回答问题 F2，并直接跳去 F5 继续回答至 F8)</b></p>																			
<b>F2</b>	<p>If you do not read food labels, specify the reason? <b>You may choose more than one answer</b> 如果你没有阅读食品标签，请列明原因。你可以选择多个答案</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <tr> <th colspan="2">Reasons for not reading food labels/ 没有阅读食品标签的原因</th> </tr> <tr> <td style="width: 50px;"><b>A</b></td> <td>Small printing font/字体太小</td> </tr> <tr> <td><b>B</b></td> <td>Do not understand food labels/不明白</td> </tr> <tr> <td><b>C</b></td> <td>Not interesting/不感兴趣</td> </tr> <tr> <td><b>D</b></td> <td>Do not know the importance/不懂其重要性</td> </tr> <tr> <td><b>E</b></td> <td>No time/没有时间</td> </tr> <tr> <td><b>F</b></td> <td>Already know the information/已经知道相关资料</td> </tr> </table>	Reasons for not reading food labels/ 没有阅读食品标签的原因		<b>A</b>	Small printing font/字体太小	<b>B</b>	Do not understand food labels/不明白	<b>C</b>	Not interesting/不感兴趣	<b>D</b>	Do not know the importance/不懂其重要性	<b>E</b>	No time/没有时间	<b>F</b>	Already know the information/已经知道相关资料				
Reasons for not reading food labels/ 没有阅读食品标签的原因																			
<b>A</b>	Small printing font/字体太小																		
<b>B</b>	Do not understand food labels/不明白																		
<b>C</b>	Not interesting/不感兴趣																		
<b>D</b>	Do not know the importance/不懂其重要性																		
<b>E</b>	No time/没有时间																		
<b>F</b>	Already know the information/已经知道相关资料																		
<b>F3</b>	<p>What kind of information do you read from the food label? <b>You may choose more than one answer.</b> 你会从食物营养标签上阅读哪些营养资料？你可以选择多个答案</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <tr> <th colspan="2">Nutrition fact information/营养资料</th> </tr> <tr> <td style="width: 50px;"><b>A</b></td> <td>Energy content/日能</td> </tr> <tr> <td><b>B</b></td> <td>Carbohydrate/sugar content/碳水化合物/糖含量</td> </tr> <tr> <td><b>C</b></td> <td>Fat content/脂肪含量</td> </tr> <tr> <td><b>D</b></td> <td>Protein content/蛋白质含量</td> </tr> <tr> <td><b>E</b></td> <td>Salt/ sodium content/钠含量</td> </tr> <tr> <td><b>F</b></td> <td>Vitamin content/维生素含量</td> </tr> <tr> <td><b>G</b></td> <td>Mineral content/矿物质含量</td> </tr> <tr> <td><b>H</b></td> <td>Fiber/纤维</td> </tr> </table>	Nutrition fact information/营养资料		<b>A</b>	Energy content/日能	<b>B</b>	Carbohydrate/sugar content/碳水化合物/糖含量	<b>C</b>	Fat content/脂肪含量	<b>D</b>	Protein content/蛋白质含量	<b>E</b>	Salt/ sodium content/钠含量	<b>F</b>	Vitamin content/维生素含量	<b>G</b>	Mineral content/矿物质含量	<b>H</b>	Fiber/纤维
Nutrition fact information/营养资料																			
<b>A</b>	Energy content/日能																		
<b>B</b>	Carbohydrate/sugar content/碳水化合物/糖含量																		
<b>C</b>	Fat content/脂肪含量																		
<b>D</b>	Protein content/蛋白质含量																		
<b>E</b>	Salt/ sodium content/钠含量																		
<b>F</b>	Vitamin content/维生素含量																		
<b>G</b>	Mineral content/矿物质含量																		
<b>H</b>	Fiber/纤维																		

**F4** Based on the picture of drink sample below, what kind of information do you read?  
**You can choose more than one answer**

根据以下饮品为例，你会阅读以下哪些资料？您可以选择多个答案



Type of Information/食品资料	
<b>A</b>	Expiry date/有限期
<b>B</b>	Dietary declaration/食品标签
<b>C</b>	Nutrition fact/营养资料
<b>D</b>	Halal logo/清真标志
<b>E</b>	List of Ingredients/成分
<b>F</b>	Storage instruction/存放指示

Based on nutrition fact on **Packed Drink XYZ** shown below, please read and state whether the statement is correct or wrong

根据以下**XYZ包装饮料**的食品说明。请阅读明白并确定下列陈述正确与否

Nutrition Facts for Drink XYZ/ XYZ 包装饮料食品说明		
Serving size: 食用分量: 250 ml / 毫升 Serving per box/每包装所含食用份量: 1		
	Every 100 ml/ 每 100 毫升	Every serving 250 ml/ 每食用份量 250 毫升
Energy/能量 (kcal/千卡)	56	140
Carbohydrate/碳水化合物 (g/克)	10.9	27.3
Total sugar/总糖量 (g/克)	10.6	26.5
Protein/蛋白质 (g/克)	0	0
Fat/脂肪 (g/克)	0	0

**F5** If I drink 100ml of this drink, it provides 56 kcal of energy.  
如果我喝下这100毫升的饮料，它将提供56千卡能量。

- A True/正确
- B False/不正确
- C Don't know.不知道

**F6** If I drink 1 box of this packed drink, I obtain 26.5 gram of sugar.  
如果我喝下这包饮料，就等于我摄取了26.5克糖。

- A True/正确
- B False/不正确
- C Don't know/不知道

Based on the energy content from the front part of label (shown below), please indicate whether the following statement is true or false.

根据以下前面的能量摄取标签(*front of pack labelling*), 请确定下列陈述正确与否

One serving/每食用份量  
Contain/含有 250 ml/毫升



Base on/根据  
2000 kcal/千卡


- F7** Energy for 2 serving of this food is 140 kcal  
两份食用份量将提供140千卡的能量
- A True/正确
  - B False/不正确
  - C Don't know/不知道
- F8** If I drink one serve of this food, it provides 7% energy from 2000 calories  
如果我喝了一份食用份量, 它将从 2000 千卡中提供 7% 的能量。
- A True/正确
  - B False/不正确
  - C Don't know/不知道

**Product Ice Cream A**  
冰淇淋 A 产品

**List of ingredients/成分:**

Sugar, Olein/Palm kernel, Milk solids,  
Glucose syrup, Cocoa powder.

糖, 精油/棕榈仁油, 乳固体, 葡萄糖浆,  
可可粉



**F9** What ingredient that is mostly used in this ice cream?  
在这冰淇淋内, 什么成分是最高的?

- A. Milk solids/乳固体
- B. Glucose syrup/葡萄糖浆
- C. Sugar/糖
- D. Olein / Palm kernel oil/精油/棕榈仁油
- E. Cocoa powder/可可粉

**F10** What ingredient that is least used in this ice cream?  
在这冰淇淋内, 什么成分是最低的?

- A. Glucose syrup/葡萄糖浆
- B. Sugar/糖
- C. Olein/Palm kernel oil/精油/棕榈仁油
- D. Milk solids/乳固体
- E. Cocoa powder/可可粉



<b>MODULE G : ANTHROPOMETRIC MEASUREMENT</b>												
<b>G组：人体测量</b>												
<i>Instruction: This section will be completed by the student in the answer sheets provided</i> 指示：在这环节，学生将在所准备的答案纸上作答												
G1	Anthropometry measurement date/测量日期: <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td> </td><td> </td></tr> <tr><td>Day/日期</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td> </td><td> </td></tr> <tr><td>Month/月份</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td>Year/年份</td></tr> </table>			Day/日期			Month/月份					Year/年份
Day/日期												
Month/月份												
Year/年份												
G2	Body weight/体重											
G2a	Weight 1/体重1 <input type="text"/> <input type="text"/> <input type="text"/> : <input type="text"/> kg/公斤											
G2b	Weight 2/体重2 <input type="text"/> <input type="text"/> <input type="text"/> : <input type="text"/> kg/公斤											
	<b>Refuse to be measured</b> 不愿被测量 <input type="text"/>											
G3	Body height/身高											
G3a	Height 1/身高1 <input type="text"/> <input type="text"/> <input type="text"/> : <input type="text"/> cm/厘米											
G3b	Height 2/身高2 <input type="text"/> <input type="text"/> <input type="text"/> : <input type="text"/> cm/厘米											
	<b>Refuse to be measured</b> 不愿被测量 <input type="text"/>											







## Appendix 8: Consent Form

## Parents Consent Form

Borang Persetujuan Ibu Bapa/Penjaga NHMS 2017

**RISALAH MAKLUMAT IBU BAPA/ PENJAGA (RESPONDEN BAWAH 18 TAHUN)****1. Tajuk:**

Tinjauan Kebangsaan Kesihatan dan Morbiditi (NHMS) 2017

**2. Nama Penyelidik dan Institusi:**

- i. Dr. S Maria Binti Awaluddin, Institut Kesihatan Umum, Kementerian Kesihatan Malaysia
- ii. Puan Ruhaya Binti Salleh, Institut Kesihatan Umum, Kementerian Kesihatan Malaysia
- iii. Dr. Mohd Kamal Ariff Bin Abdul Ghani, Institut Kesihatan Umum, Kementerian Kesihatan Malaysia

**3. Nama Penaja:**

Kementerian Kesihatan Malaysia

**4. Pengenalan:**

Kementerian Kesihatan Malaysia sedang menjalankan Tinjauan Kebangsaan Kesihatan dan Morbiditi 2017 pada tahun ini. Terdapat dua fokus utama dalam kajian ini iaitu Tinjauan Kesihatan Remaja dan Tinjauan Pemakanan Remaja. Maklumat di bawah akan menjelaskan hal-hal berkenaan tinjauan tersebut untuk anda membenarkan anak anda menyertai tinjauan ini.

Adalah penting untuk anda memahami mengapa tinjauan ini dilakukan dan apa yang perlu anak anda lakukan. Sila ambil masa yang secukupnya untuk membaca dengan teliti penerangan yang diberi sebelum anda memberi persetujuan untuk anak anda menyertai tinjauan ini. Jika anda mempunyai sebarang kemusykilan ataupun memerlukan maklumat lanjut, anda boleh bertanya dengan mana-mana ahli kumpulan tinjauan ini.

Setelah anda memahami maklumat tinjauan ini dan memberi keizinan untuk anak anda mengambil bahagian, anda perlu menandatangani Borang Persetujuan Ibu Bapa/ Penjaga (**Salinan Ibu-Bapa/Penjaga & Salinan Penyelidik**) yang disertakan bersama-sama risalah ini. Tuan/Puan mempunyai masa selama tujuh (7) hari untuk membuat keputusan bagi penyertaan anak Tuan/Puan dalam kajian ini. Borang persetujuan yang telah ditandatangani akan dikumpul oleh pasukan penyelidik sebelum pengumpulan data dijalankan. Penyertaan anak anda dalam tinjauan ini adalah secara sukarela dan anak anda boleh menarik diri pada bila-bila masa. Anak anda boleh tidak menjawab mana-mana soalan atau menarik diri dari pemeriksaan yang disebutkan sekiranya tidak mahu. Keengganan anak anda untuk mengambil bahagian atau menarik diri tidak akan menjejaskan sebarang manfaat perubatan atau kesihatan yang sememangnya hak anak anda.

Tinjauan ini ditaja sepenuhnya oleh Kementerian Kesihatan Malaysia dan telah mendapat kelulusan Jawatankuasa Etika dan Penyelidikan Perubatan, Kementerian Kesihatan Malaysia.

**5. Apakah tujuan tinjauan ini dilakukan?**

Tujuan tinjauan ini dijalankan adalah untuk memperoleh maklumat berkenaan kesihatan dan faktor pelindung serta menilai status pemakanan, corak pengambilan makanan dan corak aktiviti fizikal dalam kalangan remaja berumur 10 hingga 17 tahun. Maklumat yang diperolehi ini akan dikaji dan dinilai bagi membantu penilaian keberkesanan strategi yang dilaksanakan di peringkat sekolah dan untuk meningkatkan kesihatan remaja.

**6. Apakah yang perlu anak saya lalui/lakukan sekiranya bersetuju untuk menyertai tinjauan ini?**

Memberi respon terhadap soalan-soalan kaji selidik yang perlu dijawab oleh anak anda dan juga pengambilan ukuran berat dan tinggi yang akan dilakukan oleh pasukan penyelidik.

**7. Apakah tanggungjawab anak saya sewaktu menyertai tinjauan ini?**

Adalah penting untuk anak anda menjawab kesemua soalan yang ditanya oleh ahli penyelidik dengan lengkap. Menyertai tinjauan ini tidak memerlukan anda mengeluarkan sebarang perbelanjaan.

**8. Apakah risiko dan kesan-kesan sampingan menyertai tinjauan ini?**

Tiada risiko terhadap anak anda sekiranya menyertai tinjauan ini memandangkan tiada kaedah yang invasif atau merbahaya digunakan.

**9. Apakah manfaatnya anak saya menyertai tinjauan ini?**

Tinjauan ini tidak memberikan sebarang saguhati atau kesan kesihatan secara langsung apabila anak anda menyertai tinjauan ini. Namun, segala maklumat yang diperolehi daripada tinjauan ini akan dapat membantu penggubal dasar untuk merancang dan menambahkan program sedia ada untuk golongan remaja di Malaysia.

**10. Adakah maklumat perubatan anak saya akan dirahsiakan?**

Segala maklumat anak anda yang diperolehi dalam tinjauan ini akan disimpan dan dikendalikan secara sulit, bersesuaian dengan peraturan-peraturan dan/atau undang-undang yang berkenaan. Hanya penyelidik, peninjau yang berkelayakan, auditor, dan pihak berkuasa yang berkaitan kajian ini sahaja mempunyai akses kepada maklumat yang anak anda berikan. Sekiranya hasil tinjauan ini diterbitkan atau dibentangkan kepada orang ramai, identiti anak anda tidak akan didedahkan tanpa kebenaran anda terlebih dahulu.

**11. Siapakah yang perlu saya hubungi sekiranya saya mempunyai sebarang pertanyaan?**

Sekiranya anda mempunyai sebarang soalan mengenai tinjauan ini atau memerlukan keterangan lanjut, Tuan/Puan boleh hubungi penyelidik, Dr. S Maria Awaluddin, Puan Ruhaya Salleh dan Dr. Mohd Kamal Ariff Abdul Ghani di Institut Kesihatan Umum, Jalan Bangsar, Kuala Lumpur di talian 03-22979400 untuk penjelasan lebih lanjut.

Jika anda mempunyai sebarang pertanyaan berkaitan dengan hak-hak anak anda sebagai responden dalam tinjauan ini, sila hubungi Setiausaha, Jawatankuasa Etika & Penyelidikan Perubatan (MREC), Kementerian Kesihatan Malaysia di talian 03-22874032.

**BORANG PERSETUJUAN IBU BAPA/ PENJAGA (Salinan Ibu Bapa/Penjaga)**

**Tajuk kajian : Tinjauan Kebangsaan Kesihatan dan Morbiditi (NHMS) 2017**

Dengan menandatangani di bawah (Salinan Ibu Bapa/Penjaga dan Salinan Penyelidik), saya mengesahkan bahawa:

	Sila tandakan $\checkmark$ di dalam kotak
1. Saya telah diberi maklumat tentang tinjauan di atas dan saya telah membaca dan memahami segala maklumat yang diberikan di dalam risalah ini.	<input type="checkbox"/>
2. Saya mempunyai masa yang secukupnya untuk mempertimbangkan penyertaan anak saya dalam tinjauan ini dan telah diberi peluang untuk bertanyakan soalan dan semua soalan saya telah dijawab dengan memuaskan.	<input type="checkbox"/>
3. Saya faham bahawa penyertaan anak saya adalah secara sukarela dan boleh menarik diri daripada tinjauan ini pada bila-bila masa tanpa memberi sebarang sebab.	<input type="checkbox"/>
4. Saya memahami risiko dan manfaat dari tinjauan ini dan saya memberi keizinan secara sukarela untuk anak saya mengambil bahagian dalam tinjauan. Saya faham bahawa anak saya mesti mengikuti arahan yang berkaitan dengan penyertaannya dalam tinjauan ini.	<input type="checkbox"/>
5. Saya akan menerima satu salinan maklumat tinjauan/borang persetujuan ibu bapa/penjaga termaklum ini yang telah ditandatangani dan bertarikh.	<input type="checkbox"/>

Saya, \_\_\_\_\_ **memberi/tidak memberi keizinan\*** untuk anak/jagaan saya bernama \_\_\_\_\_ dari kelas \_\_\_\_\_ mengambil bahagian di dalam Tinjauan Kebangsaan Kesihatan dan Morbiditi (NHMS) 2017 sepertimana yang telah dimaklumkan. (**\*Potong yang tidak berkenaan**)

(Tandatangan)  
 Nama Ibubapa/Penjaga\* : \_\_\_\_\_  
 Nombor K/P : \_\_\_\_\_  
 Tarikh : \_\_\_\_\_

**BORANG PERSETUJUAN IBU BAPA/ PENJAGA (Salinan Penyelidik)**

Tajuk kajian : Tinjauan Kebangsaan Kesihatan dan Morbiditi (NHMS) 2017

Dengan menandatangani di bawah (Salinan Ibu Bapa/Penjaga dan Salinan Penyelidik), saya mengesahkan bahawa:

	Sila tandakan ✓ di dalam kotak
1. Saya telah diberi maklumat tentang tinjauan di atas dan saya telah membaca dan memahami segala maklumat yang diberikan di dalam risalah ini.	<input type="checkbox"/>
2. Saya mempunyai masa yang secukupnya untuk mempertimbangkan penyertaan anak saya dalam tinjauan ini dan telah diberi peluang untuk bertanyakan soalan dan semua soalan saya telah dijawab dengan memuaskan.	<input type="checkbox"/>
3. Saya faham bahawa penyertaan anak saya adalah secara sukarela dan boleh menarik diri daripada tinjauan ini pada bila-bila masa tanpa memberi sebarang sebab.	<input type="checkbox"/>
4. Saya memahami risiko dan manfaat dari tinjauan ini dan saya memberi keizinan secara sukarela untuk anak saya mengambil bahagian dalam tinjauan. Saya faham bahawa anak saya mesti mengikuti arahan yang berkaitan dengan penyertaannya dalam tinjauan ini.	<input type="checkbox"/>
5. Saya akan menerima satu salinan maklumat tinjauan/borang persetujuan ibu bapa/penjaga termaklum ini yang telah ditandatangani dan bertarikh.	<input type="checkbox"/>

Saya, \_\_\_\_\_ **memberi/tidak memberi keizinan\*** untuk anak/jagaan saya bernama \_\_\_\_\_ dari kelas \_\_\_\_\_ mengambil bahagian di dalam Tinjauan Kebangsaan Kesihatan dan Morbiditi 2017 sepertimana yang telah dimaklumkan. (**\*Potong yang tidak berkenaan**)

(Tandatangan)

Nama Ibubapa/Penjaga\* :  
 Nombor K/P :  
 Tarikh :

## Students Consent Form

Borang Persetujuan Responden (Bawah 18 Tahun) NHMS 2017

**RISALAH MAKLUMAT RESPONDEN (BAWAH 18 TAHUN)****1. Tajuk:**

Tinjauan Kebangsaan Kesihatan dan Morbiditi (NHMS) 2017

**2. Nama Penyelidik Utama dan Institusi:**

- i. Dr. S Maria Binti Awaluddin, Institut Kesihatan Umum, Kementerian Kesihatan Malaysia
- ii. Puan Ruhaya Binti Salleh, Institut Kesihatan Umum, Kementerian Kesihatan Malaysia
- iii. Dr. Mohd Kamal Ariff Bin Abdul Ghani, Institut Kesihatan Umum, Kementerian Kesihatan Malaysia

**3. Nama Penaja:**

Kementerian Kesihatan Malaysia

**4. Pengenalan:**

Kementerian Kesihatan Malaysia sedang menjalankan Tinjauan Kebangsaan Kesihatan dan Morbiditi 2017 pada tahun ini. Terdapat dua fokus utama dalam kajian ini iaitu Tinjauan Kesihatan Remaja dan Tinjauan Pemakanan Remaja. Maklumat di bawah akan menjelaskan hal-hal berkenaan tinjauan tersebut untuk persetujuan anda menyertai tinjauan ini.

Adalah penting untuk anda memahami mengapa tinjauan ini dilakukan dan apa yang perlu anda lakukan. Sila ambil masa yang secukupnya untuk membaca dengan teliti penerangan yang diberi sebelum anda bersetuju untuk menyertai tinjauan ini. Jika anda mempunyai sebarang kemusykilan ataupun memerlukan maklumat lanjut, anda boleh bertanya dengan mana-mana ahli kumpulan tinjauan ini.

Setelah anda memahami maklumat tinjauan ini dan diberi keizinan oleh Ibu Bapa/Penjaga untuk anda mengambil bahagian, anda perlu menandatangani Borang Persetujuan Responden (**Salinan Responden & Salinan Penyelidik**) yang disertakan bersama-sama risalah ini. Anda mempunyai masa selama tujuh (7) hari untuk membuat keputusan bagi penyertaan dalam kajian ini. Borang persetujuan yang telah ditandatangani akan dikumpul oleh pasukan penyelidik sebelum pengumpulan data dijalankan. Penyertaan anda dalam tinjauan ini adalah secara sukarela dan anda boleh menarik diri pada bila-bila masa. Anda boleh tidak menjawab mana-mana soalan atau menarik diri dari pemeriksaan yang disebutkan sekiranya tidak mahu. Keengganan anda untuk mengambil bahagian atau menarik diri tidak akan menjejaskan sebarang manfaat perubatan atau kesihatan yang sememangnya hak anda.

Tinjauan ini ditaja sepenuhnya oleh Kementerian Kesihatan Malaysia dan telah mendapat kelulusan Jawatankuasa Etika dan Penyelidikan Perubatan, Kementerian Kesihatan Malaysia.

**5. Apakah tujuan tinjauan ini dilakukan?**

Tujuan tinjauan ini dijalankan adalah untuk memperoleh maklumat berkenaan kesihatan dan faktor pelindung serta menilai status pemakanan, corak pengambilan makanan dan corak aktiviti fizikal dalam kalangan remaja berumur 10 hingga 17 tahun. Maklumat yang diperolehi ini akan dikaji dan dinilai bagi membantu penilaian keberkesanan strategi yang dilaksanakan di peringkat sekolah dan untuk meningkatkan kesihatan remaja.

**6. Apakah yang perlu saya lalui/lakukan sekiranya bersetuju untuk menyertai tinjauan ini?**

Memberi respon terhadap soalan-soalan kaji selidik yang perlu dijawab oleh anda dan juga pengambilan ukuran berat dan tinggi yang akan dilakukan oleh pasukan penyelidik.

**7. Apakah tanggungjawab saya sewaktu menyertai tinjauan ini?**

Adalah penting untuk anda menjawab kesemua soalan yang ditanya oleh ahli penyelidik dengan lengkap. Menyertai tinjauan ini tidak memerlukan anda mengeluarkan sebarang perbelanjaan.

**8. Apakah risiko dan kesan-kesan sampingan menyertai tinjauan ini?**

Tiada risiko terhadap anda sekiranya menyertai tinjauan ini memandangkan tiada kaedah yang invasif atau merbahaya digunakan.



**9. Apakah manfaatnya saya menyertai tinjauan ini?**

Tinjauan ini tidak memberikan sebarang saguhati atau kesan kesihatan secara langsung apabila anda menyertai tinjauan ini. Namu, segala maklumat yang diperolehi daripada tinjauan ini akan dapat membantu penggubal dasar untuk merancang dan menambahbaik program sedia ada untuk golongan remaja di Malaysia.

**10. Adakah maklumat saya akan dirahsiakan?**

Segala maklumat anda yang diperolehi dalam tinjauan ini akan disimpan dan dikendalikan secara sulit, bersesuaian dengan peraturan-peraturan dan/ atau undang-undang yang berkenaan. Hanya penyelidik, peninjau yang berkeelayakan, auditor, dan pihak berkuasa yang berkaitan kajian ini sahaja mempunyai akses kepada maklumat yang anda berikan. Sekiranya hasil tinjauan ini diterbitkan atau dibentangkan kepada orang ramai, identiti anda tidak akan didedahkan tanpa kebenaran anda terlebih dahulu.

**11. Siapakah yang perlu saya hubungi sekiranya saya mempunyai sebarang pertanyaan?**

Sekiranya anda mempunyai sebarang soalan mengenai tinjauan ini atau memerlukan keterangan lanjut, anda boleh hubungi penyelidik, Dr. S Maria Awaluddin, Puan Ruhaya Salleh dan Dr. Mohd Kamal Ariff Abdul Ghani di Institut Kesihatan Umum, Jalan Bangsar, Kuala Lumpur di talian 03-22979400 untuk penjelasan lebih lanjut.

Jika anda mempunyai sebarang pertanyaan berkaitan dengan hak-hak anda sebagai responden dalam tinjauan ini, sila hubungi Setiausaha, Jawatankuasa Etika & Penyelidikan Perubatan (MREC), Kementerian Kesihatan Malaysia di talian 03-22874032.

**BORANG PERSETUJUAN RESPONDEN BAWAH 18 TAHUN (Untuk Salinan Responden)**

**Tajuk kajian: Tinjauan Kebangsaan Kesihatan dan Morbiditi (NHMS) 2017**

Dengan menandatangani di bawah **(Salinan Responden dan Salinan Penyelidik)**, saya mengesahkan bahawa:

	Sila tandakan ✓ di dalam kotak
1. Saya telah diberi maklumat tentang tinjauan di atas secara lisan dan bertulis dan saya telah membaca dan memahami segala maklumat yang diberikan di dalam risalah ini.	<input type="checkbox"/>
2. Saya mempunyai masa yang secukupnya untuk mempertimbangkan penyertaan saya dalam tinjauan ini dan telah diberi peluang untuk bertanyakan soalan dan semua soalan saya telah dijawab dengan memuaskan.	<input type="checkbox"/>
3. Saya faham bahawa penyertaan saya adalah secara sukarela dan boleh menarik diri daripada tinjauan ini pada bila-bila masa tanpa memberi sebarang sebab.	<input type="checkbox"/>
4. Saya memahami risiko dan manfaat dari tinjauan ini dan saya memberi keizinan secara sukarela untuk mengambil bahagian dalam tinjauan. Saya faham bahawa saya mesti mengikuti arahan yang berkaitan dengan penyertaan saya dalam tinjauan ini.	<input type="checkbox"/>
5. Saya faham bahawa penyelidik, peninjau yang berkeelayakan, auditor, dan pihak kuasa yang berkaitan mempunyai akses kepada maklumat yang saya berikan untuk memastikan maklumat tinjauan dicatat dengan betul. Saya faham segala maklumat peribadi dan data tinjauan ini akan dirahsiakan.	<input type="checkbox"/>
6. Saya akan menerima satu salinan maklumat tinjauan/borang persetujuan ini yang telah ditandatangani dan bertarikh.	<input type="checkbox"/>

**Responden :**  
 Tandatangan : .....  
 Nama : .....  
 Nombor K/P : .....  
 Tarikh : .....

**Penyelidik:**  
 Tandatangan : .....  
 Nama : .....  
 Nombor K/P : .....  
 Tarikh : .....

**BORANG PERSETUJUAN RESPONDEN BAWAH 18 TAHUN (Untuk Salinan Penyelidik)**

Tajuk kajian: Tinjauan Kebangsaan Kesihatan dan Morbiditi (NHMS) 2017

Dengan menandatangani di bawah (Salinan Responden dan Salinan Penyelidik), saya mengesahkan bahawa:

	Sila tandakan ✓ di dalam kotak
1. Saya telah diberi maklumat tentang tinjauan di atas secara lisan dan bertulis dan saya telah membaca dan memahami segala maklumat yang diberikan di dalam risalah ini.	<input type="checkbox"/>
2. Saya mempunyai masa yang secukupnya untuk mempertimbangkan penyertaan saya dalam tinjauan ini dan telah diberi peluang untuk bertanyakan soalan dan semua soalan saya telah dijawab dengan memuaskan.	<input type="checkbox"/>
3. Saya faham bahawa penyertaan saya adalah secara sukarela dan boleh menarik diri daripada tinjauan ini pada bila-bila masa tanpa memberi sebarang sebab.	<input type="checkbox"/>
4. Saya memahami risiko dan manfaat dari tinjauan ini dan saya memberi keizinan secara sukarela untuk mengambil bahagian dalam tinjauan. Saya faham bahawa saya mesti mengikut arahan yang berkaitan dengan penyertaan saya dalam tinjauan ini.	<input type="checkbox"/>
5. Saya faham bahawa penyelidik, peninjau yang berkeelayakan, auditor, dan pihak kuasa yang berkaitan mempunyai akses kepada maklumat yang saya berikan untuk memastikan maklumat tinjauan dicatat dengan betul. Saya faham segala maklumat peribadi dan data tinjauan ini akan dirahsiakan.	<input type="checkbox"/>
6. Saya akan menerima satu salinan maklumat tinjauan/borang persetujuan ini yang telah ditandatangani dan bertarikh.	<input type="checkbox"/>

**Responden :**

Tandatangan : .....  
 Nama : .....  
 Nombor K/P : .....  
 Tarikh : .....

**Penyelidik:**

Tandatangan : .....  
 Nama : .....  
 Nombor K/P : .....  
 Tarikh : .....

**Appendix 9: List of Abbreviations**

FFQ	Food Frequency Questionnaire
PE	Physical Education
PA	Physical Activity
BAZ	BMI-for-Age
HAZ	Height-for-Age
MDG	Malaysian Dietary Guidelines
RNI	Recommended Nutrient Intake
Kcal	Kilocalorie
NHMS	National Health and Morbidity Survey
CCT	Central Coordinating Team
PSP	Pegawai Sains Pemakanan
RA	Research Assistant
RO	Research Officer
g	gram
mg	milligram
µg	microgram
IU	International Unit
ANS	Adolescent Nutrition Survey
MSNS	Malaysian School-based Nutrition Survey
ID	Identity Detail
DPQ	Department of Proposal and Quality
DR	Dietary recall
QC	Quality Control
CI	Confidence Interval
PAQ-C	Physical Activity Questionnaire for Older Children
PAL	Physical Activity Level
cm	Centimeter
SD	Standard Deviation
MOH	Ministry of Health
IOM	Institute of Medicine
AL	Adequate intake
UL	Upper level intake
Tsp	tea spoon
Tbsp	table spoon



INSTITUT FOR PUBLIC HEALTH



Ministry of Health Malaysia



KEMENTERIAN  
PENDIDIKAN  
MALAYSIA

ISBN 978-983-2387-44-2

