

NATIONAL HEALTH AND MORBIDITY SURVEY 2017

ADOLESCENT NUTRITION SURVEY

PULAU PINANG



THE NATIONAL HEALTH AND MORBIDITY SURVEY 2017

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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 93.3% and stunting was 6.7%. The prevalence of stunting was higher in rural areas (9.8%) as compared to urban areas (3.8%). In terms of BMI for age (BAZ), the prevalence of thinness was 9.0%, overweight was 16.4 % and obesity was 15.3%.

Among those school-going adolescents who had actual normal weight, 51.0% correctly perceived their weight to be normal. Among those who were actually thin, 69.5% correctly perceived their weight to be thin, while among those who were actually overweight and obese, 48.9% and 17.0% correctly perceived themselves to be overweight and obese respectively. Health was the main reason among those who wanted to lose and gain weight; with 58.2% preferring exercise as an option to lose weight; 52.0% 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 36.1%. The majority of them had breakfast one to six days per week (53.0%) and some of them did not having breakfast in a week (10.9%). Among those who had breakfast, 61.2% had it at home. Adolescents from urban areas (37.8%) reported having breakfast daily (seven days per week), higher than rural areas (34.3%). The two main reasons of skipping breakfast were no appetite (40.5%) and no time (33.3%).

The prevalence of having lunch seven days per week among school-going adolescents was 59.4%; 37.8% had lunch up to six days per week and 2.8% did not have lunch in a week. No appetite (46.8%) and no time (17.8%) were the two main reasons for skipping lunch. As for dinner, 61.4% of school-going adolescents had dinner seven days per week, 35.8% 1-6 days per week and 2.8% did not have dinner in a week. Only 6.4% took heavy meals after dinner in a week. There were 2.0% who had fast food daily and 16.1% did not have fast food in a week. Social media (YouTube, Facebook, Instagram, etc.) and television were reported as the main

sources which affected dietary pattern in 31.6% and 33.0%. A percentage of 34.2% reported that their dietary patterns were not affected by any media sources.

The prevalence of physical activity among school-going adolescents in Pulau Pinang was 45.5%. 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 Pulau Pinang adolescence was 45.5% and 30.0%. 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 was consumed everyday by 18.9% and 11.4% by the adolescent respectively. The most commonly consumed vitamin/ minerals and food supplements were Vitamin C and Bee product 16.1% (95% CI: 11.79, 21.70). The main reason for taking vitamin/minerals and food supplements was due to parent's advised 44.7% and 29.0%.

Food and nutrition labelling use was assessed among secondary school-going adolescents; 32.9% always reading food and nutrition labelling. Another 50.1% reported as sometimes and only 17.0% never reading food label. They were more concerned about fat and total energy compared to other nutrients. 48.4% of adolescents both answered correctly on nutrition facts and 26.9% of adolescents answered correctly questions regarding the front of pack labelling and only 7.2% 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 is 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 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**.

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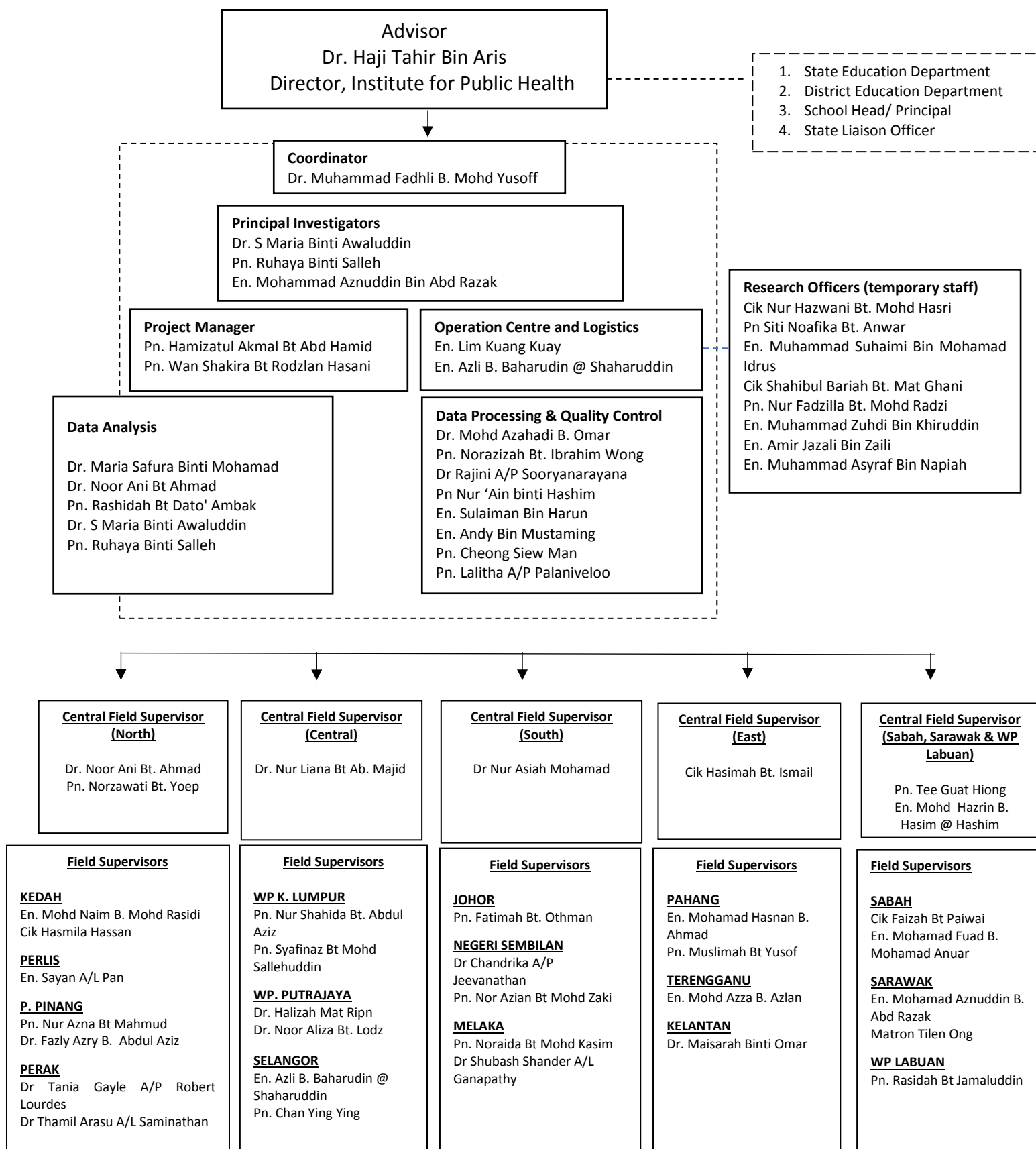


Figure 1: Organisation chart for data collection teams NHMS 2017

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 in 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), $n(\text{complex}) = n * \text{deff}$
3. Adjusted the $n(\text{complex})$ taking into account expected non-response rate of 25%, $n(\text{adj}) = n(\text{complex}) * (1 + \text{non-response rate})$

- 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
Total		2,738	212	30,496	7,925	99	14,000

2.4 Sampling Design

This survey implemented a multistage stratified cluster sampling design to ensure 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 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 selection of 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. Consent form were obtained from parents and the students.

2.6 Data Collection

A total 36 teams were set up, 4 teams for Sabah and Sarawak and the remaining states 2 teams per state. 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 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

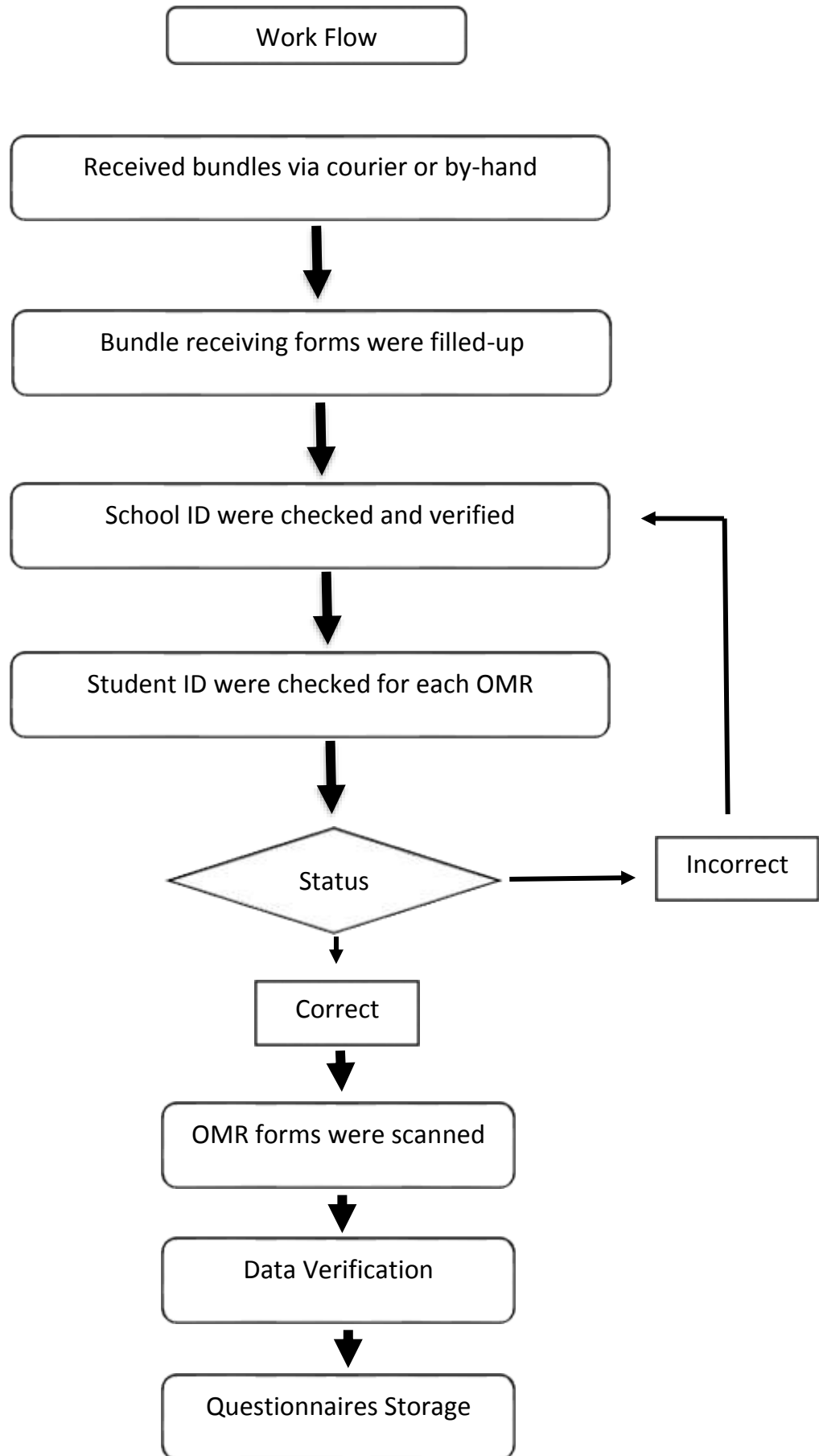


Figure 2: Work Flow of NHMS 2017

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 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 (%)
Malaysia	311	44,773	40,087	89.5
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 total estimated population (weighted) with the national 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 (%)
MALAYSIA	40087	3,480,500	100	3,480,439	100
State					
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
Sex					
Male	19677	1,746,339	50.2	1,746,326	50.2
Female	20410	1,734,161	49.8	1,734,113	49.8
Form					
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

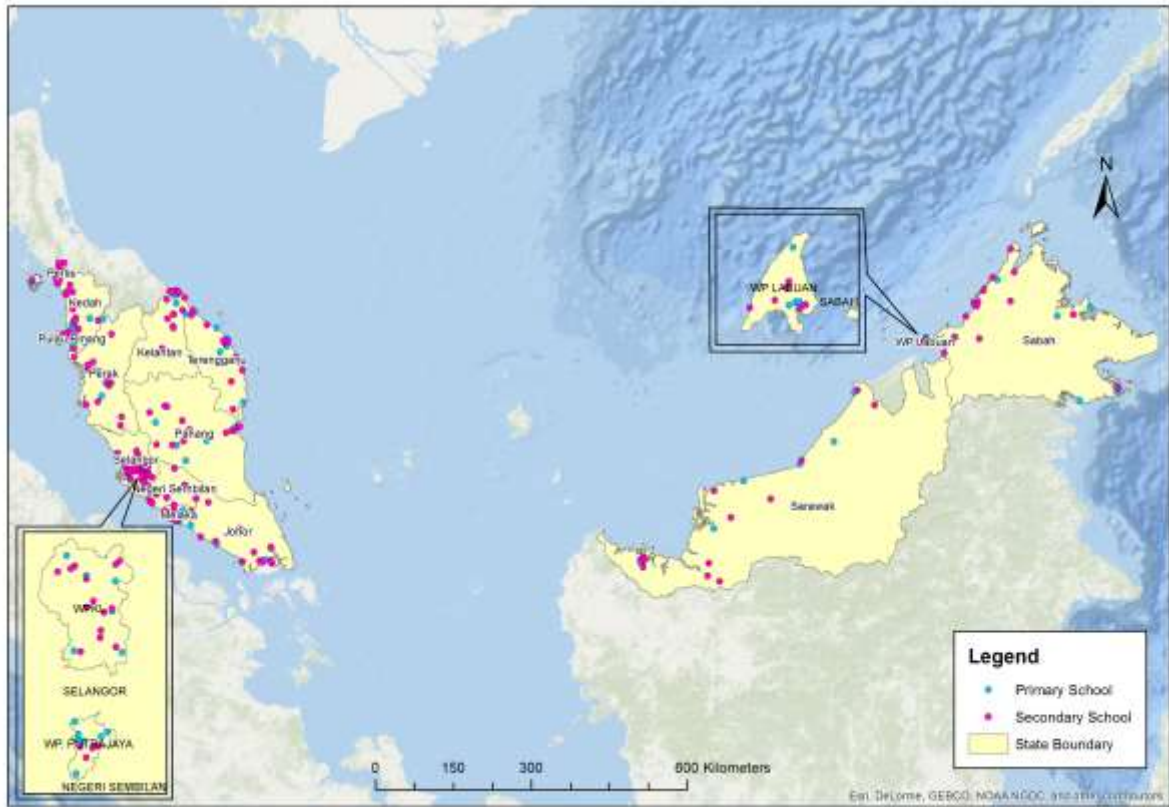


Figure 3: GIS mapping of the selected primary and secondary schools in Malaysia 2017

3.2 Nutritional status among adolescents (Primary 4 to Secondary 5) in Pulau Pinang

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3.2.1 Introduction

Good nutritional status contributes to 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 household or the community but also across the country. Performing simple body measurements also helps 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)¹. 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 93.3% (95% CI: 91.21-94.90) 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 [9.8% (95% CI: 7.92-11.98)] compared to urban area [3.8% (95% CI: 2.75-5.22)]. In term of sexes, girls had higher percentage of total stunting [7.3% (95% CI: 5.59-9.54)] compared to boys [6.1% (95% CI: 4.26-8.67)]. Comparing class category, primary

level had higher percentage of total stunting [7.1% (95% CI: 4.77-10.56)] compared to secondary level [6.5% (95% CI: 4.47-9.25)].

3.2.4.2 BMI-for-Age z-score

In terms of BMI-for-age status, the findings showed that 59.4% (95% CI: 56.89-61.78) of the population was in the normal range ($\geq -2SD$ to $\leq +1SD$). The prevalence was lower than national level [62.9% (95% CI: 61.84-68.02)]. Comparing between strata, rural area had slightly higher percentage of thinness [9.1% (95% CI: 6.72-12.19)] compared to urban area [9.0% (95% CI: 7.12-11.22)]. According to sexes, more boys [10.7% (95% CI: 8.56-13.40)] were thinner than girls [7.3% (95% CI: 5.49-9.65)]. In term of class category, primary level had higher percentage of thinness [10.4% (95% CI: 7.97-13.58)] compared to secondary level [8.2% (95% CI: 6.49-10.31)].

On the other hand, the prevalence of overweight in Pulau Pinang (BMI-for-age: $> +1SD$ to $\leq +2SD$) was 16.4% (95% CI: 14.87-17.97). The state prevalence was higher than national prevalence [15.6% (95% CI: 15.06-16.19)]. In term of strata, rural strata had slightly higher prevalence of overweight [16.4% (95% CI: 14.33-18.67)] compared with urban strata [16.3% (95% CI: 14.25-18.66)]. Comparing sexes, boys had higher prevalence of overweight [17.0% (95% CI: 15.16-19.02)] than girls [15.7% (95% CI: 13.63-18.06)]. According to class category, secondary level had higher prevalence of overweight [17.0% (95% CI: 15.32-18.85)] compared with primary level [15.2% (95% CI: 12.87-17.95)].

For the prevalence of obesity (BMI-for-age: $> +2SD$), the state prevalence was 15.3% (95% CI: 13.40-17.33), whereas the prevalence was higher than national prevalence [14.8 (95% CI: 14.00-15.73)]. Between strata, rural strata showed higher prevalence of obesity [16.4% (95% CI: 14.56-18.50)] than urban strata [14.1% (95% CI: 11.36-17.46)]. Comparing between sexes, boys had much higher prevalence of obesity [17.7% (95% CI: 15.18-20.62)] than girl [12.8% (95% CI: 10.52-15.43)]. In term of class category, 18.7% (95% CI: 16.91-20.71) primary level were obese compared to secondary level [13.2% (95% CI: 11.52-15.17)].

3.2.5 Conclusion

The prevalence of stunting for adolescents aged 10 to 17 years in Pulau Pinang was 6.7%. On the other hand, the prevalence of overweight and obesity among this population were 16.4% and 15.3% respectively. In contrast, 9.0% of the population were found to be thin. High demand of energy and nutrient are very important for physical growth and development at this age. However, the concept of healthy eating and living should be practised at a younger age to ensure healthy physical and mental development. As a consequence, it is hoped that this early nurturing will help reduce the prevalence of stunting, 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 Pulau Pinang. Various agencies have to take the initiative to set up plans of action to overcome this problem. Healthy eating and living concept should be carried out at an earlier stage. It can be implemented by develop pro-health policies and regulation to create health promoting environment in work place, 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. Instilling the concept of healthy eating and living to children early, such as during schooling time and further practise and implement it at home and daily life, is hoped to help 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 a 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

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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
Pulau Pinang	164	11966	6.7	5.10	8.79	2380	166317	93.3	91.21	94.90
Locality of School										
Urban	55	3463	3.8	2.75	5.22	1393	87726	96.2	94.78	97.25
Rural	109	8503	9.8	7.92	11.98	987	78591	90.2	88.02	92.08
Sex										
Boys	65	5450	6.1	4.26	8.67	1131	83866	93.9	91.33	95.74
Girls	99	6516	7.3	5.59	9.54	1249	82451	92.7	90.46	94.41
Class										
Standard 4	16	1268	5.7	3.59	9.06	298	20798	94.3	90.94	96.41
Standard 5	22	2436	11.3	7.56	16.57	208	19110	88.7	83.43	92.44
Standard 6	11	973	4.5	2.34	8.31	244	20882	95.5	91.69	97.66
Form 1	12	867	3.7	1.81	7.22	323	22881	96.3	92.78	98.19
Form 2	30	1701	7.6	4.21	13.38	350	20642	92.4	86.62	95.79
Form 3	28	1447	6.5	4.21	9.95	379	20767	93.5	90.05	95.79
Form 4	29	1850	8.5	4.84	14.50	337	19915	91.5	85.50	95.16
Form 5	16	1423	6.3	3.28	11.62	241	21321	93.7	88.38	96.72
Class Category										
Primary Level	49	4676	7.1	4.77	10.56	750	60789	92.9	89.44	95.23
Secondary Level	115	7289	6.5	4.47	9.25	1630	105527	93.5	90.75	95.53
Ethnicity										
Malay	127	9047	8.8	6.94	11.21	1344	93241	91.2	88.79	93.06
Chinese	19	1284	2.7	1.59	4.59	695	46027	97.3	95.41	98.41
Indian	17	1556	5.9	3.00	11.13	315	24985	94.1	88.87	97.00
Bumiputera Sabah						6	450	100.0	0.00	100.00
Bumiputera Sarawak	1	79	25.0	2.08	83.91	2	237	75.0	16.09	97.92
Others						18	1377	100.0	0.00	100.00

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

Characteristic	Thinness (< -2SD)					Normal BMI (\geq -2SD to \leq +1SD)				
	Count	Estimated Population	Prevalence (%)	95% CI		Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
Pulau Pinang	212	16085	9.0	7.47	10.86	1529	105791	59.4	56.89	61.78
Locality of School										
Urban	124	8174	9.0	7.12	11.22	880	55263	60.6	56.87	64.15
Rural	88	7911	9.1	6.72	12.19	649	50528	58.1	55.24	60.88
Sex										
Boys	120	9586	10.7	8.56	13.40	654	48638	54.5	51.15	57.84
Girls	92	6499	7.3	5.49	9.65	875	57153	64.2	60.50	67.76
Class										
Standard 4	30	2468	11.2	7.43	16.61	188	13229	60.1	57.73	62.52
Standard 5	27	2732	56.7	53.71	59.59	129	12210	17.6	12.44	24.32
Standard 6	19	1632	7.5	7.05	7.91	130	10906	49.9	46.65	53.15
Form 1	24	1794	7.6	5.34	10.58	189	12952	54.5	46.79	62.08
Form 2	24	1449	6.5	4.21	9.90	249	14522	65.1	58.17	71.39
Form 3	35	1984	8.9	6.83	11.56	247	13463	60.5	56.55	64.28
Form 4	30	1778	8.2	5.49	11.99	223	13213	60.7	54.57	66.52
Form 5	23	2247	9.9	6.15	15.49	174	15296	67.3	58.28	75.12
Class Category										
Primary Level	76	6832	10.4	7.97	13.58	447	36345	55.6	54.73	56.42
Secondary Level	136	9253	8.2	6.49	10.31	1082	69447	61.5	58.49	64.51
Ethnicity										
Malay	105	8034	7.9	6.10	10.07	883	60384	59.1	56.43	61.62
Chinese	59	4228	8.9	6.42	12.34	452	30104	63.7	58.63	68.53
Indian	46	3669	13.8	11.86	16.00	179	14227	53.5	48.67	58.27
Bumiputera Sabah						2	165	36.8	6.68	82.59
Bumiputera Sarawak	1	79	25.0	2.08	83.91					
Others	1	76	5.5	0.59	36.52	13	910	66.1	44.08	82.80

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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
Pulau Pinang	422	29160	16.4	14.87	17.97	381	27193	15.3	13.40	17.33
Locality of School										
Urban	238	14907	16.3	14.25	18.66	207	12896	14.1	11.36	17.46
Rural	184	14253	16.4	14.33	18.67	174	14297	16.4	14.56	18.50
Sex										
Boys	207	15168	17.0	15.16	19.02	214	15826	17.7	15.18	20.62
Girls	215	13992	15.7	13.63	18.06	167	11368	12.8	10.52	15.43
Class										
Standard 4	44	2951	13.4	10.30	17.30	51	3345	15.2	11.17	20.38
Standard 5	41	3793	13.0	9.12	18.31	33	2810	13.0	9.12	18.31
Standard 6	38	3220	14.7	11.68	18.42	68	6097	27.9	23.13	33.22
Form 1	76	5570	23.5	19.18	28.34	46	3432	14.5	11.10	18.60
Form 2	58	3472	15.6	11.47	20.76	49	2875	12.9	10.06	16.34
Form 3	63	3299	14.8	11.34	19.13	63	3514	15.8	11.63	21.08
Form 4	71	4193	19.3	16.18	22.78	42	2580	11.9	8.95	15.55
Form 5	31	2661	11.7	8.62	15.70	29	2540	11.2	7.68	15.96
Class Category										
Primary Level	123	9965	15.2	12.87	17.95	152	12252	18.7	16.91	20.71
Secondary Level	299	19195	17.0	15.32	18.85	229	14942	13.2	11.53	15.17
Ethnicity										
Malay	236	16346	16.0	14.01	18.18	247	17493	17.1	15.01	19.43
Chinese	122	7726	16.4	13.86	19.20	80	5181	11.0	7.82	15.17
Indian	57	4371	16.4	11.72	22.58	51	4325	16.3	14.02	18.79
Bumiputera Sabah	3	226	50.2	10.67	89.46	1	58	13.0	1.27	63.46
Bumiputera Sarawak	1	181	57.5	8.78	95.01	1	55	17.5	1.41	75.92
Others	3	310	22.5	8.47	47.69	1	81	5.9	0.69	35.99

3.3 Perception on body weight management among adolescent (Primary 4 to Secondary 5) in Pulau Pinang

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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

Results shows, 39.4% (95%CI: 36.20, 42.65) of the adolescents in Pulau Pinang perceived that they have normal weight. Both urban and rural adolescents had similar perceptions of being normal weight; 39.7% (95%CI: 36.80, 42.66) and 39.1% (95%CI: 33.46, 44.96) respectively. Girls had a higher perception of being normal weight at 40.4% (95%CI: 35.68, 45.39) compared to boys at 38.3% (95%CI: 35.10, 41.66). In addition, girls also had a higher perception of being overweight at 32.4% (95%CI: 27.49, 37.72), compared to boys at 22.5% (95%CI: 18.43, 27.21) (**Table 3.3.1**).

Among the actual normal 51.0% (95% CI: 45.90, 56.11) was correctly perceived their weight to be normal, 28.6% (95% CI: 21.5, 36.80) was underestimated their body weight, perceived to be thin, and 18.5% (95% CI: 15.21, 22.33), 1.9% (95% CI: 1.18, 3.06) were overestimated to be overweight, and obese respectively. However, among the actual overweight 48.9% (95% CI: 38.45, 59.35) was correctly perceived their weight to be overweight, but 15.1% (95% CI: 9.33, 23.51), 30.5% (95% CI: 24.19, 37.60), were underestimated their body weight to be thin or normal respectively (**Table 3.3.2**).

Among all the adolescents who correctly perceived normal and have actual normal body weight, 34.1% (95% CI: 29.01, 39.50) reported that they have no plan to change their weight while adolescents who correctly perceived overweight and actual overweight 82.3% (95% CI: 74.76, 87.98) wanted to reduce their body weight. There were no significant different in school locality, sex and school category among adolescent who correctly perceived thin and overweight between four category of action taken (**Table 3.3.3**).

However, adolescents who were actually in overweight and obese categories but wrongly perceived themselves to be thin, most of them 61.9% (95% CI: 46.15, 75.46) wanted to lose weight while 20.2% (95% CI: 12.48, 30.99) wanted to increase their weight. Among adolescents who wanted to lose weight, there were higher in urban 62.0% (95% CI: 45.11, 76.45), girls 68.1% (95%CI: 48.24, 82.97) and secondary scholars 62.2% (95% CI: 50.72, 72.49) (**Table 3.3.4**).

Health become main factor that motivate to lose weight, 59.5% (95% CI: 53.58, 65.18) and most boys choose health purpose as their main factor that motivate them to lose weight, 62.9% (95% CI: 57.85, 68.56) as compared than girls. However, beauty purpose become the main factor to lose body weight among girls, 15.5% (95% CI: 10.53, 22.27) (**Table 3.3.5**).

Among adolescents who want to increase body weight, health purpose was the highest main factor followed by increasing self-confidence, 58.7% (95% CI: 51.03, 65.91), 27.3% (95% CI: 21.53, 34.02) respectively. Among sex, girls was the highest, 67.6% (95% CI: 54.66, 78.31) compared than boys, 53.7% (95% CI: 46.18, 61.15). Secondary scholars was the highest, 61.8% (95% CI: 56.28, 66.94) compared than primary scholars 53.7% (95% CI: 37.69, 69.05) (**Table 3.3.6**).

Exercise was the highest option preferred by adolescent to lose body weight 58.2% (95% CI: 54.04,62.23). It was higher among urban 58.8% (95% CI: 54.40, 63.14), boys 66.1% (95% CI: 61.71, 70.26) and primary scholars 65.0% (95% CI: 62.44, 67.45) (**Table 3.3.7**),

While increase quantity of food was the highest option preferred by adolescents to increase their body weight, 52.0% (95% CI: 44.89, 58.94). It was higher among urban 58.9% (95% CI: 49.89, 67.44), girls 56.0% (95% CI: 46.50, 65.09) and secondary scholars 56.9% (95% CI: 48.73, 64.79) (**Table 3.3.8**).

3.3.5 Discussion/Conclusion

Perception of being normal weight among adolescents in Pulau Pinang was lower than the national prevalence of 39.4 % and 41.4% respectively.

Among the actual thin adolescents in Pulau Pinang 76.0% was correctly perceived thin, and higher compared with the national prevalence, 69.6%. Adolescents with actual normal body weight, 51.0% correctly perceived their weight to be normal and it is slightly higher than the national prevalence 50.2%.

In Pulau Pinang, the trend of main factors to lose body weight among adolescent are similar with the national trend. Health purpose is the highest 59.5% main factor to lose body weight; followed by to increase self confidence 26.9% , beauty purpose 11.9 % and to have more friends 1.7% .

Health purpose is the highest 58.7 % main factor to increase body weight . But it was higher compared with the national prevalence. Its followed by to increase self confidence 27.3% , beauty purpose 9.9% and to have more friends 4.1%.

Adolescents choose to exercise as the preferred option to lose weight. However its was lower compared with the national prevalence , 58.2% and 62.5% respectively.Followed by reduce consumption of high fat foods 23.9%, increase intake of fruits and vegetables 7.5 % and reduce intake of high sugar foods 4.6%. This trend are similar with the national trend of prevalence.

52.0% adolescents in Pulau Pinang choose to increase quantity of food as the preferred option to increase body weight. It was lower 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, hence leading to them developing an inaccurate perception of healthy body weight or image.

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 lifestyles 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. The media should also play important role, by broadcasting more information to adolescent and families about healthy eating and active lifestyles.

In addition, a school-based health promotion programme incorporating a holistic curriculum may prove to be a good platform from which to tackle body image problems, encourage good eating habits and instil a healthy body image amongst adolescents.

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.

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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
Pulau Pinang	672	50553	28.5	22.72	35.03	1020	69917	39.4	36.20	42.65
Locality of School										
Urban	368	23191	25.5	21.57	29.96	578	36042	39.7	36.80	42.66
Rural	304	27362	31.5	21.80	43.23	442	33876	39.1	33.46	44.96
Sex										
Boys	391	30487	34.3	28.27	40.81	467	34098	38.3	35.10	41.66
Girls	281	20066	22.7	16.36	30.49	553	35819	40.4	35.68	45.39
School Category										
Primary	310	26033	40.1	33.53	47.02	308	24282	37.4	31.41	43.79
Secondary	362	24519	21.8	18.14	25.91	712	45635	40.5	37.50	43.63
Class										
Standard 4	155	10827	49.5	44.60	54.40	112	7927	36.2	32.12	40.57
Standard 5	83	8683	40.4	28.70	53.33	96	8191	38.1	26.72	51.01
Standard 6	72	6524	30.2	22.86	38.78	100	8163	37.8	31.71	44.36
Form 1	68	5063	21.4	16.07	27.99	144	10204	43.2	38.19	48.35
Form 2	63	3761	16.9	10.22	26.57	179	10642	47.7	42.16	53.37
Form 3	85	4915	22.2	16.21	29.69	169	9203	41.6	36.72	46.71
Form 4	86	5040	23.2	18.80	28.17	128	7639	35.1	31.40	38.98
Form 5	60	5741	25.2	19.71	31.55	92	7947	34.8	28.75	41.46
Ethnicity										
Malay	406	30759	30.2	21.65	40.36	600	40438	39.7	34.88	44.70
Chinese	157	10860	23.0	19.67	26.79	282	18509	39.3	36.52	42.09
Indian	103	8355	31.7	27.38	36.33	124	9990	37.9	32.90	43.15
Bumiputera Sabah	2	151	33.6	5.87	80.44	1	73	16.2	1.62	69.40
Bumiputera Sarawak	2	260	82.5	24.08	98.59	-	-	-	-	-
Others	2	168	12.2	2.41	43.76	13	907	65.9	41.39	84.07

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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
Pulau Pinang	716	48727	27.4	23.54	31.73	124	8344	4.7	3.40	6.46
Locality of School										
Urban	406	25856	28.5	24.45	32.87	89	5715	6.3	5.18	7.63
Rural	310	22871	26.4	20.03	33.87	35	2629	3.0	1.52	5.97
Sex										
Boys	271	20036	22.5	18.43	27.21	61	4355	4.9	3.43	6.93
Girls	445	28692	32.4	27.49	37.72	63	3989	4.5	2.97	6.77
School Category										
Primary	139	12122	18.7	15.74	21.99	34	2502	3.9	1.93	7.55
Secondary	577	36605	32.5	29.08	36.13	90	5842	5.2	3.77	7.10
Class										
Standard 4	34	2606	11.9	8.23	16.94	10	515	2.4	0.78	6.89
Standard 5	43	4007	18.6	15.98	21.66	7	604	2.8	0.95	8.07
Standard 6	62	5510	25.5	21.89	29.55	17	1382	6.4	3.09	12.81
Form 1	105	7167	30.3	23.58	38.07	16	1188	5.0	2.97	8.39
Form 2	119	6890	30.9	24.40	38.27	18	1001	4.5	1.98	9.85
Form 3	131	6908	31.2	25.77	37.31	20	1082	4.9	3.35	7.10
Form 4	131	7822	35.9	32.81	39.19	21	1265	5.8	3.42	9.71
Form 5	91	7817	34.3	27.87	41.30	15	1306	5.7	2.94	10.86
Ethnicity										
Malay	406	27348	26.8	21.25	33.27	52	3353	3.3	1.92	5.57
Chinese	221	14489	30.7	27.08	34.66	51	3277	7.0	5.24	9.16
Indian	82	6307	23.9	16.94	32.66	21	1715	6.5	4.53	9.26
Bumiputera Sabah	3	226	50.2	10.67	89.46	-	-	-	-	-
Bumiputera Sarawak	1	55	17.5	1.41	75.92	-	-	-	-	-
Others	3	302	22.0	7.94	47.87	-	-	-	-	-

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
Pulau Pinang	158	76.0	69.46	81.44	43	19.8	14.75	25.95	8	3.4	1.57	7.21	2	0.9	0.19	3.94
Locality of school																
Urban	93	77.4	68.79	84.11	25	18.4	13.64	24.28	5	3.6	1.46	8.63	1	0.7	0.08	5.16
Rural	65	74.5	64.30	82.57	18	21.2	13.01	32.65	3	3.2	0.86	11.05	1	1.1	0.13	8.58
Sex																
Boys	91	77.9	67.57	85.58	22	17.4	11.16	26.18	5	3.2	0.93	10.62	2	1.5	0.32	6.47
Girls	67	73.1	63.94	80.65	21	23.2	16.13	32.30	3	3.6	1.42	9.03	-	-	-	-
School Category																
Primary	54	72.7	64.77	79.44	18	23.6	15.32	34.41	2	2.4	0.74	7.80	1	1.3	0.15	10.01
Secondary	104	78.3	68.43	85.75	25	17.0	11.62	24.19	6	4.1	1.54	10.45	1	0.6	0.07	4.58

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
Pulau Pinang	401	28.6	21.50	36.84	795	51.0	45.94	56.11	293	18.5	15.21	22.33	31	1.9	1.18	3.06
Locality of school																
Urban	214	24.1	19.14	29.79	462	52.5	48.53	56.48	178	20.8	16.67	25.58	23	2.6	1.64	4.22
Rural	187	33.5	21.65	47.83	333	49.4	40.21	58.65	115	16.0	11.83	21.32	8	1.1	0.45	2.65
Sex																
Boys	225	35.9	28.00	44.59	337	50.6	44.27	57.00	73	11.4	8.57	15.05	14	2.1	1.21	3.50
Girls	176	22.3	15.14	31.65	458	51.4	45.30	57.41	220	24.5	20.12	29.55	17	1.8	0.84	3.67
School Category																
Primary	186	43.6	34.03	53.70	200	43.5	35.75	51.59	49	11.4	9.53	13.49	8	1.5	0.61	3.76
Secondary	215	20.7	16.81	25.22	595	55.0	50.88	58.99	244	22.2	19.07	25.75	23	2.1	1.22	3.59

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
Pulau Pinang	58	15.1	9.33	23.51	126	30.5	24.19	37.60	211	48.9	38.45	59.35	26	5.6	3.28	9.31
Locality of school																
Urban	23	9.6	4.72	18.71	67	27.7	18.11	39.97	126	53.9	40.22	67.03	21	8.7	5.48	13.60
Rural	35	20.8	11.90	33.77	59	33.3	27.02	40.34	85	43.6	29.57	58.69	5	2.3	0.66	7.63
Sex																
Boys	37	19.5	10.99	32.14	77	37.1	27.92	47.26	84	39.9	26.57	54.85	9	3.6	2.00	6.34
Girls	21	10.3	6.24	16.66	49	23.3	15.94	32.76	127	58.6	47.47	68.94	17	7.7	3.95	14.60
School Category																
Primary	35	27.6	17.23	41.11	57	44.3	36.85	52.10	26	25.3	15.29	38.92	4	2.7	1.00	7.23
Secondary	23	8.6	4.33	16.49	69	23.3	18.24	29.28	185	61.0	52.50	68.91	22	7.0	4.03	12.02

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
Pulau Pinang	54	14.4	8.99	22.27	55	15.2	10.73	21.06	203	53.4	45.76	60.97	65	17.0	11.14	25.00
Locality of school																
Urban	38	17.2	10.86	26.09	24	11.7	7.03	18.76	97	48.2	40.82	55.62	44	23.0	15.28	33.03
Rural	16	11.9	4.72	27.07	31	18.3	11.83	27.22	106	58.1	45.32	69.88	21	11.7	5.44	23.26
Sex																
Boys	37	16.8	10.07	26.76	31	14.7	10.09	21.02	108	51.4	42.68	60.12	36	17.0	11.05	25.23
Girls	17	11.0	5.37	21.20	24	15.8	9.91	24.31	95	56.2	46.75	65.28	29	16.9	10.29	26.62
School Category																
Primary	35	22.0	15.01	30.98	33	21.5	15.56	28.82	61	43.4	36.72	50.42	21	13.1	6.63	24.38
Secondary	19	8.2	3.85	16.58	22	10.0	5.67	17.21	142	61.6	51.44	70.90	44	20.1	12.47	30.81

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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	
Pulau Pinang	17	1522	12.5	5.89	24.69	88	6559	54.0	43.30	64.33
Locality of school										
Urban	5	290	4.6	2.16	9.47	50	3269	51.7	38.07	65.09
Rural	12	1232	21.1	11.00	36.78	38	3290	56.5	39.53	72.05
Sex										
Boys	7	583	7.8	2.85	19.64	51	4026	53.9	41.32	66.08
Girls	10	939	20.0	6.12	49.10	37	2533	54.1	36.90	70.35
School category										
Primary	12	1207	24.6	14.76	38.12	26	2351	48.0	36.38	59.82
Secondary	5	315	4.3	1.86	9.85	62	4208	58.1	42.80	71.92

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	
Pulau Pinang	41	3169	26.1	17.68	36.70	12	898	7.4	4.49	11.92
Locality of school										
Urban	29	2157	34.1	22.48	48.05	9	606	9.6	4.90	17.91
Rural	12	1011	17.4	10.87	26.59	3	291	5.0	2.37	10.24
Sex										
Boys	27	2271	30.4	20.58	42.47	6	583	7.8	3.93	14.96
Girls	14	897	19.2	8.71	37.07	6	314	6.7	2.26	18.30
School category										
Primary	11	957	19.5	13.57	27.27	5	385	7.9	4.39	13.69
Secondary	30	2212	30.5	18.88	45.34	7	512	7.1	3.32	14.42

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	
Pulau Pinang	214	14246	26.5	21.94	31.66	63	4325	8.1	6.34	10.17
Locality of school										
Urban	104	6215	21.5	16.61	27.30	31	1933	6.7	4.65	9.50
Rural	110	8030	32.4	26.33	39.14	32	2392	9.7	7.39	12.51
Sex										
Boys	56	3858	15.8	11.54	21.15	38	2579	10.5	7.85	14.00
Girls	158	10388	35.5	28.74	42.97	25	1746	6.0	4.10	8.63
School category										
Primary	60	4722	30.1	21.90	39.80	21	1566	10.0	7.19	13.70
Secondary	154	9523	25.0	19.89	31.01	42	2759	7.3	5.35	9.76

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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
Pulau Pinang	269	18298	34.1	29.01	39.50	249	16851	31.4	27.85	35.12
Locality of school										
Urban	173	11157	38.6	31.55	46.07	154	9635	33.3	29.88	36.89
Rural	96	7141	28.8	23.45	34.86	95	7217	29.1	23.21	35.84
Sex										
Boys	131	9913	40.5	33.51	47.85	112	8139	33.2	28.36	38.50
Girls	138	8385	28.7	22.12	36.30	137	8713	29.8	25.85	34.08
School category										
Primary	50	4203	26.8	19.63	35.42	69	5196	33.1	23.94	43.80
Secondary	219	14095	37.1	31.30	43.21	180	11655	30.6	27.74	33.71

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
Pulau Pinang	170	11601	82.3	74.76	87.98	1	67	0.5	0.06	3.66
Locality of school										
Urban	95	6046	75.9	67.85	82.43	-	-	-	-	-
Rural	75	5554	90.7	80.62	95.80	1	67	1.1	0.16	7.32
Sex										
Boys	63	4621	78.1	68.92	85.18	-	-	-	-	-
Girls	107	6980	85.4	75.00	91.88	1	67	0.8	0.10	6.32
School category										
Primary	21	2166	89.2	57.35	98.08	-	-	-	-	-
Secondary	149	9435	80.9	73.62	86.50	1	67	0.6	0.07	4.35

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
Pulau Pinang	30	1918	13.6	8.75	20.55	8	507	3.6	1.84	6.90
Locality of school										
Urban	24	1571	19.7	13.71	27.53	6	351	4.4	2.08	9.08
Rural	6	346	5.7	2.26	13.44	2	156	2.6	0.74	8.43
Sex										
Boys	15	1011	17.1	10.45	26.71	4	283	4.8	1.92	11.40
Girls	15	907	11.1	6.05	19.46	4	224	2.7	0.87	8.33
School category										
Primary	4	261	10.8	1.92	42.65	-	-	-	-	-
Secondary	26	1657	14.2	9.30	21.08	8	507	4.3	2.35	7.90

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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 Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
Pulau Pinang	66	5123	61.9	46.15	75.46	24	1672	20.2	12.48	30.99
Locality of school										
Urban	36	2238	62.0	45.11	76.45	12	710	19.7	11.93	30.67
Rural	30	2884	61.8	37.26	81.47	12	962	20.6	9.52	39.04
Sex										
Boys	42	3299	58.9	42.39	73.66	17	1153	20.6	12.63	31.77
Girls	24	1824	68.1	48.24	82.97	7	518	19.3	9.40	35.69
School category										
Primary	40	3336	61.7	38.50	80.57	16	1117	20.6	10.70	36.11
Secondary	26	1786	62.2	50.72	72.49	8	555	19.3	10.05	33.97

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 Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
Pulau Pinang	15	971	11.7	5.79	22.34	7	512	6.2	2.65	13.81
Locality of school										
Urban	9	445	12.3	5.30	26.13	4	216	6.0	2.37	14.24
Rural	6	526	11.3	3.76	29.21	3	297	6.4	1.70	21.05
Sex										
Boys	10	727	13.0	6.61	23.95	5	419	7.5	3.19	16.56
Girls	5	244	9.1	2.79	25.86	2	94	3.5	0.72	15.24
School category										
Primary	9	559	10.3	3.62	26.15	5	395	7.3	2.55	19.19
Secondary	6	412	14.4	6.30	29.51	2	117	4.1	1.15	13.41

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 Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
Pulau Pinang	352	35548	45.3	40.26	50.45	224	22485	28.7	23.27	34.73
Locality of school										
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
Sex										
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
School category										
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

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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
Pulau Pinang	120	12843	16.4	14.10	18.92	68	7582	9.7	6.75	13.66
Locality of school										
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
Sex										
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
School category										
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

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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
Pulau Pinang	714	50715	59.5	53.58	65.18	156	10147	11.9	8.34	16.73
Locality of school										
Urban	348	21387	54.1	46.88	61.07	116	7318	18.5	14.62	23.12
Rural	366	29328	64.2	56.12	71.62	40	2829	6.2	4.16	9.14
Sex										
Boys	300	22683	62.9	56.85	68.56	35	2523	7.0	4.20	11.42
Girls	414	28032	57.0	49.40	64.35	121	7624	15.5	10.53	22.27
School category										
Primary	274	22591	71.0	62.22	78.53	30	2148	6.8	3.82	11.68
Secondary	440	28124	52.6	47.56	57.68	126	7999	15.0	10.87	20.28
Class										
Standard 4	101	6765	69.4	57.04	79.49	13	738	7.6	2.78	18.97
Standard 5	78	7305	72.4	68.34	76.14	7	576	5.7	2.00	15.26
Standard 6	95	8522	71.2	56.16	82.73	10	834	7.0	4.75	10.14
Form 1	97	6867	63.7	56.67	70.14	19	1180	10.9	6.19	18.61
Form 2	117	6919	61.7	54.68	68.29	26	1522	13.6	8.59	20.80
Form 3	96	5295	50.3	41.27	59.32	30	1602	15.2	9.79	22.90
Form 4	89	5457	50.5	39.88	61.13	24	1543	14.3	7.38	25.87
Form 5	41	3587	35.5	25.42	47.09	27	2153	21.3	12.30	34.37
Ethnicity										
Malay	494	34906	62.9	56.25	69.09	67	4334	7.8	5.48	11.01
Chinese	121	7851	45.8	38.46	53.37	51	3245	18.9	13.67	25.63
Indian	87	6823	61.0	47.46	72.98	35	2379	21.3	10.78	37.63
Bumiputera Sabah	4	291	100.0	100.00	100.00	-	-	-	-	-
Bumiputera Sarawak	2	237	100.0	0.00	100.00	-	-	-	-	-
Others	6	607	70.1	34.41	91.32	3	188	21.8	5.65	56.46

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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
Pulau Pinang	325	22911	26.9	21.38	33.21	19	1442	1.7	0.84	3.39
Locality of school										
Urban	161	10140	25.6	20.58	31.43	10	718	1.8	0.71	4.55
Rural	164	12772	28.0	19.28	38.72	9	724	1.6	0.56	4.40
Sex										
Boys	132	9861	27.3	20.81	35.02	13	999	2.8	1.43	5.28
Girls	193	13051	26.6	21.10	32.83	6	443	0.9	0.34	2.37
School category										
Primary	63	6346	20.0	10.06	35.71	9	712	2.2	0.69	7.02
Secondary	262	16566	31.0	25.38	37.26	10	731	1.4	0.57	3.26
Class										
Standard 4	23	2128	21.8	9.64	42.24	2	117	1.2	0.15	9.09
Standard 5	18	1811	18.0	11.16	27.59	4	396	3.9	0.75	18.13
Standard 6	22	2407	20.1	8.80	39.67	3	199	1.7	0.33	8.01
Form 1	35	2472	22.9	15.63	32.30	4	266	2.5	0.56	10.15
Form 2	46	2698	24.1	17.26	32.52	1	71	0.6	0.09	4.37
Form 3	68	3534	33.6	24.95	43.46	2	95	0.9	0.21	3.88
Form 4	63	3731	34.5	23.84	47.09	1	69	0.6	0.09	4.23
Form 5	50	4130	40.9	33.79	48.42	2	229	2.3	0.26	17.01
Ethnicity										
Malay	215	15690	28.3	20.78	37.20	9	566	1.0	0.41	2.50
Chinese	87	5528	32.3	24.52	41.12	7	510	3.0	1.07	8.03
Indian	22	1624	14.5	9.64	21.25	3	365	3.3	0.92	10.98
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	1	70	8.1	0.81	48.48	-	-	-	-	-

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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
Pulau Pinang	204	14174	58.7	51.03	65.91	34	2381	9.9	5.95	15.89
Locality of school										
Urban	109	6893	58.9	51.42	66.02	24	1542	13.2	9.58	17.87
Rural	95	7280	58.4	45.42	70.38	10	839	6.7	2.10	19.59
Sex										
Boys	115	8371	53.7	46.18	61.15	22	1604	10.3	6.41	16.14
Girls	89	5803	67.6	54.66	78.31	12	778	9.1	4.06	19.00
School category										
Primary	64	4998	53.7	37.69	69.05	15	1068	11.5	4.25	27.47
Secondary	140	9176	61.8	56.28	66.94	19	1314	8.8	5.45	14.03
Class										
Standard 4	29	1963	52.3	36.62	67.46	10	606	16.1	6.24	35.74
Standard 5	19	1711	52.3	21.52	81.46	2	230	7.0	1.81	23.66
Standard 6	16	1323	58.2	46.20	69.38	3	232	10.2	3.10	28.71
Form 1	21	1595	55.3	40.68	69.11	2	200	6.9	1.67	24.61
Form 2	28	1647	69.8	52.06	83.05	3	176	7.5	2.49	20.28
Form 3	33	1789	61.3	40.61	78.63	5	307	10.5	3.12	30.00
Form 4	34	1998	60.3	49.20	70.40	5	283	8.5	3.44	19.69
Form 5	24	2147	63.4	37.99	83.09	4	348	10.3	3.77	25.09
Ethnicity										
Malay	127	8833	62.4	50.28	73.12	13	722	5.1	2.26	11.08
Chinese	55	3619	58.1	44.03	70.98	10	663	10.6	6.13	17.86
Indian	21	1645	47.6	35.82	59.60	10	904	26.2	15.43	40.73
Bumiputera Sabah	-	-	-	-	-	1	93	100.0	100.00	100.00
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	1	76	53.5	5.24	96.00	-	-	-	-	-

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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
Pulau Pinang	86	6603	27.3	21.53	34.02	12	1000	4.1	1.87	8.89
Locality of school										
Urban	41	2762	23.6	17.28	31.37	7	503	4.3	1.55	11.35
Rural	45	3842	30.8	22.72	40.34	5	497	4.0	1.17	12.77
Sex										
Boys	62	4824	31.0	25.61	36.91	9	775	5.0	2.22	10.78
Girls	24	1779	20.7	11.24	35.06	3	224	2.6	0.87	7.62
School category										
Primary	26	2520	27.1	15.69	42.62	9	713	7.7	3.96	14.33
Secondary	60	4083	27.5	22.27	33.39	3	287	1.9	0.38	9.30
Class										
Standard 4	10	917	24.4	12.34	42.56	4	271	7.2	4.22	12.02
Standard 5	9	1088	33.3	13.93	60.57	2	241	7.4	1.59	28.16
Standard 6	7	515	22.7	16.77	29.93	3	202	8.9	2.14	30.25
Form 1	12	801	27.8	15.83	44.08	3	287	9.9	1.97	37.82
Form 2	9	538	22.8	11.81	39.39	-	-	-	-	-
Form 3	13	821	28.2	16.59	43.56	-	-	-	-	-
Form 4	18	1033	31.2	20.99	43.56	-	-	-	-	-
Form 5	8	890	26.3	10.16	52.92	-	-	-	-	-
Ethnicity										
Malay	52	4001	28.3	20.29	37.87	7	603	4.3	1.52	11.34
Chinese	20	1549	24.9	14.32	39.58	5	397	6.4	2.11	17.71
Indian	12	908	26.3	17.26	37.84	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	1	79	100.0	100.00	100.00	-	-	-	-	-
Others	1	66	46.5	4.00	94.76	-	-	-	-	-

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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
Pulau Pinang	689	49382	58.2	54.04	62.23	295	20025	23.6	19.97	27.66
Locality of school										
Urban	372	23109	58.8	54.40	63.14	142	8860	22.6	18.81	26.81
Rural	317	26273	57.6	50.78	64.22	153	11164	24.5	18.58	31.55
Sex										
Boys	316	23812	66.1	61.71	70.26	93	6877	19.1	15.65	23.09
Girls	373	25570	52.4	45.70	58.92	202	13148	26.9	22.59	31.74
School category										
Primary	242	20570	65.0	62.44	67.45	75	6057	19.1	14.40	24.97
Secondary	447	28812	54.2	50.17	58.09	220	13968	26.3	23.01	29.78
Class										
Standard 4	88	6397	66.5	55.22	76.17	27	1587	16.5	7.40	32.81
Standard 5	66	6214	61.3	55.45	66.76	21	2125	21.0	17.40	25.02
Standard 6	88	7960	66.9	59.02	74.00	27	2344	19.7	15.29	25.04
Form 1	94	6748	62.3	56.88	67.36	36	2441	22.5	15.63	31.31
Form 2	98	5856	52.2	42.67	61.64	55	3208	28.6	22.10	36.17
Form 3	108	5865	55.2	47.84	62.30	51	2755	25.9	20.98	31.56
Form 4	94	5679	53.9	47.37	60.32	47	3001	28.5	21.28	36.98
Form 5	53	4665	46.7	36.38	57.28	31	2564	25.7	17.90	35.32
Ethnicity										
Malay	432	31744	57.1	50.75	63.25	204	13347	24.0	18.31	30.82
Chinese	163	10490	62.6	57.84	67.07	44	2972	17.7	14.09	22.06
Indian	85	6445	58.0	52.09	63.65	41	3103	27.9	21.46	35.44
Bumiputera Sabah	3	218	75.0	19.53	97.37	1	73	25.0	2.63	80.47
Bumiputera Sarawak	-	-	-	-	-	2	237	100.0	0.00	100.00
Others	6	485	56.1	31.09	78.31	3	293	33.8	14.33	60.98

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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
Pulau Pinang	54	3880	4.6	3.48	5.98	67	4673	5.5	4.27	7.08
Locality of school										
Urban	28	1744	4.4	3.12	6.29	37	2301	5.9	4.61	7.42
Rural	26	2135	4.7	3.14	6.92	30	2372	5.2	3.29	8.13
Sex										
Boys	20	1572	4.4	2.86	6.61	23	1891	5.2	2.60	10.33
Girls	34	2308	4.7	3.29	6.74	44	2782	5.7	4.03	7.99
School category										
Primary	18	1582	5.0	3.12	7.91	20	1841	5.8	3.59	9.30
Secondary	36	2298	4.3	3.16	5.87	47	2832	5.3	4.08	6.92
Class										
Standard 4	11	851	8.9	5.37	14.26	6	520	5.4	3.16	9.08
Standard 5	6	578	5.7	3.66	8.79	9	750	7.4	3.57	14.71
Standard 6	1	152	1.3	0.34	4.67	5	571	4.8	1.92	11.50
Form 1	4	278	2.6	0.94	6.82	10	654	6.0	2.83	12.39
Form 2	8	501	4.5	2.78	7.11	15	868	7.7	4.44	13.16
Form 3	8	431	4.1	1.75	9.12	11	566	5.3	3.19	8.76
Form 4	6	345	3.3	1.38	7.57	6	381	3.6	1.53	8.32
Form 5	10	742	7.4	3.96	13.51	5	364	3.6	1.53	8.42
Ethnicity										
Malay	35	2698	4.9	3.46	6.77	43	3161	5.7	4.02	7.99
Chinese	15	907	5.4	3.09	9.32	17	1036	6.2	3.75	10.01
Indian	3	187	1.7	0.58	4.75	7	477	4.3	1.60	11.00
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	1	87	10.1	1.03	54.79	-	-	-	-	-

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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
Pulau Pinang	34	2640	3.1	2.20	4.38	10	660	0.8	0.40	1.52
Locality of school										
Urban	17	1133	2.9	1.77	4.67	9	606	1.5	0.97	2.46
Rural	17	1507	3.3	2.06	5.26	1	53	0.1	0.01	0.94
Sex										
Boys	10	710	2.0	1.11	3.48	2	193	0.5	0.11	2.64
Girls	24	1930	4.0	2.49	6.21	8	467	1.0	0.46	1.99
School category										
Primary	9	1011	3.2	1.51	6.61	2	89	0.3	0.03	2.25
Secondary	25	1629	3.1	2.23	4.18	8	571	1.1	0.58	1.96
Class										
Standard 4	2	186	1.9	0.70	5.17	1	39	0.4	0.05	3.27
Standard 5	3	357	3.5	1.36	8.76					
Standard 6	4	468	3.9	2.05	7.44	1	50	0.4	0.05	3.61
Form 1	2	148	1.4	0.32	5.65	-	-	-	-	-
Form 2	5	287	2.6	1.21	5.35	-	-	-	-	-
Form 3	4	207	1.9	0.75	4.93	3	158	1.5	0.46	4.67
Form 4	8	520	4.9	2.57	9.27	1	63	0.6	0.08	4.31
Form 5	6	468	4.7	2.24	9.54	4	351	3.5	1.30	9.14
Ethnicity										
Malay	20	1559	2.8	1.75	4.47	6	337	0.6	0.23	1.58
Chinese	7	438	2.6	1.10	6.06	2	136	0.8	0.23	2.86
Indian	7	643	5.8	3.15	10.39	2	187	1.7	0.36	7.46
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-

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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
Pulau Pinang	50	3077	3.6	2.04	6.35	8	520	0.6	0.27	1.39
Locality of school										
Urban	19	1097	2.8	1.45	5.32	6	423	1.1	0.47	2.44
Rural	31	1979	4.3	1.90	9.62	2	98	0.2	0.05	0.89
Sex										
Boys	8	594	1.6	0.61	4.36	5	367	1.0	0.35	2.94
Girls	42	2482	5.1	2.92	8.70	3	154	0.3	0.10	1.02
School category										
Primary	4	324	1.0	0.61	1.72	3	180	0.6	0.12	2.66
Secondary	46	2752	5.2	3.03	8.70	5	340	0.6	0.25	1.62
Class										
Standard 4	1	39	0.4	0.05	3.27	-	-	-	-	-
Standard 5	-	-	-	-	-	2	119	1.2	0.15	8.45
Standard 6	3	285	2.4	1.29	4.42	1	61	0.5	0.06	4.42
Form 1	8	514	4.7	1.76	12.12	1	56	0.5	0.06	4.03
Form 2	8	441	3.9	1.77	8.52	1	50	0.4	0.05	3.50
Form 3	12	598	5.6	2.85	10.80	1	48	0.5	0.06	3.45
Form 4	9	500	4.7	1.79	11.96	1	47	0.4	0.05	3.66
Form 5	9	700	7.0	3.43	13.78	1	140	1.4	0.16	10.96
Ethnicity										
Malay	41	2519	4.5	2.30	8.73	4	217	0.4	0.11	1.37
Chinese	8	483	2.9	1.95	4.23	4	303	1.8	0.64	4.99
Indian	1	75	0.7	0.09	4.77	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-

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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
Pulau Pinang	183	12849	52.0	44.89	58.94	84	6128	24.8	18.18	32.81
Locality of school										
Urban	110	7175	58.9	49.89	67.44	41	2590	21.3	16.83	26.53
Rural	73	5675	45.2	37.09	53.52	43	3538	28.2	17.15	42.61
Sex										
Boys	108	7978	49.8	41.43	58.09	52	3827	23.9	16.82	32.70
Girls	75	4872	56.0	46.50	65.09	32	2301	26.5	18.95	35.63
School category										
Primary	55	4172	43.9	34.23	54.14	29	2623	27.6	14.12	46.98
Secondary	128	8678	56.9	48.73	64.79	55	3505	23.0	18.48	28.25
Class										
Standard 4	25	1546	41.8	28.87	56.04	12	922	24.9	11.74	45.39
Standard 5	14	1284	36.2	20.33	55.86	11	1217	34.3	13.90	62.88
Standard 6	16	1341	59.5	47.36	70.58	6	484	21.5	11.51	36.51
Form 1	21	1563	54.9	36.51	72.07	9	715	25.1	15.11	38.76
Form 2	28	1677	71.0	55.83	82.63	10	557	23.6	11.69	41.88
Form 3	25	1390	46.7	35.86	57.88	10	548	18.4	12.29	26.68
Form 4	29	1657	47.8	35.82	59.95	19	1090	31.4	23.85	40.10
Form 5	25	2390	66.6	49.01	80.60	7	595	16.6	7.50	32.78
Ethnicity										
Malay	104	7160	50.1	41.95	58.25	53	4060	28.4	19.61	39.23
Chinese	60	4219	66.6	58.56	73.86	20	1241	19.6	12.98	28.50
Indian	17	1300	34.2	22.87	47.68	10	751	19.8	6.60	46.19
Bumiputera Sabah	1	93	100.0	100.00	100.00	-	-	-	-	-
Bumiputera Sarawak	1	79	100.0	100.00	100.00	-	-	-	-	-
Others	-	-	-	-	-	1	76	53.5	5.24	96.00

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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
Pulau Pinang	41	2893	11.7	7.71	17.36	37	2863	11.6	7.34	17.79
Locality of school										
Urban	17	1060	8.7	5.64	13.22	21	1346	11.1	6.44	18.36
Rural	24	1833	14.6	7.92	25.35	16	1516	12.1	5.87	23.21
Sex										
Boys	29	2085	13.0	8.65	19.10	28	2145	13.4	7.86	21.84
Girls	12	808	9.3	4.35	18.72	9	718	8.3	5.15	12.98
School category										
Primary	15	1127	11.9	4.69	26.92	19	1572	16.6	8.61	29.48
Secondary	26	1767	11.6	8.07	16.38	18	1290	8.5	4.86	14.36
Class										
Standard 4	9	635	17.2	5.40	42.98	9	593	16.0	10.51	23.70
Standard 5	2	182	5.1	0.83	25.94	8	861	24.3	9.71	48.93
Standard 6	4	310	13.8	5.56	30.24	2	118	5.3	1.20	20.22
Form 1	3	240	8.4	1.93	30.03	4	328	11.5	4.84	25.08
Form 2	2	127	5.4	1.28	19.94	-	-	-	-	-
Form 3	10	623	20.9	12.27	33.38	7	415	13.9	6.61	27.02
Form 4	8	464	13.4	8.14	21.24	4	258	7.5	2.25	21.99
Form 5	3	313	8.7	3.00	22.79	3	289	8.0	2.38	23.89
Ethnicity										
Malay	27	1737	12.2	6.91	20.52	19	1333	9.3	5.23	16.08
Chinese	6	455	7.2	3.83	13.07	5	415	6.6	1.91	20.22
Indian	8	701	18.5	9.77	32.12	12	1048	27.6	20.70	35.71
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	1	66	46.5	4.00	94.76

3.4 Meal pattern among adolescents (Primary 4 to Secondary 5) in Pulau Pinang

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3.4.1 Introduction

The term 'meal patterns' is often used to describe individuals' eating patterns at the level of a 'meal', such as a 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 is 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 adolescents in Pulau Pinang (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 2,547 school children that represent 178, 446 school children aged 10 to 17 years old in Pulau Pinang who responded to this module. The analysis showed that 36.1% (95% CI: 29.58, 43.17), 59.4% (95% CI: 51.05, 67.22) and 61.4% (95% CI: 51.96, 70.07) adolescents took breakfast, lunch and dinner every day, respectively. The study also revealed that 10.9% (95% CI: 8.54, 13.78) of the adolescents did not take breakfast in the previous week. More than half of the respondents reported that the source of foods for breakfast, lunch and dinner were prepared at home. No appetite (40.5% (95% CI: 34.27, 46.99)) and no time (33.3% (95% CI: 28.46, 38.59)) were the reasons why they skipped breakfast. In addition to that, 46.8% (95% CI: 41.51, 52.08) and 47.3% (95% CI: 41.74, 52.96) of the adolescents reported that no appetite was identified as a major reason they skipped lunch and dinner. More than half of the students reported that they eat and/or drink during recess time every day and the main food source of the meal was from school canteen (69.0% (95% CI: 60.31, 76.57)). There were 6.4% (95% CI: 4.87, 8.33) adolescents had heavy meal after dinner every day, whilst majority of them (68.5% (95% CI: 62.97, 73.60)) had heavy meal after dinner at least once a week and remaining 25.1% (95% CI: 19.94, 31.06) never took heavy supper. It was found that among those respondents consumed heavy supper, almost half of them (47.3% (95% CI 40.66, 54.01)) took supper at home. Meanwhile, the analysis showed that 81.9% (95% CI: 77.31, 85.73) adolescents consumed fast food at least one time in a week. There were 9.3% (95% CI: 6.56, 13.10) and 48.8% (95% CI: 41.01, 56.62) adolescents brought foods and drinks to school every day, respectively. The most commonly foods brought to school were bread/ bun/ sandwich (43.5% (95% CI: 32.81, 54.88)), followed by nasi lemak/ fried rice/ mixed rice (32.0% (95% CI: 23.60, 41.79)). Meanwhile, majority of the students brought plain water to school (89.9% (95% CI: 85.97, 92.81)). More than half of the students spent their pocket money to buy foods and/ or drinks. It was showed that, 68.6% (95% CI: 66.21, 70.92) of the adolescents in Pulau Pinang had eating out at least one to three times per week. About 65.2% (95% CI: 62.34, 67.88) of the school children consumed snack foods one to three times in a week. There were 33.3% (95% CI: 29.49, 37.43) of them claimed that they took bread/ bun/ sandwich as their snack. In term of buying food outside the school premises, about half of the respondents (52.1% (95% CI: 46.64, 57.60)) claimed that they bought foods and/ or drinks outside the school at least once during schooldays. Flavoured/ carbonated drinks and French fries/ nugget/ sausage were commonly bought outside school perimeters (18.8% (95% CI: 15.30, 22.94) and 16.4% (95% CI: 12.75, 20.93)). The analysis also revealed that 34.2% (95% CI: 27.59, 41.56) of the adolescents in Pulau Pinang claimed that they were not influenced by any source of media in terms of dietary pattern. Simultaneously, television and social media were reported as the media channels of most influence on their eating habits (33.0% (95% CI: 25.70, 41.30) and 31.6% (95% CI: 28.47, 34.82)).

3.4.5 Discussions/Conclusion

Irregular eating habits among adolescents in Pulau Pinang are a concern. No appetite was commonly reported as a reason for skipping meals. Therefore, further research should be conducted to understand the behaviour of skipping meals among adolescents. Meanwhile, the prevalence of having meal after dinner and consumption of fast foods was quite alarming among those consuming at least once in a week. The frequency of the students who bought foods and drinks outside the school perimeters would be a concern, since the analysis showed that unhealthy foods and drinks such as French fries/ nugget/ sausage and flavoured drinks/ carbonated drinks are available outside the school premise. Despite the fact that a third of the adolescents in Pulau Pinang claimed that they will not be influenced by the media, more than half of them reported that television and social media would be the best platform to influence the adolescents in practising healthy eating in their daily life.

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 all stakeholders must work together. Current adolescents become future adults, thus a healthier adolescent generation is warranted for a healthier nation. As most adolescents are school-aged individuals, 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 Pelaksanaan 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.

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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	
Pulau Pinang	948	64343	36.1	29.58	43.17	1321	94521	53.0	47.62	58.36
Locality of school										
Urban	562	34489	37.8	30.74	45.41	706	45026	49.3	43.53	55.19
Rural	386	29855	34.3	24.01	46.33	615	49495	56.9	48.81	64.59
Sex										
Boys	453	32723	36.7	29.49	44.54	624	47333	53.1	46.80	59.25
Girls	495	31620	35.5	28.91	42.69	697	47188	53.0	47.07	58.79
Ethnicity										
Malay	482	31665	31.0	23.96	39.00	837	59847	58.5	52.78	64.09
Chinese	334	21505	45.5	37.79	53.34	299	20349	43.0	38.05	48.12
Indian	124	10575	39.8	23.14	59.15	170	13138	49.4	39.42	59.43
Bumiputera Sabah	1	107	23.8	4.25	68.69	5	343	76.2	31.31	95.75
Bumiputera Sarawak	1	79	25.0	2.08	83.91	1	181	57.5	8.78	95.01
Others	6	413	30.0	12.07	57.21	9	663	48.2	30.42	66.40
School level										
Primary school	297	23692	36.3	23.94	50.75	412	34653	53.1	42.73	63.17
Secondary school	651	40652	36.0	29.02	43.58	909	59868	53.0	46.94	58.95
Class										
Standard 4	127	8653	39.2	31.40	47.62	151	11139	50.5	43.02	57.92
Standard 5	75	6896	32.3	18.05	50.77	122	11693	54.7	41.55	67.29
Standard 6	95	8143	37.3	21.87	55.75	139	11821	54.1	39.65	67.87
Form 1	135	9334	39.3	31.52	47.68	166	12100	51.0	41.36	60.48
Form 2	156	9072	40.5	31.08	50.70	188	11147	49.8	40.23	59.34
Form 3	166	8883	39.9	31.91	48.47	196	10776	48.4	42.27	54.60
Form 4	108	6095	28.0	18.34	40.24	214	13016	59.8	48.45	70.19
Form 5	86	7267	31.9	22.45	43.02	145	12829	56.2	49.62	62.64
School session										
Morning session	558	37435	36.1	29.01	43.86	783	55101	53.1	46.99	59.21
Evening session	142	9051	37.6	29.55	46.36	174	11360	47.2	38.40	56.11
Morning and evening session	247	17714	35.3	26.03	45.81	362	27891	55.6	49.04	61.92
BMI-for-age status (BAZ)										
Thinness (<-2sd)	82	5748	35.7	29.22	42.82	107	8612	53.5	46.62	60.33
Normal (≥-2sd - ≤+1sd)	592	39541	37.4	30.59	44.84	784	55619	52.7	46.65	58.60
Overweight (>+1sd - ≤+2sd)	143	9948	34.1	26.06	43.21	221	15145	51.9	45.53	58.29
Obese (>+2sd)	130	9039	33.2	25.52	41.98	207	14996	55.1	48.23	61.86
Height-for-age status (HAZ)										
Stunting (<-2sd)	62	4430	37.6	26.32	50.39	88	6610	56.1	44.93	66.67
Normal (≥-2sd)	884	59801	36.0	29.39	43.10	1232	87860	52.8	47.29	58.30

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
Pulau Pinang	277	19400	10.9	8.54	13.78
Locality of school					
Urban	181	11725	12.9	10.36	15.83
Rural	96	7675	8.8	5.40	14.08
Sex					
Boys	119	9129	10.2	7.60	13.65
Girls	158	10271	11.5	8.94	14.75
Ethnicity					
Malay	153	10707	10.5	7.69	14.11
Chinese	81	5457	11.5	8.07	16.22
Indian	39	2880	10.8	4.34	24.54
Bumiputera Sabah					
Bumiputera Sarawak	1	55	17.5	1.41	75.92
Others	3	301	21.8	7.13	50.40
School level					
Primary school	89	6940	10.6	6.80	16.24
Secondary school	188	12460	11.0	8.27	14.56
Class					
Standard 4	36	2274	10.3	6.07	16.94
Standard 5	32	2775	13.0	8.30	19.76
Standard 6	21	1891	8.7	4.71	15.38
Form 1	34	2314	9.7	5.61	16.38
Form 2	37	2175	9.7	6.85	13.60
Form 3	46	2601	11.7	8.08	16.60
Form 4	44	2654	12.2	8.77	16.70
Form 5	27	2716	11.9	6.14	21.84
School session					
Morning session	158	11144	10.7	8.54	13.45
Evening session	58	3673	15.2	12.48	18.50
Morning and evening session	61	4584	9.1	4.94	16.28
BMI-for-age status (BAZ)					
Thinness (<-2sd)	23	1725	10.7	6.47	17.25
Normal ($\geq -2sd - \leq +1sd$)	152	10450	9.9	7.71	12.62
Overweight ($> +1sd - \leq +2sd$)	58	4066	13.9	9.68	19.69
Obese ($> +2sd$)	44	3159	11.6	8.18	16.24
Height-for-age status (HAZ)					
Stunting (<-2sd)	13	744	6.3	3.75	10.44
Normal ($\geq -2sd$)	264	18656	11.2	8.80	14.19

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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
Pulau Pinang	1353	95891	61.2	51.53	70.15	354	27058	17.3	13.08	22.48
Locality of school										
Urban	889	55666	70.5	64.20	76.05	193	12210	15.5	11.57	20.34
Rural	464	40225	51.9	36.02	67.33	161	14848	19.1	12.43	28.31
Sex										
Boys	630	46628	59.1	49.58	67.91	192	15438	19.6	14.22	26.28
Girls	723	49263	63.5	51.70	73.84	162	11620	15.0	11.13	19.85
Ethnicity										
Malay	660	47535	52.8	39.39	65.76	220	16904	18.8	12.88	26.52
Chinese	465	30484	73.4	65.30	80.18	75	5023	12.1	9.42	15.39
Indian	212	16774	72.2	62.35	80.27	55	4727	20.3	12.91	30.54
Bumiputera Sabah	5	397	88.2	39.30	98.86					
Bumiputera Sarawak						2	260	100.0	100.00	100.00
Others	11	701	15.2	1.74	64.63	2	143	14.4	3.15	46.39
School level										
Primary school	473	38714	67.9	59.83	75.10	157	13414	23.5	17.69	30.60
Secondary school	880	57177	57.4	43.66	70.11	197	13644	13.7	9.63	19.13
Class										
Standard 4	188	13376	69.2	60.99	76.37	59	4467	23.1	16.17	31.91
Standard 5	120	10872	60.3	47.41	71.90	48	4978	27.6	17.64	40.45
Standard 6	165	14466	73.7	64.43	81.29	50	3969	20.2	13.05	29.99
Form 1	170	12171	57.7	38.75	74.57	27	2043	9.7	4.79	18.57
Form 2	189	11421	56.9	40.51	71.90	22	1325	6.6	3.89	10.98
Form 3	200	11081	56.5	40.15	71.60	45	2576	13.1	7.25	22.65
Form 4	190	11354	60.2	49.57	70.02	59	3672	19.5	13.13	27.92
Form 5	131	11151	55.9	38.00	72.35	44	4029	20.2	13.30	29.44
School session										
Morning session	847	58937	64.5	56.10	72.14	221	16184	17.7	13.73	22.56
Evening session	229	14862	73.0	65.76	79.24	31	1907	9.4	5.40	15.78
Morning and evening session	276	22000	49.2	33.71	64.86	101	8891	19.9	12.60	29.95
BMI-for-age status (BAZ)										
Thinness (<-2sd)	131	9632	67.1	55.24	77.08	30	2451	17.1	9.91	27.80
Normal (≥-2sd - ≤+1sd)	814	56765	60.6	50.87	69.60	212	16455	17.6	13.01	23.31
Overweight (>+1sd - ≤+2sd)	210	15208	61.5	47.17	74.02	50	3559	14.4	10.06	20.15
Obese (>+2sd)	196	14142	59.9	49.92	69.15	62	4593	19.5	13.64	26.99
Height-for-age status (HAZ)										
Stunting (<-2sd)	78	5907	53.9	37.30	69.59	24	2020	18.4	8.67	34.92
Normal (≥-2sd)	1274	89917	61.8	52.51	70.35	329	24986	17.2	13.24	22.00

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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	
Pulau Pinang	141	9724	6.2	4.16	9.18	357	20873	13.3	4.86	31.66
Locality of school										
Urban	113	7418	9.4	6.44	13.50	41	2126	2.7	0.72	9.52
Rural	28	2307	3.0	1.74	5.03	316	18747	24.2	7.83	54.44
Sex										
Boys	93	6572	8.3	5.37	12.69	126	8365	10.6	3.61	27.24
Girls	48	3152	4.1	2.76	5.94	231	12508	16.1	6.00	36.64
Ethnicity										
Malay	56	3891	4.3	2.92	6.34	354	20706	23.0	8.70	48.31
Chinese	68	4713	11.3	6.49	19.09	2	114	0.3	0.06	1.21
Indian	17	1120	4.8	1.86	11.90					
Bumiputera Sabah						1	53	11.8	1.14	60.70
Bumiputera Sarawak										
Others										
School level										
Primary school	28	2136	3.7	2.16	6.44	24	1292	2.3	0.46	10.45
Secondary school	113	7588	7.6	4.88	11.72	333	19581	19.7	7.02	44.26
Class										
Standard 4	9	510	2.6	1.21	5.67	12	538	2.8	0.47	14.80
Standard 5	14	1221	6.8	3.02	14.51	6	458	2.5	0.67	9.13
Standard 6	5	406	2.1	1.32	3.23	6	296	1.5	0.19	11.23
Form 1	19	1485	7.0	3.73	12.88	79	5241	24.8	9.55	50.83
Form 2	30	1841	9.2	4.90	16.52	94	5077	25.3	10.19	50.27
Form 3	21	1216	6.2	3.45	10.92	91	4511	23.0	8.15	50.18
Form 4	28	1558	8.3	4.05	16.13	34	1863	9.9	2.07	36.28
Form 5	15	1487	7.5	3.45	15.36	35	2888	14.5	2.73	50.53
School session										
Morning session	83	5897	6.5	4.27	9.65	160	9186	10.1	3.68	24.65
Evening session	45	2965	14.6	10.32	20.18	1	51	0.3	0.03	1.86
Morning and evening session	13	862	1.9	0.97	3.79	196	11636	26.0	9.45	54.25
BMI-for-age status (BAZ)										
Thinness (<-2sd)	11	909	6.3	2.54	14.91	15	1156	8.0	3.13	19.17
Normal (≥-2sd - ≤+1sd)	89	5953	6.4	4.19	9.53	223	12629	13.5	4.89	32.12
Overweight (>+1sd - ≤+2sd)	25	1596	6.5	3.62	11.23	68	4007	16.2	5.53	38.93
Obese (>+2sd)	16	1265	5.4	3.01	9.38	51	3082	13.1	4.67	31.52
Height-for-age status (HAZ)										
Stunting (<-2sd)	4	333	3.0	1.10	8.12	38	2208	20.1	5.91	50.29
Normal (≥-2sd)	137	9391	6.5	4.33	9.53	318	18620	12.8	4.76	30.14

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
Pulau Pinang	39	3013	1.9	1.32	2.79
Locality of school					
Urban	24	1571	2.0	1.31	3.00
Rural	15	1442	1.9	0.98	3.49
Sex					
Boys	25	1953	2.5	1.63	3.73
Girls	14	1060	1.4	0.81	2.29
Ethnicity					
Malay	15	1046	1.2	0.71	1.89
Chinese	18	1199	2.9	1.72	4.79
Indian	5	617	2.7	0.83	8.19
Bumiputera Sabah					
Bumiputera Sarawak					
Others	1	152	15.2	1.74	64.63
School level					
Primary school	15	1422	2.5	1.36	4.53
Secondary school	24	1591	1.6	1.07	2.38
Class					
Standard 4	6	435	2.3	0.79	6.24
Standard 5	4	500	2.8	0.54	12.97
Standard 6	5	487	2.5	0.98	6.14
Form 1	2	166	0.8	0.20	3.04
Form 2	7	408	2.0	0.91	4.47
Form 3	4	216	1.1	0.41	2.97
Form 4	7	399	2.1	0.86	5.11
Form 5	4	401	2.0	0.76	5.19
School session					
Morning session	16	1130	1.2	0.63	2.43
Evening session	9	566	2.8	1.81	4.25
Morning and evening session	14	1317	2.9	1.70	5.05
BMI-for-age status (BAZ)					
Thinness (<-2sd)	2	213	1.5	0.34	6.18
Normal (≥-2sd - ≤+1sd)	22	1833	2.0	1.22	3.12
Overweight (>+1sd - ≤+2sd)	6	374	1.5	0.59	3.80
Obese (>+2sd)	8	521	2.2	1.09	4.42
Height-for-age status (HAZ)					
Stunting (<-2sd)	5	501	4.6	1.51	13.02
Normal (≥-2sd)	34	2512	1.7	1.22	2.43

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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	
Pulau Pinang	107	7307	7.4	5.82	9.31	573	40074	40.5	34.27	46.99
Locality of school										
Urban	68	4190	8.4	6.13	11.48	292	17821	35.8	29.00	43.32
Rural	39	3117	6.3	4.56	8.71	281	22252	45.1	36.13	54.47
Sex										
Boys	59	4152	8.4	6.04	11.49	226	17158	34.6	27.76	42.14
Girls	48	3155	6.4	4.91	8.25	347	22916	46.4	40.48	52.35
Ethnicity										
Malay	70	4868	7.7	5.65	10.48	405	28519	45.3	38.63	52.07
Chinese	24	1573	7.1	5.82	8.63	94	6127	27.7	21.37	34.96
Indian	12	811	6.5	2.98	13.44	65	4528	36.0	28.70	44.09
Bumiputera Sabah						3	218	76.9	21.53	97.58
Bumiputera Sarawak	1	55	23.4	1.44	86.40	1	181	76.6	13.60	98.56
Others						5	499	64.9	24.20	91.47
School level										
Primary school	35	2646	8.0	6.11	10.37	176	14493	43.8	34.81	53.14
Secondary school	72	4661	7.1	5.05	9.82	397	25580	38.8	31.18	47.05
Class										
Standard 4	13	708	7.4	3.43	15.20	63	4195	43.8	28.94	59.83
Standard 5	12	1075	8.4	4.36	15.46	59	5592	43.5	30.83	57.15
Standard 6	10	864	8.1	6.14	10.55	54	4707	44.0	35.13	53.30
Form 1	12	873	7.1	3.12	15.16	67	4853	39.2	29.85	49.42
Form 2	18	1142	9.5	4.91	17.52	92	5470	45.4	35.01	56.22
Form 3	11	651	5.6	2.80	10.77	92	4979	42.6	33.63	52.01
Form 4	25	1500	10.3	6.25	16.41	93	5783	39.6	32.50	47.17
Form 5	6	494	3.3	1.63	6.41	53	4495	29.6	19.90	41.66
School session										
Morning session	59	3933	6.8	4.92	9.41	338	23156	40.2	33.81	46.94
Evening session	26	1666	13.1	8.78	19.05	68	4321	33.9	24.17	45.28
Morning and evening session	22	1707	6.0	4.08	8.67	166	12504	43.7	34.46	53.49
BMI-for-age status (BAZ)										
Thinness (<-2sd)	10	638	7.5	3.40	15.63	46	3566	41.7	29.69	54.87
Normal (≥-2sd - ≤+1sd)	60	4069	7.0	5.48	8.94	340	23757	41.0	34.99	47.25
Overweight (>+1sd - ≤+2sd)	21	1327	7.8	4.66	12.91	108	7220	42.7	33.24	52.75
Obese (>+2sd)	15	1196	7.7	4.01	14.32	79	5530	35.6	28.12	43.97
Height-for-age status (HAZ)										
Stunting (<-2sd)	6	385	6.2	2.36	15.08	40	2770	44.3	32.98	56.17
Normal (≥-2sd)	101	6922	7.5	5.82	9.53	533	37304	40.2	33.92	46.90

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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	
Pulau Pinang	474	33006	33.3	28.46	38.59	83	6328	6.4	4.49	9.03
Locality of school										
Urban	256	16990	34.2	31.13	37.36	36	2296	4.6	2.68	7.85
Rural	218	16016	32.5	23.71	42.70	47	4032	8.2	5.51	11.98
Sex										
Boys	228	16835	33.9	28.75	39.56	41	3340	6.7	4.31	10.38
Girls	246	16171	32.7	26.88	39.15	42	2989	6.0	3.83	9.43
Ethnicity										
Malay	307	20622	32.7	25.95	40.31	53	4101	6.5	4.23	9.88
Chinese	111	8147	36.8	32.01	41.81	19	1236	5.6	3.35	9.15
Indian	51	3902	31.1	24.54	38.41	11	992	7.9	3.28	17.81
Bumiputera Sabah	1	66	23.1	2.42	78.47					
Bumiputera Sarawak										
Others	4	270	35.1	8.53	75.80					
School level										
Primary school	127	9928	30.0	22.13	39.21	33	2965	9.0	5.63	13.93
Secondary school	347	23078	35.0	29.49	40.99	50	3363	5.1	3.24	7.96
Class										
Standard 4	40	2785	29.1	23.84	34.92	13	917	9.6	3.70	22.60
Standard 5	44	3739	29.1	16.79	45.53	5	576	4.5	1.64	11.71
Standard 6	43	3403	31.8	23.91	40.94	15	1471	13.8	6.72	26.11
Form 1	54	3777	30.5	21.87	40.78	9	702	5.7	2.65	11.74
Form 2	56	3315	27.5	21.26	34.80	13	788	6.5	3.12	13.21
Form 3	78	4285	36.6	28.79	45.23	9	504	4.3	2.35	7.75
Form 4	81	4805	32.9	25.40	41.40	13	874	6.0	2.61	13.14
Form 5	78	6896	45.5	36.94	54.27	6	495	3.3	1.35	7.71
School session										
Morning session	300	20888	36.3	31.07	41.79	41	2905	5.0	3.28	7.68
Evening session	46	3015	23.7	20.58	27.08	12	783	6.1	2.29	15.48
Morning and evening session	128	9102	31.8	22.15	43.42	30	2641	9.2	6.04	13.88
BMI-for-age status (BAZ)										
Thinness (<-2sd)	31	2489	29.1	19.65	40.86	1	111	1.3	0.16	9.66
Normal (≥-2sd - ≤+1sd)	292	20187	34.8	29.50	40.54	46	3500	6.0	3.92	9.18
Overweight (>+1sd - ≤+2sd)	64	4269	25.3	19.48	32.06	20	1430	8.5	5.53	12.75
Obese (>+2sd)	87	6062	39.1	29.90	49.10	16	1287	8.3	4.62	14.44
Height-for-age status (HAZ)										
Stunting (<-2sd)	22	1612	25.8	16.05	38.66	4	315	5.0	1.27	17.86
Normal (≥-2sd)	451	31342	33.8	28.59	39.45	79	6014	6.5	4.60	9.07

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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	
Pulau Pinang	47	3645	3.7	2.42	5.57	119	8655	8.7	5.76	13.05
Locality of school										
Urban	26	1788	3.6	2.31	5.56	92	6627	13.3	9.08	19.15
Rural	21	1858	3.8	1.85	7.51	27	2027	4.1	2.56	6.55
Sex										
Boys	33	2767	5.6	3.83	8.05	67	5338	10.8	6.35	17.68
Girls	14	878	1.8	0.82	3.81	52	3316	6.7	4.69	9.51
Ethnicity										
Malay	29	2153	3.4	1.83	6.29	38	2743	4.4	2.96	6.36
Chinese	9	577	2.6	1.30	5.15	63	4495	20.3	16.14	25.19
Indian	9	915	7.3	3.32	15.25	18	1417	11.3	6.53	18.78
Bumiputera Sabah										
Bumiputera Sarawak										
Others										
School level										
Primary school	25	2051	6.2	4.09	9.27	12	1035	3.1	1.69	5.72
Secondary school	22	1594	2.4	1.32	4.39	107	7619	11.6	7.89	16.63
Class										
Standard 4	13	805	8.4	5.06	13.63	3	170	1.8	0.71	4.38
Standard 5	10	1121	8.7	5.78	12.98	7	741	5.8	2.36	13.40
Standard 6	2	125	1.2	0.24	5.39	2	125	1.2	0.12	10.45
Form 1	2	150	1.2	0.29	4.88	27	2024	16.3	9.88	25.84
Form 2	6	340	2.8	0.94	8.12	18	991	8.2	3.84	16.75
Form 3	5	298	2.5	0.92	6.87	17	982	8.4	4.22	16.00
Form 4	3	155	1.1	0.26	4.24	26	1486	10.2	6.03	16.67
Form 5	6	651	4.3	1.66	10.63	19	2136	14.1	7.45	25.04
School session										
Morning session	25	1886	3.3	1.81	5.85	63	4836	8.4	5.36	12.91
Evening session	10	643	5.1	2.54	9.81	35	2307	18.1	12.18	26.09
Morning and evening session	12	1116	3.9	2.22	6.78	21	1512	5.3	2.65	10.26
BMI-for-age status (BAZ)										
Thinness (<-2sd)	9	803	9.4	5.56	15.45	10	936	11.0	4.93	22.60
Normal (≥-2sd - ≤+1sd)	22	1700	2.9	1.81	4.71	69	4765	8.2	5.03	13.15
Overweight (>+1sd - ≤+2sd)	7	469	2.8	1.27	5.93	28	2189	13.0	8.40	19.45
Obese (>+2sd)	9	674	4.3	2.11	8.72	12	764	4.9	2.45	9.65
Height-for-age status (HAZ)										
Stunting (<-2sd)	6	516	8.2	3.81	16.90	9	660	10.5	4.79	21.66
Normal (≥-2sd)	41	3130	3.4	2.09	5.40	110	7995	8.6	5.60	13.05

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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
Pulau Pinang	1542	105828	59.4	51.05	67.22	932	67304	37.8	30.44	45.71
Locality of school										
Urban	949	60002	65.8	55.19	75.04	453	28152	30.9	22.33	40.97
Rural	593	45826	52.7	42.35	62.76	479	39152	45.0	36.04	54.30
Sex										
Boys	442	33923	38.0	29.06	47.92	713	52163	58.5	48.09	68.20
Girls	490	33381	37.5	30.50	45.06	829	53665	60.3	52.44	67.63
Ethnicity										
Malay	753	50438	49.4	42.21	56.52	675	48556	47.5	41.23	53.87
Chinese	568	37453	79.2	74.17	83.41	128	8584	18.1	14.92	21.89
Indian	202	16501	62.2	46.81	75.45	121	9458	35.6	24.36	48.78
Bumiputera Sabah	5	357	79.4	24.56	97.85	1	93	20.6	2.15	75.44
Bumiputera Sarawak	1	55	17.5	1.41	75.92	2	260	82.5	24.08	98.59
Others	13	1024	74.3	44.23	91.35	5	354	25.7	8.65	55.77
School level										
Primary school	435	35318	54.1	39.77	67.73	348	28568	43.7	31.29	57.02
Secondary school	1107	70510	62.5	53.26	70.86	584	38735	34.3	26.52	43.07
Class										
Standard 4	163	11584	52.5	41.08	63.66	145	9881	44.8	33.22	56.93
Standard 5	118	10891	50.5	31.05	69.89	109	10217	47.4	29.50	66.03
Standard 6	154	12843	59.2	43.86	72.88	94	8471	39.0	25.93	53.91
Form 1	208	14544	61.2	48.66	72.49	118	8597	36.2	25.63	48.29
Form 2	240	13727	61.3	49.97	71.52	124	7582	33.9	25.05	43.94
Form 3	261	14025	63.3	51.78	73.50	127	7058	31.9	22.15	43.46
Form 4	227	13123	60.3	49.54	70.14	133	8260	37.9	28.23	48.74
Form 5	171	15091	66.2	51.34	78.36	82	7239	31.7	20.28	45.94
School session										
Morning session	940	63942	61.7	51.80	70.63	525	37107	35.8	27.35	45.18
Evening session	221	14108	58.6	45.78	70.32	136	8828	36.7	25.96	48.84
Morning and evening session	380	27635	55.2	46.50	63.56	269	21201	42.3	34.41	50.67
BMI-for-age status (BAZ)										
Thinness (<-2sd)	136	10158	63.2	49.68	74.85	68	5431	33.8	22.30	47.52
Normal (≥-2sd - ≤+1sd)	966	65417	62.0	53.16	70.02	523	37451	35.5	27.85	43.90
Overweight (>+1sd - ≤+2sd)	238	15841	54.3	44.32	63.99	171	12236	42.0	33.76	50.63
Obese (>+2sd)	200	14272	52.6	44.19	60.86	169	12109	44.6	37.12	52.38
Height-for-age status (HAZ)										
Stunting (<-2sd)	93	6719	56.1	44.90	66.81	67	4999	41.8	31.78	52.49
Normal (≥-2sd)	1447	98997	59.6	51.00	67.67	864	62253	37.5	29.91	45.74

Table 3.4.6 : 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	
				95% CI Lower	95% CI Upper
Pulau Pinang	70	5058	2.8	1.96	4.09
Locality of school					
Urban	46	3027	3.3	2.06	5.31
Rural	24	2032	2.3	1.30	4.17
Sex					
Boys	40	3084	3.5	2.08	5.69
Girls	30	1974	2.2	1.45	3.38
Ethnicity					
Malay	43	3209	3.1	2.13	4.61
Chinese	18	1274	2.7	1.43	5.01
Indian	9	576	2.2	0.63	7.15
Bumiputera Sabah					
Bumiputera Sarawak					
Others					
School level					
Primary school	15	1433	2.2	1.04	4.56
Secondary school	55	3626	3.2	2.10	4.88
Class					
Standard 4	6	601	2.7	0.85	8.40
Standard 5	3	437	2.0	0.49	8.02
Standard 6	6	394	1.8	0.51	6.20
Form 1	9	607	2.6	1.03	6.18
Form 2	17	1086	4.8	2.81	8.26
Form 3	18	1068	4.8	2.45	9.29
Form 4	6	382	1.8	0.80	3.81
Form 5	5	482	2.1	0.89	4.92
School session					
Morning session	34	2667	2.6	1.47	4.46
Evening session	17	1148	4.8	3.16	7.12
Morning and evening session	19	1244	2.5	1.29	4.75
BMI-for-age status (BAZ)					
Thinness (<-2sd)	8	496	3.1	0.91	9.90
Normal (≥-2sd - ≤+1sd)	38	2726	2.6	1.76	3.77
Overweight (>+1sd - ≤+2sd)	13	1083	3.7	1.87	7.24
Obese (>+2sd)	11	754	2.8	1.25	6.06
Height-for-age status (HAZ)					
Stunting (<-2sd)	4	248	2.1	0.59	7.05
Normal (≥-2sd)	66	4810	2.9	1.98	4.22

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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	
Pulau Pinang	1248	88860	51.9	43.89	59.73	526	39166	22.9	18.23	28.26
Locality of school										
Urban	815	51642	59.2	52.74	65.32	297	18743	21.5	17.74	25.77
Rural	433	37218	44.3	31.44	57.89	229	20423	24.3	16.40	34.40
Sex										
Boys	547	41413	48.5	42.02	55.11	275	21022	24.6	19.83	30.17
Girls	701	47447	55.2	44.50	65.35	251	18144	21.1	15.57	27.92
Ethnicity										
Malay	628	44510	45.4	34.36	56.96	302	23121	23.6	16.72	32.21
Chinese	383	25682	56.3	50.78	61.61	149	9708	21.3	17.04	26.21
Indian	221	17497	68.2	61.85	73.94	68	5646	22.0	19.02	25.33
Bumiputera Sabah	2	173	38.4	5.29	87.43	2	131	29.2	5.04	76.26
Bumiputera Sarawak	1	79	25.0	2.08	83.91	1	181	57.5	8.78	95.01
Others	13	919	70.9	45.23	87.78	4	378	29.1	12.22	54.77
School level										
Primary school	432	34981	55.6	50.77	60.26	225	19090	30.3	24.37	37.02
Secondary school	816	53879	49.7	37.78	61.66	301	20076	18.5	14.11	23.93
Class										
Standard 4	179	12522	59.5	53.05	65.55	85	6246	29.7	24.81	35.00
Standard 5	123	10975	53.0	36.77	68.62	70	6729	32.5	25.02	40.99
Standard 6	130	11483	54.2	45.43	62.75	70	6115	28.9	19.61	40.31
Form 1	141	9950	43.2	31.43	55.79	70	5259	22.8	16.52	30.68
Form 2	160	9739	45.9	32.39	60.08	74	4337	20.4	12.49	31.64
Form 3	185	10392	50.5	32.93	67.94	46	2505	12.2	7.55	19.04
Form 4	201	12342	57.9	45.97	68.95	63	3770	17.7	11.17	26.84
Form 5	129	11457	51.5	34.65	67.96	48	4206	18.9	12.40	27.71
School session										
Morning session	811	56769	56.8	49.70	63.67	262	19244	19.3	14.76	24.74
Evening session	176	11427	50.5	41.12	59.85	124	7960	35.2	28.19	42.86
Morning and evening session	260	20521	42.3	30.17	55.44	139	11886	24.5	16.12	35.41
BMI-for-age status (BAZ)										
Thinness (<-2sd)	126	9510	62.1	51.01	72.08	39	3214	21.0	14.15	29.98
Normal (≥-2sd - ≤+1sd)	750	52631	51.6	43.54	59.51	305	22760	22.3	17.39	28.13
Overweight (>+1sd - ≤+2sd)	186	12959	46.9	36.16	57.89	91	6834	24.7	16.55	35.23
Obese (>+2sd)	185	13688	52.4	42.82	61.83	89	6215	23.8	17.62	31.31
Height-for-age status (HAZ)										
Stunting (<-2sd)	73	5506	47.5	33.46	61.99	29	2424	20.9	11.73	34.51
Normal (≥-2sd)	1175	83354	52.2	44.60	59.75	495	36623	22.9	18.55	28.02

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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	
Pulau Pinang	207	14625	8.5	6.20	11.63	384	22320	13.0	4.90	30.33
Locality of school										
Urban	159	10112	11.6	8.39	15.79	61	3234	3.7	1.12	11.59
Rural	48	4513	5.4	3.13	9.05	323	19086	22.7	7.14	52.84
Sex										
Boys	134	9698	11.4	7.97	15.97	136	8923	10.5	3.66	26.40
Girls	73	4927	5.7	4.00	8.14	248	13397	15.6	6.00	34.78
Ethnicity										
Malay	80	6305	6.4	4.57	8.98	377	21858	22.3	8.48	47.07
Chinese	113	7400	16.2	12.49	20.77	3	159	0.3	0.10	1.26
Indian	13	866	3.4	1.31	8.41	2	157	0.6	0.16	2.38
Bumiputera Sabah						2	146	32.4	5.55	79.60
Bumiputera Sarawak	1	55	17.5	1.41	75.92					
Others										
School level										
Primary school	51	4394	7.0	4.34	11.03	32	1497	2.4	0.36	14.22
Secondary school	156	10231	9.4	6.31	13.88	352	20823	19.2	7.08	42.61
Class										
Standard 4	15	971	4.6	2.94	7.15	19	815	3.9	0.58	21.87
Standard 5	19	2115	10.2	4.62	21.10	5	277	1.3	0.17	9.48
Standard 6	17	1308	6.2	2.60	13.96	8	406	1.9	0.32	10.77
Form 1	25	1923	8.4	5.05	13.50	82	5506	23.9	9.47	48.55
Form 2	20	1227	5.8	3.03	10.76	99	5372	25.3	10.07	50.68
Form 3	36	1947	9.5	5.58	15.58	95	4678	22.7	8.13	49.45
Form 4	50	2736	12.8	8.17	19.59	34	1839	8.6	1.82	32.41
Form 5	25	2398	10.8	5.11	21.29	42	3428	15.4	3.59	47.08
School session										
Morning session	144	10049	10.1	7.55	13.28	184	10458	10.5	4.09	24.29
Evening session	40	2503	11.1	6.53	18.12	2	131	0.6	0.13	2.65
Morning and evening session	23	2074	4.3	1.94	9.17	197	11638	24.0	8.38	52.13
BMI-for-age status (BAZ)										
Thinness (<-2sd)	12	895	5.8	3.44	9.78	16	1072	7.0	2.32	19.28
Normal (≥-2sd - ≤+1sd)	134	9379	9.2	6.53	12.79	242	13830	13.6	5.23	30.82
Overweight (>+1sd - ≤+2sd)	40	2678	9.7	6.07	15.10	71	4067	14.7	5.19	35.24
Obese (>+2sd)	21	1674	6.4	3.37	11.87	55	3350	12.8	4.47	31.63
Height-for-age status (HAZ)										
Stunting (<-2sd)	8	568	4.9	2.40	9.74	41	2372	20.5	6.27	49.76
Normal (≥-2sd)	199	14058	8.8	6.44	11.94	342	19903	12.5	4.78	28.81

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
Pulau Pinang	83	6379	3.7	2.36	5.82
Locality of school					
Urban	55	3529	4.0	2.61	6.21
Rural	28	2851	3.4	1.42	7.86
Sex					
Boys	52	4263	5.0	2.81	8.72
Girls	31	2116	2.5	1.40	4.28
Ethnicity					
Malay	28	2198	2.2	1.24	4.03
Chinese	41	2694	5.9	3.46	9.88
Indian	14	1488	5.8	1.71	17.87
Bumiputera Sabah					
Bumiputera Sarawak					
Others					
School level					
Primary school	31	2988	4.7	2.01	10.79
Secondary school	52	3391	3.1	2.19	4.45
Class					
Standard 4	5	509	2.4	0.98	5.84
Standard 5	5	611	3.0	1.12	7.52
Standard 6	21	1869	8.8	2.64	25.69
Form 1	6	393	1.7	0.71	4.03
Form 2	9	534	2.5	1.48	4.25
Form 3	18	1057	5.1	3.19	8.18
Form 4	11	634	3.0	1.30	6.68
Form 5	8	772	3.5	1.78	6.66
School session					
Morning session	48	3385	3.4	2.03	5.60
Evening session	10	607	2.7	1.49	4.78
Morning and evening session	25	2387	4.9	2.04	11.41
BMI-for-age status (BAZ)					
Thinness (<-2sd)	7	619	4.0	2.02	7.92
Normal (≥-2sd - ≤+1sd)	45	3465	3.4	2.11	5.42
Overweight (>+1sd - ≤+2sd)	15	1106	4.0	2.25	7.02
Obese (>+2sd)	16	1190	4.6	1.80	11.06
Height-for-age status (HAZ)					
Stunting (<-2sd)	7	716	6.2	2.21	16.11
Normal (≥-2sd)	76	5663	3.5	2.27	5.50

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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	
Pulau Pinang	72	5316	8.6	6.97	10.61	396	28851	46.8	41.51	52.08
Locality of school										
Urban	35	2200	8.4	6.18	11.27	176	10638	40.5	31.17	50.64
Rural	37	3116	8.8	6.59	11.63	220	18213	51.4	47.41	55.31
Sex										
Boys	41	3270	10.3	7.39	14.19	159	12543	39.5	33.93	45.42
Girls	31	2046	6.8	4.60	10.02	237	16308	54.4	47.74	60.94
Ethnicity										
Malay	53	3984	8.7	6.76	11.04	326	23674	51.5	48.15	54.83
Chinese	8	574	7.3	3.59	14.24	31	2141	27.2	15.90	42.40
Indian	11	758	10.4	5.40	19.02	37	2773	38.0	29.44	47.34
Bumiputera Sabah										
Bumiputera Sarawak						1	181	69.7	9.95	97.96
Others						1	81	42.6	3.43	93.92
School level										
Primary school	27	2378	9.4	7.38	11.84	151	12566	49.6	46.89	52.24
Secondary school	45	2938	8.1	5.95	10.90	245	16285	44.8	36.46	53.45
Class										
Standard 4	12	850	10.0	6.15	15.75	56	3626	42.5	32.00	53.71
Standard 5	8	919	9.8	5.10	17.89	55	5314	56.5	52.74	60.13
Standard 6	7	609	8.2	5.64	11.82	40	3625	48.9	42.93	54.96
Form 1	7	489	6.1	2.45	14.27	50	3710	46.1	33.44	59.31
Form 2	13	786	10.4	4.88	20.62	51	3144	41.4	31.99	51.46
Form 3	11	640	9.4	5.75	14.88	63	3488	51.0	41.84	60.05
Form 4	9	564	7.5	4.84	11.57	47	2980	39.9	29.61	51.09
Form 5	5	459	7.2	2.10	21.80	34	2963	46.4	34.41	58.78
School session										
Morning session	43	3231	9.7	7.85	11.89	231	16604	49.8	43.22	56.33
Evening session	13	784	9.5	4.67	18.49	41	2555	31.1	20.56	43.98
Morning and evening session	16	1301	6.5	3.98	10.45	124	9691	48.4	41.20	55.68
BMI-for-age status (BAZ)										
Thinness (<-2sd)	10	780	16.2	7.85	30.44	22	1754	36.4	26.51	47.58
Normal (≥-2sd - ≤+1sd)	46	3351	9.7	7.18	13.03	224	16100	46.7	41.97	51.48
Overweight (>+1sd - ≤+2sd)	7	530	4.6	2.10	9.79	85	6128	53.2	43.31	62.88
Obese (>+2sd)	9	655	6.1	3.42	10.51	65	4869	45.0	34.77	55.75
Height-for-age status (HAZ)										
Stunting (<-2sd)	7	564	11.5	5.54	22.50	31	2283	46.8	32.57	61.52
Normal (≥-2sd)	65	4752	8.4	6.76	10.33	365	26568	46.8	41.41	52.27

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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	
Pulau Pinang	153	10953	17.8	14.49	21.56	105	7495	12.1	9.10	16.04
Locality of school										
Urban	81	5114	19.5	13.81	26.78	61	3880	14.8	9.74	21.81
Rural	72	5839	16.5	12.96	20.70	44	3615	10.2	7.32	14.04
Sex										
Boys	86	6507	20.5	15.71	26.31	47	3475	11.0	7.80	15.16
Girls	67	4445	14.8	11.05	19.63	58	4020	13.4	9.50	18.62
Ethnicity										
Malay	106	7641	16.6	13.64	20.09	63	4445	9.7	7.67	12.12
Chinese	30	1989	25.2	13.71	41.77	21	1390	17.6	9.41	30.64
Indian	14	1094	15.0	7.73	27.06	20	1608	22.0	13.40	33.99
Bumiputera Sabah	1	93	100.0	100.00	100.00					
Bumiputera Sarawak	1	79	30.3	2.04	90.05					
Others	1	57	30.2	6.36	73.42	1	52	27.2	5.96	68.82
School level										
Primary school	56	4490	17.7	13.18	23.38	30	2562	10.1	6.44	15.52
Secondary school	97	6462	17.8	13.45	23.13	75	4933	13.6	9.77	18.54
Class										
Standard 4	27	1954	22.9	16.25	31.25	11	741	8.7	3.33	20.82
Standard 5	17	1401	14.9	7.89	26.33	6	480	5.1	1.55	15.49
Standard 6	12	1135	15.3	11.05	20.85	13	1341	18.1	10.73	28.89
Form 1	22	1546	19.2	10.99	31.43	10	752	9.3	4.81	17.37
Form 2	27	1665	21.9	16.84	28.01	17	1084	14.3	9.04	21.78
Form 3	18	1000	14.6	9.16	22.52	17	928	13.6	7.50	23.29
Form 4	15	912	12.2	7.74	18.71	23	1508	20.2	13.74	28.61
Form 5	15	1339	21.0	12.26	33.47	8	662	10.4	5.47	18.74
School session										
Morning session	79	5590	16.8	12.84	21.57	53	3478	10.4	6.62	16.04
Evening session	28	1833	22.3	13.38	34.75	19	1283	15.6	9.66	24.22
Morning and evening session	45	3437	17.2	12.94	22.42	33	2734	13.7	9.98	18.40
BMI-for-age status (BAZ)										
Thinness (<-2sd)	13	1024	21.2	13.23	32.29	4	252	5.2	1.42	17.38
Normal (≥-2sd - ≤+1sd)	87	6102	17.7	13.65	22.63	55	3970	11.5	8.34	15.69
Overweight (>+1sd - ≤+2sd)	30	2172	18.9	13.82	25.20	22	1576	13.7	8.94	20.38
Obese (>+2sd)	23	1655	15.3	10.20	22.33	23	1622	15.0	9.26	23.38
Height-for-age status (HAZ)										
Stunting (<-2sd)	14	991	20.3	12.39	31.47	3	206	4.2	1.02	15.86
Normal (≥-2sd)	138	9910	17.5	14.26	21.20	102	7289	12.8	9.64	16.91

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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	
Pulau Pinang	67	5052	8.2	6.09	10.91	58	4034	6.5	4.10	10.27
Locality of school										
Urban	32	1907	7.3	5.34	9.82	36	2505	9.5	6.29	14.22
Rural	35	3145	8.9	5.82	13.29	22	1529	4.3	2.01	9.01
Sex										
Boys	46	3550	11.2	8.45	14.68	31	2386	7.5	4.43	12.49
Girls	21	1502	5.0	3.18	7.80	27	1647	5.5	2.83	10.41
Ethnicity										
Malay	53	4066	8.8	6.34	12.20	32	2165	4.7	2.64	8.25
Chinese	7	411	5.2	3.06	8.75	18	1374	17.4	10.51	27.53
Indian	7	575	7.9	4.90	12.41	8	494	6.8	3.46	12.80
Bumiputera Sabah										
Bumiputera Sarawak										
Others										
School level										
Primary school	32	2776	10.9	8.34	14.24	8	580	2.3	1.33	3.93
Secondary school	35	2276	6.3	4.37	8.90	50	3453	9.5	6.43	13.81
Class										
Standard 4	12	938	11.0	7.67	15.51	6	424	5.0	3.35	7.31
Standard 5	10	1139	12.1	8.06	17.79	2	157	1.7	0.39	6.84
Standard 6	10	699	9.4	3.30	24.13					
Form 1	5	337	4.2	1.76	9.63	16	1212	15.1	8.94	24.24
Form 2	6	371	4.9	2.36	9.80	9	547	7.2	3.51	14.21
Form 3	7	412	6.0	2.69	12.90	6	375	5.5	1.67	16.46
Form 4	13	784	10.5	6.35	16.84	13	728	9.7	5.44	16.82
Form 5	4	373	5.8	2.01	15.83	6	592	9.3	3.36	23.13
School session										
Morning session	41	2858	8.6	5.96	12.17	23	1601	4.8	2.53	8.90
Evening session	8	540	6.6	3.07	13.47	17	1229	14.9	10.98	20.02
Morning and evening session	18	1654	8.3	4.94	13.50	18	1204	6.0	2.95	11.86
BMI-for-age status (BAZ)										
Thinness (<-2sd)	9	711	14.8	7.22	27.83	3	299	6.2	2.15	16.62
Normal (≥-2sd - ≤+1sd)	37	2850	8.3	5.60	12.03	30	2105	6.1	3.69	9.95
Overweight (>+1sd - ≤+2sd)	6	460	4.0	1.87	8.36	10	649	5.6	2.78	11.10
Obese (>+2sd)	15	1030	9.5	5.15	16.97	15	981	9.1	4.23	18.40
Height-for-age status (HAZ)										
Stunting (<-2sd)	6	540	11.1	5.55	20.85	4	298	6.1	2.29	15.24
Normal (≥-2sd)	61	4512	7.9	6.01	10.43	54	3736	6.6	4.13	10.33

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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	
Pulau Pinang	1582	108983	61.4	51.96	70.07	883	63537	35.8	27.46	45.11
Locality of school										
Urban	1044	66461	73.4	61.44	82.62	359	21907	24.2	15.52	35.63
Rural	538	42522	49.0	41.02	56.94	524	41630	47.9	40.02	55.93
Sex										
Boys	772	56672	63.9	52.41	74.04	380	29370	33.1	23.39	44.57
Girls	810	52311	58.9	49.98	67.26	503	34167	38.5	30.56	47.04
Ethnicity										
Malay	724	49156	48.2	42.43	54.07	705	50199	49.2	44.19	54.31
Chinese	632	41738	89.1	84.69	92.30	62	4216	9.0	6.31	12.68
Indian	204	16408	61.9	52.86	70.10	111	8660	32.6	24.28	42.29
Bumiputera Sabah	5	357	79.4	24.56	97.85	1	93	20.6	2.15	75.44
Bumiputera Sarawak	1	79	25.0	2.08	83.91	2	237	75.0	16.09	97.92
Others	16	1245	90.4	64.65	97.99	2	132	9.6	2.01	35.35
School level										
Primary school	451	36360	55.9	42.65	68.40	313	26405	40.6	27.75	54.90
Secondary school	1131	72623	64.6	52.44	75.10	570	37132	33.0	23.20	44.58
Class										
Standard 4	168	11955	54.9	42.57	66.68	132	9344	42.9	31.28	55.39
Standard 5	120	11232	52.3	33.12	70.89	103	9723	45.3	26.24	65.87
Standard 6	163	13173	60.5	45.54	73.64	78	7338	33.7	21.95	47.82
Form 1	225	15626	66.3	49.33	79.92	102	7488	31.8	18.91	48.19
Form 2	254	14518	65.2	51.40	76.82	116	7168	32.2	22.27	44.02
Form 3	247	13401	60.7	47.80	72.26	150	8186	37.1	25.60	50.24
Form 4	223	12715	58.5	43.39	72.24	129	8192	37.7	25.08	52.28
Form 5	182	16364	71.7	56.74	83.08	73	6097	26.7	16.35	40.51
School session										
Morning session	928	64022	61.9	50.51	72.14	526	36829	35.6	26.01	46.53
Evening session	270	17208	72.1	56.11	83.87	93	6123	25.6	14.70	40.82
Morning and evening session	384	27752	55.7	49.52	61.63	262	20417	40.9	33.97	48.31
BMI-for-age status (BAZ)										
Thinness (<-2sd)	143	10508	66.0	52.67	77.21	65	5291	33.2	22.11	46.61
Normal (≥-2sd - ≤+1sd)	987	66647	63.4	53.87	71.90	502	36163	34.4	26.04	43.79
Overweight (>+1sd - ≤+2sd)	245	17009	58.5	46.25	69.86	155	10584	36.4	26.39	47.81
Obese (>+2sd)	205	14678	54.2	45.30	62.87	160	11422	42.2	33.68	51.19
Height-for-age status (HAZ)										
Stunting (<-2sd)	89	6601	55.2	44.87	65.03	74	5259	44.0	33.91	54.51
Normal (≥-2sd)	1492	102315	61.9	52.11	70.78	807	58181	35.2	26.69	44.75

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	
Pulau Pinang	67	4947	2.8	1.96	3.95
Locality of school					
Urban	36	2239	2.5	1.66	3.67
Rural	31	2708	3.1	1.80	5.35
Sex					
Boys	34	2607	2.9	1.80	4.76
Girls	33	2340	2.6	1.82	3.79
Ethnicity					
Malay	37	2579	2.5	1.62	3.93
Chinese	13	909	1.9	0.87	4.28
Indian	17	1458	5.5	3.47	8.60
Bumiputera Sabah					
Bumiputera Sarawak					
Others					
School level					
Primary school	28	2256	3.5	2.07	5.76
Secondary school	39	2691	2.4	1.49	3.83
Class					
Standard 4	9	472	2.2	0.89	5.21
Standard 5	6	504	2.3	1.30	4.19
Standard 6	13	1280	5.9	2.69	12.37
Form 1	6	451	1.9	0.69	5.17
Form 2	9	587	2.6	0.94	7.13
Form 3	8	490	2.2	0.90	5.39
Form 4	13	812	3.7	2.48	5.60
Form 5	3	351	1.5	0.37	6.13
School session					
Morning session	39	2561	2.5	1.63	3.74
Evening session	8	552	2.3	1.08	4.89
Morning and evening session	19	1690	3.4	1.86	6.11
BMI-for-age status (BAZ)					
Thinness (<-2sd)	2	120	0.8	0.17	3.27
Normal (≥-2sd - ≤+1sd)	31	2392	2.3	1.35	3.82
Overweight (>+1sd - ≤+2sd)	20	1461	5.0	2.89	8.62
Obese (>+2sd)	14	973	3.6	1.96	6.51
Height-for-age status (HAZ)					
Stunting (<-2sd)	1	106	0.9	0.10	7.13
Normal (≥-2sd)	66	4841	2.9	2.04	4.19

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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
Pulau Pinang	1608	116084	67.8	57.19	76.78	374	27128	15.8	12.93	19.25
Locality of school										
Urban	1037	65847	74.9	71.41	78.15	246	15494	17.6	14.69	21.01
Rural	571	50237	60.2	40.21	77.30	128	11634	13.9	9.26	20.47
Sex										
Boys	737	56231	65.7	56.15	74.06	223	16863	19.7	15.60	24.54
Girls	871	59853	69.9	56.79	80.36	151	10265	12.0	9.65	14.79
Ethnicity										
Malay	809	59067	59.9	43.95	74.06	192	14812	15.0	11.00	20.20
Chinese	514	34077	74.5	71.84	77.05	148	9741	21.3	17.96	25.08
Indian	260	20917	84.0	77.75	88.76	33	2509	10.1	7.90	12.78
Bumiputera Sabah	4	331	73.6	41.34	91.69	1	66	14.6	2.91	49.38
Bumiputera Sarawak	3	316	100.0	0.00	100.00					
Others	18	1377	100.0	100.00	100.00					
School level										
Primary school	578	47973	77.6	72.60	81.86	121	10567	17.1	12.91	22.28
Secondary school	1030	68111	62.2	47.39	75.07	253	16561	15.1	11.53	19.61
Class										
Standard 4	219	16043	76.9	69.69	82.82	43	3097	14.8	12.77	17.19
Standard 5	164	15049	73.3	62.38	81.96	44	4511	22.0	14.46	31.94
Standard 6	195	16881	82.6	76.11	87.54	34	2958	14.5	9.52	21.38
Form 1	184	13133	57.4	39.81	73.26	44	3345	14.6	10.91	19.31
Form 2	220	13304	61.3	43.67	76.46	42	2487	11.5	7.45	17.26
Form 3	229	12846	59.5	41.24	75.48	55	3047	14.1	9.99	19.58
Form 4	232	14200	67.9	55.30	78.37	72	4041	19.3	14.26	25.66
Form 5	165	14628	65.3	47.36	79.76	40	3641	16.3	10.51	24.29
School session										
Morning session	985	70159	70.0	61.78	77.13	229	15996	16.0	13.25	19.10
Evening session	277	17796	76.7	70.64	81.76	65	4191	18.1	14.24	22.62
Morning and evening session	345	28036	58.8	39.58	75.60	79	6865	14.4	8.59	23.11
BMI-for-age status (BAZ)										
Thinness (<-2sd)	157	11692	74.5	64.82	82.29	29	2454	15.6	9.80	24.04
Normal (≥-2sd - ≤+1sd)	963	68735	67.4	56.85	76.50	223	15893	15.6	13.00	18.59
Overweight (>+1sd - ≤+2sd)	248	17862	65.1	51.73	76.41	67	4752	17.3	12.54	23.41
Obese (>+2sd)	238	17655	67.8	54.29	78.92	54	3953	15.2	10.42	21.62
Height-for-age status (HAZ)										
Stunting (<-2sd)	97	7561	64.1	44.27	80.02	17	1210	10.3	6.19	16.52
Normal (≥-2sd)	1510	108456	68.1	58.02	76.67	357	25918	16.3	13.21	19.86

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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	
Pulau Pinang	367	21286	12.4	4.91	28.04	99	6809	4.0	2.76	5.70
Locality of school										
Urban	65	3454	3.9	1.34	11.01	46	3083	3.5	2.14	5.69
Rural	302	17831	21.4	7.04	49.40	53	3726	4.5	2.62	7.52
Sex										
Boys	132	8611	10.1	3.89	23.58	55	3933	4.6	2.76	7.54
Girls	235	12674	14.8	5.77	33.01	44	2876	3.4	2.20	5.10
Ethnicity										
Malay	357	20673	21.0	8.39	43.50	60	3993	4.1	2.42	6.70
Chinese	3	174	0.4	0.16	0.88	25	1730	3.8	1.91	7.36
Indian	6	386	1.6	0.51	4.60	14	1087	4.4	2.51	7.50
Bumiputera Sabah	1	53	11.8	1.14	60.70					
Bumiputera Sarawak										
Others										
School level										
Primary school	37	1910	3.1	0.62	13.91	16	1393	2.3	1.39	3.63
Secondary school	330	19375	17.7	6.71	39.13	83	5416	4.9	3.34	7.27
Class										
Standard 4	22	991	4.8	0.79	23.86	9	731	3.5	1.99	6.09
Standard 5	7	513	2.5	0.66	9.01	4	459	2.2	1.15	4.29
Standard 6	8	406	2.0	0.33	11.04	3	203	1.0	0.24	4.09
Form 1	72	4726	20.7	8.14	43.31	23	1684	7.4	4.11	12.83
Form 2	100	5408	24.9	9.92	50.07	8	487	2.2	1.16	4.32
Form 3	88	4354	20.2	7.41	44.38	25	1340	6.2	3.72	10.18
Form 4	31	1717	8.2	2.18	26.45	17	949	4.5	2.29	8.81
Form 5	39	3171	14.2	3.51	42.77	10	955	4.3	2.09	8.52
School session										
Morning session	181	10497	10.5	4.38	23.00	50	3555	3.5	2.35	5.32
Evening session	4	251	1.1	0.40	2.90	15	976	4.2	2.27	7.65
Morning and evening session	182	10537	22.1	8.05	47.86	34	2279	4.8	2.32	9.59
BMI-for-age status (BAZ)										
Thinness (<-2sd)	12	720	4.6	1.45	13.61	9	822	5.2	2.63	10.17
Normal (≥-2sd - ≤+1sd)	234	13465	13.2	5.30	29.27	56	3832	3.8	2.67	5.27
Overweight (>+1sd - ≤+2sd)	64	3635	13.2	4.76	31.77	19	1201	4.4	1.98	9.40
Obese (>+2sd)	57	3466	13.3	5.26	29.83	15	954	3.7	1.74	7.55
Height-for-age status (HAZ)										
Stunting (<-2sd)	39	2344	19.9	7.08	44.65	9	685	5.8	2.41	13.35
Normal (≥-2sd)	326	18845	11.8	4.68	26.80	90	6124	3.8	2.62	5.60

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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
Pulau Pinang	77	5668	9.7	7.17	12.89	393	27778	47.3	41.74	52.96
Locality of school										
Urban	37	2187	10.6	7.05	15.63	140	8174	39.6	30.74	49.19
Rural	40	3481	9.1	6.02	13.66	253	19605	51.5	45.50	57.48
Sex										
Boys	50	3602	13.0	9.80	17.02	156	11950	43.1	36.17	50.29
Girls	27	2066	6.7	4.14	10.58	237	15829	51.1	45.86	56.33
Ethnicity										
Malay	67	4905	10.6	7.81	14.12	342	24066	51.8	47.39	56.21
Chinese	4	295	6.7	2.91	14.66	17	1169	26.5	19.45	34.94
Indian	6	468	6.3	2.71	13.86	31	2215	29.7	19.45	42.49
Bumiputera Sabah						1	93	100.0	100.00	100.00
Bumiputera Sarawak						2	237	100.0	100.00	100.00
Others										
School level										
Primary school	37	2954	12.3	9.69	15.47	147	12059	50.2	42.94	57.42
Secondary school	40	2714	7.8	4.88	12.32	246	15719	45.3	37.89	53.00
Class										
Standard 4	18	1405	18.2	10.59	29.39	56	3719	48.1	35.86	60.56
Standard 5	12	1032	11.3	7.63	16.54	59	5602	61.6	57.10	65.92
Standard 6	7	517	7.2	3.77	13.25	32	2737	38.0	26.40	51.16
Form 1	5	385	5.7	2.09	14.63	45	3459	51.3	40.47	62.01
Form 2	12	829	11.7	4.38	27.89	59	3553	50.3	36.87	63.73
Form 3	10	618	8.4	4.70	14.70	64	3379	46.2	32.87	60.07
Form 4	11	688	8.8	4.41	16.90	52	3248	41.7	34.92	48.77
Form 5	2	195	3.4	0.77	13.54	26	2081	36.1	23.21	51.39
School session										
Morning session	54	3910	11.5	8.71	15.11	229	15827	46.7	40.63	52.81
Evening session	8	506	9.4	4.97	17.01	31	2044	37.9	28.22	48.58
Morning and evening session	15	1252	6.6	3.78	11.16	132	9815	51.4	40.80	61.94
BMI-for-age status (BAZ)										
Thinness (<-2sd)	6	456	9.9	3.89	22.91	32	2559	55.5	40.38	69.64
Normal (≥-2sd - ≤+1sd)	46	3442	10.4	7.03	15.18	223	15699	47.5	41.10	54.03
Overweight (>+1sd - ≤+2sd)	14	1043	10.1	5.16	18.80	72	5003	48.4	36.50	60.51
Obese (>+2sd)	10	651	6.1	2.75	13.06	66	4517	42.4	34.22	51.07
Height-for-age status (HAZ)										
Stunting (<-2sd)	5	328	6.9	2.46	17.83	38	2612	55.0	38.29	70.59
Normal (≥-2sd)	72	5341	9.9	7.29	13.36	354	25121	46.6	40.95	52.44

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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
Pulau Pinang	86	6500	11.1	8.77	13.89	183	13353	22.7	18.33	27.87
Locality of school										
Urban	43	2810	13.6	10.00	18.27	84	5397	26.1	19.62	33.92
Rural	43	3689	9.7	7.17	12.98	99	7956	20.9	15.57	27.47
Sex										
Boys	40	3157	11.4	7.83	16.26	70	5466	19.7	15.14	25.24
Girls	46	3343	10.8	7.71	14.91	113	7887	25.5	19.76	32.16
Ethnicity										
Malay	59	4517	9.7	7.38	12.70	128	9172	19.7	15.55	24.75
Chinese	11	654	14.8	7.99	25.86	19	1291	29.2	15.60	48.02
Indian	16	1329	17.8	12.11	25.44	35	2838	38.1	28.10	49.13
Bumiputera Sabah										
Bumiputera Sarawak										
Others	1	52	100.0	100.00	100.00					
School level										
Primary school	35	2992	12.5	10.50	14.71	44	4086	17.0	11.35	24.69
Secondary school	51	3508	10.1	6.83	14.74	139	9267	26.7	22.76	31.10
Class										
Standard 4	15	991	12.8	5.10	28.68	12	863	11.2	6.71	17.97
Standard 5	13	1275	14.0	11.66	16.76	6	524	5.8	3.98	8.27
Standard 6	7	727	10.1	5.99	16.49	26	2700	37.5	24.15	53.03
Form 1	12	882	13.1	6.85	23.54	16	1182	17.5	11.33	26.14
Form 2	10	607	8.6	3.26	20.82	24	1524	21.6	15.22	29.67
Form 3	9	512	7.0	3.25	14.45	39	2156	29.5	19.02	42.62
Form 4	10	597	7.7	3.37	16.48	37	2468	31.7	22.18	42.96
Form 5	10	909	15.8	7.00	31.81	23	1937	33.6	23.54	45.46
School session										
Morning session	57	4157	12.3	9.11	16.31	108	7443	22.0	16.23	28.99
Evening session	12	813	15.1	6.18	32.31	21	1444	26.7	16.72	39.91
Morning and evening session	17	1530	8.0	5.29	11.98	53	4390	23.0	15.79	32.26
BMI-for-age status (BAZ)										
Thinness (<-2sd)	6	503	10.9	5.49	20.51	8	566	12.3	4.60	28.92
Normal (≥-2sd - ≤+1sd)	49	3680	11.1	8.52	14.44	92	6915	20.9	16.07	26.79
Overweight (>+1sd - ≤+2sd)	15	1126	10.9	6.79	17.02	40	2485	24.0	16.03	34.43
Obese (>+2sd)	16	1191	11.2	6.08	19.69	43	3386	31.8	23.74	41.13
Height-for-age status (HAZ)										
Stunting (<-2sd)	6	489	10.3	4.23	22.97	12	819	17.2	9.54	29.16
Normal (≥-2sd)	79	5959	11.1	8.71	13.96	171	12534	23.3	18.77	28.48

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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
Pulau Pinang	21	1732	3.0	1.73	4.98	52	3671	6.3	4.28	9.04
Locality of school										
Urban	9	496	2.4	1.27	4.52	23	1578	7.6	4.15	13.66
Rural	12	1236	3.2	1.63	6.35	29	2093	5.5	3.48	8.57
Sex										
Boys	16	1482	5.3	2.77	10.05	25	2075	7.5	4.51	12.16
Girls	5	250	0.8	0.26	2.44	27	1596	5.2	3.14	8.35
Ethnicity										
Malay	16	1274	2.7	1.45	5.14	37	2516	5.4	3.62	8.03
Chinese	2	142	3.2	0.95	10.30	11	863	19.6	9.01	37.37
Indian	3	317	4.2	1.16	14.37	4	292	3.9	1.51	9.74
Bumiputera Sabah										
Bumiputera Sarawak										
Others										
School level										
Primary school	11	1106	4.6	2.62	7.96	11	833	3.5	1.88	6.32
Secondary school	10	626	1.8	0.84	3.84	41	2838	8.2	5.86	11.31
Class										
Standard 4	4	269	3.5	1.23	9.43	7	487	6.3	4.50	8.72
Standard 5	4	495	5.4	2.20	12.82	2	167	1.8	0.27	11.42
Standard 6	3	342	4.8	1.61	13.20	2	180	2.5	0.45	12.67
Form 1	2	111	1.6	0.43	6.09	10	723	10.7	5.13	21.07
Form 2	1	53	0.7	0.08	6.52	8	494	7.0	3.33	14.09
Form 3	3	168	2.3	0.75	6.78	8	484	6.6	3.24	13.02
Form 4	3	183	2.3	0.92	5.82	10	610	7.8	4.02	14.68
Form 5	1	113	2.0	0.29	12.15	5	527	9.1	3.08	24.18
School session										
Morning session	10	598	1.8	0.96	3.22	29	1975	5.8	3.96	8.48
Evening session	2	115	2.1	0.51	8.51	7	476	8.8	4.82	15.59
Morning and evening session	8	876	4.6	1.97	10.30	16	1221	6.4	3.15	12.55
BMI-for-age status (BAZ)										
Thinness (<-2sd)	2	157	3.4	0.91	11.86	4	371	8.1	3.09	19.38
Normal (≥-2sd - ≤+1sd)	12	1156	3.5	1.59	7.53	29	2142	6.5	4.45	9.35
Overweight (>+1sd - ≤+2sd)	1	51	0.5	0.06	3.97	10	626	6.1	2.59	13.55
Obese (>+2sd)	6	369	3.5	1.47	7.95	9	532	5.0	2.65	9.22
Height-for-age status (HAZ)										
Stunting (<-2sd)	2	251	5.3	1.28	19.32	4	254	5.3	1.52	17.12
Normal (≥-2sd)	19	1482	2.8	1.59	4.72	48	3417	6.3	4.32	9.22

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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	
Pulau Pinang	1627	113706	63.8	57.77	69.36	829	58443	32.8	27.65	38.35
Locality of school										
Urban	989	61319	67.2	57.81	75.40	399	25878	28.4	21.32	36.65
Rural	638	52387	60.2	53.18	66.76	430	32565	37.4	31.43	43.77
Sex										
Boys	783	58102	65.1	58.26	71.39	367	27705	31.0	24.67	38.23
Girls	844	55604	62.4	55.45	68.91	462	30738	34.5	29.15	40.29
Ethnicity										
Malay	883	61476	60.1	54.08	65.85	551	38214	37.4	32.38	42.64
Chinese	529	34658	73.3	65.94	79.49	150	10277	21.7	15.83	29.05
Indian	192	15720	59.1	42.32	74.02	124	9662	36.3	24.01	50.76
Bumiputera Sabah	4	298	66.4	19.56	94.13	2	151	33.6	5.87	80.44
Bumiputera Sarawak	3	316	100.0	0.00	100.00					
Others	16	1238	89.9	62.90	97.91	2	139	10.1	2.09	37.10
School level										
Primary school	556	44963	68.7	61.12	75.36	227	19166	29.3	22.52	37.09
Secondary school	1071	68743	60.9	52.93	68.36	602	39277	34.8	28.04	42.25
Class										
Standard 4	209	14307	64.8	56.89	72.04	95	6995	31.7	24.69	39.65
Standard 5	153	14553	67.5	55.63	77.55	72	6482	30.1	21.26	40.67
Standard 6	194	16103	73.7	62.29	82.60	60	5689	26.0	16.81	38.00
Form 1	225	16052	67.8	57.16	76.90	98	6840	28.9	21.06	38.24
Form 2	218	12619	56.3	47.16	65.11	135	8073	36.0	29.36	43.32
Form 3	240	13043	58.7	50.00	66.94	152	8311	37.4	28.97	46.71
Form 4	225	13048	59.9	48.32	70.56	129	8001	36.8	26.54	48.33
Form 5	163	13981	61.3	45.71	74.86	88	8052	35.3	23.47	49.25
School session										
Morning session	992	67833	65.3	58.11	71.87	470	33292	32.1	25.57	39.32
Evening session	218	14266	59.2	48.72	68.97	127	8015	33.3	25.99	41.48
Morning and evening session	417	31606	63.1	55.91	69.82	230	16899	33.8	27.83	40.25
BMI-for-age status (BAZ)										
Thinness (<-2sd)	145	11088	68.9	58.67	77.61	62	4698	29.2	20.99	39.04
Normal (≥-2sd - ≤+1sd)	984	67681	64.1	57.68	69.97	477	33298	31.5	26.29	37.25
Overweight (>+1sd - ≤+2sd)	258	17917	61.4	51.11	70.84	156	10713	36.7	27.80	46.70
Obese (>+2sd)	239	16953	62.3	55.25	68.95	133	9661	35.5	28.87	42.79
Height-for-age status (HAZ)										
Stunting (<-2sd)	102	7736	64.7	50.32	76.76	61	4175	34.9	23.01	49.00
Normal (≥-2sd)	1522	105806	63.7	57.64	69.29	768	54268	32.7	27.47	38.31

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	
Pulau Pinang	89	6166	3.5	2.40	4.96
Locality of school					
Urban	61	4043	4.4	2.78	7.00
Rural	28	2123	2.4	1.68	3.52
Sex					
Boys	45	3429	3.8	2.73	5.38
Girls	44	2738	3.1	1.62	5.76
Ethnicity					
Malay	37	2579	2.5	1.67	3.78
Chinese	35	2376	5.0	3.20	7.81
Indian	17	1211	4.6	2.38	8.54
Bumiputera Sabah					
Bumiputera Sarawak					
Others					
School level					
Primary school	16	1337	2.0	1.30	3.18
Secondary school	73	4829	4.3	2.89	6.29
Class					
Standard 4	10	764	3.5	1.71	6.87
Standard 5	5	510	2.4	0.91	6.00
Standard 6	1	63	0.3	0.04	2.10
Form 1	11	775	3.3	1.32	7.88
Form 2	28	1703	7.6	4.13	13.60
Form 3	15	856	3.9	2.39	6.15
Form 4	12	716	3.3	1.57	6.75
Form 5	7	779	3.4	1.21	9.25
School session					
Morning session	38	2737	2.6	1.83	3.79
Evening session	29	1802	7.5	4.31	12.68
Morning and evening session	21	1552	3.1	1.74	5.45
BMI-for-age status (BAZ)					
Thinness (<-2sd)	5	300	1.9	0.83	4.15
Normal (≥-2sd - ≤+1sd)	66	4681	4.4	2.99	6.53
Overweight (>+1sd - ≤+2sd)	8	529	1.8	0.70	4.65
Obese (>+2sd)	9	579	2.1	1.04	4.32
Height-for-age status (HAZ)					
Stunting (<-2sd)	1	55	0.5	0.05	3.76
Normal (≥-2sd)	88	6112	3.7	2.56	5.26

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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	
Pulau Pinang	426	29724	17.4	12.99	22.89	1658	117977	69.0	60.31	76.57
Locality of school										
Urban	300	18704	21.6	15.24	29.67	972	61528	71.0	63.47	77.57
Rural	126	11020	13.1	8.41	19.77	686	56449	67.0	50.75	79.95
Sex										
Boys	191	13807	16.2	11.75	21.94	787	59315	69.6	61.78	76.49
Girls	235	15916	18.6	13.62	24.79	871	58662	68.4	58.21	77.11
Ethnicity										
Malay	170	12286	12.4	8.48	17.77	975	69380	70.0	56.18	80.95
Chinese	179	11552	25.9	16.38	38.33	450	30107	67.4	55.07	77.76
Indian	72	5526	22.1	16.32	29.19	212	16760	67.0	60.56	72.85
Bumiputera Sabah						5	397	88.2	39.30	98.86
Bumiputera Sarawak						3	316	100.0	0.00	100.00
Others	5	359	26.1	9.02	55.65	13	1018	73.9	44.35	90.98
School level										
Primary school	198	14965	23.6	15.22	34.71	498	42400	66.9	56.04	76.16
Secondary school	228	14759	13.7	9.95	18.63	1160	75577	70.3	57.57	80.50
Class										
Standard 4	86	5813	27.7	21.28	35.29	175	12645	60.3	49.56	70.21
Standard 5	57	4968	23.7	13.68	37.79	147	14037	66.9	56.40	75.96
Standard 6	55	4184	19.5	10.39	33.54	176	15718	73.2	57.17	84.81
Form 1	45	3231	14.1	8.91	21.64	209	14946	65.3	53.83	75.22
Form 2	47	2775	13.5	9.30	19.29	238	14164	69.1	54.89	80.41
Form 3	55	3088	14.6	9.03	22.86	282	15434	73.2	59.76	83.36
Form 4	47	2797	13.3	8.89	19.49	249	14915	71.0	57.18	81.84
Form 5	34	2868	13.0	7.60	21.39	182	16117	73.2	53.87	86.41
School session										
Morning session	289	19622	19.5	14.01	26.57	980	68868	68.6	60.05	76.00
Evening session	62	4142	18.7	13.80	24.96	253	16131	73.0	68.57	77.05
Morning and evening session	75	5960	12.4	8.48	17.72	424	32885	68.3	52.74	80.61
BMI-for-age status (BAZ)										
Thinness (<-2sd)	45	3255	20.8	15.64	27.24	137	10402	66.6	60.28	72.42
Normal (≥-2sd - ≤+1sd)	244	16781	16.7	12.25	22.34	996	70294	69.9	61.18	77.43
Overweight (>+1sd - ≤+2sd)	64	4310	15.3	10.24	22.12	278	19567	69.3	57.25	79.13
Obese (>+2sd)	72	5310	20.1	14.01	28.03	246	17640	66.8	55.80	76.29
Height-for-age status (HAZ)										
Stunting (<-2sd)	22	1562	13.3	8.70	19.84	99	7301	62.2	44.73	76.99
Normal (≥-2sd)	403	28094	17.7	13.08	23.43	1557	110580	69.5	61.26	76.72

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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
Pulau Pinang	76	5632	3.3	2.36	4.58	228	13553	7.9	2.23	24.51
Locality of school										
Urban	52	3408	3.9	2.47	6.22	35	1680	1.9	0.47	7.70
Rural	24	2224	2.6	1.79	3.88	193	11873	14.1	3.29	44.16
Sex										
Boys	47	3693	4.3	2.73	6.81	86	5701	6.7	1.90	21.00
Girls	29	1939	2.3	1.57	3.25	142	7852	9.2	2.52	28.25
Ethnicity										
Malay	33	2623	2.6	1.76	3.96	224	13229	13.3	3.75	37.84
Chinese	32	2098	4.7	2.32	9.27	1	49	0.1	0.02	0.75
Indian	11	911	3.6	2.34	5.61	2	222	0.9	0.20	3.91
Bumiputera Sabah						1	53	11.8	1.14	60.70
Bumiputera Sarawak										
Others										
School level										
Primary school	23	2061	3.3	2.33	4.51	32	1817	2.9	0.84	9.32
Secondary school	53	3571	3.3	2.04	5.37	196	11735	10.9	2.58	36.14
Class										
Standard 4	5	273	1.3	0.54	3.11	23	1222	5.8	1.74	17.83
Standard 5	12	1231	5.9	3.56	9.53	4	347	1.7	0.49	5.42
Standard 6	6	557	2.6	1.27	5.21	5	248	1.2	0.14	8.96
Form 1	16	1273	5.6	2.66	11.25	50	3188	13.9	4.50	35.72
Form 2	7	398	1.9	0.84	4.44	55	2970	14.5	4.58	37.41
Form 3	9	503	2.4	1.28	4.39	39	1952	9.3	1.85	35.54
Form 4	17	968	4.6	1.93	10.64	25	1369	6.5	0.92	34.46
Form 5	4	429	1.9	0.44	8.11	27	2257	10.2	1.35	48.83
School session										
Morning session	44	3190	3.2	1.95	5.14	106	6207	6.2	1.72	19.82
Evening session	21	1426	6.5	4.01	10.23	2	123	0.6	0.12	2.49
Morning and evening session	10	873	1.8	0.97	3.36	120	7223	15.0	4.20	41.51
BMI-for-age status (BAZ)										
Thinness (<-2sd)	11	997	6.4	3.51	11.34	7	502	3.2	0.79	12.16
Normal (≥-2sd - ≤+1sd)	40	2610	2.6	1.76	3.81	142	8269	8.2	2.52	23.73
Overweight (>+1sd - ≤+2sd)	18	1378	4.9	2.27	10.15	43	2625	9.3	2.29	30.96
Obese (>+2sd)	7	647	2.4	1.03	5.73	36	2157	8.2	1.90	29.05
Height-for-age status (HAZ)										
Stunting (<-2sd)	3	324	2.8	0.90	8.18	30	1981	16.9	4.93	44.27
Normal (≥-2sd)	73	5308	3.3	2.37	4.68	198	11572	7.3	2.04	22.85

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
Pulau Pinang	49	4038	2.4	1.13	4.89
Locality of school					
Urban	19	1309	1.5	0.89	2.56
Rural	30	2729	3.2	1.13	8.93
Sex					
Boys	30	2665	3.1	1.27	7.50
Girls	19	1373	1.6	0.84	3.04
Ethnicity					
Malay	22	1593	1.6	0.90	2.85
Chinese	12	847	1.9	0.86	4.13
Indian	15	1598	6.4	1.69	21.29
Bumiputera Sabah					
Bumiputera Sarawak					
Others					
School level					
Primary school	22	2166	3.4	0.92	11.85
Secondary school	27	1872	1.7	1.04	2.90
Class					
Standard 4	10	1000	4.8	1.09	18.55
Standard 5	4	397	1.9	0.51	6.77
Standard 6	8	769	3.6	0.72	15.95
Form 1	3	253	1.1	0.37	3.26
Form 2	3	196	1.0	0.32	2.83
Form 3	2	116	0.6	0.14	2.13
Form 4	15	946	4.5	2.49	8.00
Form 5	4	362	1.6	0.62	4.27
School session					
Morning session	32	2554	2.5	1.28	4.99
Evening session	4	270	1.2	0.45	3.24
Morning and evening session	13	1214	2.5	0.80	7.64
BMI-for-age status (BAZ)					
Thinness (<-2sd)	5	457	2.9	1.24	6.74
Normal (≥-2sd - ≤+1sd)	32	2572	2.6	1.34	4.84
Overweight (>+1sd - ≤+2sd)	5	371	1.3	0.52	3.29
Obese (>+2sd)	7	639	2.4	0.52	10.60
Height-for-age status (HAZ)					
Stunting (<-2sd)	6	569	4.8	1.22	17.30
Normal (≥-2sd)	43	3469	2.2	1.13	4.18

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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
Pulau Pinang	787	56165	31.5	27.70	35.61	1349	94037	52.8	48.65	56.86
Locality of school										
Urban	406	25502	28.0	23.22	33.30	760	47643	52.3	47.45	57.07
Rural	381	30663	35.2	30.68	40.04	589	46393	53.3	46.55	59.91
Sex										
Boys	384	28774	32.2	27.60	37.21	619	46482	52.0	47.62	56.43
Girls	403	27390	30.8	25.52	36.68	730	47555	53.5	47.71	59.22
Ethnicity										
Malay	486	33790	33.0	29.43	36.85	824	57515	56.2	51.57	60.78
Chinese	164	11109	23.5	20.08	27.26	359	23559	49.8	44.90	54.70
Indian	129	10605	40.1	33.04	47.62	154	11951	45.2	35.06	55.75
Bumiputera Sabah	1	73	16.2	1.62	69.40	3	217	48.2	18.57	79.19
Bumiputera Sarawak	1	79	25.0	2.08	83.91	1	181	57.5	8.78	95.01
Others	6	509	37.0	17.08	62.57	8	613	44.5	27.28	63.10
School level										
Primary school	291	24241	37.1	31.76	42.74	410	33137	50.7	44.55	56.80
Secondary school	496	31924	28.3	24.43	32.52	939	60900	54.0	48.62	59.26
Class										
Standard 4	117	8485	38.6	31.69	46.04	171	11707	53.3	44.71	61.66
Standard 5	84	8026	37.3	28.54	46.88	117	10900	50.6	37.74	63.36
Standard 6	90	7730	35.4	26.80	45.00	122	10530	48.2	40.99	55.45
Form 1	91	6433	27.1	22.28	32.50	189	13462	56.7	46.69	66.17
Form 2	134	7825	35.0	29.43	41.08	180	10645	47.7	41.15	54.24
Form 3	129	7215	32.6	27.11	38.55	215	11497	51.9	45.57	58.18
Form 4	87	5252	24.1	19.15	29.93	203	12077	55.5	48.47	62.29
Form 5	55	5200	22.8	17.04	29.79	152	13219	57.9	48.84	66.55
School session										
Morning session	452	32592	31.4	26.49	36.78	795	54667	52.7	48.61	56.71
Evening session	101	6560	27.3	22.21	33.07	200	12743	53.0	43.08	62.76
Morning and evening session	233	16937	33.8	30.07	37.79	353	26534	53.0	46.86	59.02
BMI-for-age status (BAZ)										
Thinness (<-2sd)	73	5370	33.4	25.53	42.29	115	8952	55.7	49.35	61.78
Normal (≥-2sd - ≤+1sd)	492	34348	32.5	29.09	36.14	803	55559	52.6	48.02	57.12
Overweight (>+1sd - ≤+2sd)	120	8665	29.7	23.71	36.51	224	15332	52.6	46.41	58.67
Obese (>+2sd)	102	7782	28.7	21.70	36.98	204	13977	51.6	42.76	60.37
Height-for-age status (HAZ)										
Stunting (<-2sd)	55	4178	34.9	25.97	45.06	88	6491	54.2	44.74	63.46
Normal (≥-2sd)	732	51987	31.3	27.67	35.19	1258	87382	52.6	48.70	56.51

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
Pulau Pinang	407	27985	15.7	11.88	20.48
Locality of school					
Urban	281	17979	19.7	15.29	25.08
Rural	126	10006	11.5	7.00	18.30
Sex					
Boys	193	14060	15.7	11.37	21.39
Girls	214	13925	15.7	11.59	20.85
Ethnicity					
Malay	161	10988	10.7	7.03	16.07
Chinese	191	12642	26.7	23.69	29.99
Indian	48	3884	14.7	10.90	19.52
Bumiputera Sabah	2	160	35.6	10.62	71.94
Bumiputera Sarawak	1	55	17.5	1.41	75.92
Others	4	255	18.5	5.35	47.85
School level					
Primary school	97	7995	12.2	7.81	18.64
Secondary school	310	19991	17.7	12.89	23.86
Class					
Standard 4	25	1780	8.1	5.26	12.27
Standard 5	29	2620	12.2	6.66	21.17
Standard 6	43	3595	16.5	9.90	26.08
Form 1	55	3853	16.2	8.02	30.08
Form 2	66	3868	17.3	11.58	25.09
Form 3	62	3439	15.5	11.19	21.15
Form 4	76	4437	20.4	14.30	28.21
Form 5	51	4393	19.3	11.78	29.87
School session					
Morning session	252	16510	15.9	11.67	21.32
Evening session	72	4723	19.7	12.27	29.97
Morning and evening session	82	6609	13.2	8.54	19.84
BMI-for-age status (BAZ)					
Thinness (<-2sd)	24	1763	11.0	6.44	18.06
Normal (≥-2sd - ≤+1sd)	232	15741	14.9	11.11	19.69
Overweight (>+1sd - ≤+2sd)	78	5163	17.7	11.98	25.38
Obese (>+2sd)	73	5318	19.6	13.41	27.84
Height-for-age status (HAZ)					
Stunting (<-2sd)	21	1297	10.8	4.89	22.33
Normal (≥-2sd)	386	26688	16.1	12.35	20.65

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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	
Pulau Pinang	1210	88248	59.6	50.74	67.93	296	21298	14.4	11.05	18.54
Locality of school										
Urban	722	45637	63.6	55.97	70.54	176	10638	14.8	11.02	19.63
Rural	488	42611	55.9	40.29	70.47	120	10661	14.0	8.96	21.19
Sex										
Boys	520	40380	54.6	46.19	62.75	182	13485	18.2	13.92	23.52
Girls	690	47868	64.7	53.86	74.15	114	7814	10.6	7.46	14.73
Ethnicity										
Malay	683	49857	55.2	42.66	67.08	179	13423	14.9	10.31	20.95
Chinese	295	19473	57.5	47.81	66.58	73	4484	13.2	7.30	22.80
Indian	219	17741	80.0	76.93	82.73	40	3098	14.0	10.51	18.33
Bumiputera Sabah	1	73	37.0	4.05	89.08	2	124	63.0	10.92	95.95
Bumiputera Sarawak	2	260	100.0	100.00	100.00					
Others	10	844	75.2	45.23	91.80	2	169	15.1	2.93	51.15
School level										
Primary school	455	38463	68.4	62.95	73.46	130	10542	18.8	14.14	24.45
Secondary school	755	49786	54.2	42.03	65.96	166	10756	11.7	8.13	16.60
Class										
Standard 4	167	11975	61.0	54.74	66.93	58	4362	22.2	16.98	28.53
Standard 5	131	12320	67.3	59.26	74.44	44	4137	22.6	18.15	27.76
Standard 6	157	14167	77.6	66.58	85.74	28	2043	11.2	4.46	25.36
Form 1	114	8168	41.7	29.93	54.39	49	3627	18.5	8.96	34.34
Form 2	138	8389	46.3	33.96	59.17	56	3310	18.3	10.60	29.69
Form 3	199	11091	59.4	40.91	75.63	22	1330	7.1	2.69	17.60
Form 4	175	10828	63.2	49.11	75.31	30	1624	9.5	3.34	24.09
Form 5	129	11310	61.9	43.65	77.27	9	865	4.7	1.87	11.46
School session										
Morning session	776	55468	64.4	57.12	71.12	137	10126	11.8	7.39	18.20
Evening session	142	9249	49.2	37.17	61.30	103	6505	34.6	24.68	46.07
Morning and evening session	291	23455	54.5	38.34	69.82	56	4667	10.9	7.06	16.33
BMI-for-age status (BAZ)										
Thinness (<-2sd)	119	8862	63.4	53.91	71.95	28	2330	16.7	11.48	23.56
Normal (≥-2sd - ≤+1sd)	730	52957	59.5	49.89	68.36	163	11450	12.9	9.78	16.73
Overweight (>+1sd - ≤+2sd)	184	13540	58.1	46.33	69.02	47	3383	14.5	9.30	21.96
Obese (>+2sd)	177	12889	60.2	51.12	68.59	57	4059	19.0	13.69	25.64
Height-for-age status (HAZ)										
Stunting (<-2sd)	75	5729	55.7	40.58	69.78	23	2003	19.5	10.03	34.38
Normal (≥-2sd)	1135	82520	60.0	51.19	68.21	272	19244	14.0	10.81	17.93

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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	
Pulau Pinang	203	15177	10.3	7.46	13.94	325	18526	12.5	5.20	27.20
Locality of school										
Urban	139	9477	13.2	8.69	19.55	63	3291	4.6	1.50	13.17
Rural	64	5701	7.5	5.10	10.86	262	15235	20.0	6.79	46.16
Sex										
Boys	130	10112	13.7	9.69	18.94	119	7624	10.3	4.10	23.60
Girls	73	5065	6.8	4.92	9.45	206	10902	14.7	6.08	31.53
Ethnicity										
Malay	87	6940	7.7	5.60	10.45	317	18006	19.9	8.22	40.90
Chinese	106	7600	22.4	16.67	29.46	4	231	0.7	0.16	2.92
Indian	9	581	2.6	1.49	4.57	4	289	1.3	0.51	3.26
Bumiputera Sabah										
Bumiputera Sarawak										
Others	1	57	5.0	0.61	31.59					
School level										
Primary school	45	3937	7.0	4.38	11.02	37	1844	3.3	0.68	14.45
Secondary school	158	11240	12.2	8.47	17.39	288	16682	18.2	7.34	38.36
Class										
Standard 4	21	1532	7.8	3.72	15.63	25	1223	6.2	1.64	20.90
Standard 5	13	1262	6.9	3.78	12.25	5	277	1.5	0.19	10.79
Standard 6	11	1144	6.3	2.94	12.86	7	344	1.9	0.23	13.95
Form 1	26	2013	10.3	6.67	15.46	75	4968	25.3	10.41	49.78
Form 2	26	1568	8.7	5.70	12.94	79	4289	23.7	9.19	48.77
Form 3	23	1342	7.2	4.15	12.17	87	4259	22.8	8.07	49.92
Form 4	46	2676	15.6	10.90	21.87	22	1179	6.9	1.97	21.36
Form 5	37	3642	19.9	10.72	34.01	25	1986	10.9	3.38	29.83
School session										
Morning session	133	9876	11.5	7.96	16.26	147	8208	9.5	4.21	20.18
Evening session	34	2160	11.5	7.64	16.92	5	305	1.6	0.56	4.61
Morning and evening session	36	3142	7.3	4.74	11.11	173	10013	23.3	8.85	48.67
BMI-for-age status (BAZ)										
Thinness (<-2sd)	19	1593	11.4	5.86	21.01	16	1070	7.7	2.90	18.70
Normal (≥-2sd - ≤+1sd)	127	9398	10.6	7.68	14.33	215	12133	13.6	5.60	29.54
Overweight (>+1sd - ≤+2sd)	32	2237	9.6	7.03	12.97	56	3142	13.5	5.27	30.41
Obese (>+2sd)	24	1882	8.8	5.29	14.25	38	2180	10.2	4.48	21.47
Height-for-age status (HAZ)										
Stunting (<-2sd)	6	466	4.5	1.88	10.50	29	1569	15.2	4.97	38.23
Normal (≥-2sd)	196	14644	10.6	7.78	14.41	295	16912	12.3	5.16	26.52

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
Pulau Pinang	72	4739	3.2	2.09	4.88
Locality of school					
Urban	45	2755	3.8	2.49	5.88
Rural	27	1983	2.6	1.21	5.50
Sex					
Boys	34	2360	3.2	2.16	4.70
Girls	38	2379	3.2	1.82	5.60
Ethnicity					
Malay	32	2116	2.3	1.14	4.77
Chinese	33	2100	6.2	3.99	9.50
Indian	6	471	2.1	0.95	4.69
Bumiputera Sabah					
Bumiputera Sarawak					
Others	1	52	4.6	0.61	27.59
School level					
Primary school	19	1411	2.5	1.09	5.68
Secondary school	53	3328	3.6	2.27	5.73
Class					
Standard 4	8	538	2.7	1.20	6.12
Standard 5	2	312	1.7	0.50	5.59
Standard 6	9	561	3.1	0.58	14.72
Form 1	12	835	4.3	1.98	8.91
Form 2	9	549	3.0	1.38	6.56
Form 3	12	635	3.4	1.99	5.77
Form 4	14	832	4.9	2.58	8.93
Form 5	6	477	2.6	0.97	6.84
School session					
Morning session	38	2422	2.8	1.52	5.16
Evening session	9	584	3.1	1.96	4.88
Morning and evening session	25	1733	4.0	2.09	7.63
BMI-for-age status (BAZ)					
Thinness (<-2sd)	2	123	0.9	0.18	4.19
Normal (≥-2sd - ≤+1sd)	48	3132	3.5	2.14	5.73
Overweight (>+1sd - ≤+2sd)	15	1003	4.3	2.20	8.24
Obese (>+2sd)	6	409	1.9	0.67	5.33
Height-for-age status (HAZ)					
Stunting (<-2sd)	5	524	5.1	1.66	14.55
Normal (≥-2sd)	67	4215	3.1	1.90	4.92

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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	
Pulau Pinang	157	11360	6.4	4.87	8.33	1741	122006	68.5	62.97	73.60
Locality of school										
Urban	85	5456	6.0	3.95	9.00	916	57568	63.3	56.20	69.79
Rural	72	5904	6.8	4.84	9.44	825	64438	74.0	67.06	79.96
Sex										
Boys	96	7487	8.4	5.88	11.90	839	62000	69.6	63.41	75.23
Girls	61	3873	4.4	3.18	5.92	902	60007	67.4	60.70	73.47
Ethnicity										
Malay	100	7058	6.9	5.21	9.11	1118	77752	76.1	72.47	79.36
Chinese	34	2232	4.7	2.82	7.79	391	26237	55.5	47.87	62.91
Indian	19	1673	6.3	4.02	9.82	213	16538	62.5	51.08	72.71
Bumiputera Sabah	1	107	23.8	4.25	68.69	5	343	76.2	31.31	95.75
Bumiputera Sarawak						3	316	100.0	0.00	100.00
Others	3	290	21.1	7.42	47.08	11	822	59.7	34.49	80.61
School level										
Primary school	65	5430	8.3	6.77	10.15	538	44118	67.5	60.11	74.10
Secondary school	92	5930	5.3	3.51	7.81	1203	77888	69.1	61.29	75.99
Class										
Standard 4	36	2590	11.8	8.47	16.18	204	13781	62.7	52.41	72.04
Standard 5	17	1673	7.8	5.66	10.57	161	15060	69.9	59.72	78.43
Standard 6	12	1168	5.3	2.45	11.25	173	15278	69.9	57.25	80.12
Form 1	13	1013	4.3	1.89	9.36	216	15449	65.1	51.78	76.34
Form 2	26	1476	6.6	3.61	11.84	268	15858	71.1	63.22	77.95
Form 3	21	1211	5.5	3.33	8.80	300	16335	73.5	65.24	80.46
Form 4	24	1464	6.7	3.72	11.88	251	15051	69.1	60.36	76.74
Form 5	8	766	3.4	1.76	6.39	168	15196	67.0	53.79	78.02
School session										
Morning session	87	6149	5.9	4.52	7.74	1001	69405	66.9	60.51	72.80
Evening session	22	1389	5.8	3.24	10.10	248	15886	66.1	56.58	74.48
Morning and evening session	48	3823	7.6	5.37	10.77	490	36547	73.1	66.36	78.84
BMI-for-age status (BAZ)										
Thinness (<-2sd)	15	1212	7.6	4.15	13.40	145	11240	70.1	63.15	76.28
Normal (≥-2sd - ≤+1sd)	105	7154	6.8	5.02	9.10	1041	71920	68.2	62.41	73.43
Overweight (>+1sd - ≤+2sd)	19	1451	5.0	3.07	7.98	283	19461	66.7	60.19	72.70
Obese (>+2sd)	18	1543	5.7	3.38	9.41	269	19169	70.6	62.85	77.34
Height-for-age status (HAZ)										
Stunting (<-2sd)	12	828	6.9	3.80	12.36	120	8659	72.7	63.90	80.01
Normal (≥-2sd)	145	10533	6.3	4.74	8.45	1618	113184	68.2	62.50	73.39

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	
Pulau Pinang	643	44683	25.1	19.94	31.06
Locality of school					
Urban	445	27978	30.7	23.91	38.55
Rural	198	16704	19.2	13.92	25.86
Sex					
Boys	257	19540	21.9	15.92	29.46
Girls	386	25143	28.2	22.09	35.34
Ethnicity					
Malay	251	17384	17.0	14.70	19.61
Chinese	288	18791	39.8	32.77	47.19
Indian	100	8242	31.2	20.44	44.36
Bumiputera Sabah					
Bumiputera Sarawak					
Others	4	265	19.3	5.53	49.28
School level					
Primary school	194	15815	24.2	17.29	32.77
Secondary school	449	28868	25.6	18.87	33.78
Class					
Standard 4	72	5593	25.5	16.95	36.38
Standard 5	52	4813	22.3	15.27	31.46
Standard 6	70	5410	24.8	12.94	42.13
Form 1	106	7286	30.7	19.28	45.07
Form 2	85	4957	22.2	16.01	30.03
Form 3	86	4663	21.0	15.04	28.53
Form 4	91	5250	24.1	16.00	34.66
Form 5	81	6710	29.6	19.05	42.88
School session					
Morning session	410	28122	27.1	21.30	33.85
Evening session	103	6757	28.1	19.69	38.43
Morning and evening session	129	9660	19.3	13.54	26.78
BMI-for-age status (BAZ)					
Thinness (<-2sd)	51	3577	22.3	15.80	30.55
Normal ($\geq-2sd - \leq+1sd$)	379	26423	25.0	19.53	31.51
Overweight ($>+1sd - \leq+2sd$)	120	8248	28.3	22.76	34.55
Obese ($>+2sd$)	93	6435	23.7	16.65	32.58
Height-for-age status (HAZ)					
Stunting (<-2sd)	31	2426	20.4	13.65	29.26
Normal ($\geq-2sd$)	612	42256	25.5	20.08	31.70

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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	
Pulau Pinang	863	61619	47.3	40.66	54.01	670	48456	37.2	32.38	42.26
Locality of school										
Urban	497	31393	50.7	45.23	56.14	388	24822	40.1	35.91	44.41
Rural	366	30227	44.2	33.20	55.81	282	23633	34.6	26.55	43.56
Sex										
Boys	407	30717	45.3	38.83	51.98	366	27699	40.9	35.70	46.26
Girls	456	30902	49.4	41.75	57.10	304	20756	33.2	27.79	39.07
Ethnicity										
Malay	494	35070	42.3	33.99	51.14	417	30466	36.8	30.04	44.08
Chinese	251	16489	58.9	52.70	64.79	143	10007	35.7	29.62	42.34
Indian	105	9017	51.3	35.23	67.06	104	7534	42.8	29.56	57.24
Bumiputera Sabah	2	165	36.8	11.25	72.79	3	231	51.4	20.50	81.30
Bumiputera Sarawak	2	237	75.0	16.09	97.92	1	79	25.0	2.08	83.91
Others	9	641	57.6	36.72	76.12	2	138	12.4	2.79	41.29
School level										
Primary school	311	25780	54.1	44.56	63.33	224	18577	39.0	31.90	46.55
Secondary school	552	35839	43.4	35.22	51.88	446	29879	36.2	30.15	42.62
Class										
Standard 4	127	9088	58.1	45.66	69.61	78	5143	32.9	26.60	39.84
Standard 5	91	8797	54.9	40.90	68.14	68	6253	39.0	28.16	51.08
Standard 6	93	7895	49.4	37.20	61.59	78	7182	44.9	35.16	55.05
Form 1	111	7838	48.2	37.24	59.33	63	4799	29.5	20.30	40.76
Form 2	123	7293	42.7	32.51	53.61	97	5937	34.8	25.61	45.25
Form 3	129	7112	41.3	32.50	50.60	109	6070	35.2	28.85	42.14
Form 4	117	7089	43.5	34.18	53.27	109	6623	40.6	32.46	49.35
Form 5	72	6507	41.3	28.94	54.76	68	6449	40.9	29.95	52.80
School session										
Morning session	481	33858	45.8	39.57	52.24	418	30017	40.6	35.78	45.69
Evening session	145	9170	54.5	48.03	60.86	102	6590	39.2	33.14	45.57
Morning and evening session	237	18591	47.1	34.98	59.60	148	11680	29.6	21.59	39.10
BMI-for-age status (BAZ)										
Thinness (<-2sd)	77	5915	48.2	38.54	57.93	63	5032	41.0	32.21	50.36
Normal (≥-2sd - ≤+1sd)	524	36894	47.7	40.79	54.76	396	28049	36.3	31.32	41.58
Overweight (>+1sd - ≤+2sd)	133	9188	44.6	35.98	53.54	114	8350	40.5	32.29	49.33
Obese (>+2sd)	128	9546	47.9	39.07	56.92	96	6957	34.9	28.67	41.76
Height-for-age status (HAZ)										
Stunting (<-2sd)	53	3706	40.2	25.05	57.58	46	3670	39.9	23.52	58.81
Normal (≥-2sd)	809	57862	47.8	41.50	54.26	623	44718	37.0	32.71	41.46

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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	
Pulau Pinang	219	13062	10.0	4.28	21.72	106	7171	5.5	3.97	7.58
Locality of school										
Urban	44	2355	3.8	1.20	11.42	53	3355	5.4	3.52	8.24
Rural	175	10708	15.7	5.75	36.09	53	3816	5.6	3.44	8.94
Sex										
Boys	85	5512	8.1	3.17	19.33	55	3839	5.7	3.95	8.07
Girls	134	7550	12.1	5.35	25.03	51	3332	5.3	3.48	8.07
Ethnicity										
Malay	213	12684	15.3	6.68	31.35	69	4617	5.6	3.66	8.41
Chinese	2	114	0.4	0.13	1.28	21	1396	5.0	2.72	8.97
Indian	2	117	0.7	0.17	2.61	14	918	5.2	2.20	11.87
Bumiputera Sabah	1	53	11.8	1.14	60.70					
Bumiputera Sarawak										
Others	1	94	8.4	0.91	47.86	2	239	21.5	6.23	53.05
School level										
Primary school	24	1411	3.0	0.98	8.57	21	1893	4.0	3.08	5.12
Secondary school	195	11651	14.1	5.78	30.49	85	5278	6.4	4.22	9.54
Class										
Standard 4	16	783	5.0	1.25	18.00	8	626	4.0	1.98	7.92
Standard 5	3	279	1.7	0.56	5.24	8	699	4.4	3.07	6.15
Standard 6	5	350	2.2	0.76	6.13	5	569	3.6	1.37	8.89
Form 1	46	3114	19.2	8.73	36.96	6	512	3.1	1.53	6.37
Form 2	50	2692	15.8	6.77	32.55	20	1145	6.7	3.14	13.76
Form 3	49	2448	14.2	5.69	31.21	29	1610	9.3	6.78	12.72
Form 4	26	1431	8.8	2.47	26.78	20	1160	7.1	3.70	13.25
Form 5	24	1966	12.5	3.73	34.33	10	852	5.4	2.69	10.54
School session										
Morning session	103	6019	8.1	3.29	18.78	62	3966	5.4	3.51	8.13
Evening session	2	155	0.9	0.25	3.39	14	905	5.4	3.08	9.23
Morning and evening session	114	6888	17.5	7.74	34.78	30	2300	5.8	3.70	9.08
BMI-for-age status (BAZ)										
Thinness (<-2sd)	8	531	4.3	1.47	12.02	10	801	6.5	3.28	12.55
Normal (≥-2sd - ≤+1sd)	145	8485	11.0	4.77	23.28	57	3863	5.0	3.61	6.87
Overweight (>+1sd - ≤+2sd)	32	1844	8.9	3.10	23.20	19	1222	5.9	3.28	10.49
Obese (>+2sd)	34	2202	11.1	4.85	23.26	19	1212	6.1	3.74	9.75
Height-for-age status (HAZ)										
Stunting (<-2sd)	23	1420	15.4	5.13	38.07	7	413	4.5	1.42	13.27
Normal (≥-2sd)	195	11598	9.6	4.18	20.51	99	6758	5.6	4.10	7.57

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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	
Pulau Pinang	50	3544	2.0	1.36	2.91	2062	145633	81.9	77.31	85.73
Locality of school										
Urban	30	1891	2.1	1.33	3.24	1118	70345	77.4	72.51	81.64
Rural	20	1653	1.9	1.00	3.59	944	75287	86.6	81.06	90.70
Sex										
Boys	31	2240	2.5	1.54	4.09	954	71765	80.6	75.60	84.71
Girls	19	1305	1.5	0.81	2.64	1108	73868	83.2	77.96	87.46
Ethnicity										
Malay	32	2259	2.2	1.39	3.50	1275	89192	87.4	83.46	90.56
Chinese	7	451	1.0	0.48	1.90	498	33296	70.5	65.52	75.11
Indian	9	648	2.4	0.75	7.72	265	21246	80.3	75.23	84.49
Bumiputera Sabah	1	107	23.8	4.25	68.69	4	284	63.2	27.21	88.75
Bumiputera Sarawak	1	79	25.0	2.08	83.91	2	237	75.0	16.09	97.92
Others						18	1377	100.0	0.00	100.00
School level										
Primary school	24	1825	2.8	1.80	4.34	675	56072	86.0	79.39	90.78
Secondary school	26	1719	1.5	0.91	2.54	1387	89560	79.5	74.27	83.91
Class										
Standard 4	13	739	3.4	1.75	6.37	257	18026	81.9	74.17	87.71
Standard 5	5	592	2.8	0.98	7.64	206	19267	90.4	85.44	93.77
Standard 6	6	493	2.3	1.01	4.96	212	18780	85.9	72.15	93.51
Form 1	7	564	2.4	0.69	7.84	248	17627	74.4	64.39	82.38
Form 2	7	378	1.7	0.58	4.83	309	18211	81.7	75.71	86.46
Form 3	10	577	2.6	1.01	6.51	327	17765	80.0	72.41	85.89
Form 4	1	63	0.3	0.04	2.25	304	18239	84.3	77.22	89.44
Form 5	1	137	0.6	0.07	4.74	199	17718	77.7	71.16	83.06
School session										
Morning session	25	1720	1.7	1.00	2.74	1205	84046	81.1	75.98	85.41
Evening session	10	698	2.9	1.44	5.81	292	18796	78.4	72.07	83.63
Morning and evening session	15	1126	2.3	1.31	3.84	563	42623	85.3	79.72	89.54
BMI-for-age status (BAZ)										
Thinness (<-2sd)	4	258	1.6	0.63	4.05	177	13619	85.0	75.71	91.15
Normal (≥-2sd - ≤+1sd)	32	2125	2.0	1.39	2.92	1223	85229	80.9	76.07	84.95
Overweight (>+1sd - ≤+2sd)	9	770	2.6	1.13	6.04	336	23298	79.9	73.61	84.99
Obese (>+2sd)	5	391	1.4	0.44	4.63	323	23270	86.0	80.21	90.23
Height-for-age status (HAZ)										
Stunting (<-2sd)	4	261	2.2	0.66	7.00	137	10035	83.9	74.47	90.26
Normal (≥-2sd)	46	3283	2.0	1.35	2.90	1922	135434	81.7	77.15	85.57

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				
	Count	Estimated Population	Prevalence (%)	Did not ate fast food	
				Lower	Upper
Pulau Pinang	426	28648	16.1	12.02	21.25
Locality of school					
Urban	295	18651	20.5	15.95	26.00
Rural	131	9997	11.5	6.94	18.45
Sex					
Boys	207	15080	16.9	12.59	22.38
Girls	219	13568	15.3	10.78	21.24
Ethnicity					
Malay	161	10561	10.4	6.95	15.16
Chinese	207	13453	28.5	23.69	33.86
Indian	57	4576	17.3	11.61	24.95
Bumiputera Sabah	1	58	13.0	1.27	63.46
Bumiputera Sarawak					
Others					
School level					
Primary school	97	7282	11.2	6.17	19.40
Secondary school	329	21366	19.0	14.49	24.43
Class					
Standard 4	43	3243	14.7	8.91	23.39
Standard 5	17	1458	6.8	3.00	14.86
Standard 6	37	2581	11.8	4.52	27.49
Form 1	79	5498	23.2	14.76	34.54
Form 2	63	3704	16.6	12.27	22.11
Form 3	70	3868	17.4	11.65	25.21
Form 4	59	3340	15.4	10.17	22.73
Form 5	58	4956	21.7	16.06	28.70
School session					
Morning session	265	17806	17.2	12.62	22.99
Evening session	70	4477	18.7	13.14	25.85
Morning and evening session	90	6222	12.5	7.84	19.21
BMI-for-age status (BAZ)					
Thinness (<-2sd)	30	2145	13.4	7.58	22.56
Normal (\geq -2sd - \leq +1sd)	268	18000	17.1	12.79	22.46
Overweight ($>$ +1sd - \leq +2sd)	77	5092	17.5	11.94	24.82
Obese ($>$ +2sd)	51	3411	12.6	8.51	18.26
Height-for-age status (HAZ)					
Stunting (<-2sd)	23	1669	14.0	7.87	23.53
Normal (\geq -2sd)	403	26979	16.3	12.21	21.39

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Table 3.4.17 : Practice of bringing 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	
Pulau Pinang	243	16631	9.3	6.56	13.10	1081	75106	42.1	37.10	47.32
Locality of school										
Urban	164	10264	11.3	7.05	17.53	636	38774	42.5	36.43	48.91
Rural	79	6367	7.3	4.75	11.08	445	36332	41.7	33.75	50.08
Sex										
Boys	119	8366	9.4	5.88	14.63	412	29956	33.6	28.61	38.94
Girls	124	8266	9.3	6.46	13.16	669	45150	50.7	45.21	56.14
Ethnicity										
Malay	90	5989	5.9	4.65	7.33	629	44105	43.1	35.38	51.15
Chinese	99	6461	13.7	7.97	22.51	308	19654	41.6	35.98	47.53
Indian	48	3747	14.1	9.86	19.74	136	10701	40.2	34.72	46.02
Bumiputera Sabah						2	200	44.4	15.38	77.80
Bumiputera Sarawak										
Others	6	435	31.6	10.84	63.63	6	446	32.4	17.85	51.34
School level										
Primary school	101	7566	11.6	6.35	20.13	420	33577	51.3	46.83	55.82
Secondary school	142	9066	8.0	5.28	12.04	661	41529	36.8	31.93	41.94
Class										
Standard 4	50	3448	15.7	8.95	25.99	160	10463	47.5	36.86	58.46
Standard 5	23	2148	10.0	6.18	15.69	119	10718	49.7	43.29	56.22
Standard 6	28	1970	9.0	3.38	21.92	141	12395	56.7	49.52	63.64
Form 1	23	1582	6.7	3.28	13.07	119	8184	34.5	27.17	42.56
Form 2	29	1657	7.4	4.81	11.26	125	7260	32.5	27.01	38.50
Form 3	39	2142	9.6	5.86	15.48	151	7969	35.9	27.15	45.67
Form 4	25	1497	6.9	3.99	11.61	148	8903	40.9	33.58	48.66
Form 5	26	2188	9.6	4.69	18.60	118	9212	40.4	30.70	50.88
School session										
Morning session	166	11266	10.9	7.49	15.47	647	43783	42.2	37.13	47.40
Evening session	29	1980	8.2	4.04	16.07	134	8573	35.7	29.24	42.66
Morning and evening session	48	3385	6.8	4.07	10.99	299	22658	45.2	36.87	53.78
BMI-for-age status (BAZ)										
Thinness (<-2sd)	24	1657	10.3	6.03	17.04	85	6190	38.5	30.01	47.72
Normal (≥-2sd - ≤+1sd)	140	9683	9.2	6.36	13.05	658	44869	42.5	37.37	47.75
Overweight (>+1sd - ≤+2sd)	40	2736	9.4	6.01	14.35	174	12146	41.7	34.46	49.22
Obese (>+2sd)	38	2479	9.1	5.21	15.49	163	11834	43.5	35.68	51.69
Height-for-age status (HAZ)										
Stunting (<-2sd)	7	497	4.2	1.97	8.57	88	6175	51.6	42.62	60.49
Normal (≥-2sd)	236	16134	9.7	6.84	13.61	991	68812	41.4	36.08	46.96

Table 3.4.17 : Practice of bringing 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
Pulau Pinang	1220	86549	48.5	41.74	55.40
Locality of school					
Urban	647	42092	46.2	36.70	55.96
Rural	573	44457	51.0	41.45	60.49
Sex					
Boys	663	50885	57.0	48.96	64.76
Girls	557	35663	40.0	32.79	47.74
Ethnicity					
Malay	753	52257	51.1	42.57	59.48
Chinese	305	21085	44.7	33.34	56.59
Indian	149	12145	45.7	36.30	55.35
Bumiputera Sabah	4	250	55.6	22.20	84.62
Bumiputera Sarawak	3	316	100.0	0.00	100.00
Others	6	497	36.1	16.64	61.44
School level					
Primary school	277	24265	37.1	29.33	45.60
Secondary school	943	62284	55.2	47.77	62.37
Class					
Standard 4	103	8096	36.8	22.99	53.16
Standard 5	88	8679	40.3	32.29	48.83
Standard 6	86	7489	34.3	27.08	42.26
Form 1	193	13982	58.9	49.33	67.79
Form 2	226	13426	60.1	51.55	68.06
Form 3	217	12098	54.5	43.34	65.17
Form 4	193	11366	52.2	43.67	60.64
Form 5	114	11412	50.0	37.61	62.45
School session					
Morning session	686	48755	47.0	39.67	54.40
Evening session	210	13479	56.1	44.79	66.78
Morning and evening session	322	24096	48.1	39.09	57.16
BMI-for-age status (BAZ)					
Thinness (<-2sd)	103	8239	51.2	40.32	62.00
Normal ($\geq-2sd - \leq+1sd$)	728	51079	48.4	41.25	55.53
Overweight ($>+1sd - \leq+2sd$)	208	14278	49.0	39.87	58.13
Obese ($>+2sd$)	180	12880	47.4	39.66	55.20
Height-for-age status (HAZ)					
Stunting (<-2sd)	69	5293	44.2	36.26	52.51
Normal ($\geq-2sd$)	1150	81211	48.9	41.58	56.22

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Table 3.4.18 : Type of food usually brought 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	
Pulau Pinang	395	27877	32.0	23.60	41.79	123	8326	9.6	7.69	11.82
Locality of school										
Urban	192	11652	24.5	16.18	35.38	79	4869	10.3	7.80	13.37
Rural	203	16225	41.0	29.65	53.37	44	3457	8.7	6.32	11.95
Sex										
Boys	164	12093	33.7	21.57	48.32	47	3214	8.9	5.89	13.35
Girls	231	15784	30.9	22.82	40.26	76	5112	10.0	7.78	12.75
Ethnicity										
Malay	297	21002	43.5	34.06	53.40	74	4932	10.2	7.63	13.54
Chinese	55	3582	14.1	8.48	22.42	35	2360	9.3	5.50	15.18
Indian	41	3136	25.3	15.39	38.79	14	1034	8.4	5.26	13.03
Bumiputera Sabah	1	107	53.6	5.25	96.01					
Bumiputera Sarawak										
Others	1	50	6.8	0.89	37.13					
School level										
Primary school	199	15002	39.5	26.37	54.37	57	4032	10.6	7.90	14.12
Secondary school	196	12875	26.2	17.78	36.86	66	4294	8.7	6.42	11.80
Class										
Standard 4	83	5601	43.0	32.29	54.32	20	1110	8.5	4.15	16.66
Standard 5	62	5104	44.6	25.65	65.27	17	1580	13.8	8.88	20.84
Standard 6	54	4296	31.9	20.26	46.23	20	1342	10.0	4.74	19.72
Form 1	36	2722	29.3	17.91	44.01	14	957	10.3	5.73	17.82
Form 2	46	2798	32.0	19.35	48.10	9	484	5.5	3.33	9.09
Form 3	45	2514	25.6	15.33	39.64	14	754	7.7	4.17	13.77
Form 4	43	2813	27.8	16.51	42.76	11	706	7.0	2.37	18.76
Form 5	26	2028	18.2	10.58	29.47	18	1393	12.5	7.92	19.15
School session										
Morning session	234	16441	31.2	21.81	42.35	88	5910	11.2	8.60	14.46
Evening session	42	2830	28.2	14.80	46.91	11	721	7.2	3.29	14.91
Morning and evening session	119	8605	35.6	25.28	47.47	24	1695	7.0	5.11	9.55
BMI-for-age status (BAZ)										
Thinness (<-2sd)	37	2671	35.7	22.49	51.42	14	899	12.0	5.94	22.75
Normal (≥-2sd - ≤+1sd)	226	15241	29.5	21.22	39.49	67	4523	8.8	7.11	10.77
Overweight (>+1sd - ≤+2sd)	59	4504	31.9	21.88	43.96	21	1626	11.5	7.80	16.69
Obese (>+2sd)	73	5461	39.7	28.39	52.30	21	1278	9.3	4.72	17.50
Height-for-age status (HAZ)										
Stunting (<-2sd)	29	2018	31.4	22.49	41.85	15	1211	18.8	10.37	31.70
Normal (≥-2sd)	365	25807	32.0	23.36	42.18	108	7115	8.8	6.83	11.36

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Table 3.4.18 : Type of food usually brought 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	
Pulau Pinang	560	37905	43.5	32.81	54.88	84	5769	6.6	4.39	9.88
Locality of school										
Urban	420	26144	55.0	39.96	69.26	47	2630	5.5	2.56	11.57
Rural	140	11761	29.7	22.53	38.05	37	3139	7.9	5.71	10.91
Sex										
Boys	215	15202	42.3	24.73	62.06	33	2647	7.4	4.61	11.56
Girls	345	22703	44.4	34.33	54.93	51	3122	6.1	3.66	10.02
Ethnicity										
Malay	190	13353	27.6	20.85	35.66	61	4072	8.4	5.41	12.90
Chinese	282	18183	71.4	55.43	83.35	8	501	2.0	0.94	4.06
Indian	78	5575	45.1	33.36	57.34	14	1104	8.9	6.19	12.69
Bumiputera Sabah	1	107	53.6	5.25	96.01	1	93	46.4	3.99	94.75
Bumiputera Sarawak										
Others	9	687	93.3	69.00	98.86					
School level										
Primary school	168	13304	35.0	23.42	48.76	53	3732	9.8	6.03	15.64
Secondary school	392	24601	50.1	35.45	64.72	31	2037	4.1	2.59	6.58
Class										
Standard 4	58	3603	27.6	22.10	33.94	23	1241	9.5	5.00	17.36
Standard 5	36	3103	27.1	12.47	49.29	10	1017	8.9	4.89	15.61
Standard 6	74	6598	48.9	35.68	62.32	20	1474	10.9	4.71	23.37
Form 1	63	4300	46.3	24.00	70.15	6	486	5.2	2.31	11.43
Form 2	72	4070	46.6	30.48	63.48	4	234	2.7	1.17	6.05
Form 3	85	4405	44.9	29.11	61.84	7	362	3.7	1.51	8.75
Form 4	85	4886	48.2	33.65	63.11	12	711	7.0	3.67	12.99
Form 5	87	6939	62.2	42.11	78.87	2	243	2.2	0.47	9.48
School session										
Morning session	370	24364	46.2	34.19	58.61	45	2849	5.4	3.19	9.01
Evening session	79	5071	50.5	26.01	74.68	5	348	3.5	1.78	6.65
Morning and evening session	111	8469	35.0	26.55	44.61	33	2479	10.3	7.21	14.40
BMI-for-age status (BAZ)										
Thinness (<-2sd)	43	3037	40.5	26.31	56.58	5	300	4.0	1.32	11.49
Normal (≥-2sd - ≤+1sd)	340	22407	43.4	31.82	55.81	52	3426	6.6	4.22	10.30
Overweight (>+1sd - ≤+2sd)	95	6541	46.3	34.33	58.81	11	768	5.4	3.10	9.37
Obese (>+2sd)	80	5776	42.0	30.96	53.96	16	1276	9.3	5.03	16.49
Height-for-age status (HAZ)										
Stunting (<-2sd)	23	1541	23.9	16.25	33.81	4	263	4.1	1.62	9.97
Normal (≥-2sd)	536	36297	45.1	33.95	56.72	80	5506	6.8	4.44	10.38

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Table 3.4.18 : Type of food usually brought 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	
Pulau Pinang	221	14808	17.0	12.04	23.47	42	2869	3.3	2.44	4.44
Locality of school										
Urban	115	7120	15.0	9.95	21.96	23	1326	2.8	1.68	4.60
Rural	106	7688	19.4	10.93	32.12	19	1543	3.9	2.92	5.18
Sex										
Boys	71	4931	13.7	9.50	19.42	16	1226	3.4	2.04	5.65
Girls	150	9877	19.3	13.41	27.00	26	1644	3.2	2.19	4.69
Ethnicity										
Malay	125	8335	17.3	10.16	27.77	27	1887	3.9	2.95	5.16
Chinese	64	4065	16.0	9.25	26.14	8	479	1.9	0.82	4.26
Indian	30	2278	18.4	12.23	26.77	7	503	4.1	2.07	7.85
Bumiputera Sabah										
Bumiputera Sarawak										
Others	2	130	17.7	5.12	46.09					
School level										
Primary school	65	5581	14.7	8.75	23.66	24	1756	4.6	3.79	5.63
Secondary school	156	9227	18.8	11.87	28.44	18	1113	2.3	1.34	3.81
Class										
Standard 4	24	1733	13.3	7.71	21.95	16	1067	8.2	5.71	11.61
Standard 5	20	1781	15.6	7.21	30.42	4	265	2.3	0.57	8.98
Standard 6	21	2068	15.3	8.36	26.45	4	423	3.1	1.32	7.27
Form 1	18	1185	12.8	6.33	24.01	7	470	5.1	1.90	12.78
Form 2	31	1676	19.2	11.28	30.74	4	210	2.4	0.78	7.16
Form 3	51	2530	25.8	15.13	40.40	3	150	1.5	0.49	4.61
Form 4	26	1520	15.0	9.43	23.02	3	213	2.1	0.69	6.20
Form 5	30	2316	20.8	9.83	38.65	1	72	0.6	0.08	5.20
School session										
Morning session	131	8466	16.0	10.98	22.85	21	1338	2.5	1.57	4.08
Evening session	17	1107	11.0	6.75	17.48	7	471	4.7	2.14	9.98
Morning and evening session	73	5234	21.7	13.56	32.75	14	1060	4.4	3.11	6.15
BMI-for-age status (BAZ)										
Thinness (<-2sd)	20	1543	20.6	10.58	36.27	5	412	5.5	2.08	13.70
Normal (≥-2sd - ≤+1sd)	137	8901	17.3	12.27	23.71	26	1738	3.4	2.39	4.72
Overweight (>+1sd - ≤+2sd)	33	2241	15.9	10.24	23.80	6	427	3.0	1.49	6.06
Obese (>+2sd)	31	2123	15.4	9.52	24.07	5	292	2.1	0.75	5.86
Height-for-age status (HAZ)										
Stunting (<-2sd)	27	1862	28.9	17.55	43.81	2	234	3.6	0.95	12.87
Normal (≥-2sd)	194	12946	16.1	11.33	22.30	40	2636	3.3	2.42	4.41

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

Characteristics	Type of food				
	Count	Estimated Population	Others Prevalence (%)	95% CI	
				Lower	Upper
Pulau Pinang	92	6396	7.3	5.75	9.34
Locality of school					
Urban	62	3733	7.9	5.88	10.42
Rural	30	2664	6.7	4.36	10.25
Sex					
Boys	41	2734	7.6	5.02	11.37
Girls	51	3662	7.2	5.20	9.78
Ethnicity					
Malay	47	3474	7.2	5.04	10.17
Chinese	32	1995	7.8	4.38	13.63
Indian	13	927	7.5	5.40	10.31
Bumiputera Sabah					
Bumiputera Sarawak					
Others					
School level					
Primary school	37	3030	8.0	5.41	11.62
Secondary school	55	3366	6.9	5.15	9.08
Class					
Standard 4	17	1060	8.1	4.90	13.21
Standard 5	9	896	7.8	3.75	15.61
Standard 6	11	1074	8.0	5.17	12.07
Form 1	8	491	5.3	1.63	15.83
Form 2	12	724	8.3	4.80	13.94
Form 3	13	716	7.3	4.29	12.14
Form 4	13	741	7.3	4.08	12.79
Form 5	9	695	6.2	2.93	12.77
School session					
Morning session	49	3271	6.2	4.54	8.41
Evening session	15	895	8.9	5.65	13.75
Morning and evening session	28	2230	9.2	6.44	13.06
BMI-for-age status (BAZ)					
Thinness (<-2sd)	5	280	3.7	1.17	11.30
Normal (\geq -2sd - \leq +1sd)	52	3905	7.6	4.93	11.45
Overweight ($>$ +1sd - \leq +2sd)	18	1165	8.3	5.71	11.80
Obese ($>$ +2sd)	17	1047	7.6	4.18	13.47
Height-for-age status (HAZ)					
Stunting (<-2sd)	7	398	6.2	2.79	13.15
Normal (\geq -2sd)	85	5998	7.4	5.65	9.76

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Table 3.4.19 : Practice of bringing 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	
Pulau Pinang	1262	86883	48.8	41.01	56.62	727	52175	29.3	22.90	36.64
Locality of school										
Urban	813	51417	56.5	45.94	66.50	317	19486	21.4	14.32	30.75
Rural	449	35466	40.7	32.91	49.03	410	32689	37.5	31.15	44.39
Sex										
Boys	499	37104	41.6	30.12	54.11	341	25920	29.1	21.09	38.61
Girls	763	49778	56.0	48.28	63.38	386	26255	29.5	22.77	37.29
Ethnicity										
Malay	580	39166	38.3	32.95	43.92	563	40163	39.3	35.13	43.56
Chinese	464	30591	64.7	54.03	74.13	93	6058	12.8	7.79	20.38
Indian	203	15848	60.0	50.46	68.89	65	5485	20.8	15.02	28.01
Bumiputera Sabah	3	218	48.6	18.70	79.50	2	165	36.8	6.68	82.59
Bumiputera Sarawak	2	260	82.5	24.08	98.59	1	55	17.5	1.41	75.92
Others	10	799	58.0	39.75	74.30	3	249	18.1	5.89	43.70
School level										
Primary school	359	29227	44.7	33.90	56.00	290	23758	36.3	26.59	47.33
Secondary school	903	57656	51.2	41.28	60.96	437	28417	25.2	18.66	33.14
Class										
Standard 4	143	10143	46.1	35.91	56.61	107	7440	33.8	27.83	40.36
Standard 5	101	9440	43.8	34.81	53.24	81	7500	34.8	24.67	46.54
Standard 6	115	9644	44.1	28.68	60.80	102	8818	40.3	25.77	56.85
Form 1	161	10745	45.2	31.88	59.33	89	6596	27.8	17.71	40.73
Form 2	189	10910	48.8	38.28	59.48	109	6508	29.1	22.89	36.26
Form 3	185	9870	44.7	33.82	56.07	115	6276	28.4	21.26	36.84
Form 4	197	11487	53.0	41.26	64.33	71	4332	20.0	14.26	27.24
Form 5	171	14644	64.2	48.27	77.50	53	4705	20.6	11.04	35.24
School session										
Morning session	764	52375	50.5	41.11	59.89	406	28595	27.6	21.18	35.06
Evening session	200	12543	52.2	39.78	64.34	79	5224	21.7	15.59	29.46
Morning and evening session	296	21746	43.4	36.39	50.76	241	18264	36.5	28.97	44.71
BMI-for-age status (BAZ)										
Thinness (<-2sd)	100	7616	47.3	38.64	56.22	65	4942	30.7	23.68	38.79
Normal (≥-2sd - ≤+1sd)	747	50763	48.1	40.20	56.12	428	29769	28.2	22.16	35.17
Overweight (>+1sd - ≤+2sd)	216	14558	49.9	40.46	59.40	113	8444	29.0	20.84	38.68
Obese (>+2sd)	196	13729	50.6	41.64	59.56	121	9021	33.3	24.35	43.55
Height-for-age status (HAZ)										
Stunting (<-2sd)	82	6163	51.5	42.05	60.86	53	3764	31.5	23.67	40.44
Normal (≥-2sd)	1179	80652	48.6	40.63	56.64	672	48315	29.1	22.62	36.59

Table 3.4.19 : Practice of bringing 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
Pulau Pinang	552	39035	21.9	18.80	25.39
Locality of school					
Urban	315	20095	22.1	17.71	27.19
Rural	237	18939	21.7	17.55	26.63
Sex					
Boys	353	26123	29.3	24.32	34.84
Girls	199	12912	14.5	11.72	17.85
Ethnicity					
Malay	328	22959	22.4	18.47	26.99
Chinese	156	10611	22.5	18.04	27.58
Indian	62	5069	19.2	13.47	26.61
Bumiputera Sabah	1	66	14.6	2.91	49.38
Bumiputera Sarawak					
Others	5	330	23.9	9.89	47.45
School level					
Primary school	149	12420	19.0	15.74	22.72
Secondary school	403	26615	23.6	19.44	28.38
Class					
Standard 4	63	4421	20.1	13.47	28.88
Standard 5	48	4605	21.4	14.80	29.84
Standard 6	38	3394	15.5	13.10	18.31
Form 1	85	6407	27.0	18.53	37.51
Form 2	82	4926	22.0	16.72	28.49
Form 3	105	5945	26.9	20.56	34.37
Form 4	97	5874	27.1	20.13	35.37
Form 5	34	3463	15.2	10.66	21.16
School session					
Morning session	327	22713	21.9	18.03	26.34
Evening session	94	6265	26.1	18.78	34.97
Morning and evening session	131	10057	20.1	16.57	24.13
BMI-for-age status (BAZ)					
Thinness (<-2sd)	47	3527	21.9	15.30	30.39
Normal (≥-2sd - ≤+1sd)	349	24978	23.7	20.45	27.23
Overweight (>+1sd - ≤+2sd)	93	6158	21.1	15.44	28.19
Obese (>+2sd)	63	4371	16.1	12.12	21.11
Height-for-age status (HAZ)					
Stunting (<-2sd)	29	2039	17.0	10.36	26.73
Normal (≥-2sd)	523	36996	22.3	19.11	25.83

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Table 3.4.20 : Type of drinks usually brought 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
Pulau Pinang	1798	125002	89.9	85.97	92.81	184	13381	9.6	6.79	13.46
Locality of school										
Urban	1031	64789	91.4	86.15	94.75	105	6430	9.1	5.54	14.50
Rural	767	60213	88.3	82.50	92.42	79	6950	10.2	6.31	16.07
Sex										
Boys	708	52632	83.5	75.25	89.40	105	8355	13.3	8.13	20.88
Girls	1090	72370	95.2	92.79	96.81	79	5026	6.6	4.44	9.73
Ethnicity										
Malay	1003	69376	87.5	82.23	91.30	132	9391	11.8	8.02	17.13
Chinese	532	34865	95.1	90.70	97.51	33	2242	6.1	3.34	10.94
Indian	243	19105	89.6	84.06	93.31	16	1476	6.9	4.02	11.65
Bumiputera Sabah	4	291	75.9	21.84	97.25					
Bumiputera Sarawak	3	316	100.0	0.00	100.00	1	55	17.5	1.41	75.92
Others	13	1047	100.0	0.00	100.00	2	217	20.7	6.34	50.16
School level										
Primary school	545	44737	84.4	79.44	88.39	104	8032	15.2	11.26	20.10
Secondary school	1253	80264	93.3	89.61	95.68	80	5349	6.2	4.21	9.09
Class										
Standard 4	201	14126	80.3	73.17	85.96	39	2581	14.7	9.93	21.17
Standard 5	156	14348	84.7	78.95	89.09	22	1808	10.7	6.31	17.49
Standard 6	188	16263	88.1	80.59	92.95	43	3643	19.7	12.81	29.15
Form 1	232	15863	91.5	83.32	95.84	16	1149	6.6	3.48	12.24
Form 2	273	15952	91.6	87.35	94.50	18	1013	5.8	3.14	10.51
Form 3	282	15144	93.8	86.83	97.19	20	1111	6.9	3.67	12.54
Form 4	251	14826	93.7	85.32	97.46	13	797	5.0	1.97	12.26
Form 5	215	18480	95.5	91.22	97.75	13	1278	6.6	2.71	15.24
School session										
Morning session	1068	73666	91.0	86.53	94.06	106	7441	9.2	6.23	13.35
Evening session	246	15501	87.2	79.75	92.23	22	1424	8.0	5.51	11.52
Morning and evening session	482	35616	89.0	82.58	93.27	56	4516	11.3	6.63	18.56
BMI-for-age status (BAZ)										
Thinness (<-2sd)	144	10728	85.4	76.75	91.24	19	1442	11.5	6.14	20.45
Normal (≥-2sd - ≤+1sd)	1071	73042	90.7	86.51	93.68	97	6746	8.4	5.72	12.10
Overweight (>+1sd - ≤+2sd)	298	20863	90.7	84.98	94.39	28	2017	8.8	6.07	12.50
Obese (>+2sd)	283	20229	88.9	83.37	92.78	40	3176	14.0	9.03	20.96
Height-for-age status (HAZ)										
Stunting (<-2sd)	122	8973	90.4	81.10	95.38	12	805	8.1	4.32	14.70
Normal (≥-2sd)	1673	115865	89.8	85.95	92.74	172	12576	9.8	6.73	13.93

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Table 3.4.20 : Type of drinks usually brought 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	
Pulau Pinang	21	1589	1.1	0.72	1.80	64	4593	3.3	2.16	5.02
Locality of school										
Urban	11	743	1.0	0.47	2.33	28	1746	2.5	1.31	4.57
Rural	10	846	1.2	0.78	1.98	36	2847	4.2	2.55	6.76
Sex										
Boys	17	1286	2.0	1.18	3.50	28	2115	3.4	1.94	5.76
Girls	4	303	0.4	0.14	1.14	36	2478	3.3	2.03	5.19
Ethnicity										
Malay	13	916	1.2	0.70	1.91	48	3469	4.4	3.12	6.09
Chinese	3	248	0.7	0.16	2.89	9	579	1.6	0.45	5.42
Indian	4	333	1.6	0.68	3.54	7	545	2.6	0.64	9.66
Bumiputera Sabah	1	93	24.1	2.75	78.16					
Bumiputera Sarawak										
Others										
School level										
Primary school	8	696	1.3	0.75	2.28	38	2935	5.5	3.77	8.07
Secondary school	13	894	1.0	0.53	2.04	26	1658	1.9	1.22	3.04
Class										
Standard 4	3	223	1.3	0.43	3.64	18	1293	7.4	4.10	12.86
Standard 5	2	181	1.1	0.35	3.23	7	617	3.6	1.72	7.56
Standard 6	3	292	1.6	0.52	4.67	13	1024	5.5	3.30	9.18
Form 1	4	341	2.0	0.64	5.86	4	400	2.3	0.49	10.18
Form 2	4	257	1.5	0.58	3.68	8	428	2.5	1.08	5.50
Form 3	2	115	0.7	0.19	2.67	7	353	2.2	0.97	4.88
Form 4	3	181	1.1	0.39	3.31	4	254	1.6	0.64	3.96
Form 5						3	222	1.1	0.40	3.26
School session										
Morning session	8	612	0.8	0.37	1.54	32	2293	2.8	1.80	4.44
Evening session	8	568	3.2	1.58	6.37	8	619	3.5	1.14	10.19
Morning and evening session	4	318	0.8	0.27	2.35	24	1681	4.2	2.60	6.72
BMI-for-age status (BAZ)										
Thinness (<-2sd)	4	293	2.3	0.85	6.23	4	295	2.4	0.93	5.81
Normal (≥-2sd - ≤+1sd)	10	727	0.9	0.38	2.14	35	2416	3.0	2.05	4.37
Overweight (>+1sd - ≤+2sd)	4	302	1.3	0.37	4.59	14	1022	4.4	2.05	9.39
Obese (>+2sd)	2	191	0.8	0.19	3.61	11	860	3.8	1.97	7.14
Height-for-age status (HAZ)										
Stunting (<-2sd)						6	320	3.2	1.23	8.20
Normal (≥-2sd)	21	1589	1.2	0.78	1.95	58	4273	3.3	2.07	5.26

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

Characteristics	Type of drinks				
	Count	Estimated Population	Others Percentage (%)	95% CI	
				Lower	Upper
Pulau Pinang	32	2271	1.6	1.18	2.25
Locality of school					
Urban	24	1474	2.1	1.52	2.83
Rural	8	797	1.2	0.60	2.28
Sex					
Boys	20	1527	2.4	1.50	3.90
Girls	12	744	1.0	0.57	1.68
Ethnicity					
Malay	13	986	1.2	0.68	2.27
Chinese	15	933	2.5	1.63	3.96
Indian	4	351	1.6	1.01	2.68
Bumiputera Sabah					
Bumiputera Sarawak					
Others					
School level					
Primary school	13	1095	2.1	1.30	3.27
Secondary school	19	1176	1.4	0.91	2.04
Class					
Standard 4	5	287	1.6	0.51	5.05
Standard 5	6	697	4.1	1.64	9.97
Standard 6	2	112	0.6	0.15	2.36
Form 1	2	116	0.7	0.16	2.71
Form 2	3	169	1.0	0.32	2.87
Form 3	3	145	0.9	0.31	2.61
Form 4	8	443	2.8	1.25	6.14
Form 5	3	303	1.6	0.31	7.63
School session					
Morning session	18	1254	1.5	0.90	2.66
Evening session	7	378	2.1	1.18	3.80
Morning and evening session	7	639	1.6	0.89	2.84
BMI-for-age status (BAZ)					
Thinness (<-2sd)	3	241	1.9	0.50	7.07
Normal (\geq -2sd - \leq +1sd)	15	1126	1.4	0.75	2.60
Overweight ($>$ +1sd - \leq +2sd)	9	633	2.8	1.48	5.07
Obese ($>$ +2sd)	5	270	1.2	0.36	3.83
Height-for-age status (HAZ)					
Stunting (<-2sd)	2	228	2.3	0.49	10.06
Normal (\geq -2sd)	30	2043	1.6	1.14	2.20

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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	
Pulau Pinang	1505	105145	61.1	57.65	64.52	113	7636	4.4	3.11	6.30
Locality of school										
Urban	841	52687	59.9	55.92	63.72	56	3576	4.1	2.94	5.59
Rural	664	52458	62.5	56.91	67.69	57	4060	4.8	2.62	8.76
Sex										
Boys	686	52064	60.8	56.84	64.61	58	4028	4.7	3.19	6.88
Girls	819	53080	61.5	56.89	65.88	55	3608	4.2	2.58	6.70
Ethnicity										
Malay	937	65409	65.2	62.38	67.96	73	4659	4.6	2.70	7.87
Chinese	385	25634	56.3	51.49	61.06	19	1252	2.8	1.69	4.46
Indian	167	12893	53.6	45.07	61.95	18	1500	6.2	3.75	10.18
Bumiputera Sabah	3	197	43.8	16.44	75.58	2	146	32.4	5.55	79.60
Bumiputera Sarawak	3	316	100.0	0.00	100.00					
Others	10	697	50.6	29.50	71.50	1	80	5.8	0.63	37.79
School level										
Primary school	470	38385	61.8	54.28	68.71	37	2681	4.3	2.45	7.49
Secondary school	1035	66760	60.8	57.37	64.11	76	4955	4.5	2.87	7.03
Class										
Standard 4	181	12348	59.3	49.50	68.49	22	1501	7.2	3.97	12.75
Standard 5	142	12970	64.1	55.12	72.11	11	948	4.7	1.99	10.63
Standard 6	147	13067	61.9	54.00	69.26	4	232	1.1	0.34	3.55
Form 1	207	14753	63.7	57.47	69.41	18	1291	5.6	3.57	8.58
Form 2	216	12581	58.0	48.83	66.69	23	1343	6.2	2.84	12.99
Form 3	242	12952	60.8	53.18	67.92	15	827	3.9	1.65	8.87
Form 4	209	12364	58.0	52.63	63.14	12	747	3.5	1.57	7.63
Form 5	161	14109	63.2	57.04	68.95	8	747	3.3	1.65	6.68
School session										
Morning session	893	61793	61.7	58.00	65.20	60	3879	3.9	2.48	6.00
Evening session	202	13191	56.7	49.07	64.07	18	1240	5.3	3.24	8.65
Morning and evening session	409	30017	62.3	56.32	67.86	34	2425	5.0	2.97	8.39
BMI-for-age status (BAZ)										
Thinness (<-2sd)	131	9831	65.0	56.39	72.76	6	437	2.9	1.36	6.01
Normal (≥-2sd - ≤+1sd)	918	62940	61.7	57.52	65.81	63	4348	4.3	3.00	6.02
Overweight (>+1sd - ≤+2sd)	235	16391	57.5	52.68	62.19	22	1465	5.1	2.61	9.86
Obese (>+2sd)	218	15767	60.2	56.04	64.16	22	1387	5.3	3.39	8.18
Height-for-age status (HAZ)										
Stunting (<-2sd)	96	6723	57.6	50.25	64.57	8	521	4.5	1.83	10.48
Normal (≥-2sd)	1407	98310	61.4	57.69	64.96	105	7115	4.4	3.17	6.19

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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	
Pulau Pinang	702	49573	28.8	25.84	32.01	139	9623	5.6	3.92	7.92
Locality of school										
Urban	395	24854	28.2	25.09	31.64	105	6865	7.8	5.30	11.34
Rural	307	24719	29.4	24.40	35.01	34	2757	3.3	2.21	4.85
Sex										
Boys	318	23423	27.3	23.93	31.05	84	6127	7.2	4.59	10.98
Girls	384	26150	30.3	26.49	34.38	55	3496	4.0	2.97	5.51
Ethnicity										
Malay	380	26442	26.4	24.08	28.79	52	3775	3.8	2.72	5.18
Chinese	212	13999	30.8	26.97	34.84	69	4617	10.1	6.79	14.89
Indian	103	8500	35.3	24.35	48.15	17	1155	4.8	2.12	10.54
Bumiputera Sabah	1	107	23.8	4.25	68.69					
Bumiputera Sarawak										
Others	6	524	38.1	17.27	64.42	1	76	5.5	0.73	31.46
School level										
Primary school	228	19038	30.6	24.36	37.71	25	2054	3.3	1.87	5.76
Secondary school	474	30535	27.8	24.90	30.91	114	7569	6.9	4.72	9.95
Class										
Standard 4	82	6125	29.4	23.36	36.34	13	834	4.0	1.64	9.44
Standard 5	58	5640	27.9	18.56	39.54	6	690	3.4	1.38	8.19
Standard 6	88	7273	34.5	26.85	42.97	6	530	2.5	1.30	4.81
Form 1	85	5927	25.6	21.56	30.05	17	1207	5.2	2.98	8.94
Form 2	109	6580	30.3	23.14	38.67	20	1180	5.4	3.09	9.41
Form 3	110	6124	28.7	22.97	35.32	25	1399	6.6	3.67	11.48
Form 4	105	6314	29.6	24.67	35.08	33	1901	8.9	4.50	16.88
Form 5	65	5589	25.0	18.30	33.24	19	1882	8.4	3.81	17.62
School session										
Morning session	415	28813	28.8	25.40	32.36	81	5717	5.7	3.68	8.75
Evening session	112	7148	30.7	25.69	36.29	28	1676	7.2	4.22	12.03
Morning and evening session	174	13537	28.1	22.83	34.00	30	2230	4.6	2.78	7.61
BMI-for-age status (BAZ)										
Thinness (<-2sd)	51	3899	25.8	19.98	32.58	11	955	6.3	2.59	14.61
Normal (\geq -2sd - \leq +1sd)	425	29775	29.2	25.20	33.57	71	4869	4.8	3.37	6.74
Overweight ($>$ +1sd - \leq +2sd)	125	8629	30.3	24.75	36.43	30	2019	7.1	4.41	11.19
Obese ($>$ +2sd)	101	7270	27.7	24.79	30.91	27	1780	6.8	4.00	11.30
Height-for-age status (HAZ)										
Stunting (<-2sd)	51	4063	34.8	26.53	44.10	5	370	3.2	1.10	8.80
Normal (\geq -2sd)	650	45458	28.4	25.43	31.54	134	9252	5.8	4.01	8.25

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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	
Pulau Pinang	127	8846	5.0	3.69	6.72	368	26863	15.2	12.92	17.70
Locality of school										
Urban	87	5394	6.0	4.58	7.71	224	14593	16.1	13.92	18.57
Rural	40	3452	4.0	2.07	7.53	144	12270	14.2	10.40	18.98
Sex										
Boys	72	5205	5.9	3.88	8.75	218	16750	18.9	15.73	22.43
Girls	55	3641	4.1	2.92	5.77	150	10113	11.4	9.62	13.55
Ethnicity										
Malay	63	4627	4.5	2.84	7.21	200	14952	14.7	11.70	18.31
Chinese	52	3416	7.3	5.54	9.49	126	8446	18.0	15.17	21.16
Indian	12	803	3.0	1.26	7.14	37	3030	11.5	7.49	17.20
Bumiputera Sabah						1	66	14.6	2.91	49.38
Bumiputera Sarawak						2	237	75.0	16.09	97.92
Others						2	132	9.6	2.38	31.65
School level										
Primary school	55	4180	6.4	4.36	9.39	132	11003	16.9	13.00	21.74
Secondary school	72	4666	4.2	2.83	6.08	236	15860	14.1	11.82	16.81
Class										
Standard 4	32	2174	9.9	6.09	15.75	48	3505	16.0	13.90	18.34
Standard 5	9	853	4.0	2.00	7.80	46	4227	19.8	14.34	26.58
Standard 6	14	1154	5.3	3.56	7.87	38	3271	15.1	10.53	21.11
Form 1	15	1137	4.8	2.83	8.13	51	3830	16.3	12.03	21.65
Form 2	15	844	3.8	2.06	6.93	33	1925	8.7	6.22	11.99
Form 3	12	691	3.1	1.53	6.30	49	2733	12.4	9.95	15.27
Form 4	20	1124	5.2	3.12	8.54	60	3422	15.8	11.80	20.90
Form 5	10	868	3.8	1.41	9.84	43	3950	17.3	13.52	21.91
School session										
Morning session	72	4773	4.6	3.26	6.53	217	15812	15.3	13.20	17.77
Evening session	24	1512	6.3	4.46	8.97	65	4308	18.1	13.28	24.14
Morning and evening session	31	2561	5.1	2.59	9.85	85	6668	13.3	9.90	17.67
BMI-for-age status (BAZ)										
Thinness (<-2sd)	12	722	4.5	2.02	9.80	26	2090	13.1	8.29	20.03
Normal (≥-2sd - ≤+1sd)	73	5138	4.9	3.61	6.61	221	15910	15.2	12.85	17.84
Overweight (>+1sd - ≤+2sd)	20	1450	5.0	2.86	8.52	64	4637	15.9	11.80	21.09
Obese (>+2sd)	22	1536	5.7	2.95	10.65	57	4226	15.6	11.89	20.27
Height-for-age status (HAZ)										
Stunting (<-2sd)	8	441	3.7	1.65	8.21	20	1549	13.1	6.95	23.26
Normal (≥-2sd)	119	8405	5.1	3.75	6.87	348	25314	15.3	13.17	17.74

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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	
Pulau Pinang	1747	121616	68.6	66.21	70.92	287	19925	11.2	8.71	14.39
Locality of school										
Urban	977	61134	67.5	64.72	70.14	150	9464	10.4	9.06	12.01
Rural	770	60482	69.8	65.85	73.46	137	10460	12.1	7.48	18.91
Sex										
Boys	772	57704	65.0	60.60	69.08	126	9177	10.3	7.71	13.71
Girls	975	63912	72.3	69.91	74.55	161	10748	12.2	9.15	15.97
Ethnicity										
Malay	1030	71098	69.9	66.44	73.15	170	11034	10.8	7.42	15.59
Chinese	461	30508	64.9	61.55	68.14	69	4624	9.8	7.94	12.13
Indian	236	18436	69.8	66.72	72.76	46	4133	15.7	10.10	23.46
Bumiputera Sabah	4	331	73.6	41.34	91.69	1	53	11.8	1.14	60.70
Bumiputera Sarawak	1	79	25.0	2.08	83.91					
Others	15	1165	84.6	59.85	95.27	1	80	5.8	0.63	37.79
School level										
Primary school	532	43684	67.2	64.67	69.62	74	6146	9.5	5.42	15.97
Secondary school	1215	77932	69.4	66.00	72.67	213	13779	12.3	9.58	15.59
Class										
Standard 4	201	14204	64.8	60.10	69.27	30	2030	9.3	7.37	11.57
Standard 5	154	14456	67.6	65.26	69.77	19	1861	8.7	4.18	17.21
Standard 6	177	15023	69.2	63.86	74.11	25	2255	10.4	4.36	22.78
Form 1	226	15848	67.3	61.54	72.63	40	2723	11.6	10.12	13.20
Form 2	273	16092	72.6	66.96	77.57	56	3310	14.9	10.54	20.73
Form 3	295	15930	72.1	67.46	76.28	49	2745	12.4	9.07	16.78
Form 4	251	15116	69.9	63.29	75.83	33	1954	9.0	5.95	13.49
Form 5	170	14946	65.5	58.72	71.74	35	3047	13.4	7.79	21.96
School session										
Morning session	1041	71822	69.7	66.99	72.31	158	10620	10.3	7.97	13.24
Evening session	240	15337	64.4	59.21	69.23	41	2665	11.2	7.83	15.74
Morning and evening session	464	34221	68.3	63.92	72.42	88	6639	13.3	8.31	20.49
BMI-for-age status (BAZ)										
Thinness (<-2sd)	157	11868	74.3	67.44	80.10	15	1298	8.1	4.34	14.71
Normal (≥-2sd - ≤+1sd)	1056	72693	69.3	66.73	71.81	164	11111	10.6	8.32	13.40
Overweight (>+1sd - ≤+2sd)	278	19041	65.3	59.35	70.81	60	4031	13.8	10.22	18.44
Obese (>+2sd)	253	17796	65.8	61.74	69.66	48	3484	12.9	7.53	21.18
Height-for-age status (HAZ)										
Stunting (<-2sd)	117	8495	71.7	60.84	80.54	17	1360	11.5	5.51	22.40
Normal (≥-2sd)	1628	113009	68.4	66.11	70.58	269	18513	11.2	8.92	13.98

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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
Pulau Pinang	185	12947	7.3	6.01	8.84	589	40488	22.8	20.06	25.87
Locality of school										
Urban	101	6201	6.8	5.64	8.25	312	19943	22.0	18.75	25.55
Rural	84	6746	7.8	5.65	10.67	277	20545	23.8	19.36	28.79
Sex										
Boys	82	6414	7.2	5.33	9.71	279	20861	23.5	20.00	27.33
Girls	103	6533	7.4	5.97	9.11	310	19627	22.2	18.48	26.43
Ethnicity										
Malay	105	7169	7.0	5.58	8.87	390	26419	26.0	22.72	29.52
Chinese	53	3446	7.3	5.86	9.03	127	8727	18.5	15.55	21.79
Indian	26	2276	8.7	4.36	16.50	62	4515	17.2	10.11	27.71
Bumiputera Sabah						2	200	44.4	15.38	77.80
Bumiputera Sarawak						2	260	82.5	24.08	98.59
Others	1	57	4.4	0.52	28.61	6	368	28.4	12.50	52.31
School level										
Primary school	62	5314	8.2	5.78	11.40	182	14246	21.9	17.29	27.28
Secondary school	123	7633	6.8	5.51	8.38	407	26242	23.4	20.07	27.09
Class										
Standard 4	35	2874	13.0	6.55	24.23	73	5381	24.4	19.33	30.27
Standard 5	8	831	3.9	2.02	7.39	48	3961	18.6	11.30	29.02
Standard 6	19	1609	7.4	4.22	12.67	61	4905	22.6	16.55	29.98
Form 1	20	1312	5.6	3.33	9.12	65	4644	19.7	15.01	25.32
Form 2	29	1621	7.4	5.09	10.54	84	4878	22.1	17.86	27.13
Form 3	31	1664	7.5	5.06	11.05	105	5684	25.7	20.28	32.03
Form 4	20	1158	5.3	2.75	10.10	79	4567	21.1	16.21	26.88
Form 5	23	1877	8.3	5.13	13.03	74	6469	28.5	21.53	36.59
School session										
Morning session	117	8152	7.9	5.97	10.37	347	23488	22.7	19.91	25.84
Evening session	18	1152	4.8	2.96	7.78	74	4825	20.2	15.91	25.38
Morning and evening session	50	3643	7.3	5.76	9.24	167	12082	24.2	19.51	29.70
BMI-for-age status (BAZ)										
Thinness (<-2sd)	15	1090	6.8	3.63	12.44	54	3890	24.3	17.73	32.39
Normal (≥-2sd - ≤+1sd)	127	8897	8.5	6.69	10.68	357	24296	23.1	20.02	26.60
Overweight (>+1sd - ≤+2sd)	25	1656	5.7	3.51	9.18	92	6298	21.7	16.43	28.18
Obese (>+2sd)	18	1303	4.8	2.88	7.90	86	6004	22.1	16.72	28.68
Height-for-age status (HAZ)										
Stunting (<-2sd)	19	1484	12.5	7.25	20.56	39	2642	22.2	15.11	31.32
Normal (≥-2sd)	166	11463	6.9	5.83	8.23	549	37802	22.9	20.17	25.83

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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	
Pulau Pinang	1650	115524	65.2	62.34	67.88	106	8332	4.7	2.69	8.08
Locality of school										
Urban	955	59792	65.9	63.07	68.53	74	4860	5.4	3.31	8.55
Rural	695	55732	64.4	59.41	69.15	32	3472	4.0	1.28	11.93
Sex										
Boys	767	56650	63.7	60.75	66.61	62	4965	5.6	3.24	9.46
Girls	883	58874	66.6	62.13	70.79	44	3367	3.8	1.94	7.35
Ethnicity										
Malay	940	66161	65.1	61.25	68.67	27	1958	1.9	1.24	2.99
Chinese	484	31797	67.3	64.32	70.11	49	3290	7.0	4.59	10.43
Indian	212	16447	62.6	53.57	70.87	29	3026	11.5	4.76	25.32
Bumiputera Sabah	3	191	42.6	15.88	74.48	1	58	13.0	1.27	63.46
Bumiputera Sarawak	1	55	17.5	1.41	75.92					
Others	10	872	67.3	39.06	86.83					
School level										
Primary school	512	41859	64.3	59.35	68.92	39	3703	5.7	2.01	15.07
Secondary school	1138	73666	65.7	62.22	68.97	67	4629	4.1	2.32	7.23
Class										
Standard 4	190	12615	57.2	46.44	67.26	16	1196	5.4	3.42	8.50
Standard 5	158	15000	70.4	60.33	78.76	13	1526	7.2	1.37	30.05
Standard 6	164	14244	65.5	61.75	69.11	10	981	4.5	1.43	13.32
Form 1	234	16545	70.0	65.79	73.94	14	1126	4.8	2.33	9.51
Form 2	248	14681	66.6	61.99	71.00	14	848	3.8	2.19	6.69
Form 3	259	14151	64.0	58.01	69.63	10	603	2.7	0.95	7.58
Form 4	246	14791	68.2	61.42	74.29	20	1171	5.4	2.61	10.83
Form 5	151	13497	59.4	51.59	66.75	9	881	3.9	1.78	8.24
School session										
Morning session	974	67691	65.5	61.83	69.05	54	3964	3.8	2.50	5.85
Evening session	253	16332	68.5	64.77	71.99	25	1537	6.4	3.78	10.79
Morning and evening session	422	31425	63.1	58.89	67.04	26	2688	5.4	1.64	16.29
BMI-for-age status (BAZ)										
Thinness (<-2sd)	133	10305	64.4	53.34	74.14	9	712	4.5	1.73	10.99
Normal (≥-2sd - ≤+1sd)	964	66453	63.3	59.96	66.53	68	5320	5.1	2.89	8.74
Overweight (>+1sd - ≤+2sd)	287	19740	68.1	60.85	74.61	16	1283	4.4	2.03	9.39
Obese (>+2sd)	263	18809	69.3	63.17	74.86	13	1017	3.7	1.94	7.13
Height-for-age status (HAZ)										
Stunting (<-2sd)	102	7445	62.5	53.34	70.83	3	343	2.9	0.51	14.63
Normal (≥-2sd)	1546	107961	65.3	62.65	67.94	103	7990	4.8	2.90	7.96

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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	
Pulau Pinang	862	59247	33.3	29.49	37.43	400	29156	16.4	13.48	19.83
Locality of school										
Urban	525	33739	37.1	32.12	42.34	243	15614	17.2	13.71	21.27
Rural	337	25508	29.4	25.34	33.83	157	13542	15.6	11.08	21.56
Sex										
Boys	396	29307	32.9	28.52	37.65	209	15593	17.5	14.18	21.44
Girls	466	29940	33.8	29.83	37.91	191	13562	15.3	11.47	20.09
Ethnicity										
Malay	464	31247	30.7	26.21	35.59	222	16270	16.0	12.06	20.89
Chinese	245	16443	34.8	29.22	40.82	140	9718	20.6	15.44	26.85
Indian	142	10667	40.2	26.37	55.77	35	2851	10.7	9.00	12.77
Bumiputera Sabah										
Bumiputera Sarawak	1	55	17.5	1.41	75.92	2	260	82.5	24.08	98.59
Others	10	835	60.6	32.20	83.29	1	57	4.2	0.53	26.20
School level										
Primary school	206	16651	25.6	23.40	27.93	155	12680	19.5	15.76	23.87
Secondary school	656	42596	37.8	34.21	41.54	245	16476	14.6	11.19	18.88
Class										
Standard 4	73	4845	22.0	14.78	31.33	62	4086	18.5	14.66	23.12
Standard 5	60	5515	25.8	20.21	32.26	42	4126	19.3	13.86	26.18
Standard 6	73	6292	29.2	24.29	34.57	51	4468	20.7	16.81	25.23
Form 1	118	8284	34.9	28.56	41.79	48	3523	14.8	9.73	21.97
Form 2	141	8288	37.2	30.58	44.29	53	3154	14.1	9.91	19.80
Form 3	148	7987	36.1	30.90	41.68	50	2717	12.3	9.13	16.34
Form 4	135	7918	36.5	30.15	43.29	50	2976	13.7	9.40	19.58
Form 5	114	10119	44.4	37.24	51.72	44	4106	18.0	10.82	28.43
School session										
Morning session	497	34053	32.9	27.82	38.46	234	17157	16.6	13.08	20.81
Evening session	152	9608	40.1	33.96	46.51	71	4626	19.3	14.02	25.95
Morning and evening session	212	15510	31.0	25.96	36.58	94	7297	14.6	10.84	19.37
BMI-for-age status (BAZ)										
Thinness (<-2sd)	68	5092	31.9	26.87	37.49	42	3035	19.0	14.52	24.57
Normal (≥-2sd - ≤+1sd)	508	34407	32.6	27.70	37.97	234	17224	16.3	13.55	19.56
Overweight (>+1sd - ≤+2sd)	147	9783	33.6	28.70	38.91	62	4255	14.6	10.28	20.37
Obese (>+2sd)	137	9817	36.4	31.13	41.94	62	4641	17.2	12.18	23.72
Height-for-age status (HAZ)										
Stunting (<-2sd)	49	3291	27.7	20.14	36.85	28	2328	19.6	12.51	29.38
Normal (≥-2sd)	812	55904	33.7	30.00	37.70	371	26783	16.2	13.37	19.42

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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
Pulau Pinang	627	41107	23.1	18.70	28.24	453	32191	18.1	14.80	21.98
Locality of school										
Urban	364	22966	25.2	20.20	31.06	288	17656	19.4	14.79	25.04
Rural	263	18141	20.9	14.51	29.19	165	14536	16.8	12.29	22.44
Sex										
Boys	235	16631	18.7	14.48	23.77	218	15978	17.9	14.36	22.20
Girls	392	24476	27.6	22.12	33.84	235	16214	18.3	13.89	23.68
Ethnicity										
Malay	343	22050	21.7	15.60	29.28	216	15739	15.5	11.02	21.27
Chinese	206	13429	28.4	24.81	32.32	175	11159	23.6	18.54	29.57
Indian	73	5298	20.0	13.24	28.97	57	4781	18.0	13.81	23.16
Bumiputera Sabah						1	107	23.8	4.25	68.69
Bumiputera Sarawak										
Others	5	330	24.0	7.82	54.01	4	405	29.4	6.56	71.25
School level										
Primary school	117	9306	14.3	11.75	17.32	197	15712	24.2	20.35	28.43
Secondary school	510	31801	28.2	23.64	33.31	256	16479	14.6	11.46	18.48
Class										
Standard 4	41	2839	12.9	8.50	19.00	84	6121	27.7	24.03	31.78
Standard 5	25	2141	10.0	6.96	14.18	55	4922	23.0	16.56	31.02
Standard 6	51	4327	20.1	15.17	26.03	58	4670	21.6	16.43	27.96
Form 1	92	6188	26.1	19.35	34.10	57	3944	16.6	12.53	21.69
Form 2	111	6253	28.0	19.70	38.24	51	2969	13.3	9.44	18.45
Form 3	131	7020	31.7	27.38	36.46	56	2988	13.5	8.98	19.83
Form 4	96	5641	26.0	21.43	31.12	49	2890	13.3	9.62	18.14
Form 5	80	6699	29.4	22.41	37.44	43	3688	16.2	10.41	24.25
School session										
Morning session	390	25520	24.7	19.95	30.09	268	19044	18.4	13.98	23.86
Evening session	72	4729	19.7	14.06	26.95	61	3868	16.1	11.31	22.49
Morning and evening session	165	10858	21.7	14.80	30.69	123	9135	18.3	14.69	22.50
BMI-for-age status (BAZ)										
Thinness (<-2sd)	53	3894	24.4	18.16	32.03	39	2960	18.6	12.43	26.82
Normal (≥-2sd - ≤+1sd)	400	25765	24.4	19.60	30.00	282	19303	18.3	14.76	22.48
Overweight (>+1sd - ≤+2sd)	91	5889	20.2	16.26	24.90	67	5256	18.1	11.80	26.63
Obese (>+2sd)	82	5492	20.3	14.54	27.72	64	4599	17.0	13.30	21.57
Height-for-age status (HAZ)										
Stunting (<-2sd)	54	3619	30.5	22.72	39.55	29	2362	19.9	12.25	30.66
Normal (≥-2sd)	572	37421	22.6	18.17	27.71	424	29829	18.0	14.77	21.77

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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	
Pulau Pinang	62	4312	2.4	1.76	3.33	328	23517	13.2	10.47	16.59
Locality of school										
Urban	31	1888	2.1	1.41	3.04	143	8836	9.7	6.89	13.53
Rural	31	2424	2.8	1.71	4.53	185	14681	16.9	13.65	20.80
Sex										
Boys	30	2238	2.5	1.86	3.39	149	11657	13.1	9.10	18.49
Girls	32	2074	2.3	1.50	3.62	179	11860	13.4	11.10	16.02
Ethnicity										
Malay	33	2342	2.3	1.40	3.76	265	18877	18.5	16.14	21.23
Chinese	20	1278	2.7	1.79	4.06	30	1967	4.2	2.80	6.14
Indian	8	639	2.4	1.46	3.95	27	2235	8.4	6.30	11.16
Bumiputera Sabah	1	53	11.8	1.14	60.70	4	284	63.2	27.21	88.75
Bumiputera Sarawak										
Others						2	154	11.2	2.17	41.56
School level										
Primary school	26	1876	2.9	1.69	4.88	124	10236	15.7	11.40	21.33
Secondary school	36	2436	2.2	1.45	3.22	204	13281	11.8	8.73	15.73
Class										
Standard 4	11	725	3.3	2.30	4.67	36	2438	11.0	6.96	17.10
Standard 5	10	792	3.7	2.17	6.24	37	3479	16.3	10.67	23.99
Standard 6	5	359	1.7	0.46	5.89	51	4320	20.0	14.79	26.53
Form 1	5	412	1.7	0.83	3.59	37	2888	12.2	7.30	19.58
Form 2	7	395	1.8	0.87	3.59	35	2160	9.7	6.44	14.33
Form 3	5	264	1.2	0.46	3.07	63	3413	15.4	11.55	20.32
Form 4	10	577	2.7	1.18	5.89	42	2679	12.3	8.09	18.38
Form 5	9	788	3.5	1.58	7.39	27	2140	9.4	5.28	16.13
School session										
Morning session	35	2315	2.2	1.62	3.08	197	13672	13.2	10.47	16.56
Evening session	8	496	2.1	1.13	3.75	26	1882	7.8	4.22	14.13
Morning and evening session	19	1501	3.0	1.70	5.26	104	7871	15.7	12.49	19.65
BMI-for-age status (BAZ)										
Thinness (<-2sd)	5	392	2.5	0.98	6.03	21	1500	9.4	5.63	15.33
Normal (≥-2sd - ≤+1sd)	39	2748	2.6	1.77	3.82	184	12772	12.1	9.51	15.31
Overweight (>+1sd - ≤+2sd)	9	620	2.1	1.07	4.19	64	4831	16.6	11.68	23.04
Obese (>+2sd)	9	552	2.0	0.96	4.33	59	4414	16.4	12.72	20.77
Height-for-age status (HAZ)										
Stunting (<-2sd)	4	356	3.0	0.97	8.89	136	9975	11.3	6.70	18.52
Normal (≥-2sd)	58	3956	2.4	1.78	3.19	308	22172	13.4	10.46	16.96

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	Ice cream Percentage (%)	95% CI	
				Lower	Upper
Pulau Pinang	425	29312	16.5	14.43	18.78
Locality of school					
Urban	234	14578	16.0	13.68	18.69
Rural	191	14734	17.0	13.72	20.84
Sex					
Boys	198	14739	16.6	13.37	20.32
Girls	227	14573	16.4	14.80	18.20
Ethnicity					
Malay	247	17159	16.9	14.00	20.17
Chinese	127	8345	17.7	14.63	21.16
Indian	45	3384	12.8	9.95	16.20
Bumiputera Sabah	2	139	30.8	9.59	65.17
Bumiputera Sarawak					
Others	4	285	20.7	5.86	52.23
School level					
Primary school	128	10515	16.2	12.81	20.20
Secondary school	297	18798	16.7	14.15	19.57
Class					
Standard 4	57	4203	19.0	13.08	26.89
Standard 5	27	2539	11.9	7.59	18.08
Standard 6	44	3773	17.5	15.45	19.73
Form 1	54	3966	16.7	11.49	23.64
Form 2	67	3894	17.5	12.94	23.16
Form 3	79	4230	19.1	15.11	23.92
Form 4	66	3928	18.1	14.34	22.57
Form 5	31	2779	12.2	7.97	18.18
School session					
Morning session	250	17080	16.5	14.26	19.05
Evening session	56	3577	14.9	10.35	21.03
Morning and evening session	119	8655	17.3	14.04	21.16
BMI-for-age status (BAZ)					
Thinness (<-2sd)	42	3312	20.8	16.71	25.54
Normal (\geq -2sd - \leq +1sd)	253	16874	16.0	13.46	18.92
Overweight (>+1sd - \leq +2sd)	73	4935	17.0	13.63	20.89
Obese (>+2sd)	57	4191	15.5	11.97	19.91
Height-for-age status (HAZ)					
Stunting (<-2sd)	23	1509	12.7	7.19	21.50
Normal (\geq -2sd)	402	27803	16.8	14.80	18.97

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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	
Pulau Pinang	211	15713	8.8	6.73	11.52	1289	92702	52.1	46.64	57.60
Locality of school										
Urban	127	8071	8.9	6.77	11.59	756	48019	52.9	47.48	58.29
Rural	84	7642	8.8	5.41	13.95	533	44683	51.3	41.64	60.95
Sex										
Boys	125	9427	10.6	8.10	13.72	648	48785	54.8	49.04	60.43
Girls	86	6286	7.1	4.80	10.33	641	43917	49.5	43.17	55.83
Ethnicity										
Malay	112	8776	8.6	5.51	13.16	768	55354	54.2	45.96	62.23
Chinese	77	5159	10.9	8.00	14.77	334	22338	47.3	39.91	54.87
Indian	20	1677	6.4	4.01	10.00	173	13861	52.7	43.75	61.48
Bumiputera Sabah						5	397	88.2	39.30	98.86
Bumiputera Sarawak						1	79	25.0	2.08	83.91
Others	2	101	7.3	1.96	23.91	8	673	48.9	30.91	67.16
School level										
Primary school	97	7949	12.2	9.55	15.35	462	37600	57.5	51.40	63.36
Secondary school	114	7764	6.9	4.79	9.86	827	55103	49.0	41.92	56.20
Class										
Standard 4	46	3234	14.7	11.72	18.18	170	12451	56.4	47.54	64.92
Standard 5	21	2003	9.3	6.76	12.65	131	11799	54.8	45.69	63.53
Standard 6	30	2712	12.4	7.54	19.86	161	13350	61.3	50.71	70.85
Form 1	27	2023	8.6	4.54	15.55	138	10378	43.9	33.47	54.84
Form 2	22	1329	6.0	2.94	11.81	175	10654	48.0	36.46	59.73
Form 3	27	1576	7.1	3.76	13.07	191	10536	47.6	39.98	55.29
Form 4	25	1504	7.0	4.13	11.48	187	11356	52.5	43.89	60.94
Form 5	13	1331	5.9	3.35	10.06	136	12178	53.6	44.49	62.45
School session										
Morning session	124	9028	8.7	6.41	11.76	794	56539	54.6	48.97	60.16
Evening session	38	2487	10.4	5.49	18.88	188	12231	51.2	43.27	59.14
Morning and evening session	48	4054	8.1	4.80	13.35	305	23764	47.5	39.01	56.05
BMI-for-age status (BAZ)										
Thinness (<-2sd)	22	1843	11.5	7.87	16.40	106	7928	49.3	40.34	58.29
Normal (≥-2sd - ≤+1sd)	127	9229	8.8	6.31	12.03	776	55306	52.5	46.60	58.28
Overweight (>+1sd - ≤+2sd)	35	2571	8.9	5.88	13.13	215	15371	52.9	46.29	59.50
Obese (>+2sd)	27	2070	7.7	4.15	13.69	191	14020	51.9	43.07	60.55
Height-for-age status (HAZ)										
Stunting (<-2sd)	12	1138	9.6	4.68	18.52	91	6691	56.2	45.38	66.45
Normal (≥-2sd)	199	14574	8.8	6.85	11.24	1198	86011	51.9	46.56	57.21

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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
Pulau Pinang	1037	69350	39.0	31.95	46.56
Locality of school					
Urban	559	34654	38.2	31.82	45.00
Rural	478	34696	39.9	27.47	53.73
Sex					
Boys	419	30820	34.6	27.90	42.01
Girls	618	38530	43.4	35.21	52.01
Ethnicity					
Malay	589	37993	37.2	26.69	49.08
Chinese	301	19699	41.7	32.51	51.59
Indian	136	10765	40.9	32.40	50.04
Bumiputera Sabah	1	53	11.8	1.14	60.70
Bumiputera Sarawak	2	237	75.0	16.09	97.92
Others	8	603	43.8	24.30	65.37
School level					
Primary school	239	19854	30.4	23.21	38.59
Secondary school	798	49496	44.1	35.25	53.24
Class					
Standard 4	98	6381	28.9	19.76	40.19
Standard 5	78	7743	35.9	26.67	46.40
Standard 6	63	5730	26.3	14.68	42.52
Form 1	169	11254	47.6	34.22	61.28
Form 2	181	10219	46.0	31.99	60.72
Form 3	188	10032	45.3	36.23	54.70
Form 4	152	8776	40.6	31.87	49.88
Form 5	108	9216	40.6	31.61	50.17
School session					
Morning session	577	37939	36.7	29.94	43.93
Evening session	145	9156	38.4	26.87	51.30
Morning and evening session	315	22255	44.4	33.24	56.25
BMI-for-age status (BAZ)					
Thinness (<-2sd)	84	6313	39.2	31.11	48.04
Normal (≥-2sd - ≤+1sd)	620	40867	38.8	31.44	46.65
Overweight (>+1sd - ≤+2sd)	170	11089	38.2	29.87	47.28
Obese (>+2sd)	161	10941	40.5	31.48	50.17
Height-for-age status (HAZ)					
Stunting (<-2sd)	60	4078	34.2	21.78	49.35
Normal (≥-2sd)	974	65109	39.3	32.54	46.49

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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	
Pulau Pinang	301	22556	12.7	9.61	16.53	416	29263	16.4	12.75	20.93
Locality of school										
Urban	164	10790	11.9	8.36	16.55	247	15755	17.3	12.06	24.21
Rural	137	11767	13.5	8.96	19.90	169	13509	15.5	10.92	21.60
Sex										
Boys	139	10917	12.3	8.83	16.79	220	16381	18.4	13.47	24.63
Girls	162	11640	13.1	9.56	17.63	196	12882	14.5	10.76	19.18
Ethnicity										
Malay	191	13984	13.7	9.74	18.89	241	17106	16.7	12.80	21.57
Chinese	53	3746	7.9	5.72	10.94	143	9817	20.8	13.84	30.10
Indian	52	4366	16.5	10.94	23.99	29	2162	8.1	4.91	13.22
Bumiputera Sabah	1	93	20.6	2.15	75.44					
Bumiputera Sarawak	1	79	25.0	2.08	83.91					
Others	3	289	21.0	7.29	47.20	3	179	13.0	2.90	42.69
School level										
Primary school	120	10525	16.1	11.20	22.67	130	9823	15.1	11.15	20.01
Secondary school	181	12031	10.7	7.66	14.67	286	19440	17.2	12.17	23.85
Class										
Standard 4	42	2844	13.0	6.73	23.64	54	3649	16.7	12.38	22.12
Standard 5	33	3206	14.9	10.17	21.24	46	4056	18.8	14.37	24.27
Standard 6	45	4476	20.5	11.01	34.90	30	2118	9.7	5.16	17.45
Form 1	26	1854	7.8	4.45	13.41	56	4388	18.5	12.56	26.45
Form 2	34	2016	9.0	5.90	13.57	57	3425	15.3	9.46	23.88
Form 3	49	2770	12.5	7.25	20.62	59	3237	14.6	8.41	24.08
Form 4	39	2428	11.2	6.26	19.17	65	3915	18.0	14.09	22.78
Form 5	33	2963	13.0	8.23	19.91	49	4475	19.6	10.07	34.72
School session										
Morning session	179	12906	12.5	9.12	16.79	260	18610	18.0	14.18	22.49
Evening session	43	2825	11.8	7.91	17.20	61	3950	16.5	9.39	27.29
Morning and evening session	78	6733	13.4	7.75	22.26	95	6703	13.4	9.09	19.24
BMI-for-age status (BAZ)										
Thinness (<-2sd)	36	2767	17.2	13.49	21.69	38	2750	17.1	11.19	25.24
Normal (≥-2sd - ≤+1sd)	177	13218	12.5	9.05	17.11	248	17709	16.8	13.06	21.35
Overweight (>+1sd - ≤+2sd)	39	2859	9.8	7.00	13.61	78	4965	17.1	11.23	25.05
Obese (>+2sd)	48	3636	13.4	9.24	18.96	52	3839	14.1	10.91	18.07
Height-for-age status (HAZ)										
Stunting (<-2sd)	24	1967	16.4	9.13	27.81	31	2238	18.7	11.99	28.00
Normal (≥-2sd)	277	20589	12.4	9.54	15.99	385	27025	16.3	12.61	20.78

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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	
Pulau Pinang	448	33512	18.8	15.30	22.94	60	4135	2.3	1.56	3.43
Locality of school										
Urban	265	17098	18.8	14.24	24.37	38	2483	2.7	1.72	4.31
Rural	183	16414	18.9	13.78	25.27	22	1651	1.9	1.00	3.59
Sex										
Boys	251	19976	22.4	18.64	26.76	35	2471	2.8	1.65	4.64
Girls	197	13536	15.2	11.28	20.19	25	1663	1.9	1.21	2.87
Ethnicity										
Malay	287	21191	20.7	15.80	26.72	37	2502	2.4	1.51	3.94
Chinese	101	7075	15.0	11.13	19.93	17	1240	2.6	1.13	6.02
Indian	59	5173	19.5	14.76	25.29	6	392	1.5	0.50	4.26
Bumiputera Sabah	1	73	16.2	1.62	69.40					
Bumiputera Sarawak										
Others										
School level										
Primary school	167	14233	21.8	18.53	25.48	26	1767	2.7	1.29	5.60
Secondary school	281	19279	17.1	12.47	22.98	34	2367	2.1	1.37	3.20
Class										
Standard 4	48	3700	16.9	11.14	24.87	11	689	3.2	1.75	5.62
Standard 5	39	3874	18.0	13.38	23.73	10	730	3.4	1.20	9.18
Standard 6	80	6658	30.5	26.89	34.30	5	348	1.6	0.47	5.27
Form 1	61	4803	20.3	13.78	28.80	7	599	2.5	1.06	5.93
Form 2	71	4449	19.9	12.60	30.00	3	177	0.8	0.25	2.47
Form 3	62	3422	15.4	10.83	21.46	11	663	3.0	1.26	6.91
Form 4	54	3360	15.5	10.87	21.55	6	366	1.7	0.73	3.85
Form 5	33	3246	14.2	8.19	23.58	7	563	2.5	1.07	5.59
School session										
Morning session	251	18422	17.8	14.16	22.09	39	2601	2.5	1.58	3.97
Evening session	87	5888	24.6	18.15	32.34	6	461	1.9	0.74	4.88
Morning and evening session	109	9126	18.2	12.96	24.95	14	997	2.0	0.98	3.99
BMI-for-age status (BAZ)										
Thinness (<-2sd)	29	2473	15.4	10.75	21.52	6	433	2.7	1.20	5.94
Normal (>=2sd - <=+1sd)	264	19087	18.1	14.70	22.09	36	2508	2.4	1.55	3.63
Overweight (>+1sd - <=+2sd)	75	5717	19.6	14.70	25.75	7	509	1.8	0.85	3.58
Obese (>+2sd)	80	6235	22.9	17.28	29.76	11	684	2.5	1.31	4.76
Height-for-age status (HAZ)										
Stunting (<-2sd)	24	1797	15.0	9.82	22.28	2	166	1.4	0.31	5.94
Normal (>=2sd)	424	31715	19.1	15.53	23.30	58	3969	2.4	1.64	3.49

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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	
Pulau Pinang	206	13869	7.8	5.43	11.06	157	11694	6.6	4.44	9.61
Locality of school										
Urban	134	8286	9.1	5.09	15.75	68	4243	4.7	2.80	7.67
Rural	72	5584	6.4	5.57	7.38	89	7451	8.6	5.50	13.09
Sex										
Boys	94	6556	7.4	4.78	11.17	78	6015	6.8	4.16	10.79
Girls	112	7314	8.2	5.68	11.74	79	5679	6.4	4.32	9.32
Ethnicity										
Malay	86	5932	5.8	4.79	7.01	122	9096	6.4	4.32	9.32
Chinese	97	5915	12.5	6.94	21.63	12	777	6.4	4.32	9.32
Indian	17	1518	5.7	3.75	8.62	20	1516	5.7	3.31	9.67
Bumiputera Sabah	3	265	59.0	16.03	91.56	1	73	16.2	1.62	69.40
Bumiputera Sarawak										
Others	3	239	17.4	5.30	44.07	2	232	16.9	4.28	47.89
School level										
Primary school	79	5944	17.4	5.30	44.07	71	6308	9.7	6.18	14.80
Secondary school	127	7925	7.0	5.73	8.59	86	5386	4.8	3.09	7.32
Class										
Standard 4	31	2145	9.8	3.91	22.50	28	2388	10.9	5.30	21.16
Standard 5	19	1615	7.5	3.16	16.73	19	1459	6.8	3.42	12.97
Standard 6	29	2184	10.0	4.43	21.03	24	2460	11.3	5.91	20.41
Form 1	23	1554	6.6	4.42	9.63	12	814	3.4	1.72	6.73
Form 2	27	1580	7.1	4.53	10.86	21	1328	5.9	3.12	11.04
Form 3	26	1351	6.1	3.80	9.59	27	1456	3.4	1.72	6.73
Form 4	30	1697	7.8	5.21	11.56	16	989	4.6	2.57	7.94
Form 5	21	1743	7.6	5.23	11.04	10	799	3.5	1.40	8.52
School session										
Morning session	115	7626	7.6	5.23	11.04	91	6704	6.5	4.35	9.51
Evening session	33	1987	8.3	5.74	11.83	19	1283	5.4	2.77	10.08
Morning and evening session	57	4163	8.3	6.24	10.97	47	3708	7.4	4.64	11.59
BMI-for-age status (BAZ)										
Thinness (<-2sd)	15	995	8.3	6.24	10.97	15	1197	7.4	4.18	12.90
Normal (≥-2sd - ≤+1sd)	134	8929	8.5	6.05	11.73	92	6718	6.4	4.46	9.02
Overweight (>+1sd - ≤+2sd)	34	2298	7.9	4.61	13.20	18	1381	4.7	2.45	8.99
Obese (>+2sd)	23	1647	6.1	3.03	11.75	32	2397	8.8	5.05	14.94
Height-for-age status (HAZ)										
Stunting (<-2sd)	12	863	7.2	4.41	11.58	11	762	6.4	3.49	11.33
Normal (≥-2sd)	194	13007	7.8	5.33	11.39	146	10932	6.6	4.33	9.90

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	
Pulau Pinang	250	17877	10.0	7.82	12.81
Locality of school					
Urban	153	9825	10.8	7.55	15.20
Rural	97	8052	9.3	6.52	12.97
Sex					
Boys	108	8045	9.0	6.49	12.45
Girls	142	9832	11.0	8.24	14.64
Ethnicity					
Malay	124	9018	8.8	6.36	12.12
Chinese	86	5829	12.4	8.31	18.00
Indian	37	2809	10.6	5.81	18.52
Bumiputera Sabah	1	66	14.6	2.91	49.38
Bumiputera Sarawak	1	79	25.0	2.08	83.91
Others	1	76	5.5	0.59	36.52
School level					
Primary school	83	6903	10.6	7.74	14.30
Secondary school	167	10974	9.7	6.82	13.69
Class					
Standard 4	37	2836	13.0	8.42	19.44
Standard 5	18	1853	8.6	5.59	13.02
Standard 6	28	2214	10.1	5.24	18.69
Form 1	21	1482	6.3	3.87	9.97
Form 2	26	1474	6.6	4.58	9.42
Form 3	40	2153	9.7	6.13	15.01
Form 4	41	2386	11.0	7.39	16.03
Form 5	39	3478	15.2	9.28	24.03
School session					
Morning session	161	11594	11.2	8.29	14.94
Evening session	29	1770	7.4	4.28	12.44
Morning and evening session	60	4513	9.0	6.07	13.15
BMI-for-age status (BAZ)					
Thinness (<-2sd)	18	1526	9.5	6.37	13.89
Normal (\geq -2sd - \leq +1sd)	167	11553	11.0	8.48	14.05
Overweight ($>$ +1sd - \leq +2sd)	37	2876	9.9	6.16	15.49
Obese ($>$ +2sd)	28	1922	7.1	4.25	11.52
Height-for-age status (HAZ)					
Stunting (<-2sd)	27	2090	17.5	10.32	28.02
Normal (\geq -2sd)	223	15787	9.5	7.38	12.19

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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	
Pulau Pinang	814	56138	31.6	28.47	34.82	798	58761	33.0	25.70	41.30
Locality of school										
Urban	444	28292	31.0	28.23	33.97	374	22670	24.9	18.10	33.13
Rural	370	27847	32.1	26.63	38.17	424	36091	41.6	32.62	51.25
Sex										
Boys	367	27246	30.6	27.64	33.65	363	28869	32.4	23.12	43.26
Girls	447	28892	32.6	28.35	37.09	435	29892	33.7	27.30	40.75
Ethnicity										
Malay	501	34336	33.6	30.85	36.46	578	41679	40.8	33.41	48.59
Chinese	216	14524	30.7	27.02	34.72	95	6196	13.1	9.15	18.44
Indian	91	6744	25.7	15.37	39.64	117	10054	38.3	27.43	50.43
Bumiputera Sabah	1	53	11.8	1.14	60.70	2	139	30.8	9.59	65.17
Bumiputera Sarawak	1	55	17.5	1.41	75.92	1	181	57.5	8.78	95.01
Others	4	426	30.9	8.14	69.40	5	512	37.2	11.54	72.82
School level										
Primary school	236	18569	28.6	22.43	35.63	342	29649	45.6	35.66	55.95
Secondary school	578	37569	33.3	30.58	36.11	456	29112	25.8	20.30	32.17
Class										
Standard 4	81	5202	23.8	15.07	35.47	138	10245	46.9	34.27	59.87
Standard 5	69	6496	30.1	18.57	44.97	95	9586	44.5	35.39	53.98
Standard 6	86	6872	30.1	18.57	44.97	109	9818	45.5	33.58	57.94
Form 1	84	6003	25.3	18.80	33.09	98	7046	29.7	20.98	40.13
Form 2	116	6737	30.2	23.86	37.29	107	6362	28.5	22.84	34.87
Form 3	132	7153	32.2	27.50	37.31	112	6063	27.3	22.73	32.41
Form 4	136	8138	37.4	31.10	44.14	90	5463	25.1	17.66	34.37
Form 5	110	9537	41.8	36.15	47.69	49	4177	18.3	11.83	27.25
School session										
Morning session	508	34870	33.6	30.66	36.62	459	32413	31.2	24.58	38.70
Evening session	96	6113	25.4	21.37	29.99	90	6115	25.4	16.88	36.45
Morning and evening session	210	15155	30.5	24.03	37.88	247	20014	40.3	30.38	51.09
BMI-for-age status (BAZ)										
Thinness (<-2sd)	69	4836	30.1	21.26	40.63	69	5774	35.9	23.94	49.91
Normal (≥-2sd - ≤+1sd)	501	34567	32.8	29.99	35.78	467	33044	31.4	24.75	38.85
Overweight (>+1sd - ≤+2sd)	128	8598	29.5	24.39	35.15	128	9490	32.5	25.38	40.62
Obese (>+2sd)	114	7994	29.5	24.91	34.59	133	10386	38.4	27.74	50.20
Height-for-age status (HAZ)										
Stunting (<-2sd)	53	3915	32.7	22.94	44.28	70	5150	43.0	35.19	51.25
Normal (≥-2sd)	760	52156	31.5	28.28	34.84	725	53447	32.2	24.71	40.84

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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	
Pulau Pinang	91	6632	3.7	2.73	5.07	150	10308	5.8	4.74	7.06
Locality of school										
Urban	54	3316	3.6	2.27	5.78	86	5226	5.7	4.45	7.35
Rural	37	3316	3.8	2.56	5.68	64	5081	5.9	4.28	7.98
Sex										
Boys	53	3817	4.3	3.06	5.95	74	5222	5.9	4.36	7.82
Girls	38	2815	3.2	2.07	4.83	76	5085	5.7	4.58	7.16
Ethnicity										
Malay	44	3290	3.2	2.19	4.71	80	5399	5.3	4.00	6.95
Chinese	15	945	2.0	1.01	3.93	39	2495	5.3	3.63	7.63
Indian	29	2152	8.2	5.52	12.00	28	2203	8.4	6.70	10.44
Bumiputera Sabah	2	151	33.6	5.87	80.44	1	107	23.8	4.25	68.69
Bumiputera Sarawak						1	55	17.5	1.41	75.92
Others	1	94	6.8	0.74	41.77	1	49	3.6	0.49	22.01
School level										
Primary school	40	3312	5.1	4.54	5.72	66	5089	7.8	5.95	10.24
Secondary school	51	3320	2.9	1.73	4.97	84	5219	4.6	3.72	5.73
Class										
Standard 4	21	1549	7.1	4.75	10.44	24	1595	7.3	6.13	8.67
Standard 5	9	931	4.3	2.96	6.26	23	1924	8.9	5.56	14.04
Standard 6	10	832	3.9	2.49	5.93	19	1570	7.3	4.01	12.82
Form 1	15	1070	4.5	2.61	7.65	14	943	4.0	2.31	6.76
Form 2	7	451	2.0	0.88	4.56	16	929	4.2	2.45	6.98
Form 3	16	972	4.4	1.91	9.70	25	1330	6.0	3.78	9.36
Form 4	11	664	3.1	1.43	6.40	15	844	3.9	2.44	6.11
Form 5	2	163	0.7	0.18	2.74	14	1173	5.1	3.77	6.98
School session										
Morning session	48	3365	3.2	2.04	5.11	85	6096	5.9	4.57	7.50
Evening session	15	999	4.2	2.24	7.58	19	1132	4.7	2.73	8.01
Morning and evening session	26	2100	4.2	2.61	6.79	46	3080	6.2	3.87	9.79
BMI-for-age status (BAZ)										
Thinness (<-2sd)	10	846	5.3	2.13	12.42	16	1221	7.6	4.46	12.63
Normal (≥-2sd - ≤+1sd)	51	3653	3.5	2.37	5.05	85	5629	5.3	4.19	6.80
Overweight (>+1sd - ≤+2sd)	13	909	3.1	1.89	5.11	23	1588	5.4	3.53	8.32
Obese (>+2sd)	17	1224	4.5	2.84	7.11	26	1871	6.9	4.18	11.19
Height-for-age status (HAZ)										
Stunting (<-2sd)	5	452	3.8	1.66	8.34	11	730	6.1	3.11	11.62
Normal (≥-2sd)	86	6180	3.7	2.73	5.08	139	9577	5.8	4.73	7.05

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 (%)	95% CI	
				Lower	Upper
Pulau Pinang	906	60891	34.2	27.59	41.56
Locality of school					
Urban	610	38932	42.7	35.48	50.24
Rural	296	21959	25.3	19.38	32.39
Sex					
Boys	432	30898	34.7	26.09	44.35
Girls	474	29993	33.8	27.53	40.71
Ethnicity					
Malay	410	27216	26.6	21.32	32.72
Chinese	394	26088	55.2	50.51	59.81
Indian	91	6838	26.0	20.00	33.12
Bumiputera Sabah					
Bumiputera Sarawak	1	79	25.0	2.08	83.91
Others	10	671	48.7	21.31	76.90
School level					
Primary school	196	14957	23.0	15.53	32.70
Secondary school	710	45934	40.7	34.86	46.81
Class					
Standard 4	67	4304	19.7	13.41	27.96
Standard 5	58	4820	22.4	14.07	33.65
Standard 6	71	5834	27.0	17.39	39.46
Form 1	149	10497	44.2	32.61	56.46
Form 2	154	8945	40.0	32.63	47.93
Form 3	166	8982	40.4	32.48	48.95
Form 4	137	8002	36.8	29.92	44.19
Form 5	104	9507	41.7	35.68	47.93
School session					
Morning session	528	35392	34.1	27.15	41.75
Evening session	166	10561	43.9	31.82	56.85
Morning and evening session	212	14938	30.1	24.91	35.81
BMI-for-age status (BAZ)					
Thinness (<-2sd)	66	4653	28.9	20.36	39.33
Normal (\geq -2sd - \leq +1sd)	550	36935	35.1	28.17	42.65
Overweight ($>$ +1sd - \leq +2sd)	161	10855	37.2	31.91	42.88
Obese ($>$ +2sd)	128	8374	30.9	21.41	42.38
Height-for-age status (HAZ)					
Stunting (<-2sd)	43	3028	25.3	17.17	35.63
Normal (\geq -2sd)	863	57863	34.9	28.11	42.39

3.5 Physical activity among adolescents (Primary 4 to Secondary 5) in Pulau Pinang

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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 PAQ-C mean score for the physical activity level for adolescents in Pulau Pinang was 2.30 (95% CI: 2.18, 2.42) (**Table 3.5.1**). Overall, a total of 45.5% (95% CI: 37.49, 53.67) adolescents were physically active and 54.5% (95% CI: 46.33, 62.51) of them were not active. In terms of school locality, the prevalence of students who are active in urban area were (37.0% (95% CI: 28.40, 46.46) and from rural areas were (54.7% (95% CI: 45.35, 63.80)). The prevalence of being physically active was significantly higher among boys (53.6% (95% CI: 43.78, 63.23) compared to girls, 37.5% (95% CI: 29.05, 46.86)). By school level, primary students [(65.3% (95% CI: 62.78, 67.70))] showed a higher prevalence of being physically active than secondary students [(35.2% (95% CI: 30.38, 40.32))]. In terms of BMI-for-age status, there is no significant difference in being physically active among thinness [48.0% (95% CI: 36.09, 60.05)], normal [44.8% (95% CI: 36.21, 53.81)], overweight [44.4% (95% CI: 36.11, 53.00)] and obese [47.7% (95% CI: 40.06, 55.35)] (**Table 3.5.2**).

The most popular spare-time physical activity according to percentage among adolescents in Pulau Pinang was walking for exercise [81.7% (95% CI: 77.77, 85.01)] (**Table 3.5.3**). The prevalence of students who reported not attending/very rarely participating in PE class was 17.3% (95% CI: 14.45, 20.67)] (**Table 3.5.4**). During school days, 28.9% (95% CI: 24.64, 33.53) of adolescents watched television, used the computer and played video games for more than 2 hours per day (**Table 3.5.6**). Meanwhile, 47.3% (95% CI: 41.89, 52.73) of adolescents engaged in these activities more than 2 hours during weekends (**Table 3.5.5**).

3.5.5 Discussion

The prevalence of being physically active among adolescents in Pulau Pinang (45.5%) was slightly higher than national prevalence (44.6%). Boys and primary school students had significantly higher prevalence of being physically active than girls and secondary school students. There was no significant difference in terms of school locality and BMI-for-age status of the respondents. The prevalence of adolescents that engaged with screen activities more than 2 hours was higher during weekends than school days.

3.5.6 Conclusion

Based on the National Health and Morbidity Survey (2017), 54.5% of children and adolescents in Pulau Pinang were physically inactive. The prevalence of physical inactivity among Malaysian adolescents slightly decreased 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 lives. Policies and campaigns 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 and sedentary behaviour as well as screen time of their children. Interviewing technique for physical activity assessment should be applied in 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 encourage an active lifestyle and limit the amount of sedentary activity as well as screen viewing time for their children. An improved 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
PULAU PINANG	2.30	2.18	2.42
Locality of school			
Urban	2.18	2.03	2.32
Rural	2.44	2.32	2.56
Sex			
Boys	2.43	2.28	2.58
Girls	2.18	2.05	2.31
Class			
Standard 4	2.58	2.45	2.71
Standard 5	2.59	2.53	2.66
Standard 6	2.58	2.46	2.70
Form 1	2.26	2.15	2.38
Form 2	2.23	2.15	2.31
Form 3	2.19	2.08	2.31
Form 4	2.10	2.00	2.20
Form 5	1.99	1.84	2.13
Ethnicity			
Malay	2.38	2.26	2.50
Chinese	2.07	1.89	2.25
Indian	2.43	2.21	2.65
Bumiputera Sabah	2.13	1.80	2.46
Bumiputera Sarawak	2.78	2.15	3.40
Others	2.25	1.99	2.51
School Category			
Primary	2.58	2.53	2.64
Secondary	2.15	2.07	2.24
BMI-for-age status (BAZ)			
Thinness (<-2sd)	2.30	2.12	2.47
Normal (≥-2sd - ≤+1sd)	2.29	2.17	2.42
Overweight (>+1sd - ≤+2sd)	2.31	2.18	2.44
Obese (>+2sd)	2.32	2.23	2.42
Height-for-age status (HAZ)			
Stunting (<-2sd)	2.36	2.18	2.53
Normal (≥-2sd)	2.30	2.18	2.42

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)

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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
PULAU PINANG	1041	74677	45.5	37.49	53.67	1323	89595	54.5	46.33	62.51
Locality of School										
Urban	522	31734	37.0	28.40	46.46	836	54086	63.0	53.54	71.60
Rural	519	42943	54.7	45.35	63.80	487	35509	45.3	36.20	54.65
Sex										
Boys	581	43342	53.6	43.78	63.23	511	37454	46.4	36.77	56.22
Girls	460	31335	37.5	29.05	46.86	812	52141	62.5	53.14	70.95
Class										
Standard 4	156	11566	66.0	56.86	74.12	94	5953	34.0	25.88	43.14
Standard 5	129	11657	63.9	56.31	70.90	72	6579	36.1	29.10	43.69
Standard 6	158	13376	65.9	57.51	73.34	79	6932	34.1	26.66	42.49
Form 1	130	9709	44.0	37.05	51.21	182	12354	56.0	48.79	62.95
Form 2	142	8328	39.3	33.57	45.26	219	12885	60.7	54.74	66.43
Form 3	153	8288	38.5	30.99	46.60	241	13241	61.5	53.40	69.01
Form 4	115	6666	31.5	25.84	37.83	241	14476	68.5	62.17	74.16
Form 5	58	5086	22.8	14.36	34.33	195	17176	77.2	65.67	85.64
Ethnicity										
Malay	658	47116	50.4	41.65	59.10	700	46389	49.6	40.90	58.35
Chinese	215	13840	30.7	20.23	43.60	463	31263	69.3	56.40	79.77
Indian	156	12695	53.2	40.27	65.68	148	11177	46.8	34.32	59.73
Bumiputera Sabah	2	160	44.8	16.18	77.33	3	197	55.2	22.67	83.82
Bumiputera Sarawak	1	79	58.8	6.40	96.74	1	55	41.2	3.26	93.60
Others	9	788	60.5	29.10	85.16	8	513	39.5	14.84	70.90
School Category										
Primary	443	36599	65.3	62.78	67.70	245	19463	34.7	32.30	37.22
Secondary	598	38077	35.2	30.38	40.32	1078	70132	64.8	59.68	69.62
BMI-for-age status (BAZ)										
Thinness (<-2sd)	93	7064	48.0	36.09	60.05	104	7668	52.0	39.95	63.91
Normal (≥-2sd - ≤+1sd)	617	43718	44.8	36.21	53.81	803	53760	55.2	46.19	63.79
Overweight (>+1sd - ≤+2sd)	170	12038	44.4	36.11	53.00	226	15078	55.6	47.00	63.89
Obese (>+2sd)	160	11784	47.7	40.06	55.35	188	12946	52.3	44.65	59.94
Height-for-age status (HAZ)										
Stunting (<-2sd)	78	5803	51.3	36.94	65.36	80	5519	48.7	34.64	63.06
Normal (≥-2sd)	961	68777	45.0	37.11	53.18	1242	84009	55.0	46.82	62.89

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	2061	81.7	77.77	85.01
Jogging/Running	1889	74.2	68.54	79.23
Tagging	1750	69.7	62.72	75.84
Badminton	1716	68.8	59.51	76.72
Cycling	1342	54.9	44.62	64.71

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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
PULAU PINANG	441	30814	17.3	14.45	20.67	1355	95364	53.7	49.72	57.57
Locality of school										
Urban	283	17853	19.6	14.90	25.42	714	45278	49.8	45.33	54.23
Rural	158	12961	14.9	12.73	17.46	641	50086	57.8	52.75	62.60
Sex										
Boys	216	15810	17.8	14.27	21.99	577	43533	49.0	44.31	53.77
Girls	225	15004	16.9	12.96	21.69	778	51831	58.3	53.47	62.99
Class										
Standard 4	65	4438	20.4	17.74	23.27	151	10414	47.8	39.28	56.42
Standard 5	42	4108	19.1	14.58	24.66	112	10603	49.4	44.36	54.36
Standard 6	21	1933	8.9	5.08	15.23	145	12937	59.8	49.29	69.47
Form 1	47	3276	13.8	8.25	22.26	178	12563	53.0	47.12	58.85
Form 2	61	3588	16.1	11.85	21.39	203	12070	54.0	47.20	60.69
Form 3	68	3838	17.3	11.27	25.58	231	12626	56.8	48.34	64.97
Form 4	79	4657	21.5	15.36	29.13	193	11635	53.6	47.25	59.83
Form 5	58	4977	21.8	13.49	33.31	142	12516	54.9	46.13	63.31
Ethnicity										
Malay	237	16388	16.1	13.50	19.06	855	59547	58.5	55.25	61.60
Chinese	136	9129	19.4	12.91	28.01	347	23134	49.1	43.38	54.78
Indian	65	5106	19.2	14.58	24.96	143	11820	44.5	37.80	51.50
Bumiputera Sabah	1	58	13.0	1.27	63.46	1	66	14.6	2.91	49.38
Bumiputera Sarawak	-	-	-	-	-	2	237	75.0	16.09	97.92
Others	2	132	9.6	2.01	35.35	7	560	40.6	23.22	60.79
School level										
Primary	128	10478	16.1	14.58	17.84	408	33955	52.3	45.57	58.96
Secondary	313	20336	18.0	13.77	23.26	947	61410	54.5	49.51	59.32
BMI-for-age status (BAZ)										
Thinness (<-2sd)	44	3525	22.0	14.79	31.41	105	7887	49.2	40.71	57.74
Normal (≥-2sd - ≤+1sd)	250	17483	16.6	13.66	20.05	817	56268	53.5	49.54	57.32
Overweight (>+1sd - ≤+2sd)	69	4580	15.7	12.15	20.06	225	15838	54.3	47.42	61.05
Obese (>+2sd)	77	5150	19.1	14.34	24.90	207	15304	56.7	48.35	64.64
Height-for-age status (HAZ)										
Stunting (<-2sd)	33	2526	21.1	14.61	29.51	87	6113	51.1	42.79	59.32
Normal (≥-2sd)	407	28237	17.1	14.15	20.41	1266	89140	53.84	49.55	58.08

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
PULAU PINANG	741	51503	29.0	24.84	33.51
Locality of school					
Urban	447	27826	30.6	23.75	38.42
Rural	294	23677	27.3	23.63	31.31
Sex					
Boys	397	29443	33.2	27.55	39.30
Girls	344	22059	24.8	21.56	28.38
Class					
Standard 4	95	6942	31.9	24.54	40.18
Standard 5	75	6775	31.5	27.13	36.29
Standard 6	87	6765	31.3	19.85	45.53
Form 1	109	7854	33.1	23.68	44.21
Form 2	116	6685	29.9	24.85	35.54
Form 3	108	5746	25.9	19.51	33.44
Form 4	93	5417	25.0	21.14	29.20
Form 5	58	5319	23.3	13.78	36.65
Ethnicity					
Malay	375	25922	25.4	23.11	27.94
Chinese	228	14881	31.6	20.83	44.71
Indian	124	9610	36.2	31.58	41.12
Bumiputera Sabah	4	325	72.4	39.46	91.33
Bumiputera Sarawak	1	79	25.0	2.08	83.91
Others	9	685	49.8	34.14	65.44
School level					
Primary	257	20482	31.6	25.30	38.56
Secondary	484	31021	27.5	22.21	33.53
BMI-for-age status (BAZ)					
Thinness (<-2sd)	62	4617	28.8	23.87	34.31
Normal (≥-2sd - ≤+1sd)	456	31521	29.9	25.15	35.21
Overweight (>+1sd - ≤+2sd)	128	8741	30.0	23.26	37.68
Obese (>+2sd)	94	6551	24.3	18.16	31.61
Height-for-age status (HAZ)					
Stunting (<-2sd)	44	3327	27.8	22.16	34.25
Normal (≥-2sd)	697	48176	29.1	24.67	33.97

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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
PULAU PINANG	1307	93623	52.7	47.27	58.11	1227	83964	47.3	41.89	52.73
Locality of school										
Urban	686	42924	47.2	40.89	53.67	756	47947	52.8	46.33	59.11
Rural	621	50699	58.5	52.48	64.21	471	36017	41.5	35.79	47.52
Sex										
Boys	579	44086	49.7	44.54	54.77	609	44708	50.3	45.23	55.46
Girls	728	49537	55.8	48.48	62.85	618	39256	44.2	37.15	51.52
Class										
Standard 4	205	13693	62.9	52.19	72.46	104	8080	37.1	27.54	47.81
Standard 5	151	14147	66.3	60.80	71.36	77	7196	33.7	28.64	39.20
Standard 6	154	13764	63.4	57.32	69.02	99	7957	36.6	30.98	42.68
Form 1	191	13235	55.9	47.98	63.46	143	10455	44.1	36.54	52.02
Form 2	180	10616	47.5	38.35	56.85	200	11727	52.5	43.15	61.65
Form 3	171	9448	42.5	38.04	47.16	236	12762	57.5	52.84	61.96
Form 4	138	8400	38.7	31.65	46.29	227	13297	61.3	53.71	68.35
Form 5	117	10322	45.2	37.91	52.80	141	12490	54.8	47.20	62.09
Ethnicity										
Malay	813	57777	56.7	50.84	62.38	651	44114	43.3	37.62	49.16
Chinese	279	18678	39.6	31.14	48.68	433	28521	60.4	51.32	68.86
Indian	201	16198	61.5	57.16	65.59	130	10157	38.5	34.41	42.84
Bumiputera Sabah	4	291	64.8	29.34	89.07	2	158	35.2	10.93	70.66
Bumiputera Sarawak	2	134	42.5	4.99	91.22	1	181	57.5	8.78	95.01
Others	8	545	39.6	17.13	67.49	10	832	60.4	32.51	82.87
School level										
Primary	510	41603	64.2	61.56	66.70	280	23233	35.8	33.30	38.44
Secondary	797	52020	46.1	42.03	50.30	947	60731	53.9	49.70	57.97
BMI-for-age status (BAZ)										
Thinness (<-2sd)	121	9613	60.1	49.24	70.07	90	6379	39.9	29.93	50.76
Normal (≥-2sd - ≤+1sd)	782	55230	52.5	46.81	58.12	738	49974	47.5	41.88	53.19
Overweight (>+1sd - ≤+2sd)	214	15091	51.8	44.97	58.47	208	14069	48.2	41.53	55.03
Obese (>+2sd)	188	13540	50.1	43.63	56.61	190	13475	49.9	43.39	56.37
Height-for-age status (HAZ)										
Stunting (<-2sd)	101	7801	65.2	54.54	74.52	63	4165	34.8	25.48	45.46
Normal (≥-2sd)	1205	85777	51.8	46.62	57.02	1162	79680	48.2	42.98	53.38

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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
PULAU PINANG	1805	25609999	71.1	66.47	75.36	723	51155	28.9	24.64	33.53
Locality of school										
Urban	970	60489	66.8	61.17	71.92	468	30114	33.2	28.08	38.83
Rural	835	65469	75.7	69.77	80.75	255	21041	24.3	19.25	30.23
Sex										
Boys	786	58930	66.5	61.80	70.96	399	29642	33.5	29.04	38.20
Girls	1019	67027	75.7	70.49	80.26	324	21513	24.3	19.74	29.51
Class										
Standard 4	221	15092	69.3	63.16	74.82	88	6688	30.7	25.18	36.84
Standard 5	167	15792	73.5	63.93	81.28	62	5694	26.5	18.72	36.07
Standard 6	186	16224	75.5	67.68	81.96	66	5259	24.5	18.04	32.32
Form 1	253	17569	74.2	66.71	80.44	81	6121	25.8	19.56	33.29
Form 2	287	16810	75.5	66.12	82.91	92	5463	24.5	17.09	33.88
Form 3	284	15285	69.0	60.10	76.64	122	6875	31.0	23.36	39.90
Form 4	231	13750	63.9	56.37	70.71	131	7784	36.1	29.29	43.63
Form 5	176	15435	68.0	57.27	77.07	81	7271	32.0	22.93	42.73
Ethnicity										
Malay	1111	76828	75.6	70.68	79.92	350	24805	24.4	20.08	29.32
Chinese	431	28336	60.2	51.97	67.93	279	18719	39.8	32.07	48.03
Indian	239	18957	71.7	68.11	75.09	92	7472	28.3	24.91	31.89
Bumiputera Sabah	5	357	79.4	24.56	97.85	1	93	20.6	2.15	75.44
Bumiputera Sarawak	3	316	100.0	0.00	100.00	-	-	-	-	-
Others	16	1164	94.6	64.52	99.41	1	66	5.4	0.59	35.48
School level										
Primary	574	47108	72.8	67.95	77.09	216	17641	27.2	22.91	32.05
Secondary	1231	78849	70.2	63.48	76.10	507	33514	29.8	23.90	36.52
BMI-for-age status (BAZ)										
Thinness (<-2sd)	151	11452	71.6	61.24	80.11	60	4540	28.4	19.89	38.76
Normal (≥-2sd - ≤+1sd)	1103	75952	72.4	67.64	76.63	414	29016	27.6	23.37	32.36
Overweight (>+1sd - ≤+2sd)	294	20482	71.0	63.86	77.18	124	8379	29.0	22.82	36.14
Obese (>+2sd)	256	17996	66.5	59.98	72.39	123	9080	33.5	27.61	40.02
Height-for-age status (HAZ)										
Stunting (<-2sd)	131	9622	80.4	72.91	86.23	33	2344	19.6	13.77	27.09
Normal (≥-2sd)	1673	116291	70.5	65.84	74.75	688	48692	29.5	25.25	34.16

3.6 Supplements intake among adolescents (Primary 4 to Secondary 5) in Pulau Pinang

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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 Pulau Pinang adolescence was 45.5% (95% CI: 38.05, 53.26) (**Table 3.6.1**) and 30.0% (95% CI: 24.07, 36.60) (**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 was consumed everyday by 18.9% (95% CI: 15.75, 22.58) (**Table 3.6.4**) and 11.4% (95% CI: 8.62, 14.82) (**Table 3.6.8**). The most commonly consumed vitamin/ minerals and food supplements were Vitamin C 38.2% (95% CI: 32.06, 44.76) (**Table 3.6.2**) and bee product 16.1% (95% CI: 11.79, 21.70) (**Table 3.6.6**). The main reason for taking vitamin/minerals and food supplements was due to parent's advised 44.7% (95% CI: 40.50, 49.00) (**Table 3.6.3**) and 29.0% (95% CI: 27.80, 30.30) (**Table 3.6.7**).

3.6.4 Discussions

The prevalence of taking vitamin/minerals and food supplements among adolescence in Pulau Pinang was slightly lower than 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 were consistent with the national finding. Finding from the survey in Pulau Pinang showed that parent's advised was the main and significant reason for taking vitamin/mineral and food supplements among adolescents. It suggests the parents as strong influencer for food supplement and vitamin intake of the children.

3.6.5 Conclusions

Overall findings from this survey showed that approximately five and three of ten adolescents in Penang took vitamin / mineral and food supplements. Every four and three in 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 Pulau Pinang.

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

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

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
Pulau Pinang	1133	81041	45.5	38.05	53.26	1406	96886	54.5	46.74	61.95
Locality of School										
Urban	625	37902	41.6	34.94	48.67	820	53121	58.4	51.33	65.06
Rural	508	43139	49.6	37.29	62.03	586	43766	50.4	37.97	62.71
Sex										
Boys	551	41450	46.5	39.18	53.96	642	47708	53.5	46.04	60.82
Girls	582	39591	44.6	36.30	53.21	764	49178	55.4	46.79	63.70
Class										
Standard 4	208	14339	65.3	59.91	70.26	105	7633	34.7	29.74	40.09
Standard 5	137	12736	59.3	45.92	71.39	92	8750	40.7	28.61	54.08
Standard 6	155	13625	62.8	55.78	69.31	98	8072	37.2	30.69	44.22
Remove class										
Form 1	137	9487	40.0	33.53	46.94	197	14203	60.0	53.06	66.47
Form 2	140	8173	36.6	30.31	43.34	240	14171	63.4	56.66	69.69
Form 3	155	8482	38.2	30.55	46.46	252	13728	61.8	53.54	69.45
Form 4	116	6825	31.4	27.10	36.10	249	14893	68.6	63.90	72.90
Form 5	85	7375	32.3	26.59	38.65	173	15437	67.7	61.35	73.41
Ethnicity										
Malay	680	49227	48.2	37.16	59.40	789	52926	51.8	40.60	62.84
Chinese	292	18812	39.8	32.09	48.15	420	28400	60.2	51.85	67.91
Indian	146	11857	44.9	38.71	51.21	185	14563	55.1	48.79	61.29
Bumiputera Sabah	2	126	28.0	4.77	75.12	4	324	72.0	24.88	95.23
Bumiputera Sarawak	2	260	82.5	24.08	98.59	1	55	17.5	1.41	75.92
Others	11	759	55.1	32.38	75.94	7	618	44.9	24.06	67.62
BMI-for age status (BAZ)										
Thinness (<-2sd)	111	8433	52.7	43.74	61.55	100	7559	47.3	38.45	56.26
Normal (≥-2sd - ≤+1sd)	685	48582	46.1	38.04	54.29	839	56902	53.9	45.71	61.96
Overweight (>+1sd - ≤+2sd)	181	13068	44.8	33.14	57.09	241	16092	55.2	42.91	66.86
Obese (>+2sd)	156	10958	40.5	35.03	46.15	223	16117	59.5	53.85	64.97
Height-for-age status (HAZ)										
Stunting (<-2sd)	83	6406	53.5	43.05	63.72	81	5560	46.5	36.28	56.95
Normal (≥-2sd)	1050	74635	45.0	37.52	52.74	1322	91163	55.0	47.26	62.48

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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
Pulau Pinang	151	10663	6.0	4.97	7.28	945	67634	38.2	32.06	44.76
Locality of School										
Urban	100	6359	7.0	5.79	8.54	506	30853	34.2	27.95	40.97
Rural	51	4305	5.0	3.57	6.86	439	36782	42.4	33.09	52.31
Sex										
Boys	86	6435	7.2	5.62	9.25	453	33579	37.7	32.03	43.80
Girls	65	4228	4.8	3.69	6.23	492	34056	38.7	29.92	48.24
Class										
Standard 4	21	1497	6.8	5.99	7.81	173	11643	53.2	44.92	61.34
Standard 5	17	1446	6.7	2.66	16.00	115	10466	48.7	39.48	58.03
Standard 6	18	1541	7.1	3.95	12.51	135	12015	55.5	50.01	60.93
Remove class										
Form 1	12	833	3.5	1.75	7.03	136	9727	41.3	35.23	47.57
Form 2	16	910	4.1	2.28	7.25	126	7476	33.6	27.91	39.84
Form 3	23	1273	5.8	3.76	8.86	121	6590	30.0	22.90	38.31
Form 4	26	1477	6.9	4.76	9.79	87	5204	24.2	20.09	28.77
Form 5	18	1687	7.4	4.61	11.72	52	4513	19.8	17.28	22.70
Ethnicity										
Malay	68	4929	4.8	3.52	6.61	592	42456	41.7	33.21	50.70
Chinese	59	3992	8.5	6.40	11.29	214	13814	29.5	23.82	35.93
Indian	21	1560	5.9	3.72	9.29	127	10535	40.0	31.72	48.87
Bumiputera Sabah						3	233	51.8	20.81	81.43
Bumiputera Sarawak						1	79	25.0	2.08	83.91
Others	3	182	14.2	4.21	38.45	8	517	40.3	17.45	68.32
BMI-for age status (BAZ)										
Thinness (<-2sd)	20	1391	8.7	5.36	13.90	82	6211	39.0	30.78	47.83
Normal ($\geq -2sd - \leq +1sd$)	81	5532	5.3	4.13	6.74	589	41547	39.7	32.75	47.05
Overweight ($> +1sd - \leq +2sd$)	27	2133	7.3	4.98	10.62	144	10148	34.8	27.49	42.90
Obese ($> +2sd$)	23	1607	5.9	4.22	8.33	130	9729	36.0	29.39	43.23
Height-for - age status (HAZ)										
Stunting (<-2sd)	11	919	7.8	5.09	11.62	65	4688	39.5	28.83	51.32
Normal ($\geq -2sd$)	140	9744	5.9	4.78	7.28	880	62946	38.1	31.69	45.06

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

Characteristics	Iron					Others				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
Pulau Pinang	101	7865	4.4	2.92	6.70	135	10070	5.7	4.16	7.73
Locality of School										
Urban	49	2861	3.2	2.05	4.86	75	4601	5.1	3.92	6.61
Rural	52	5004	5.8	3.42	9.57	60	5469	6.3	3.80	10.28
Sex										
Boys	56	4349	4.9	2.83	8.32	78	6492	7.3	4.23	12.30
Girls	45	3516	4.0	2.58	6.13	57	3578	4.1	3.26	5.06
Class										
Standard 4	33	2195	10.0	7.76	12.88	24	1587	7.3	4.39	11.76
Standard 5	18	1924	9.0	4.56	16.84	13	1695	7.9	2.59	21.62
Standard 6	10	1071	5.0	2.76	8.71	17	1496	6.9	4.48	10.52
Remove class										
Form 1	6	436	1.8	0.80	4.20	14	1014	4.3	2.24	8.11
Form 2	6	378	1.7	0.87	3.29	17	994	10.7	3.09	6.41
Form 3	10	598	2.7	1.32	5.54	19	1080	4.9	3.20	7.51
Form 4	8	484	2.2	1.04	4.80	19	1090	5.1	3.40	7.47
Form 5	10	780	3.4	1.93	6.01	12	1114	4.9	2.31	10.09
Ethnicity										
Malay	69	5561	5.5	3.29	8.94	79	6130	6.0	4.19	8.57
Chinese	16	981	2.1	1.26	3.48	38	2508	5.4	3.51	8.11
Indian	14	1185	4.5	3.53	5.72	15	1037	3.9	2.26	6.78
Bumiputera Sabah	1	58	13.0	1.27	63.46					
Bumiputera Sarawak						1	181	57.5	8.78	95.01
Others	1	80	6.3	0.67	39.93	2	213	16.6	4.16	47.80
BMI-for age status (BAZ)										
Thinness (<-2sd)	12	955	6.0	2.56	13.40	15	1284	8.1	4.12	15.15
Normal (≥ - 2sd - ≤+ 1sd)	52	4114	3.9	2.44	6.26	69	5220	5.0	3.51	7.04
Overweight (> +1sd - ≤+ 2sd)	16	1334	4.6	2.46	8.36	31	2288	7.8	4.09	14.53
Obese (> + 2sd)	20	1386	5.1	2.97	8.72	20	1279	4.7	2.65	8.31
Height-for - age status (HAZ)										
Stunting (<-2sd)	9	973	8.2	2.95	20.79	8	683	5.8	2.53	12.59
Normal (≥-2sd)	92	6892	4.2	2.92	5.94	127	9387	5.7	4.22	7.62

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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
Pulau Pinang	179	13295	16.5	12.80	21.04	508	36020	44.7	40.54	49.02
Locality of School										
Urban	84	5115	13.6	10.01	18.29	292	17485	46.6	39.29	54.03
Rural	95	8179	19.0	13.68	25.86	216	18534	43.1	38.69	47.69
Sex										
Boys	97	7561	18.4	13.41	24.67	220	16700	40.6	33.80	47.78
Girls	82	5734	14.6	10.12	20.51	288	19319	49.1	44.15	54.00
Class										
Standard 4	55	3542	24.9	12.94	42.49	90	6440	45.3	35.66	55.22
Standard 5	25	2517	20.0	14.92	26.28	61	5460	43.4	32.63	54.81
Standard 6	21	2027	14.9	9.18	23.21	68	6108	44.8	41.18	48.54
Remove class										
Form 1	19	1487	15.8	8.67	26.95	54	3618	38.4	27.20	50.89
Form 2	10	557	6.9	3.72	12.32	72	4164	51.3	40.40	62.08
Form 3	13	743	8.8	4.49	16.38	72	3892	45.9	36.15	55.96
Form 4	25	1519	22.5	13.33	35.37	46	2587	38.3	24.53	54.25
Form 5	11	903	12.4	6.18	23.32	45	3751	51.5	35.19	67.47
Ethnicity										
Malay	116	8714	17.7	13.12	23.51	276	20091	40.9	37.07	44.76
Chinese	28	1700	9.1	6.80	12.20	158	10031	54.0	46.22	61.51
Indian	33	2755	23.7	19.64	28.41	64	5061	43.6	34.16	53.58
Bumiputera Sabah	2	126	100.0	100.00	100.00					
Bumiputera Sarawak						2	260	100.0	100.00	100.00
Others						8	577	76.0	40.81	93.55
BMI-for age status (BAZ)										
Thinness (< -2sd)	237	19945	17.1	14.33	20.26	574	50164	43.0	39.53	46.51
Normal ($\geq -2sd - \leq +1sd$)	1963	174456	17.7	16.50	18.90	4822	429345	43.5	41.94	45.04
Overweight ($> +1sd - \leq +2sd$)	429	36163	16.1	14.42	18.02	1118	95652	42.7	40.21	45.20
Obese ($> +2sd$)	477	40459	18.9	16.33	21.67	967	87031	40.6	38.31	42.87
Height-for - age status (HAZ)										
Stunting (< -2sd)	314	26496	20.3	17.70	23.09	639	56149	42.9	39.34	46.62
Normal ($\geq -2sd$)	2797	244971	17.3	16.28	18.42	6848	606851	42.9	41.62	44.24

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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
Pulau Pinang	312	22328	27.7	23.92	31.91	25	1683	2.1	1.33	3.27
Locality of School										
Urban	173	10536	28.1	23.01	33.76	9	592	1.6	0.89	2.79
Rural	139	11793	27.4	22.06	33.57	16	1091	2.5	1.33	4.80
Sex										
Boys	168	12420	30.2	24.68	36.34	14	888	2.2	0.98	4.70
Girls	144	9908	25.2	20.84	30.04	11	795	2.0	1.09	3.72
Class										
Standard 4	44	2896	20.4	12.99	30.42	2	108	0.8	0.21	2.71
Standard 5	37	3348	26.6	20.08	34.35	2	162	1.3	0.31	5.20
Standard 6	53	4475	32.8	26.02	40.48	4	342	2.5	1.05	5.91
Remove class										
Form 1	41	2886	30.6	23.23	39.11	3	189	2.0	0.62	6.36
Form 2	34	2077	25.6	16.96	36.68	6	376	4.6	1.84	11.16
Form 3	50	2763	32.6	24.20	42.24	4	222	2.6	0.80	8.27
Form 4	32	1967	29.1	17.58	44.20	2	120	1.8	0.39	7.66
Form 5	21	1916	26.3	18.06	36.61	2	163	2.2	0.54	8.80
Ethnicity										
Malay	211	14934	30.4	24.80	36.58	20	1311	2.7	1.59	4.44
Chinese	67	4521	24.3	20.68	28.38	2	150	0.8	0.21	3.03
Indian	32	2740	23.6	16.40	32.78	3	222	1.9	0.52	6.73
Bumiputera Sabah										
Bumiputera Sarawak										
Others	2	133	17.5	5.34	44.43					
BMI-for age status (BAZ)										
Thinness (< -2sd)	363	32467	27.8	24.63	31.25	33	2722	2.3	1.54	3.53
Normal (≥ - 2sd - ≤+ 1sd)	3157	278618	28.2	26.85	29.63	238	22409	2.3	1.92	2.68
Overweight (> +1sd - ≤+ 2sd)	733	64223	28.7	26.67	30.74	71	6093	2.7	2.05	3.59
Obese (> + 2sd)	687	61972	28.9	26.43	31.48	57	5684	2.6	1.87	3.75
Height-for - age status (HAZ)										
Stunting (< -2sd)	378	33507	25.6	22.16	29.43	33	3404	2.6	1.69	3.99
Normal (≥ -2sd)	4564	404115	28.6	27.50	29.69	367	33517	2.4	2.09	2.69

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
Pulau Pinang	67	4671	5.8	4.28	7.82
Locality of School					
Urban	44	2714	7.2	4.97	10.40
Rural	23	1957	4.6	2.96	6.94
Sex					
Boys	37	2672	6.5	4.38	9.54
Girls	30	1999	5.1	3.54	7.24
Class					
Standard 4	9	718	5.0	2.06	11.84
Standard 5	4	410	3.3	1.57	6.64
Standard 6	7	539	4.0	2.31	6.70
Remove class					
Form 1	14	961	10.2	4.63	20.95
Form 2	9	516	6.4	3.31	11.85
Form 3	12	644	7.6	3.82	14.55
Form 4	9	491	7.3	3.50	14.49
Form 5	3	392	5.4	1.03	23.72
Ethnicity					
Malay	37	2660	5.4	3.72	7.81
Chinese	25	1612	8.7	5.20	14.11
Indian	5	399	3.4	1.79	6.49
Bumiputera Sabah					
Bumiputera Sarawak					
Others					
BMI-for age status (BAZ)					
Thinness (< -2sd)	75	7553	6.5	5.00	8.34
Normal ($\geq -2sd - \leq +1sd$)	690	58783	6.0	5.30	6.68
Overweight (> +1sd - $\leq +2sd$)	169	15019	6.7	5.56	8.05
Obese (> +2sd)	157	13539	6.3	5.15	7.72
Height-for - age status (HAZ)					
Stunting (< -2sd)	90	7814	6.0	4.60	7.72
Normal ($\geq -2sd$)	1003	87279	6.2	5.60	6.80

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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
Pulau Pinang	470	33423	18.9	15.75	22.58	174	12699	7.2	5.71	9.03
Locality of School										
Urban	277	16634	18.4	15.58	21.65	98	6034	6.7	4.98	8.91
Rural	193	16789	19.5	14.04	26.34	76	6664	7.7	5.51	10.73
Sex										
Boys	199	14906	16.8	13.63	20.52	102	7913	8.9	6.62	11.90
Girls	271	18518	21.1	17.24	25.53	72	4786	5.5	4.32	6.86
Class										
Standard 4	86	5876	27.0	22.09	32.65	48	2848	13.1	7.12	22.89
Standard 5	62	5669	26.7	18.43	37.02	19	1836	8.7	7.07	10.55
Standard 6	65	5654	26.2	23.55	28.94	20	2242	10.4	5.45	18.84
Remove class										
Form 1	53	3501	14.9	10.74	20.28	19	1463	6.2	2.66	13.87
Form 2	58	3456	15.5	11.33	20.95	19	1124	5.1	3.00	8.41
Form 3	61	3250	14.8	10.56	20.33	18	1036	4.7	2.15	10.02
Form 4	47	2767	12.8	10.57	15.53	19	1168	5.4	3.74	7.81
Form 5	38	3249	14.3	11.55	17.58	12	982	4.3	2.39	7.70
Ethnicity										
Malay	257	18539	18.3	13.78	23.81	102	7336	7.2	5.33	9.73
Chinese	132	8376	17.9	14.56	21.70	41	2690	5.7	4.06	8.03
Indian	72	5935	22.8	15.87	31.50	28	2297	8.8	5.56	13.66
Bumiputera Sabah	1	53	13.5	1.24	66.17	1	107	27.3	5.24	71.93
Bumiputera Sarawak						1	181	57.5	8.78	95.01
Others	8	521	37.8	16.85	64.64	1	521	6.3	0.68	39.92
BMI-for age status (BAZ)										
Thinness (<-2sd)	47	3607	22.6	17.22	29.15	12	910	5.7	3.50	9.18
Normal ($\geq -2sd - \leq +1sd$)	282	19745	18.9	15.86	22.33	101	7168	6.9	5.32	8.79
Overweight ($> +1sd - \leq +2sd$)	73	5339	18.5	12.52	26.40	34	2621	9.1	6.03	13.41
Obese ($> +2sd$)	67	4655	17.3	13.85	21.34	27	2000	7.4	4.97	10.94
Height-for - age status (HAZ)										
Stunting (<-2sd)	38	2912	24.8	17.03	34.67	12	991	8.4	4.41	15.55
Normal ($\geq -2sd$)	432	30511	18.5	15.36	22.19	162	11708	7.1	5.68	8.86

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Table 3.6.4: Frequency of taking vitamin/ mineral 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
Pulau Pinang	233	17025	9.6	7.78	11.89	381	27052	15.3	12.45	18.71
Locality of School										
Urban	126	7793	8.6	6.64	11.15	192	11729	13.0	10.16	16.47
Rural	107	9232	10.7	7.94	14.27	189	15323	17.8	13.65	22.78
Sex										
Boys	138	10320	11.6	9.89	13.63	186	14187	16.0	11.69	21.48
Girls	95	6705	7.6	4.97	11.55	195	12865	14.7	12.10	17.64
Class										
Standard 4	39	2993	13.8	7.03	25.23	70	4847	22.3	17.99	27.33
Standard 5	27	2337	11.0	7.76	15.40	42	4072	19.2	10.68	32.03
Standard 6	36	3118	14.4	10.70	19.16	47	3857	17.8	12.75	24.40
Remove class										
Form 1	35	2537	10.8	6.87	16.54	50	3673	15.6	12.94	18.73
Form 2	24	1396	6.3	4.52	8.66	53	3107	14.0	10.65	18.10
Form 3	36	2032	9.2	7.20	11.80	52	2846	12.9	9.30	17.74
Form 4	19	1028	4.8	2.89	7.79	45	2680	12.4	9.36	16.36
Form 5	17	1584	7.0	4.36	10.96	22	1969	8.7	5.37	13.69
Ethnicity										
Malay	139	10247	10.1	7.56	13.36	257	18575	18.3	15.15	21.95
Chinese	66	4409	9.4	6.60	13.21	75	4782	10.2	8.10	12.75
Indian	25	2162	8.3	5.89	11.56	44	3271	12.5	7.95	19.22
Bumiputera Sabah						1	73	18.6	1.76	74.51
Bumiputera Sarawak						1	79	25.0	2.08	83.91
Others	3	207	15.0	2.94	50.70	3	272	19.8	6.01	48.67
BMI-for age status (BAZ)										
Thinness (<-2sd)	26	2036	12.8	8.94	17.93	36	2617	16.4	12.01	22.04
Normal (≥ - 2sd - ≤+ 1sd)	144	10765	10.3	7.40	14.15	231	16149	15.4	12.71	18.65
Overweight (> +1sd - ≤+ 2sd)	27	1799	6.2	3.82	9.98	66	4727	16.4	12.01	21.87
Obese (> + 2sd)	36	2424	9.0	5.65	14.02	48	3559	13.2	9.21	18.57
Height-for - age status (HAZ)										
Stunting (<-2sd)	21	1705	14.5	9.44	21.70	24	1663	14.2	9.62	20.39
Normal (≥-2sd)	212	15320	9.3	7.44	11.57	357	25389	15.4	12.45	18.94

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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
Pulau Pinang	721	53119	30.0	24.07	36.60	1808	124157	70.0	63.40	75.93
Locality of School										
Urban	408	25261	27.9	22.89	33.50	1030	65334	72.1	66.50	77.11
Rural	313	27858	32.1	22.24	43.95	778	58822	67.9	56.05	77.76
Sex										
Boys	386	30028	33.8	26.83	41.62	801	58723	66.2	66.17	73.17
Girls	335	23092	26.1	20.81	32.15	1007	65434	73.9	67.85	79.19
Class										
Standard 4	142	9646	44.1	37.56	50.89	169	12219	55.9	49.11	62.44
Standard 5	95	9100	42.7	35.26	50.49	132	12211	57.3	49.51	64.74
Standard 6	99	9120	42.0	30.23	54.83	154	12577	58.0	45.17	69.77
Remove class										
Form 1	86	6365	27.0	20.54	34.55	247	17232	73.0	65.45	79.46
Form 2	67	3907	17.6	13.57	22.57	310	18266	82.4	77.43	86.43
Form 3	89	4890	22.1	17.18	28.00	316	17214	77.9	72.00	82.82
Form 4	86	5023	23.1	18.46	28.57	279	16694	76.9	71.43	81.54
Form 5	57	5068	22.2	15.70	30.46	201	17744	77.8	69.54	84.30
Ethnicity										
Malay	411	30924	30.3	21.59	40.80	1055	70993	69.7	59.20	78.41
Chinese	204	13135	28.0	22.67	33.94	504	33851	72.0	66.06	77.33
Indian	97	8177	31.1	25.61	37.13	232	18134	68.9	62.87	74.39
Bumiputera Sabah	1	107	23.8	4.25	68.69	5	343	76.2	31.31	95.75
Bumiputera Sarawak	1	181	57.5	8.78	95.01	2	134	42.5	4.99	91.22
Others	7	594	45.829485	18.00	76.53	10	703	54.2	23.47	82.00
BMI-for age status (BAZ)										
Thinness (<-2sd)	71	5318	33.4	26.59	40.91	139	10618	66.6	59.09	73.41
Normal (≥ -2sd - ≤+1sd)	435	31506	30.0	23.83	36.98	1082	73534	70.0	63.02	76.17
Overweight (> +1sd - ≤+2sd)	112	8761	30.2	21.24	40.97	308	20248	69.8	59.03	78.76
Obese (> +2sd)	102	7467	27.6	20.85	35.51	277	19608	72.4	64.49	79.15
Height-for - age status (HAZ)										
Stunting (<-2sd)	48	3830	32.0	21.76	44.34	116	8136	68.0	55.66	78.24
Normal (≥-2sd)	672	49222	29.8	24.03	36.30	1690	115924	70.2	63.70	75.97

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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
Pulau Pinang	102	7605	4.3	2.98	6.17	213	15497	8.8	7.04	10.88
Locality of School										
Urban	53	3105	3.4	2.27	5.20	144	9103	10.1	8.30	12.27
Rural	49	4500	5.2	3.16	8.44	69	6394	7.4	4.71	11.38
Sex										
Boys	59	4348	4.9	3.47	6.87	129	9870	11.1	8.78	13.98
Girls	43	3257	3.7	2.22	6.14	84	5627	6.4	5.20	7.87
Class										
Standard 4	37	2342	10.7	6.67	16.61	44	2950	13.4	9.54	18.57
Standard 5	15	1786	8.3	4.83	13.94	19	1764	8.2	5.25	12.62
Standard 6	8	756	3.5	2.18	5.52	28	2646	12.2	9.53	15.47
Remove class										
Form 1	8	622	2.7	1.07	6.47	27	1954	8.4	5.29	13.03
Form 2	5	327	1.5	0.47	4.54	29	1709	7.7	4.63	12.51
Form 3	15	895	4.1	2.27	7.34	18	1021	4.7	2.45	8.77
Form 4	12	717	3.3	1.79	6.15	26	1483	6.9	4.83	9.83
Form 5	2	160	0.7	0.19	2.59	22	1971	8.7	4.76	15.28
Ethnicity										
Malay	64	4775	4.7	2.91	7.51	92	6875	6.8	4.63	9.80
Chinese	16	971	2.1	1.10	3.90	75	4833	10.4	7.72	13.79
Indian	20	1759	6.7	4.82	9.20	42	3298	12.5	9.30	16.69
Bumiputera Sabah										
Bumiputera Sarawak						1	181	57.5	8.78	95.01
Others	2	100	7.3	1.53	28.29	3	311	22.6	7.47	51.25
BMI-for age status (BAZ)										
Thinness (<-2sd)	12	966	6.1	3.40	10.72	20	1510	9.5	6.10	14.63
Normal ($\geq -2sd - \leq +1sd$)	59	4483	4.3	2.80	6.52	120	8723	8.3	6.44	10.75
Overweight ($> +1sd - \leq +2sd$)	18	1200	4.1	2.43	6.92	39	2923	10.1	6.79	14.65
Obese ($> +2sd$)	13	956	3.5	1.98	6.24	33	2265	8.4	5.71	12.15
Height-for - age status (HAZ)										
Stunting (<-2sd)	7	678	5.7	2.41	13.08	13	1197	10.1	5.56	17.77
Normal ($\geq -2sd$)	95	6926	4.2	2.91	6.05	200	14301	8.7	7.00	10.73

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

Characteristics	Bee Product					Chicken essence				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
Pulau Pinang	388	28509	16.1	11.79	21.70	103	7675	4.3	3.35	5.62
Locality of School										
Urban	191	11023	12.2	7.76	18.80	59	3787	4.2	3.25	5.42
Rural	197	17485	20.2	14.41	27.54	44	3888	4.5	2.88	6.94
Sex										
Boys	189	14689	16.5	11.90	22.52	60	4387	4.9	3.63	6.69
Girls	199	13820	15.7	11.06	21.90	43	3288	3.7	2.51	5.55
Class										
Standard 4	97	6535	29.7	25.37	34.52	20	1419	6.5	4.67	8.87
Standard 5	59	5132	23.9	17.42	31.83	13	1245	5.8	3.59	9.21
Standard 6	58	5760	26.5	17.95	37.37	15	1389	6.4	4.64	8.76
Remove class										
Form 1	34	2583	11.1	7.69	15.73	17	1207	5.2	3.16	8.39
Form 2	41	2402	10.8	7.93	14.56	8	455	2.0	1.20	3.46
Form 3	48	2643	12.1	8.46	17.09	10	573	2.6	1.28	5.34
Form 4	32	1924	9.0	5.74	13.77	14	848	4.0	2.05	7.51
Form 5	19	1529	6.7	4.73	9.48	6	539	2.4	1.12	4.93
Ethnicity										
Malay	273	20146	19.8	14.29	26.85	51	3873	3.8	2.41	5.98
Chinese	69	4306	9.2	5.57	14.95	33	2115	4.5	3.50	5.87
Indian	44	3847	14.6	9.07	22.72	18	1617	6.1	4.21	8.90
Bumiputera Sabah	1	58	13.0	1.27	63.46					
Bumiputera Sarawak										
Others	1	152	11.0	1.65	47.74	1	70	5.1	0.59	32.22
BMI-for age status (BAZ)										
Thinness (<-2sd)	34	2603	16.451916	9.82	26.26	14	1129	7.1	4.09	12.15
Normal ($\geq -2sd - \leq +1sd$)	232	16274	15.570627	11.58	20.62	60	4476	4.3	3.10	5.89
Overweight (> +1sd - $\leq +2sd$)	59	4506	15.50584	9.78	23.69	10	797	2.7	1.43	5.21
Obese (> +2sd)	62	5058	18.719568	11.90	28.19	19	1273	4.7	2.76	7.94
Height-for - age status (HAZ)										
Stunting (<-2sd)	30	2080	17.610938	10.03	29.06	5	410	3.5	1.35	8.63
Normal ($\geq -2sd$)	357	26361	16.009211	11.50	21.85	98	7265	4.4	3.35	5.78

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
Pulau Pinang	200	14891	8.4	6.69	10.57
Locality of School					
Urban	116	7274	8.1	6.70	9.72
Rural	84	7617	8.8	5.85	13.01
Sex					
Boys	114	8831	9.9	7.73	12.71
Girls	86	6060	6.9	5.00	9.45
Class					
Standard 4	29	2007	9.1	6.99	11.84
Standard 5	29	2915	13.6	8.99	19.95
Standard 6	29	2548	11.7	8.16	16.61
Remove class					
Form 1	25	1833	7.9	5.28	11.55
Form 2	13	736	3.3	1.64	6.58
Form 3	31	1732	7.9	6.00	10.46
Form 4	29	1627	7.6	4.88	11.63
Form 5	15	1494	6.6	3.68	11.47
Ethnicity					
Malay	110	8667	8.5	5.90	12.18
Chinese	63	4126	8.9	6.73	11.57
Indian	23	1768	6.7	4.42	10.10
Bumiputera Sabah	1	107	23.8	4.25	68.69
Bumiputera Sarawak					
Others	3	223	16.2	4.44	44.64
BMI-for age status (BAZ)					
Thinness (<-2sd)	17	1169	7.4	4.32	12.36
Normal ($\geq -2sd - \leq +1sd$)	116	8510	8.1	6.11	10.77
Overweight ($> +1sd - \leq +2sd$)	35	2889	9.9	5.87	16.34
Obese ($> +2sd$)	32	2323	8.6	6.27	11.69
Height-for - age status (HAZ)					
Stunting (<-2sd)	10	942	8.0	4.35	14.17
Normal ($\geq -2sd$)	190	13949	8.5	6.68	10.68

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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
Pulau Pinang	2018	176793	11.5	10.55	12.46	4839	447478	29.0	27.76	30.31
Locality of School										
Urban	1164	95593	10.9	9.53	12.39	2960	261650	29.8	28.22	31.36
Rural	854	81199	12.3	11.06	13.55	1879	185828	28.0	25.98	30.19
Sex										
Boys	1194	107457	13.0	11.66	14.47	2439	223511	27.0	25.75	28.38
Girls	824	69335	9.7	8.75	10.73	2400	223967	31.3	29.59	33.07
Class										
Standard 4	607	52619	18.4	16.07	20.97	1000	96201	33.6	31.27	36.06
Standard 5	397	38449	14.7	12.87	16.65	846	84218	32.1	30.08	34.21
Standard 6	171	18842	7.8	5.73	10.57	686	83748	34.7	32.21	37.35
Remove class										
Form 1	287	24107	12.2	10.21	14.47	665	51233	25.9	23.15	28.83
Form 2	187	13797	8.8	6.72	11.41	526	41322	26.3	23.85	28.92
Form 3	155	10954	7.6	6.18	9.36	450	33394	23.2	20.58	26.10
Form 4	149	11617	9.3	7.47	11.62	366	30198	24.3	21.70	27.06
Form 5	65	6407	5.0	3.61	6.76	300	27164	21.0	18.21	24.12
Ethnicity										
Malay	1499	124976	12.2	11.14	13.45	3383	294312	28.8	27.28	30.45
Chinese	143	13621	5.7	4.45	7.25	705	75207	31.4	29.22	33.66
Indian	122	13861	17.3	13.98	21.25	201	21934	27.4	23.50	31.68
Bumiputera Sabah	97	8801	9.9	6.91	13.97	268	23497	26.4	22.69	30.48
Bumiputera Sarawak	78	10288	13.7	10.98	17.03	149	20739	27.7	22.80	33.15
Others	79	5246	13.9	10.11	18.73	133	11789	31.2	25.03	38.03
BMI-for age status (BAZ)										
Thinness (<-2sd)	175	15014	12.9	10.65	15.64	360	33686	29.0	26.19	32.08
Normal (≥ - 2sd - ≤+ 1sd)	1245	109703	11.1	10.09	12.27	3093	285822	29.0	27.53	30.53
Overweight (> +1sd - ≤+ 2sd)	269	23526	10.5	8.87	12.41	701	63271	28.3	25.58	31.11
Obese (> + 2sd)	326	28280	13.2	10.92	15.88	675	63334	29.6	27.37	31.87
Height-for - age status (HAZ)										
Stunting (<-2sd)	219	17735	13.6	11.27	16.30	398	37131	28.5	24.94	32.25
Normal (≥-2sd)	1799	159058	11.3	10.35	12.28	4440	410154	29.1	27.84	30.34

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

Characteristic	Self awareness					Influences by friends				
	Count	Estimated population	Prevalence (%)	95% CI		Count	Estimated population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
Pulau Pinang	3350	300212	19.5	18.60	20.38	444	40080	2.6	2.22	3.04
Locality of School										
Urban	1941	165687	18.8	17.62	20.14	250	22324	2.5	1.99	3.24
Rural	1409	134525	20.3	19.05	21.60	194	17756	2.7	2.22	3.23
Sex										
Boys	1985	180541	21.8	20.62	23.12	321	27659	3.3	2.87	3.91
Girls	1365	119671	16.7	15.73	17.77	123	12422	1.7	1.32	2.28
Class										
Standard 4	571	51803	18.1	16.54	19.78	109	11231	3.9	3.01	5.11
Standard 5	512	52525	20.0	18.08	22.12	71	6945	2.6	1.98	3.53
Standard 6	445	51911	21.5	19.01	24.28	49	5934	2.5	1.38	4.36
Remove class										
Form 1	462	37109	18.8	16.78	20.90	64	4808	2.4	1.77	3.32
Form 2	381	29310	18.7	16.61	20.91	50	3836	2.4	1.69	3.52
Form 3	397	29279	20.4	17.82	23.17	48	3074	2.1	1.37	3.32
Form 4	295	21797	17.5	15.25	20.06	32	2035	1.6	1.09	2.46
Form 5	287	26477	20.5	17.71	23.56	21	2217	1.7	0.95	3.06
Ethnicity										
Malay	2441	207742	20.4	19.27	21.49	304	25651	2.5	2.06	3.06
Chinese	419	44195	18.5	16.83	20.20	51	5105	2.1	1.49	3.04
Indian	125	13880	17.3	14.46	20.65	26	2565	3.2	2.07	4.94
Bumiputera Sabah	157	14016	15.8	12.75	19.30	26	2578	2.9	1.95	4.28
Bumiputera Sarawak	106	12522	16.7	13.31	20.78	26	3778	5.0	3.81	6.64
Others	102	7856	20.8	16.81	25.37	11	404	1.1	0.35	3.22
BMI-for age status (BAZ)										
Thinness (<-2sd)	244	22310	19.2	16.34	22.50	28	2407	2.1	1.29	3.34
Normal (≥ - 2sd - ≤+ 1sd)	2117	189535	19.2	18.28	20.23	283	24854	2.5	2.14	2.96
Overweight (> +1sd - ≤+ 2sd)	505	45524	20.3	18.38	22.44	65	6181	2.8	2.04	3.73
Obese (> + 2sd)	482	42807	20.0	17.99	22.14	66	6567	3.1	2.34	4.00
Height-for - age status (HAZ)										
Stunting (<-2sd)	279	22879	17.5	15.17	20.17	47	4264	3.3	2.43	4.39
Normal (≥-2sd)	3067	277176	19.6	18.71	20.61	397	35816	2.5	2.15	2.99

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
Pulau Pinang	979	90758	5.9	5.42	6.39
Locality of School					
Urban	532	47869	5.4	4.79	6.18
Rural	447	42889	6.5	5.86	7.14
Sex					
Boys	574	51717	6.3	5.63	6.95
Girls	405	39041	5.5	4.75	6.27
Class					
Standard 4	156	18535	6.5	5.42	7.73
Standard 5	148	14938	5.7	4.64	6.97
Standard 6	137	14736	6.1	4.50	8.25
Remove class					
Form 1	131	10606	5.4	4.24	6.75
Form 2	117	8242	5.2	4.20	6.54
Form 3	111	8890	6.2	4.77	7.97
Form 4	83	6362	5.1	3.94	6.62
Form 5	96	8449	6.5	4.96	8.57
Ethnicity					
Malay	666	55978	5.5	4.97	6.05
Chinese	137	16896	7.1	5.63	8.81
Indian	38	3676	4.6	3.21	6.53
Bumiputera Sabah	58	5728	6.4	4.93	8.37
Bumiputera Sarawak	38	4742	6.3	4.84	8.24
Others	42	3737	9.9	6.64	14.45
BMI-for age status (BAZ)					
Thinness (<-2sd)	77	6901	6.0	4.49	7.85
Normal (\geq - 2sd - \leq + 1sd)	597	56247	5.7	5.11	6.37
Overweight (> +1sd - \leq + 2sd)	156	14995	6.7	5.71	7.85
Obese (> + 2sd)	147	12491	5.8	4.60	7.37
Height-for - age status (HAZ)					
Stunting (<-2sd)	88	8937	6.8	5.36	8.71
Normal (\geq -2sd)	890	81803	5.8	5.31	6.33

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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
Pulau Pinang	275	20007	11.4	8.62	14.82	138	9783	5.6	4.18	7.34
Locality of School										
Urban	161	9797	10.9	8.66	13.66	118	5103	5.7	4.19	7.66
Rural	114	10210	11.8	7.24	18.70	53	4680	5.4	3.31	8.75
Sex										
Boys	122	9205	10.4	8.16	13.16	79	5724	6.5	4.82	8.61
Girls	153	10801	12.3	8.67	17.23	59	4059	4.6	3.17	6.72
Class										
Standard 4	73	4962	22.6	17.92	28.04	35	2100	9.6	6.03	14.83
Standard 5	43	4227	19.7	13.36	28.14	14	1319	6.2	3.05	12.05
Standard 6	28	2340	10.9	10.05	11.90	26	2315	10.8	8.70	13.38
Remove class										
Form 1	28	1972	8.4	5.17	13.49	17	1301	5.6	2.73	11.02
Form 2	24	1444	6.5	4.00	10.42	11	602	2.7	1.35	5.40
Form 3	30	1643	7.5	4.92	11.40	32	717	3.3	1.71	6.24
Form 4	29	1648	7.7	5.05	11.63	16	971	4.5	2.74	7.47
Form 5	20	1771	7.8	5.55	10.85	6	458	2.0	0.99	4.05
Ethnicity										
Malay	158	11792	11.6	7.48	17.65	77	5358	5.3	3.43	8.07
Chinese	75	4807	10.3	8.30	12.76	38	2328	5.0	3.02	8.16
Indian	38	3156	12.1	9.52	15.26	21	1838	7.1	4.38	11.15
Bumiputera Sabah						1	107	23.8	4.25	68.69
Bumiputera Sarawak										
Others	4	252	18.3	6.35	42.51	1	152	11.0	1.65	47.74
BMI-for age status (BAZ)										
Thinness (<-2sd)	26	2119	13.3	8.75	19.81	14	1089	6.9	4.09	11.27
Normal (≥ -2sd - ≤+ 1sd)	165	11816	11.3	8.69	14.69	80	5370	5.2	3.85	6.87
Overweight (> +1sd - ≤+ 2sd)	35	2793	9.6	5.14	17.40	21	1617	5.6	3.30	9.31
Obese (> + 2sd)	47	3135	11.6	7.89	16.75	23	1707	6.3	4.17	9.46
Height-for - age status (HAZ)										
Stunting (<-2sd)	14	1117	9.7	5.28	17.02	12	849	7.3	3.83	13.60
Normal (≥-2sd)	260	18822	11.4	8.67	14.97	126	8935	5.4	4.09	7.18

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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
Pulau Pinang	212	16041	9.1	6.61	12.42	333	24764	14.1	11.18	17.53
Locality of School										
Urban	118	7142	8.0	5.82	10.80	173	10676	11.9	9.20	15.25
Rural	94	8899	10.3	6.33	16.32	160	14088	16.3	12.04	21.71
Sex										
Boys	123	9436	10.7	7.84	14.33	181	14291	16.1	12.11	21.19
Girls	89	6605	7.5	5.12	10.97	152	10472	12.0	9.41	15.06
Class										
Standard 4	41	2934	13.4	8.48	20.40	70	4689	21.3	16.70	26.86
Standard 5	23	2092	9.8	5.96	15.60	45	4431	20.7	15.69	26.75
Standard 6	37	3708	17.3	11.34	25.58	45	4290	20.1	14.85	26.52
Remove class										
Form 1	25	1830	7.8	5.52	11.00	44	3278	14.0	10.49	18.51
Form 2	20	1198	5.4	2.93	9.75	32	1865	8.4	6.12	11.44
Form 3	32	1845	8.5	5.12	13.72	35	1881	8.6	5.73	12.83
Form 4	17	981	4.6	2.43	8.54	43	2568	12.0	9.24	15.52
Form 5	17	1452	6.4	3.61	11.05	19	1763	7.8	4.82	12.24
Ethnicity										
Malay	123	9729	9.6	6.12	14.73	205	15309	15.1	11.27	19.94
Chinese	52	3368	7.2	4.25	12.03	73	4702	10.1	7.01	14.32
Indian	34	2640	10.1	7.72	13.17	50	4289	16.5	12.73	20.99
Bumiputera Sabah						1	58	13.0	1.27	63.46
Bumiputera Sarawak						1	181	57.5	8.78	95.01
Others	3	304	22.1	7.64	49.26	3	223	16.2	4.44	44.64
BMI-for age status (BAZ)										
Thinness (<-2sd)	19	1232	7.8	4.24	13.76	34	2557	16.1	10.01	24.86
Normal ($\geq -2sd - \leq +1sd$)	137	10398	10.0	6.82	14.40	193	13997	13.4	10.63	16.87
Overweight (> +1sd - $\leq +2sd$)	31	2408	8.3	5.27	12.89	58	4469	15.4	11.85	19.87
Obese (> +2sd)	25	2002	7.4	4.14	12.91	48	3740	13.8	9.59	19.57
Height-for - age status (HAZ)										
Stunting (<-2sd)	22	1921	16.6	8.78	29.18	20	1596	13.8	9.68	19.30
Normal ($\geq -2sd$)	190	14120	8.6	6.30	11.59	313	23167	14.1	11.12	17.69

3.7 Food and nutrition labeling among adolescents (Secondary 1 to Secondary 5) in Pulau Pinang

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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 on 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 prevalence of food label reading among Malaysian children and teenagers. Therefore, this survey was conducted to determine the prevalence of reading and their understanding of 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 Pulau Pinang

The results in **Table 3.7.1** showed 32.9% (95%CI: 28.16, 38.04) of adolescents in Pulau Pinang reported as always reading food labels when buying or receiving food. Another 50.1% (95%CI: 45.13, 55.15) of adolescents reported as sometimes, while only 17.0% (95%CI: 12.96, 21.87) reported as never. Among those reported as always reading food labels, adolescents in rural area [33.3% (95%CI: 27.41, 39.84)] showed slightly higher percentage compared to urban area [32.7% (95%CI: 26.23, 39.85)]. By sex, girls [33.7% (95%CI: 28.51, 34.91)] showed slightly higher prevalence of always reading food labels than boys [32.1% (95%CI: 26.73, 37.95)] and prevalence of never read food label significantly higher in boys [22.6% (95%CI: 17.79, 28.30)] than girls [11.4% (95%CI: 8.60, 15.03)].

3.7.4.2 Reasons for not reading food and nutrition labelling among adolescents in Pulau Pinang

Among those who do not read food labels, the findings showed significantly that the main reasons for not reading food labels were the food labels were not interesting [45.9% (95%CI: 35.29, 56.98)], followed by do not understand food labels [18.8% (95%CI: 13.87, 25.00)] and do not know the importance of food label [10.8% (95%CI: 7.79, 14.81)]. The results also revealed that 10.7% (95%CI: 7.18, 15.67) already aware of the food label information; 10.4% (95%CI: 6.06, 17.14) of adolescents had time constraint and 9.9% (95%CI: 6.38, 14.91) of adolescents thinks that size of the print too small (Table 6.2). By locality of school, urban area [49.6% (95%CI: 37.45, 61.77)] and rural area [32.6% (95%CI: 19.12, 49.64)] reported that food labels were not interesting was the main reason for not reading food labels. By sex, boys [47.1% (95%CI: 36.12, 58.35)] girls [43.7% (95%CI: 28.84, 59.81)] reported that the food labels were not interesting was also the main reason for not reading food labels but only significant in boys (**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 [41.0% (95%CI: 34.62, 47.64)], total energy content [39.7% (95%CI: 37.04, 42.41)] and carbohydrate content (including sugar) [33.4% (95%CI: 27.73, 39.60)]. It was followed by vitamin content [22.0% (95%CI: 18.89, 25.46)], protein content [21.3% (95%CI: 17.95, 25.03)], fiber [12.3% (95%CI: 9.31, 16.04)], mineral content [8.9% (95%CI: 6.69, 11.88)] and the least read was sodium content [8.6% (95%CI: 6.26, 11.61)] (**Table 3.7.3a** and **Table 3.7.3b**). By locality of school, the highest percentage of adolescents in urban area reported to read the nutrition fact information was

total energy [41.7% (95%CI: 39.70, 43.82)], while in rural area, the highest percentage nutrient is fat content [42.7% (95%CI: 32.14, 54.00)].

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

Based on types of information (expiry date, nutrition claim, nutrition facts, halal logo, food ingredients, storage instruction) that read on the food label, adolescents showed significantly highest read expiry date [81.9% (95%CI: 76.79, 86.08)] compared to the halal logo [35.2% (95%CI: 22.95, 49.69)], food ingredients [29.3% (95%CI: 23.47, 35.98)], nutrition fact [25.2% (95%CI: 20.08, 31.01)], storage instruction [20.3% (95%CI: 14.67, 27.38)] and nutrition claim [19.2% (95%CI: 14.87, 24.51)] (**Table 3.7.4**).

3.7.4.5 Understanding of nutrition facts among adolescents in Pulau Pinang

Overall, more than half of the adolescents [62.1% (95%CI: 53.80, 69.68)] and [57.2% (95%CI: 50.22, 63.99)] 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 48.4% (95%CI: 40.47, 56.46)] correct responses for both energy and sugar (**Table 3.7.5**).

3.7.4.6 Understanding of front of pack labelling among adolescents in Pulau Pinang

Overall, less than half of the adolescents [40.2% (95%CI: 32.01, 48.90)] had given the correct response to question assessing interpretation of the energy content based on the front of pack labeling given and [46.7% (95%CI: 40.02, 53.55)] had given correct response to question assessing interpretation of the percentage of energy content based on the front of pack labeling given. However, the results showed a low level of correct responses [26.9% (95%CI: 20.10, 27.78)] to questions assessing interpretations of both the energy content and the percentage of energy content based on the front of pack labeling 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 Pulau Pinang

Overall, slightly more than half of the adolescents [55.1% (95%CI: 48.57, 61.48)] had given a correct response to the question assessing interpretation of the mostly used ingredient in the food based on the list of ingredients given. Girls [57.3 % (95%CI: 50.87, 63.46)] reported a higher prevalence of interpreting correctly as compared to the boys 52.6% (95%CI: 44.79, 60.22)]. While, [14.9% (95%CI: 12.22, 18.09)] of adolescents had given 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 correct response [(7.2% (95%CI: 5 5.55, 9.21)] to

questions assessing interpretations of both the mostly 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 Pulau Pinang. Adolescents reported 32.9% always reading food label and only 17.0% of adolescents never 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 fact 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, low prevalence of the adolescents knows how to determine the highest and lowest ingredients content based on the food ingredient list given.

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.

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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
PULAU PINANG	579	37112	32.9	28.16	38.04	885	56543	50.1	45.13	55.15
Locality of School										
Urban	370	23812	32.7	26.23	39.85	525	34041	46.7	41.76	51.73
Rural	209	13300	33.3	27.41	39.84	360	22502	56.4	48.51	63.99
Sex										
Boys	256	17869	32.1	26.73	37.95	364	25232	45.3	39.81	50.92
Girls	323	19242	33.7	28.51	39.34	521	31311	54.9	48.53	61.03
Class										
Form 1	116	8134	34.3	25.82	44.00	154	10830	45.7	39.33	52.25
Form 2	142	8424	37.8	30.73	45.39	180	10502	47.1	39.06	55.30
Form 3	135	7450	33.5	27.13	40.63	216	11590	52.2	45.01	59.27
Form 4	114	6781	31.2	24.72	38.41	191	11373	52.3	44.55	59.84
Form 5	72	6323	27.7	21.32	35.18	144	12249	53.7	42.81	64.24
Ethnicity										
Malay	330	20744	36.2	30.68	42.06	492	30510	53.2	46.03	60.27
Chinese	140	9130	23.4	18.73	28.78	289	19251	49.3	43.81	54.81
Indian	102	6734	43.5	36.52	50.70	99	6439	41.6	37.37	45.89
Bumiputera Sabah	3	252	79.4	43.64	95.02	1	66	20.6	4.98	56.36
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	4	250	43.3	12.37	80.52	4	277	48.0	18.78	78.67
BMI-for-age status (BAZ)										
Thinness (<-2sd)	43	2898	31.3	20.68	44.36	70	4617	49.9	41.84	57.95
Normal (≥-2sd - ≤+1sd)	368	23112	33.4	28.16	38.98	522	33361	48.1	43.09	53.24
Overweight (>+1sd - ≤+2sd)	89	5818	30.3	25.96	35.04	171	10795	56.2	50.57	61.75
Obese (>+2sd)	77	5141	34.5	27.40	42.45	122	7771	52.2	43.67	60.63
Height-for-age status (HAZ)										
Stunting (<-2sd)	41	2678	36.7	27.81	46.68	63	3936	54.0	43.37	64.29
Normal (≥-2sd)	536	34315	32.6	27.689	37.8862	821	52562	49.9	44.78	55.03

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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
PULAU PINANG	280	19117	17.0	12.96	21.87
Locality of School					
Urban	217	15026	20.6	16.43	25.55
Rural	63	4091	10.3	7.14	14.51
Sex					
Boys	172	12595	22.6	17.79	28.30
Girls	108	6522	11.4	8.60	15.03
Class					
Form 1	64	4725	19.9	14.25	27.20
Form 2	57	3370	15.1	9.89	22.42
Form 3	56	3170	14.3	10.48	19.14
Form 4	61	3612	16.6	12.67	21.44
Form 5	42	4240	18.6	10.55	30.66
Ethnicity					
Malay	96	6082	10.6	7.97	13.98
Chinese	152	10668	27.3	21.46	34.08
Indian	31	2317	15.0	9.73	22.29
Bumiputera Sabah	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-
Others	1	50	8.7	1.10	44.87
BMI-for-age status (BAZ)					
Thinness (<-2sd)	23	1739	18.8	11.79	28.61
Normal (≥-2sd - ≤+1sd)	189	12823	18.5	14.45	23.39
Overweight (>+1sd - ≤+2sd)	39	2583	13.5	8.90	19.83
Obese (>+2sd)	29	1972	13.2	8.19	20.72
Height-for-age status (HAZ)					
Stunting (<-2sd)	11	675	9.3	3.85	20.62
Normal (≥-2sd)	269	18442	17.5	13.56	22.32

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

Characteristic	Size of the print too small					Do not understand				
	Unweighted Count	Estimated Population	Prevalence (%)	95% CI		Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper				Lower	Upper
PULAU PINANG	28	1883	9.9	6.38	14.91	53	3597	18.8	13.87	25.00
Locality of School										
Urban	17	1182	7.9	4.70	12.88	40	2656	17.7	13.13	23.38
Rural	11	701	17.1	9.06	30.04	13	940	23.0	10.37	43.50
Sex										
Boys	20	1405	11.2	6.63	18.17	31	2264	18.0	12.66	24.88
Girls	8	478	7.3	4.03	12.97	22	1333	20.4	12.95	30.71
Class										
Form 1	6	431	9.1	2.97	24.80	16	1177	24.9	12.92	42.58
Form 2	9	512	15.2	7.44	28.58	10	602	17.9	8.22	34.58
Form 3	2	111	3.5	0.94	12.26	14	847	26.7	15.99	41.13
Form 4	7	430	11.9	5.07	25.47	9	563	15.6	4.71	40.75
Form 5	4	399	9.4	2.60	28.75	4	408	9.6	3.43	24.19
Ethnicity										
Malay	15	975	16.0	9.97	24.73	21	1393	22.9	13.53	36.08
Chinese	9	620	5.8	2.75	11.87	27	1902	17.8	12.09	25.50
Indian	4	289	12.5	3.98	32.78	5	301	13.0	6.74	23.57
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-
BMI-for-age status (BAZ)										
Thinness (<-2sd)	3	227	13.1	4.61	31.80	6	526	30.3	17.59	46.85
Normal (≥-2sd - ≤+1sd)	17	1091	8.5	4.50	15.51	33	2048	16.0	11.32	22.06
Overweight (>+1sd - ≤+2sd)	7	512	19.8	8.78	38.82	7	521	20.2	8.38	41.16
Obese (>+2sd)	1	53	2.7	0.32	19.20	7	501	25.4	8.18	56.52
Height-for-age status (HAZ)										
Stunting (<-2sd)	3	196	29.0	6.54	70.48	2	125	18.5	6.18	43.81
Normal (≥-2sd)	25	1688	9.2	6.29	13.12	51	3472	18.8	13.85	25.08

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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
PULAU PINANG	129	8782	45.9	35.29	56.98	32	2067	10.8	7.79	14.81
Locality of School										
Urban	107	7450	49.6	37.45	61.77	22	1434	9.5	6.46	13.87
Rural	22	1332	32.6	19.12	49.64	10	633	15.5	9.55	24.09
Sex										
Boys	79	5931	47.1	36.12	58.35	16	1130	9.0	5.40	14.55
Girls	50	2851	43.7	28.84	59.81	16	936	14.4	9.95	20.27
Class										
Form 1	30	2187	46.3	26.95	66.80	9	681	14.4	9.65	20.98
Form 2	18	1037	30.8	19.49	44.97	10	573	17.0	7.81	33.15
Form 3	31	1710	53.9	39.40	67.83	4	207	6.5	2.28	17.32
Form 4	26	1441	39.9	21.95	61.06	6	360	10.0	4.71	19.90
Form 5	24	2407	56.8	37.20	74.42	3	245	5.8	1.96	15.85
Ethnicity										
Malay	29	1724	28.3	17.08	43.16	13	845	13.9	9.38	20.09
Chinese	90	6412	60.1	50.90	68.66	16	1035	9.7	5.13	17.59
Indian	9	596	25.7	9.77	52.57	3	187	8.1	3.36	18.25
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	1	50	100.0	100.00	100.00	-	-	-	-	-
BMI-for-age status (BAZ)										
Thinness (<-2sd)	8	581	33.4	16.80	55.53	-	-	-	-	-
Normal (≥-2sd - ≤+1sd)	92	6417	50.0	38.64	61.43	17	1028	8.0	4.57	13.68
Overweight (>+1sd - ≤+2sd)	16	966	37.4	16.56	64.25	7	467	18.1	7.77	36.60
Obese (>+2sd)	13	819	41.5	28.27	56.12	8	573	29.0	12.34	54.32
Height-for-age status (HAZ)										
Stunting (<-2sd)	5	269	39.8	13.39	73.94	1	50	7.4	0.67	48.23
Normal (≥-2sd)	124	8514	46.2	35.60	57.08	31	2017	10.9	7.90	14.96

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Table 3.7.2: Reasons for not reading food label among adolescents

Characteristic	Time constraint					Already aware of the food label information				
	Unweighted	Estimated	Prevalence	95% CI		Unweighted	Estimated	Prevalence	95% CI	
	Count	Population	(%)	Lower	Upper	Count	Population	(%)	Lower	Upper
PULAU PINANG	28.000	1980	10.4	6.06	17.14	30	2047.110	11	7.2	15.67
Locality of School										
Urban	19	1301	8.7	4.67	15.48	26	1780	12	7.8	17.67
Rural	9	679	16.6	7.49	32.85	4	267	7	2.7	15.00
Sex										
Boys	18	1404	11.1	5.75	20.50	20	1429	11	7.6	16.71
Girls	10	576	8.8	4.21	17.59	10	618	9	4.2	20.02
Class										
Form 1	5	437	9.3	1.78	36.45	7	548	12	6.3	20.27
Form 2	5	300	8.9	4.40	17.17	8	497	15	6.9	28.83
Form 3	8	430	13.6	5.32	30.45	3	167	5	2.0	13.08
Form 4	5	314	8.7	3.68	19.22	10	560	16	8.0	27.89
Form 5	5	499	11.8	2.95	36.87	2	274	6	2.0	19.02
Ethnicity										
Malay	17	1149	18.9	11.52	29.41	12	771	13	4.9	29.06
Chinese	8	640	6.0	1.94	17.05	17	1214	11	8.0	15.87
Indian	3	191	8.2	2.05	27.84	1	62	3	0.4	17.22
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-
BMI-for-age status (BAZ)										
Thinness (<-2sd)	3	288	16.5	3.73	50.34	7	569	33	20.7	47.50
Normal (≥-2sd - ≤+1sd)	20	1300	10.1	5.91	16.84	19	1171	9	5.3	15.25
Overweight (>+1sd - ≤+2sd)	2	171	6.6	1.75	22.01	2	196	8	1.5	30.14
Obese (>+2sd)	3	222	11.2	2.81	35.65	2	112	6	0.6	36.67
Height-for-age status (HAZ)										
Stunting (<-2sd)	-	-	-	-	-	-	-	-	-	-
Normal (≥-2sd)	28	1980	10.7	6.33	17.64	30	2047	11	7.4	16.35

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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
PULAU PINANG	579	37172	39.7	37.04	42.41	502	31282	33.4	27.73	39.60
Locality of School										
Urban	375	24150	41.7	39.70	43.82	299	18993	32.8	26.29	40.11
Rural	204	13022	36.4	31.87	41.12	203	12288	34.3	24.45	45.77
Sex										
Boys	262	17973	41.7	37.79	45.71	179	12192	28.3	21.67	36.00
Girls	317	19200	38.0	33.95	42.18	323	19089	37.8	31.55	44.40
Class										
Form 1	98	6959	36.7	31.21	42.55	74	4857	25.6	17.52	35.81
Form 2	131	7833	41.4	34.12	49.05	102	5836	30.8	23.82	38.87
Form 3	133	7210	37.9	34.01	41.89	124	6565	34.5	26.82	43.04
Form 4	121	7112	39.2	34.81	43.71	113	6712	37.0	27.88	47.10
Form 5	96	8059	43.4	38.71	48.20	89	7312	39.4	29.91	49.71
Ethnicity										
Malay	303	19143	37.3	33.52	41.34	286	17339	33.8	26.34	42.22
Chinese	185	12004	42.3	39.03	45.62	150	9767	34.4	26.52	43.28
Indian	86	5683	43.1	36.24	50.33	64	4032	30.6	20.29	43.31
Bumiputera Sabah	2	158	49.8	16.50	83.22	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	3	184	34.8	8.28	76.02	2	145	27.4	6.60	66.94
BMI-for-age status (BAZ)										
Thinness (<-2sd)	50	3288	43.8	35.19	52.71	30	1924	25.6	17.44	35.91
Normal (≥-2sd - ≤+1sd)	368	23422	41.5	37.84	45.20	301	18440	32.7	25.87	40.25
Overweight (>+1sd - ≤+2sd)	84	5366	32.3	28.08	36.84	87	5362	32.3	27.74	37.17
Obese (>+2sd)	76	5029	39.0	32.55	45.76	83	5490	42.5	34.81	50.61
Height-for-age status (HAZ)										
Stunting (<-2sd)	44	2784	42.1	31.87	53.02	32	1997	30.2	21.61	40.44
Normal (≥-2sd)	533	34270	39.4	36.93	42.02	469	29217	33.6	27.84	39.96

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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
PULAU PINANG	607	38375	41.0	34.62	47.64	304	19925	21.3	17.95	25.03
Locality of School										
Urban	358	23083	39.9	32.25	48.08	187	12532	21.7	17.46	26.56
Rural	249	15292	42.7	32.14	54.00	117	7393	20.6	15.63	26.76
Sex										
Boys	210	14856	34.5	27.26	42.46	162	11605	26.9	21.87	32.66
Girls	397	23519	46.5	39.91	53.26	142	8320	16.5	13.53	19.87
Class										
Form 1	94	6538	34.5	26.24	43.77	66	4720	24.9	18.79	32.19
Form 2	123	7012	37.0	28.74	46.21	62	3647	19.3	14.99	24.43
Form 3	149	7881	41.4	33.11	50.20	75	4116	21.6	16.85	27.28
Form 4	122	7224	39.8	31.79	48.39	58	3360	18.5	12.92	25.79
Form 5	119	9719	52.3	39.92	64.46	43	4082	22.0	15.79	29.74
Ethnicity										
Malay	352	21658	42.3	34.01	50.96	157	9795	19.1	15.27	23.64
Chinese	170	11292	39.8	32.40	47.67	103	7257	25.6	18.91	33.60
Indian	80	5066	38.5	28.25	49.79	43	2816	21.4	17.84	25.40
Bumiputera Sabah	3	226	70.9	12.11	97.73	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	2	133	25.1	5.89	64.30	1	57	10.9	1.73	45.86
BMI-for-age status (BAZ)										
Thinness (<-2sd)	35	2374	31.6	23.24	41.32	28	1822	24.2	15.06	36.62
Normal (≥-2sd - ≤+1sd)	349	21887	38.8	32.09	45.88	191	12539	22.2	18.68	26.18
Overweight (>+1sd - ≤+2sd)	133	8378	50.4	40.90	59.93	47	2988	18.0	13.86	23.01
Obese (>+2sd)	88	5592	43.3	32.72	54.56	38	2577	20.0	13.29	28.86
Height-for-age status (HAZ)										
Stunting (<-2sd)	33	2014	30.4	18.10	46.44	20	1152	17.4	12.22	24.21
Normal (≥-2sd)	573	36294	41.8	35.53	48.30	284	18773	21.6	18.26	25.38

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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	
PULAU PINANG	131	8019	8.6	6.26	11.61	326	20603	22.0	18.89	25.46
Locality of School										
Urban	85	5297	9.2	6.09	13.55	202	13032	22.5	19.44	25.95
Rural	46	2722	7.6	4.89	11.64	124	7571	21.1	15.22	28.60
Sex										
Boys	42	2857	6.6	4.30	10.08	137	9632	22.3	17.34	28.31
Girls	89	5162	10.2	7.28	14.14	189	10971	21.7	18.79	24.92
Class										
Form 1	20	1264	6.7	3.28	13.09	74	5109	26.9	19.10	36.54
Form 2	20	1117	5.9	3.36	10.17	68	3835	20.3	13.87	28.61
Form 3	42	2212	11.6	6.88	18.96	77	4073	21.4	17.56	25.80
Form 4	27	1603	8.8	5.57	13.73	64	3769	20.8	16.05	26.42
Form 5	22	1823	9.8	6.59	14.39	43	3818	20.6	16.43	25.41
Ethnicity										
Malay	64	3801	7.4	5.19	10.50	172	10444	20.4	15.87	25.77
Chinese	42	2687	9.5	7.04	12.61	104	6802	24.0	19.31	29.35
Indian	25	1531	11.6	5.19	24.02	47	3135	23.8	16.77	32.63
Bumiputera Sabah	-	-	-	-	-	1	107	33.6	6.94	77.46
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	2	115	21.8	2.98	71.65
BMI-for-age status (BAZ)										
Thinness (<-2sd)	8	454	6.0	2.87	12.28	28	1910	25.4	17.41	35.52
Normal (≥-2sd - ≤+1sd)	77	4764	8.4	6.07	11.61	197	12241	21.7	18.64	25.05
Overweight (>+1sd - ≤+2sd)	23	1366	8.2	4.95	13.35	57	3677	22.1	16.11	29.62
Obese (>+2sd)	23	1435	11.1	6.89	17.42	44	2775	21.5	14.75	30.23
Height-for-age status (HAZ)										
Stunting (<-2sd)	5	266	4.0	1.87	8.39	26	1584	24.0	17.08	32.52
Normal (≥-2sd)	125	7709	8.9	6.40	12.18	300	19019	21.9	18.79	25.35

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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	
PULAU PINANG	132	8380	8.9	6.69	11.88	188	11504	12	9.3	16.04
Locality of School										
Urban	86	5620	9.7	6.67	13.95	124	7806	13	10.0	17.92
Rural	46	2760	7.7	5.20	11.28	64	3698	10	6.0	17.21
Sex										
Boys	52	3657	8.5	4.96	14.13	75	4968	12	8.2	16.00
Girls	80	4722	9.3	7.74	11.23	113	6536	13	9.4	17.50
Class										
Form 1	29	1900	10.0	5.26	18.25	39	2475	13	7.5	21.81
Form 2	18	1000	5.3	3.36	8.22	47	2639	14	9.5	20.08
Form 3	36	1912	10.0	7.67	13.04	41	2116	11	7.4	16.32
Form 4	24	1431	7.9	5.08	12.04	31	1774	10	6.1	15.19
Form 5	25	2137	11.5	6.58	19.38	30	2500	13	10.5	17.11
Ethnicity										
Malay	64	3877	7.6	5.57	10.20	96	5699	11	7.7	15.77
Chinese	52	3475	12.2	7.59	19.17	75	4747	17	13.8	20.09
Indian	16	1027	7.8	5.27	11.39	17	1058	8	4.1	15.31
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-
BMI-for-age status (BAZ)										
Thinness (<-2sd)	9	633	8.4	4.37	15.63	13	896	12	6.5	20.97
Normal (≥-2sd - ≤+1sd)	86	5516	9.8	7.23	13.08	112	6824	12	8.6	16.69
Overweight (>+1sd - ≤+2sd)	19	1111	6.7	4.43	9.98	31	1935	12	7.2	18.32
Obese (>+2sd)	18	1119	8.7	5.30	13.87	32	1849	14	9.6	20.78
Height-for-age status (HAZ)										
Stunting (<-2sd)	6	318	4.8	1.95	11.38	11	594	9	4.2	18.04
Normal (≥-2sd)	126	8062	9.3	6.89	12.39	177	10910	13	9.6	16.29

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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
PULAU PINANG	1200	76698	81.9	76.79	86.08	283	18016.37	19	14.9	24.51
Locality of School										
Urban	740	47818	82.7	75.10	88.28	204	13148.929	23	17.5	28.94
Rural	460	28879	80.7	74.40	85.69	79	4867.4412	14	9.7	18.72
Sex										
Boys	478	33620	78.0	68.72	85.13	115	7795.3708	18	13.1	24.44
Girls	722	43077	85.2	81.45	88.32	168	10220.999	20	15.2	26.37
Class										
Form 1	226	15478	81.6	72.44	88.24	53	3448.2522	18	11.4	27.70
Form 2	256	15042	79.5	70.75	86.12	46	2689.0699	14	10.2	19.52
Form 3	280	15033	79.0	69.72	85.94	57	3021.8579	16	10.6	23.17
Form 4	246	14494	79.8	71.08	86.45	67	3908.8048	22	16.8	27.15
Form 5	192	16651	89.7	84.88	93.05	60	4948.3853	27	17.8	37.90
Ethnicity										
Malay	654	40674	79.4	73.63	84.11	113	7012.2858	14	10.8	17.21
Chinese	389	25703	90.6	83.62	94.75	125	8075.272	28	22.9	34.75
Indian	148	9736	73.9	57.61	85.52	45	2928.8122	22	16.8	28.82
Bumiputera Sabah	3	226	70.9	12.11	97.73	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	6	359	68.1	20.81	94.55	-	-	-	-	-
BMI-for-age status (BAZ)										
Thinness (<-2sd)	89	6058	80.6	74.53	85.54	24	1630.5625	22	14.3	31.56
Normal (≥-2sd - ≤+1sd)	739	46857	83.0	77.29	87.46	164	10415.909	18	13.0	25.49
Overweight (>+1sd - ≤+2sd)	213	13472	81.1	74.52	86.29	46	2832.5223	17	12.0	23.72
Obese (>+2sd)	157	10167	78.7	70.01	85.46	49	3137.3762	24	17.7	32.32
Height-for-age status (HAZ)										
Stunting (<-2sd)	81	5124	77.5	66.71	85.50	17	997.73673	15	8.2	26.03
Normal (≥-2sd)	1117	71462	82.3	77.27	86.34	265	16967.174	20	15.0	25.00

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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
PULAU PINANG	368	23559	25.2	20.08	31.01	533	32931	35.2	22.95	49.69
Locality of School										
Urban	255	16416	28.4	23.07	34.36	196	12235	21.1	12.81	32.86
Rural	113	7143	20.0	12.70	29.92	337	20696	57.8	43.38	71.01
Sex										
Boys	165	11483	26.6	20.13	34.35	190	12959	30.1	16.88	47.65
Girls	203	12076	23.9	18.42	30.38	343	19972	39.5	27.75	52.61
Class										
Form 1	67	4860	25.6	16.01	38.38	83	5919	31.2	19.34	46.19
Form 2	61	3518	18.6	13.42	25.17	139	7901	41.7	26.64	58.58
Form 3	86	4568	24.0	18.75	30.16	146	7728	40.6	26.69	56.17
Form 4	83	4801	26.4	18.50	36.28	94	5749	31.7	18.95	47.88
Form 5	71	5813	31.3	21.64	42.90	71	5635	30.3	15.18	51.46
Ethnicity										
Malay	157	9813	19.1	13.77	25.99	466	28578	55.8	44.56	66.40
Chinese	152	9851	34.7	29.54	40.26	21	1282	4.5	3.04	6.67
Indian	56	3662	27.8	22.30	34.06	43	2859	21.7	16.35	28.21
Bumiputera Sabah	1	66	20.6	4.98	56.36	2	146	45.8	4.98	93.15
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	2	168	31.9	5.45	79.19	1	66	12.6	1.13	64.32
BMI-for-age status (BAZ)										
Thinness (<-2sd)	19	1255	16.7	11.52	23.60	34	2220	29.5	16.38	47.31
Normal (≥-2sd - ≤+1sd)	222	14085	24.9	19.34	31.53	327	19931	35.3	22.92	50.01
Overweight (>+1sd - ≤+2sd)	66	4238	25.5	18.60	33.92	89	5550	33.4	20.15	49.93
Obese (>+2sd)	60	3914	30.3	21.34	41.09	83	5230	40.5	27.47	55.04
Height-for-age status (HAZ)										
Stunting (<-2sd)	17	1019	15.4	8.35	26.70	51	3130	47.3	31.76	63.42
Normal (≥-2sd)	350	22473	25.9	20.67	31.85	482	29801	34.3	22.18	48.89

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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
PULAU PINANG	447	27474	29.3	23.47	35.98	303	19006	20.3	14.67	27.38
Locality of School										
Urban	269	16761	29.0	21.58	37.68	206	13080	22.6	15.11	32.41
Rural	178	10713	29.9	21.01	40.67	97	5927	16.6	10.42	25.28
Sex										
Boys	154	10328	24.0	18.17	30.90	114	7834	18.2	10.20	30.29
Girls	293	17146	33.9	27.13	41.44	189	11173	22.1	16.73	28.60
Class										
Form 1	71	4516	23.8	15.37	34.98	58	3725	19.6	11.99	30.47
Form 2	72	4105	21.7	15.18	30.01	57	3234	17.1	11.20	25.20
Form 3	132	6976	36.6	26.66	47.92	64	3291	17.3	12.07	24.13
Form 4	88	5168	28.5	20.38	38.23	59	3441	19.0	12.98	26.83
Form 5	84	6708	36.1	24.76	49.29	65	5317	28.6	18.19	41.98
Ethnicity										
Malay	247	14961	29.2	21.99	37.62	136	8268	16.1	11.35	22.42
Chinese	136	8594	30.3	22.35	39.58	125	8189	28.9	18.94	41.31
Indian	61	3715	28.2	16.89	43.15	39	2358	17.9	10.45	28.94
Bumiputera Sabah	-	-	-	-	-	1	66	20.6	4.98	56.36
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	3	204	38.6	9.92	78.27	2	126	24.0	2.41	80.05
BMI-for-age status (BAZ)										
Thinness (<-2sd)	30	1985	26.4	17.78	37.34	15	976	13.0	4.90	30.20
Normal (≥-2sd - ≤+1sd)	276	16967	30.0	24.13	36.70	189	11834	21.0	15.12	28.28
Overweight (>+1sd - ≤+2sd)	78	4583	27.6	19.55	37.38	53	3305	19.9	13.01	29.20
Obese (>+2sd)	63	3940	30.5	21.95	40.69	46	2892	22.4	15.72	30.87
Height-for-age status (HAZ)										
Stunting (<-2sd)	35	2200	33.3	19.75	50.24	18	1171	17.7	8.19	34.17
Normal (≥-2sd)	412	25274	29.1	23.21	35.77	285	17835	20.5	15.01	27.42

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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
PULAU PINANG	846	54713	48.4	40.47	56.46	1085	70119	62.1	53.80	69.68
Locality of School										
Urban	523	34238	46.9	36.49	57.55	666	43580	59.7	48.78	69.68
Rural	323	20475	51.3	40.12	62.27	419	26540	66.4	55.48	75.88
Sex										
Boys	357	25586	45.9	36.33	55.69	468	33414	59.9	51.10	68.08
Girls	489	29127	50.9	42.09	59.73	617	36705	64.2	54.10	73.16
Class										
Form 1	166	11255	47.4	34.55	60.59	212	14748	62.1	49.25	73.45
Form 2	178	10604	47.4	38.12	56.77	223	13225	59.1	48.69	68.67
Form 3	176	9334	41.9	32.50	52.00	248	13309	59.8	48.89	69.80
Form 4	169	9939	45.7	33.74	58.11	214	12529	57.6	45.93	68.42
Form 5	157	13581	59.5	45.63	72.06	188	16309	71.5	55.18	83.63
Ethnicity										
Malay	450	28119	49.0	39.29	58.69	591	37068	64.5	54.91	73.10
Chinese	289	19303	49.3	35.56	63.16	349	23153	59.1	43.04	73.49
Indian	102	6967	45.0	35.82	54.49	138	9427	60.9	51.40	69.57
Bumiputera Sabah	1	53	16.6	1.22	76.43	1	53	16.6	1.22	76.43
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	4	271	46.9	13.98	82.81	6	418	72.4	35.90	92.49
BMI-for-age status (BAZ)										
Thinness (<-2sd)	57	3829	41.4	30.47	53.21	78	5274	57.0	47.02	66.43
Normal (≥-2sd - ≤+1sd)	534	34153	49.2	40.61	57.80	678	43406	62.5	54.04	70.27
Overweight (>+1sd - ≤+2sd)	146	9395	48.9	39.26	58.71	188	12087	63.0	52.64	72.23
Obese (>+2sd)	107	7192	48.1	39.88	56.49	139	9210	61.6	50.97	71.29
Height-for-age status (HAZ)										
Stunting (<-2sd)	49	3150	43.2	29.69	57.85	65	4082	56.0	39.64	71.16
Normal (≥-2sd)	796	51495	48.8	40.95	56.70	1019	65970	62.5	54.41	69.97

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
PULAU PINANG	1003	64681	57.2	50.22	63.99
Locality of School					
Urban	614	40072	54.9	45.67	63.74
Rural	389	24609	61.6	52.57	69.91
Sex					
Boys	425	30111	54.0	44.86	62.81
Girls	578	34569	60.5	53.91	66.65
Class					
Form 1	195	13365	56.3	43.14	68.58
Form 2	212	12597	56.3	47.86	64.30
Form 3	219	11688	52.5	44.07	60.80
Form 4	206	12211	56.1	44.57	67.02
Form 5	171	14820	65.0	53.64	74.82
Ethnicity					
Malay	544	33912	59.0	50.98	66.63
Chinese	326	21697	55.4	40.69	69.26
Indian	127	8654	55.9	49.10	62.43
Bumiputera Sabah	2	146	45.8	4.98	93.15
Bumiputera Sarawak	-	-	-	-	-
Others	4	271	46.9	13.98	82.81
BMI-for-age status (BAZ)					
Thinness (<-2sd)	70	4674	50.5	38.71	62.25
Normal (≥-2sd - ≤+1sd)	622	39712	57.2	49.41	64.62
Overweight (>+1sd - ≤+2sd)	169	10895	56.8	47.25	65.79
Obese (>+2sd)	140	9257	62.0	54.06	69.26
Height-for-age status (HAZ)					
Stunting (<-2sd)	63	4029	55.3	43.61	66.38
Normal (≥-2sd)	938	60540	57.4	50.36	64.10

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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
PULAU PINANG	475	30425	26.9	20.41	34.62	706	45374	40.2	32.01	48.90
Locality of School										
Urban	306	19657	26.9	18.68	37.12	456	29687	40.6	29.55	52.78
Rural	169	10768	27.0	17.49	39.12	250	15687	39.3	29.33	50.20
Sex										
Boys	193	13869	24.9	16.29	35.99	290	20709	37.1	25.37	50.62
Girls	282	16556	29.0	22.82	35.97	416	24665	43.1	36.17	50.38
Class										
Form 1	100	6932	29.2	17.84	43.90	137	9406	39.6	27.08	53.67
Form 2	73	4272	19.1	13.82	25.73	127	7407	33.1	25.58	41.54
Form 3	122	6465	29.0	21.46	38.01	166	8776	39.4	30.84	48.71
Form 4	89	5078	23.3	14.78	34.81	136	7929	36.4	25.44	49.05
Form 5	91	7678	33.7	23.81	45.17	140	11856	52.0	37.18	66.43
Ethnicity										
Malay	223	13993	24.4	16.87	33.83	340	21108	36.7	28.49	45.86
Chinese	187	12215	31.2	20.35	44.59	276	18356	46.9	32.21	62.12
Indian	62	4009	25.9	17.43	36.61	85	5553	35.9	25.40	47.85
Bumiputera Sabah	-	-	-	-	-	1	93	29.1	2.27	87.89
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	3	208	36.0	17.65	59.65	4	265	45.8	17.28	77.40
BMI-for-age status (BAZ)										
Thinness (<-2sd)	29	1903	20.6	11.01	35.13	45	3048	32.9	21.16	47.34
Normal (≥-2sd - ≤+1sd)	300	19090	27.5	20.76	35.43	443	28308	40.8	32.67	49.39
Overweight (>+1sd - ≤+2sd)	79	4866	25.4	17.55	35.14	114	7026	36.6	26.30	48.30
Obese (>+2sd)	67	4566	30.6	23.71	38.39	102	6848	45.8	34.76	57.34
Height-for-age status (HAZ)										
Stunting (<-2sd)	35	2192	30.1	17.06	47.35	54	3422	46.9	31.65	62.83
Normal (≥-2sd)	440	28233	26.8	20.34	34.32	650	41840	39.6	31.46	48.46

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
PULAU PINANG	821	52794	46.7	40.02	53.55
Locality of School					
Urban	494	31872	43.6	35.20	52.46
Rural	327	20922	52.4	44.30	60.34
Sex					
Boys	357	25300	45.3	37.15	53.80
Girls	464	27494	48.1	41.26	54.97
Class					
Form 1	168	11920	50.2	38.62	61.75
Form 2	169	10070	45.0	38.61	51.49
Form 3	203	10844	48.7	39.35	58.17
Form 4	153	9008	41.4	30.97	52.64
Form 5	128	10952	48.0	38.24	57.93
Ethnicity					
Malay	454	28577	49.7	42.27	57.23
Chinese	238	15703	40.1	28.55	52.89
Indian	122	8028	51.8	44.40	59.18
Bumiputera Sabah	2	160	50.2	16.78	83.50
Bumiputera Sarawak	-	-	-	-	-
Others	5	326	56.4	33.62	76.84
BMI-for-age status (BAZ)					
Thinness (<-2sd)	54	3418	36.9	25.20	50.47
Normal (\geq -2sd - \leq +1sd)	508	32485	46.8	40.30	53.36
Overweight ($>$ +1sd - \leq +2sd)	140	9014	47.0	40.03	54.00
Obese ($>$ +2sd)	119	7877	52.7	43.80	61.46
Height-for-age status (HAZ)					
Stunting (<-2sd)	54	3370	46.2	36.45	56.30
Normal (\geq -2sd)	766	49373	46.8	39.97	53.73

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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
PULAU PINANG	111	6715	7.2	5.55	9.21	818	51616	55.1	48.57	61.48
Locality of School										
Urban	62	3839	6.6	4.88	8.97	495	31846	55.0	48.55	61.37
Rural	49	2875	8.0	5.27	12.05	323	19769	55.2	41.76	67.95
Sex										
Boys	38	2567	6.0	3.99	8.80	326	22656	52.6	44.79	60.22
Girls	73	4148	8.2	5.84	11.42	492	28960	57.3	50.87	63.46
Class										
Form 1	24	1567	8.3	4.74	14.00	146	9806	51.7	38.78	64.41
Form 2	24	1366	7.2	4.19	12.15	168	9694	51.2	43.26	59.12
Form 3	30	1673	8.8	5.73	13.25	213	11490	60.3	52.39	67.79
Form 4	26	1507	8.3	5.33	12.71	159	9266	51.0	42.01	60.01
Form 5	7	603	3.2	1.22	8.36	132	11360	61.2	52.34	69.32
Ethnicity										
Malay	66	3853	7.5	5.21	10.72	450	27454	53.6	43.17	63.66
Chinese	28	1782	6.3	3.82	10.15	248	16663	58.7	54.30	62.98
Indian	16	973	7.4	4.87	11.04	115	7163	54.4	38.18	69.71
Bumiputera Sabah	1	107	33.6	6.94	77.46	2	160	50.2	16.78	83.50
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	3	175	33.3	8.11	73.80
BMI-for-age status (BAZ)										
Thinness (<-2sd)	9	536	7.1	3.22	15.08	65	4308	57.3	44.89	68.89
Normal (≥-2sd - ≤+1sd)	66	3977	7.0	5.27	9.36	499	31498	55.8	49.55	61.82
Overweight (>+1sd - ≤+2sd)	22	1410	8.5	4.85	14.44	140	8595	51.7	41.53	61.80
Obese (>+2sd)	14	792	6.1	3.62	10.22	112	7072	54.8	44.23	64.90
Height-for-age status (HAZ)										
Stunting (<-2sd)	4	203	3.1	0.93	9.68	48	2942	44.5	27.70	62.62
Normal (≥-2sd)	106	6467	7.4	5.87	9.40	767	48510	55.8	49.48	62.01

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
PULAU PINANG	229	13971	14.9	12.22	18.09
Locality of School					
Urban	139	8598	14.9	12.01	18.24
Rural	90	5373	15.0	10.08	21.75
Sex					
Boys	92	6001	13.9	11.03	17.42
Girls	137	7970	15.8	11.92	20.57
Class					
Form 1	48	3204	16.9	12.39	22.62
Form 2	64	3674	19.4	13.71	26.76
Form 3	53	2915	15.3	10.79	21.28
Form 4	48	2818	15.5	11.16	21.18
Form 5	16	1360	7.3	4.44	11.84
Ethnicity					
Malay	136	8097	15.8	12.10	20.37
Chinese	60	3658	12.9	10.07	16.35
Indian	32	2109	16.0	10.92	22.85
Bumiputera Sabah	1	107	33.6	6.94	77.46
Bumiputera Sarawak	-	-	-	-	-
Others	-	-	-	-	-
BMI-for-age status (BAZ)					
Thinness (<-2sd)	19	1168	15.5	8.82	25.92
Normal (\geq -2sd - \leq +1sd)	136	8187	14.5	11.81	17.67
Overweight ($>$ +1sd - \leq +2sd)	48	3064	18.4	12.69	26.03
Obese ($>$ +2sd)	26	1552	12.0	7.74	18.20
Height-for-age status (HAZ)					
Stunting (<-2sd)	14	846	12.8	5.88	25.63
Normal (\geq -2sd)	214	13079	15.1	12.54	17.98

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 Yoep, 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 binti Salleh</p> <p>Pn. Hamizatul Akmal binti Abd Hamid 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><u>Before Data Collection</u></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"> • Human resources are available: Field Supervisors, Team leaders, Research Assistants and drivers. • Manage transport: Vehicles • Manage survey instruments and relevant form • Manage lodging for data collectors <p><u>During Data Collection</u></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>
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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
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

PULAU PINANG

Liaison Officer

Ms. Zuhaida binti Harun

Field Supervisor

1. Ms. Nor Azna binti Mahmud
2. Dr. Fazly Azri bin Abdul Aziz

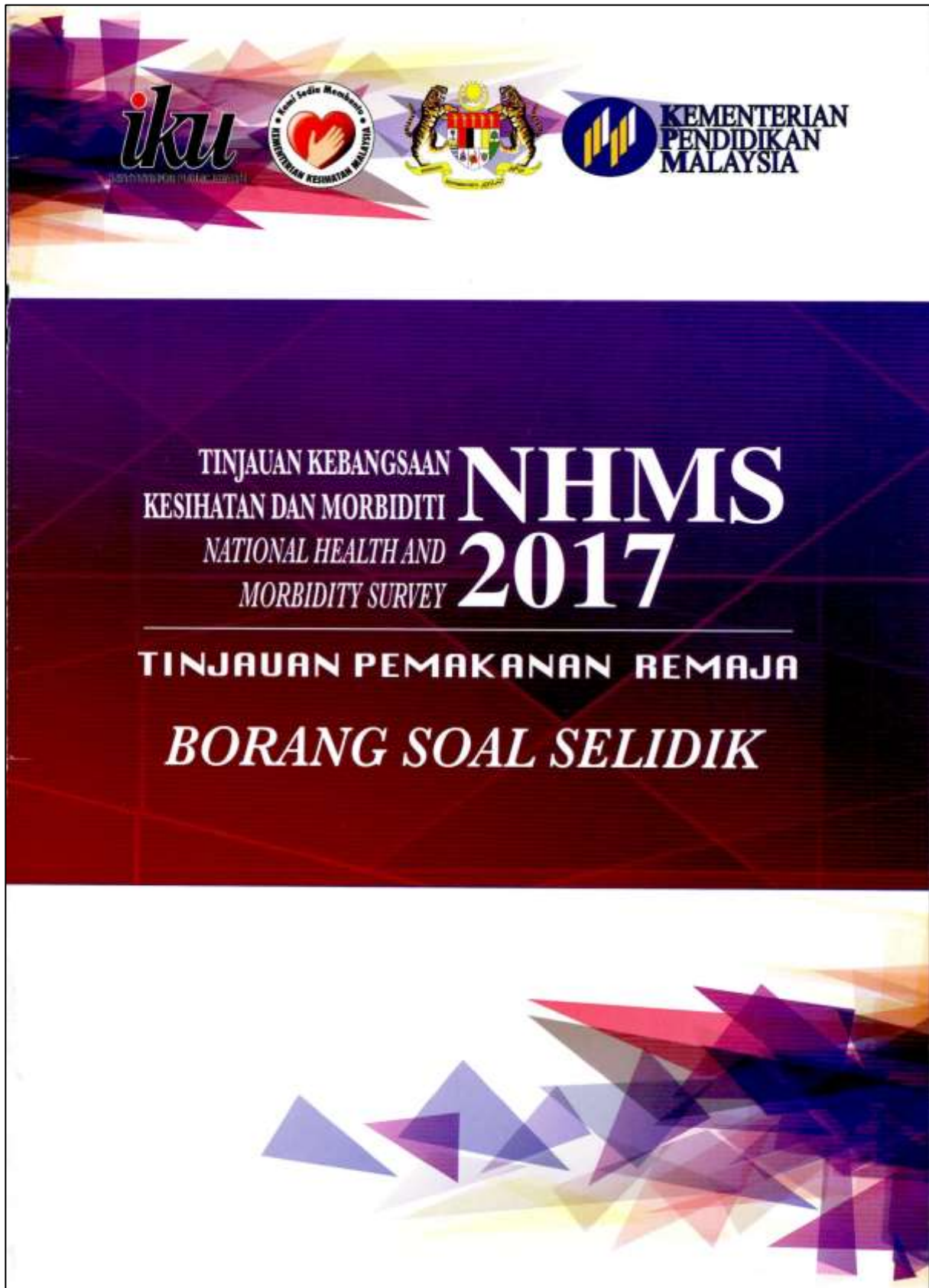
Nutritionist

1. Mr. Mohamad Faizal bin Ibrahim
2. Ms. Mah Su Feng
3. Ms. Juliani Faridza binti Alias
4. Ms. Foo Ming Ming
5. Ms. Siti Norazlin binti Mohd Ngadikin
6. Ms. Marshita binti Mohamed
7. Mr. Shahrulnaz Norhazli bin Nazri
8. Ms. Gan Xiang Ling
9. Ms. Nurliyana binti Saidin
10. Ms. Teoh Chin Yen

Research Assistants

1. Farhan bin Adnan
2. Muhammad Izzat bin Ismail
3. Muhammad Hafizuddin bin Ismail
4. Ahmad Hariz bin Abd Halim
5. Muhamad Shukur Bin Abdul Razak
6. Muhamad Hafiz bin Mahmud
7. Khairul Anwar bin Noor Rahim
8. Muhammad Luqman bin Bahari
9. Muhamad Arif bin Misra
10. Ahmad Hasif bin Abd Halim

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 ÀÁÀ	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	

MODUL B :	CORAK PEMAKANAN
தொகுதி B :	உணவு பழக்கம்
Arahan : <i>Pilih jawapan dan hitamkan pada kertas jawapan yang disediakan.</i>	
கட்டளை : <i>சரியான விடையைத் தெரிவு செய்து கொடுக்கப்படுள்ள விடைத்தாளில் கருமையாக்குக .</i>	
B1	<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>
B2	<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>
B3	<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>
B4	<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 English

- B5** Kebiasaannya, dalam seminggu berapa hari anda makan dan/atau minum pada waktu rehat sekolah?
வழக்கமாக ஒரு வாரத்தில் எத்தனை 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 எத்தனை 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

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- B13** Kebiasaannya, dari mana anda dapat makanan itu?
எங்கிருந்து அவ்வணவை 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 ஏத்தனை முறை அதிகமான அளவில் உணவு உட்கொண்டீர்கள்?
(உதாரணமாக: நாசி லெமாக், ரொத்தி சாளாய், மீ பிரத்தல், பர்கர், பொரித்தக் கோழி, துரித 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 யல்வணவை 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 எடுத்துச்செல்வீர்கள்?
- 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 எடுத்துச்செல்வீர்கள்? (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. Nugget / 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 எடுத்துச்செல்வீர்கள்?
- A. Setiap hari / தினமும்
B. Kadang-kadang / சில நேரத்தில்
C. Tidak / பள்ளிக்கு நீர் எடுத்துச் செல்லமாட்டேன்

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- 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 / பனிக்கூல்
 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?

	Aktiviti நடவடிக்கை	Tiada	1-2 kali முறை	3-4 kali முறை	5-6 kali முறை	7 kali atau lebih முறை
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 பேல்பாஷ்	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 டாக்ரா	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

- 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
நின்றன்கொண்டு 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
நின்றன்கொண்டு 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>MODUL D : PERSEPSI PENGURUSAN BERAT BADAN தொகுதி D : உடல் எடை கட்டுப்பாடு</p>	
<p>Arahan : Pilih jawapan dan hitamkan pada kertas jawapan yang disediakan. கட்டளை : சரியான விடையைத் தெர்வு செய்து கொடுக்கப்பட்டுள்ள விடைத்தாளில்</p>	
<p>D1</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>D2</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>D3</p>	<p>Sekiranya anda berhasrat untuk mengurangkan berat badan, 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

MODUL E :	PENGAMBILAN SUPLEMEN
தொகுதி E :	விடமின் மற்றும் மாற்றுச்சத்துணவு உட்கொள்ளுதல்
Arahan : Pilih jawapan dan hitamkan pada kertas jawapan yang disediakan.	
கட்டளை : சரியான விடையைத் தெர்வு செய்து கொடுக்கப்படுள்ள விடைத்தாளில்	
E1	<p>Adakah anda ada mengambil sebarang suplemen vitamin / mineral? நீங்கள் விடமின் ஏதாவது உட்கொள்கிறீர்களா?</p> <p>A Ya / ஆம்</p> <p>B Tidak / இல்லை</p> <p>(Jika TIDAK, sila jawab TIDAK AMBIL SUPLEMEN di soalan E2, E3, dan E4) (இல்லை என்றால், விடமின் உட்கொள்ளவில்லை என்று E2, E3, மற்றும் E4 கேள்விகளில் விடையளிக்கவும்)</p>
E2	<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>
E3	<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>
E4	<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

MODUL F :	LABEL MAKANAN DAN PEMAKANAN (SEKOLAH MENENGAH SAHAJA)																		
தொகுதி F :	உணவு மற்றும் உணவு உல்கொள்ளும்முறையையும்குறிப்பிடுக. (படைநிலைப்பள்ளி மட்டும்)																		
Arahan : Pilih jawapan dan hitamkan pada kertas jawapan yang disediakan.																			
கட்டளை : சரியான விடையைத் தேர்வு செய்து கொடுக்கப்படுள்ள விடைத்தாளில்																			
F1	<p>Adakah anda membaca label makanan ketika membeli atau menerima makanan/minuman? ஒர் உணவுப் பொருளை வாங்குவதற்கு முன் நீங்கள் அதன் அடையாள அட்டையை படிப்பீர்களா?</p> <p>A. Ya, setiap kali (terus ke soalan F3 dan jawab hingga soalan F10) ஆம், ஒவ்வொருமுறையும் (கேள்வி F3- டல்பருந்து F10 வரை பதிலளிக்கவும்)</p> <p>B. Ya, kadang-kadang / ஆம், சில சமயத்தில்</p> <p>C. Tidak (silalah jawab soalan F2 dan terus ke soalan F5 hingga F8) டல்லை (கேள்வி F2 மற்றும் F5 பின் அதிலிருந்து தொடர்ந்து F8 வரை பதிலளிக்கவும்)</p>																		
F2	<p>Jika anda tidak membaca label makanan, nyatakan sebab-sebabnya? Anda boleh memilih lebih daripada satu jawapan. எனால் நீங்கள் அவ்வடையாள அட்டையை படிக்கமாதிர்கள்? ஒரு விடைக்கு மேல் தேர்வு செய்யலாம்.</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				
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F3	<p>Apakah jenis maklumat panel maklumat pemakanan yang anda baca? Anda boleh memilih lebih daripada satu jawapan. எந்த வகையான தகவலை நீங்கள் உணவு அடையாள அட்டையில் படித்தீர்கள்? ஒரு விடைக்கு மேல் தேர்வு செய்யலாம்</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
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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 டீய்வுண்ணை உட்கொண்டால், 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

MODUL G : PENGUKURAN ANTROPOMETRI தொகுதி G : ஆந்தரோபோமெற்றிக் அளவீடுகள்													
Arahan : Bahagian ini akan diisi oleh pelajar di dalam kertas jawapan yang disediakan. கட்டளை: கீழ்க்காணும் பத்திரத்தை நிரப்புக.													
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 <table border="1" style="width: 100%;"> <tr> <td style="width: 20%;">G2a</td> <td style="width: 20%;">Berat 1 எடை 1</td> <td style="width: 20%; text-align: center;"> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> </td> <td style="width: 40%; text-align: right;">kg</td> </tr> <tr> <td>G2b</td> <td>Berat 2 எடை 2</td> <td style="text-align: center;"> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> </td> <td style="text-align: right;">kg</td> </tr> <tr> <td colspan="2">Enggan diukur அளக்கவில்லை</td> <td colspan="2" style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	G2a	Berat 1 எடை 1	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/>	kg	G2b	Berat 2 எடை 2	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/>	kg	Enggan diukur அளக்கவில்லை		<input type="checkbox"/>	
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G3	Tinggi உயரம் <table border="1" style="width: 100%;"> <tr> <td style="width: 20%;">G3a</td> <td style="width: 20%;">Tinggi 1 உயரம் 1</td> <td style="width: 20%; text-align: center;"> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> </td> <td style="width: 40%; text-align: right;">cm</td> </tr> <tr> <td>G3b</td> <td>Tinggi 2 உயரம் 2</td> <td style="text-align: center;"> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> </td> <td style="text-align: right;">cm</td> </tr> <tr> <td colspan="2">Enggan diukur அளக்கவில்லை</td> <td colspan="2" style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	G3a	Tinggi 1 உயரம் 1	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/>	cm	G3b	Tinggi 2 உயரம் 2	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/>	cm	Enggan diukur அளக்கவில்லை		<input type="checkbox"/>	
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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

Survei Kesihatan Kebangsaan

MODULE A : PERSONAL INFORMATION			
A组：个人资料			
INSTRUCTION : Fill the student ID, date of birth and shade your answer on the answer sheet provided			
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			
A1	Student ID/ 学生编号	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	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	Date of birth/ 出生日期	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Day/日期 Month/月 Year/年份
A3	Gender/性别	A. Male/男 B. Female/女	
A4	Ethnicity/种族	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	
		Primary school/小学	Secondary school/中学
A5	Class/年级	A. Primary 4/4年级 B. Primary 5/5年级 C. Primary 6/6年级	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
A6	Age/年龄	A. 10 year old/10岁 B. 11 year old /11岁 C. 12 year old /12岁	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

MODULE B: Meal pattern	
组 B: 饮食习惯	
Instruction: Choose the answer and shade on the answer sheet provided 指示: 请在准备好的答案纸上划圈作答	
B1	<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>
B2	<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>
B3	<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>
B4	<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

MODULE C : PHYSICAL ACTIVITY						
C组：体能活动						
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						
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?						
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？						
	Activity/活动	Never/ 没有	1-2 times/ 1-2次	3-4 times/ 3-4次	5-6 times/ 5-6次	7 times or more/ 7次或以上
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

<p>MODULE D : PERCEPTION OF WEIGHT MANAGEMENT D 组 : 体重管理的自我观点</p>	
<p>INSTRUCTION : Choose the answer and shade on the answer sheet provided. 指示 : 请在准备好的答案纸上划圈作答</p>	
<p>D1</p>	<p>At the present time, you think you are: 目前, 你觉得你:</p> <p>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</p>
<p>D2</p>	<p>What are you doing to your body weight? 你对你的体重做了些什么?</p> <p>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</p>
<p>D3</p>	<p>If you intend to lose body weight, what are the main factor that motivate you to do so?/如果你想减肥, 是什么主要因素驱使你这样做呢?</p> <p>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</p>
<p>D4</p>	<p>If you intend to lose body weight, what is the preferred option? 如果你想减肥, 什么方法是你的首选?</p> <p>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</p>
<p>D5</p>	<p>If you intend to increase body weight, what are the main factor that motivate you to do so? 如果你想增肥, 是什么主要因素驱使你这样做呢?</p> <p>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</p>
<p>D6</p>	<p>If you intend to increase body weight, what is the preferred option? 如果你想增肥, 什么方法是你的首选?</p> <p>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</p>

<p>MODULE E: SUPPLEMENT INTAKE E组：食用营养补剂</p>	
<p><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></p>	
<p>E1</p>	<p>Are you taking any vitamin supplement/ minerals? 你有在食用维生素/矿物质的补剂吗？</p> <p>A Yes/有 B No/没有</p> <p>(If No, please answer 'I DON'T TAKE SUPPLEMENT' at question E2, E3, danE4 (如果没有，请在E2, E3 和 E4 回答没有食用补剂))</p>
<p>E2</p>	<p>What type of vitamin supplement/ minerals that you usually take? 你在食用什么维生素/矿物质补剂？</p> <p>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</p>
<p>E3</p>	<p>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？</p> <p>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</p>
<p>E4</p>	<p>How often do you take vitamin supplement / minerals? 你如何食用该维生素/矿物质补剂？</p> <p>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</p>
<p>E5</p>	<p>Are you taking any food supplement? 你有在食用食物补剂吗？</p> <p>A Yes/有 B No/没有</p> <p>(If NO, please answer 'I DON'T TAKE SUPPLEMENT' at question E6, E7, danE8) (如果没有，请在E6, E7 和 E8 回答没有食用补剂)</p>

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

MODULE F: NUTRITION AND FOOD LABELLING																			
F 组：食品标签（只限于中学生作答）																			
<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>																			
F1	<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 style="text-align: right;">} (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)</p> <p style="text-align: right;">(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)</p>																		
F2	<p>If you do not read food labels, specify the reason? You may choose more than one answer 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-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Reasons for not reading food labels/ 没有阅读食品标签的原因</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A</td> <td>Small printing font/字体太小</td> </tr> <tr> <td style="text-align: center;">B</td> <td>Do not understand food labels/不明白</td> </tr> <tr> <td style="text-align: center;">C</td> <td>Not interesting/不感兴趣</td> </tr> <tr> <td style="text-align: center;">D</td> <td>Do not know the importance/不懂其重要性</td> </tr> <tr> <td style="text-align: center;">E</td> <td>No time/没有时间</td> </tr> <tr> <td style="text-align: center;">F</td> <td>Already know the information/已经知道相关资料</td> </tr> </tbody> </table>	Reasons for not reading food labels/ 没有阅读食品标签的原因		A	Small printing font/字体太小	B	Do not understand food labels/不明白	C	Not interesting/不感兴趣	D	Do not know the importance/不懂其重要性	E	No time/没有时间	F	Already know the information/已经知道相关资料				
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F3	<p>What kind of information do you read from the food label? You may choose more than one answer. 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-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Nutrition fact information/营养资料</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A</td> <td>Energy content/日能</td> </tr> <tr> <td style="text-align: center;">B</td> <td>Carbohydrate/sugar content/碳水化合物/糖含量</td> </tr> <tr> <td style="text-align: center;">C</td> <td>Fat content/脂肪含量</td> </tr> <tr> <td style="text-align: center;">D</td> <td>Protein content/蛋白质含量</td> </tr> <tr> <td style="text-align: center;">E</td> <td>Salt/ sodium content/钠含量</td> </tr> <tr> <td style="text-align: center;">F</td> <td>Vitamin content/维生素含量</td> </tr> <tr> <td style="text-align: center;">G</td> <td>Mineral content/矿物质含量</td> </tr> <tr> <td style="text-align: center;">H</td> <td>Fiber/纤维</td> </tr> </tbody> </table>	Nutrition fact information/营养资料		A	Energy content/日能	B	Carbohydrate/sugar content/碳水化合物/糖含量	C	Fat content/脂肪含量	D	Protein content/蛋白质含量	E	Salt/ sodium content/钠含量	F	Vitamin content/维生素含量	G	Mineral content/矿物质含量	H	Fiber/纤维
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H	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	
A	Expiry date/有限期
B	Dietary declaration/食品标签
C	Nutrition fact/营养资料
D	Halal logo/清真标志
E	List of Ingredients/成分
F	Storage instruction/存放指示

English/Chinese/Chinese

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

MODULE G : ANTHROPOMETRIC MEASUREMENT												
G组： 人体测量												
<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											
	Refuse to be measured 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											
	Refuse to be measured 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 berkecualan, 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 ✓ 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 <input type="checkbox"/> 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 :

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



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